

JULY–AUGUST 2016

ARMY SUSTAINMENT

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SUSTAINMENT COMMAND RELATIONSHIPS

Inside

- **Optimized Mission Command:
Using Authority and Influence**
- **Sustainment Mission Command
in a Globally Distributed
Environment**
- **Building the Theater Planner
*What happened to the Theater
Logistics Studies Program?***

LOOK
INSIDE



ON THE COVER



Army mariners from the 1099th Transportation Detachment, assigned to the SP4 James A. Loux, Logistics Support Vessel-6, load an Army vehicle onto the ship during a mission to Port Salalah, Oman, on March 6, 2016. (Photo by Sgt. Walter Lowell)

ARMY G-4

2 Optimized Mission Command: Using Authority and Influence

The Army G-4 discusses the importance of using command influence to manage command and support relationships in order to improve readiness.

By Lt. Gen. Gustave "Gus" Perna

FOCUS

4 Building the Theater Planner

What happened to the Theater Logistics Studies Program?

By Maj. Gen. Darrell K. Williams and Ron Jaeckle

FEATURES

20 Sustainment Mission Command in a Globally Distributed Environment

In the Pacific theater, the 8th Theater Sustainment Command applies the principles of mission command through operational influence rather than through direct control.

By Maj. Gen. Edward F. Dorman III

DEPARTMENTS

FEATURES

24 Operational Design for Expeditionary Corps Support

By Brig. Gen. John "Jack" Haley

28 Sustainment Integration: The Foundation of Expeditionary Readiness

By Brig. Gen. Chris Sharpsten

36 The 16th Sustainment Brigade Sustains a Strong Europe

By Maj. Gen. Duane A. Gamble and Col. Michelle M.T. Letcher

42 Improving Army Readiness for the 21st Century: An Interview With Lt. Gen. (Ret.) Robert T. Dail

By Arpi Dilanian and Taiwo Akiwowo

46 The Joint Munitions Command Ensures Ammunition Readiness

By Brig. Gen. Stephen E. Farnen

COMMENTARY

8 The Joint Logistics Enterprise: Machine and Organism

By Christopher R. Paparone, Ph.D., and George L. Topic Jr.

“As sustainment leaders, we need to look past the solid and dashed lines in our task organizations and focus on all the critical relationships required to fight and win.”

Lt. Gen. Gustave "Gus" Perna, Optimized Mission Command: Using Authority and Influence, p. 2

COMMENTARY, continued

- 9 Joint Theater Sustainment Integration Is Within Reach in the Pacific**
By Maj. Gen. Edward F. Dorman III and Maj. Marc C. Vielledent
- 11 Lock-Step Readiness Requires a Well-Rounded Soldier**
By Command Sgt. Maj. James K. Sims
- 12 A Professional Development Tool for Quartermaster Soldiers**
By Command Sgt. Maj. Jimmy J. Sellers
- 13 Redundancies in the General Support Aviation Battalion FSC**
By Capt. Ryan E. Dennison
- 17 Solutions for Expeditionary Sustainment Mission Command**
By Col. David Waddell and Maj. Paul B. Madden

TRAINING & EDUCATION

- 48 Revitalizing the Field Trains Concept**
By Capt. Lehman F. Smith III
- 50 Moving Across Europe for Operation Atlantic Resolve**
By Capt. Alex Brubaker and Sgt. 1st Class Lucas W. Pedigo

TOOLS

- 55 Staying on Track With Military Rail**
By Howard J. Mayhew

HISTORY

- 57 Cutting Loose With Expeditionary Logistics in the Vicksburg Campaign**
By Karl Rubis and Brig. Gen. Kurt J. Ryan



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Optimized Mission Command: Using Authority and Influence

■ By Lt. Gen. Gustave “Gus” Perna



During some of my recent travels, I have encountered engaged leaders who are interested in better defining their command and support relationships within the sustainment community. As with all leaders who are intent on providing quality support to their maneuver commanders, they have valid questions and are striving to drive improvements to Army readiness.

Before I share my thoughts on command and support relationships, I recommend that you review what doctrine says about these roles. I submit that improving readiness is more about mission command and building relationships than it is about changing task organizations.

According to Army Doctrine Publication 6-0, Mission Command, mission command is the “exercise of authority and direction by the commander using mission orders to enable disciplined initiative within the commander’s intent to empower agile and adaptive leaders in the conduct of unified land operations.”

Ultimately it is combining the art of command and the science of con-

trol while successfully enabling and sustaining decisive action. The velocity of instability around the world today, coupled with the urgency to maintain a ready force, is principally addressed through effective mission command. As sustainment leaders, we need to look past the solid and dashed lines in our task organizations and focus on all the critical relationships required to fight and win.

The Maneuver Commander

Some thoughtful feedback from the field suggests establishing a single logistics command and control structure to improve synchronization of sustainment operations. Within this construct, authorities and responsibilities would be functionally separate from the maneuver forces we support.

Advocates for this construct highlight the benefits of logistics commanders maintaining direct involvement in logistics talent management and the synchronization of sustainment efforts across large, robust formations. However, in my opinion, the critical flaw in this approach is the lack of consideration for key tenets of unified land operations: flexibility, adaptability, and synchronization.

A monolithic sustainment architecture, in which tactical and operational sustainment units are not task organized under maneuver elements, would inhibit our ability to anticipate, rapidly respond, and adapt to a changing operational environment or evolving support requirements.

This separation between commands could degrade maneuver commanders’ freedom of action, operational reach, and operational endurance—the exact opposite of why sustainment elements exist.

The success of logistics commanders is inextricably tied to their ability to synchronize and integrate commodi-

ties and services in support of maneuver commanders. In my opinion, this is best accomplished when support elements are integrated with maneuver forces and have clearly established command and support relationships.

As integrated elements, the sustainment community delivers flexibility when plans change, adaptability when operational variables shift, and synchronization at the point of requirement to sustain combat power.

Command Influence

The level of formality in command and support relationships should be commensurate to the level of command. Relationships should be formal at the tactical level and transition to informal at the operational level and higher.

The clarity that commanders seek is not necessarily a question of command but of control. A mentor once told me, “You don’t have to own it to control it.” This statement is succinct and powerful because it says more about what you can and should influence instead of what you are limited to within your command authority. In essence, you do not need to have a solid line to empower agile and adaptive leaders outside of your formation.

According to Army Doctrine Publication 6-22, Army Leadership, “Leaders are expected to extend influence beyond the chain of command, which usually has limited formal authority. This competency widens the responsibility and sphere of influence for a leader. Such influence requires insightful—and possibly nonstandard—methods to influence others.”

I think of that paragraph as command influence versus command authority. Command influence can be applied to facilitate control outside of your formation. This is especially true across the sustainment community,



where commanders should engage vertically and horizontally to influence the continuity of sustainment operations within unified land operations.

Support Relationships

Command influence is executed by building enduring partnerships and relationships. Relationships can be extremely potent and rewarding. However, they cannot be confined to the associations within your operational hierarchy. In order to properly leverage relationships, we have to widen our aperture.

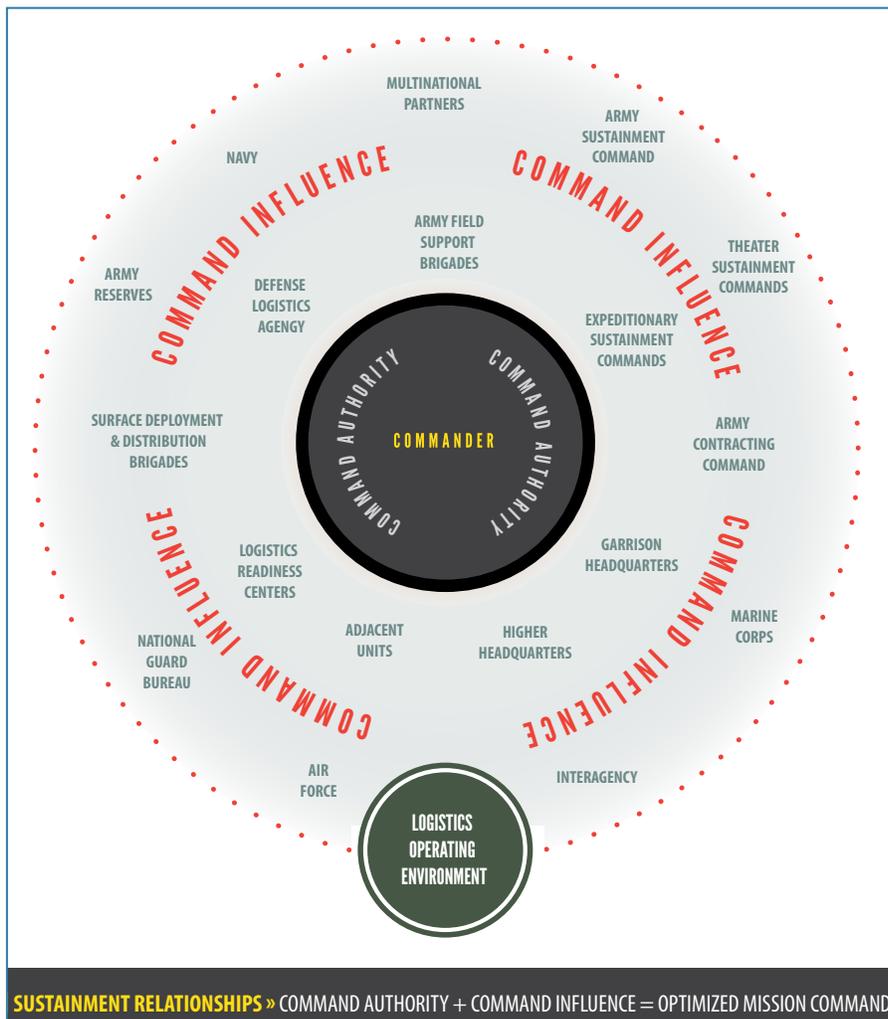
The consensus and support garnered from the combination of agencies focused on mission success is empowering and enriching. This could include establishing partnerships with organizations such as DLA Disposition Services, Army field support brigades, logistics readiness centers, and the Military Surface Deployment and Distribution Command's regional transportation brigades for assistance, support, and subject matter expertise.

In most cases, partnerships and relationships are not built overnight. You cannot surge relationships in times of crisis and expect to get the same results as if you had invested in them over time.

To get beyond the associations of your operational hierarchy, commanders at each echelon should constantly assess the key stakeholders across the operational environment. The frequency of engagement with each stakeholder should be commensurate with the impact that stakeholder has on your unit's ability to accomplish its mission. These engagements should be a routine part of your battle rhythm, executed in training and deployments.

Relationships in Action

When I was the U.S. Forces–Iraq director for logistics from 2009 to 2010, it was the leveraging of relationships, partnerships, and command influence that enabled a successful sustainment transition from Operation Iraqi Freedom to Operation New Dawn. This transition required synchronization of efforts using a combination of boards, bureaus, centers, cells, and work-



ing groups across the myriad Army, joint, interagency, and multinational partners over which I exercised little command authority.

At the end of the day, it was effective collaboration with stakeholders across the theater and our ability to infuse thoughts and concerns to create options, identify risks, and generate decision space for maneuver commanders that set the conditions for the last combat brigade's departure in 2010 and for the United States to assume its reduced role in training, advising, and assisting the government of Iraq.

As you will see in the articles throughout this issue, effective mission command and relationships are critical to our success. We do not need to look for better definitions for our command or support relationships.

The ones highlighted in the attached Command and Support Relationships Hip-Pocket Guide are effective and should be referenced frequently.

What we need is a better understanding of all organizations and capabilities across the total Army. Collectively, this will fully enable what the sustainment enterprise brings to the fight. Through the lens of mission command, command authority, and command influence, ask yourself how we as logistics leaders can leverage all sustainment capabilities inside and outside of our formations to support mission success.

Lt. Gen. Gustave "Gus" Perna is the Army deputy chief of staff, G-4. He oversees policies and procedures used by 270,000 Army logisticians throughout the world.



Building the Theater Planner

What happened to the Theater Logistics Studies Program?

■ By Maj. Gen. Darrell K. Williams and Ron Jaeckle



In 2007, the Combined Arms Support Command (CASCOM) and the Army Logistics Management College (ALMC) established the Theater Logistics Studies Program (TLog) to develop a cadre of logisticians equipped with the operational- and strategic-level tools to plan and conduct logistics operations at the theater level.

For its intended purpose of producing quality logistics professionals, TLog was a resounding success. It met its objectives of building competent operational-level planners, and the field valued its graduates.

Losing TLog

Unfortunately, CASCOM was forced to halt TLog because of a lack of participation. Annual enrollment declined from its zenith of about 80 students in fiscal year 2011 to a low of only 19 students by the first class of fiscal year 2015. Even fewer enrolled in the second class of the year before it was suspended.

The resources required to sustain the course for so few students, in the midst of declining resources, made the case for keeping it untenable. The 19-week course length also made it extremely difficult to educate the great number of theater logisticians the field required in both the active and reserve components.

The demise of TLog created a clear gap in theater logistics planning education, so the Army Logistics University (ALU), ALMC's successor, developed an alternate approach to mitigate its loss.

It would be impossible to completely replicate the TLog experience, so ALU chose not to create a

course that taught the same level of expertise in all aspects of operational sustainment. Instead, ALU has developed the Theater Sustainment Planners Course (TSPC), which will instruct students on only the most essential aspects of theater logistics and sustainment planning.

TSPC

TSPC is a rigorous two-week course designed for Logistics Branch senior captains and majors, but senior noncommissioned officers, warrant officers, and Department of the Army civilians in logistics fields may also attend.

The course has a prerequisite of 40 hours of computer-based instruction. That instruction, which comes from Command and General Staff College modules, covers tactical sustainment, decisive action, defense support of civil authorities, the military decision-making process, strategic and operational sustainment, operational contract support, and joint, interorganizational, and multinational logistics.

Prospective students may enroll in the online instruction by going to the ALU Blackboard page at <https://almc.ellc.learn.army.mil/> and searching for "TSPC Foundations." Having that baseline education will allow students to better comprehend the resident course material, so it is critical that students complete the distance learning first.

The resident course will include case studies, exercises, and nightly readings. It will cover the following topics:

- Sustainment within the operational level of war.

So, what happened to TLog? It gave way to a more feasible alternative that will enable the development of a strategic-level course that is part of a more comprehensive approach.

- Planning methods and tools.
- Sustainment functions at the operational level.
- Theater supply chain and distribution management.
- Integration of strategic partners and operational contract support.
- Reception, staging, and onward movement.

The course will culminate with the development of a theater sustainment plan, which students will brief to a senior sustainment leader. Successful completion of this course will earn the student the skill identifier P1 (theater logistics planner). The military occupational classification and structure change to the P1 qualification is currently in the approval staffing process.

TSPC will help bridge the expertise gap, but operational assignments to theater sustainment commands, expeditionary sustainment commands, and sustainment brigades, along with continual self-development, will be the bedrock to understanding joint logistics doctrine and theater sustainment structures and operations.

In addition, the resident Command and General Staff College program at Fort Leavenworth, Kansas, will include the 72-hour elective Theater Sustainment Planners Program beginning in March 2017. This program will build on foundations in the core curriculum and the Advanced Operations Course and meet the same learning objectives as TSPC.

Students will take the theory and

art elective in the first elective term and the application elective in the second. Successful completion of this program will also earn a student the P1 skill identifier.

Quotas and Branch Transfers

It is important to note that the viability of TSPC, as with all functional courses, rests with the number of requests for seats in the course provided by the field during the structure manning decision review process.

ALU has been working to run pilots and develop the program of instruction. Once the program of instruction is entered into the Army Training Requirements and Resource System, the field will be able to request quotas for fiscal year 2019.



Capt. Andrew Zemany, a student in the Theater Sustainment Planners Course at the Army Logistics University, briefs his concept of sustainment to instructors as part of the course at Fort Lee, Virginia. The concept of sustainment briefing is the final graded exercise of the course and takes place on the final day of class.

As an interim solution, ALU will begin teaching TSPC in lieu of the Reserve Component Theater Sustainment Course (RC TSC) starting in October 2016. Commands with RC TSC quotas for fiscal year 2017 can use them to have personnel attend TSPC instead.

For commands that needed quotas in RC TSC for transfers to the Logistics Branch, there is also an-

other solution. Since the Logistics Branch's inception in 2007, RC TSC has been one of the courses that meets the educational requirements for transfers to the branch.

other solution. Since the Logistics Branch's inception in 2007, RC TSC has been one of the courses that meets the educational requirements for transfers to the branch.

Because RC TSC and TLog are going away, the Support Operations Course (SOC) will meet the need for branch transfers. SOC gives branch transfers a solid foundation in tactical support, which is the starting point for sustainment leader development.

In support of this plan, ALU is also revamping SOC. The first phase, which is distance learning, is being updated and tailored to meet the branch transfer education requirement. Implementation is expected to begin on Oct. 1, 2016.

The second phase, which is resident at ALU and conducted through mobile training teams, has also been revised. Together, these two phases will provide a foundation in multifunctional logistics at the tactical level, support operations, and concept of support development.

ALU will work with commands that need additional quotas in SOC to meet branch transfer requirements that would have been

ELog Studies

As valuable as TLog was for operational planners, by design it did not comprehensively address enterprise and strategic logistics. Those higher order concepts were taught in the old Logistics Executive Development Course, which was the

only course that ALMC offered with a comprehensive approach at the strategic level.

To fill this gap, ALU will use the institutional resources affiliated with TLog to develop a new course focused on the strategic and enterprise levels. The Enterprise Logistics Studies Program (ELog Studies) will promote complex problem analysis and solution development for midgrade to executive logistics professionals, thereby growing a pool of qualified military and civilian candidates for the most senior levels of leadership.

The ELog Studies target audience will primarily be civilian logistics management specialists in the ranks of GS-12 through GS-14 and midgrade through senior military personnel working in or preparing for positions at the enterprise level (for example, at the Army Materiel Command, Defense Logistics Agency, or U.S. Transportation Command).

The course is still under development, but the current plan is for a rigorous five-week, graduate-level resident course to be conducted at ALU.

The ELog Studies curriculum will give students the tools to develop comprehensive analyses and potential solutions. It will prepare them to provide advice on enterprise-level policy, readiness, and decision-making.

As currently planned, the ELog Studies course will include three modules over the five-week period: Enterprise Logistics Intelligence, Logistics and National Defense, and the Defense and Army Logistics Enterprise. Data analytics and executive communication skills will be integrated throughout the course.

ALU projects that it will have five ELog Studies classes per year with 16 students per class, depending on field requests.

So, what happened to TLog? It gave way to a more feasible alternative that will enable the development of a strategic-level course that is part of a more comprehensive approach. In short, the new approach is this:

- Students will take TSPC for an educational foundation in sustainment at the theater level and to acquire the skill identifier P1.
- Students will take SOC to transfer to the Logistics Branch.
- Students will take ELog Studies to learn about logistics at the strategic level.

ALU believes this approach will overcome the educational shortfalls the Army has recently experienced and will best meet the needs of the field.

Maj. Gen. Darrell K. Williams is the commanding general of the Combined Arms Support Command and Sustainment Center of Excellence at Fort Lee, Virginia.

Ron Jaeckle is the dean of the Army Logistics University's Logistics Leader College at Fort Lee, Virginia.

The ELog Studies curriculum will give students the tools to develop comprehensive analyses and potential solutions.

“100 YEARS OF FORT LEE HISTORY”

Centennial Writing Program

Celebrating the anniversary of the establishment of Camp Lee, Virginia.



The year 2017 marks the 100th anniversary of the establishment of Camp Lee, Virginia. As part of the centennial celebration, *Army Sustainment* and the Combined Arms Support Command

(CASCOM) office

of the command historian are soliciting articles on Army history relative to the theme “100 Years of Fort Lee History.”

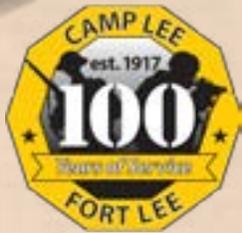
The intent is to publish well-researched, high-quality articles related to Army logistics and sustainment topics from World War I to the present. The articles will be reviewed by the CASCOM historian staff, and the best will be selected for publica-

tion in *Army Sustainment* in 2017. If enough articles are received, the historian’s office plans to publish an anthology of the submissions in 2018.

The articles should follow the submission guidelines listed on the *Army Sustainment* website at <http://www.alu.army.mil/alog/submissions.html>.

Articles may be submitted at any time. The deadline for publication in the January–February 2017 issue is Sept. 1, 2016. The historian’s office will accept articles through 2017. Authors are encouraged to consult with the CASCOM command historian on proposed topics.

For more information, email Dr. Ken Finlayson at kenneth.finlayson.civ@mail.mil or call (804) 734-1921.



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The Joint Logistics Enterprise: Machine and Organism

This article, the first in a series of three about how logisticians can view the joint logistics enterprise, discusses the enterprise as both a machine and a complex organism.

■ By Christopher R. Paparone, Ph.D., and George L. Topic Jr.

One of the most intriguing organizing constructs to emerge in the past several years within the military logistics community is the joint logistics enterprise (JLEnt). The recently published Joint Concept for Logistics and the latest Joint Publication 4-0, Joint Logistics, both discuss the JLEnt to give context to the art and science of military logistics.

The JLEnt may be described as the relationships among thousands of logistics providers across the globe, including military organizations that interact in a milieu with other entities, processes, and places. While it is impossible to physically see the entire JLEnt in action, there are multiple ways to visualize how it works.

We offer here and in our next two articles several visions of the JLEnt that may provide military logisticians with compelling insight into its workings. We adapt our thoughts principally from Gareth Morgan's 2007 seminal book *Images of Organization*.

The Machine

While the JLEnt as a named concept is relatively new, it has always been in existence. Our traditional military way of perceiving and managing the JLEnt has been, for the most part, as a machine—something that can be designed, engineered, controlled, and maintained, such as an automobile. In some ways this image is reasonable and effective for logistics support operations.

Indeed, the Department of Defense has spent large sums on enterprise resource planning systems to help con-

trol the performance of our logistics machines. Some aspects of military logistics can be systematically “steered,” guided by mechanical concepts such as “organizational alignment” and “integration and synchronization of functions,” and monitored by a “dashboard” array of performance indicators.

While this machine metaphor is quite useful for solving many problems, especially in applying systems engineering science, there are other useful ways to envision what the JLEnt is, how it works, and how it can be led.

The Organism

Drawing from Morgan, our first alternative to the machine image is that of a complex adaptive system. In this view, a logistician would imagine that the JLEnt is like an organism responding to an ever changing ecosystem (the strategic environment).

With this image, logisticians approach the JLEnt by acknowledging interrelationships. This is similar to the way a medical doctor diagnoses and treats a patient whose health depends on the synergy of the cardiovascular, lymphatic, skeletal, and other systems.

In an even larger scope, we can imagine how the JLEnt works as would a biologist who studies the relationships among species in a natural habitat. These relationships demonstrate the complex interdependencies of food chains, complete with the uncertainties of weather, terrain, and other factors.

In the past 20 years, many articles in highly regarded journals have highlighted research on the organic

character and attributes of civilian logistics organizations. The key characteristics of supply networks that are seen as complex adaptive systems include less reliance on hierarchical control and more on lateral relationship building, the acknowledgment of complex interdependencies that cannot be analyzed simply as component parts, and adaptation while interacting as a “living” network.

The future is going to require more complex and creative views to manage logistics. Hence, the community should not settle for a single view of the JLEnt. The logistician leader who can envision the JLEnt from multiple views will be better able to deal with complexity and uncertainty when faced with novel situations.

Such logisticians are comfortable with leading the traditional systems-engineering approach to problem solving (envisioning the JLEnt as a machine) and also thrive by investing in alternative frames of mind.

Our next two columns will present images of the JLEnt as a political system (with entities that have competing interests and shifting power relationships) and as a holographic-like “brain” (a learning system).

Christopher R. Paparone, Ph.D., is a dean at the Army Logistics University at Fort Lee, Virginia.

George L. Topic Jr. is the vice director of the Center for Joint and Strategic Logistics at Fort McNair, Washington, D.C.



To build joint sustainment coordination capability, senior enlisted leaders from the Army, Air Force, Navy, and Coast Guard are briefed on March 11, 2016, about the capabilities of the 8th Theater Sustainment Command's Logistical Support Vessel-4, the Lt. Gen. William B. Bunker at Joint Base Pearl Harbor-Hickam, Hawaii. (Photo by Sgt. Jon Heinrich)

Joint Theater Sustainment Integration Is Within Reach in the Pacific

■ By Maj. Gen. Edward F. Dorman III and Maj. Marc C. Vielledent

Army power is joint power. As a concept, joint sustainment is not a new idea; however, implementing and executing it is routinely not performed well. Throughout the years, a joint sustainment concept has gained support but has also received criticism based on a variety of factors ranging from faulty organizational constructs and span of control problems to budget constraints and a recurring lack of political will.

The future force is being built with a greater emphasis on joint interdependence, synergy, and cross-service solutions. The Pacific theater is the perfect battle lab to test the potential of such solutions, even if these solutions remain primarily condition-based.

The Time Is Now

Considering the lack of predictability in both resourcing and the Pacific operational environment, there

will never be a better time than now to examine the possibility of joint theater sustainment integration.

Logistics must happen first or maneuver cannot occur. But logistics cannot occur without assured access to the global commons and the ability to gain and maintain access to denied areas. If we wait to test the viability of joint theater sustainment during some notional D-Day in the future, it will be too late.

Integrating what we call joint, interorganizational, multinational, and commercially-enabled (JIM-C) partners into sustainment organizations could flatten mission command processes, which would, in turn, allow a joint force commander (JFC) to combine elements of both national and regional power. As the only two-star logistics headquarters

during these meetings, they did reach some middle ground. They agreed that greater visibility of theater-level sustainment practices and processes is necessary—specifically in the Pacific theater.

Because the leaders faced mutual resourcing shortfalls, they shared the sentiment that they should collectively look at how the Pacific sustain-

ment solutions to strengthen the land component and continually looking for innovative ways to repurpose capabilities for the Pacific JFCs.

The collective power of a joint sustainment headquarters is undoubtedly greater than the sum of what individual components can currently bring to bear. With this in mind, the TSC is the most viable sustainment headquarters in the Pacific to spearhead efforts toward joint theater sustainment integration.

The collective power of a joint sustainment headquarters is undoubtedly greater than the sum of what individual components can currently bring to bear.

in the Pacific, the 8th Theater Sustainment Command (TSC) is best postured to lead this effort.

Reaching Common Ground

While few disagree that the effective delivery of logistics is crucial to the JFC, the challenge lies in reaching a common agreement and understanding of the purpose of joint logistics. Joint logistics in the Pacific is necessary because the services seldom have sufficient capabilities to independently support the U.S. Pacific Command (PACOM) and its subordinate unified commands. The sum of pooled resources and efforts always outweighs any individual service's capability or performance.

From October to December 2015, the 8th TSC conducted engagements and office calls with its Pacific sustainment partners and sister-service leaders. These engagements started a conversation about the potential for developing a joint theater sustainment concept to support not only the Army of the Pacific but also the entire joint force. This joint theater sustainment concept centers on a component that could coordinate, synchronize, and integrate sustainment organizations, functions, and processes.

While participants did not agree on every detail of joint sustainment

ment community precisely responds and conducts sustainment integration. A greater unity of effort through PACOM's boards, bureaus, centers, cells, and working groups may possibly be part of the right solution at the right time.

Designating an Integrator

Routinely traveling across 16 time zones has forced Pacific-theater sustainment organizations, including the 8th TSC, to rely on the immense capabilities of allies' and partners' commercial assets. While these capabilities have recently become a viable option, this solution lacks a primary synchronizer and integrator.

Designating a joint theater sustainment coordinating component command would provide additional options, even if only on a conditional basis, to enhance support for PACOM, U.S. Forces Korea, and U.S. Forces Japan. Effective joint logistics depends on clear roles and authorities coupled with strong relationships among the global stakeholders within the joint logistics domain.

As the senior sustainment headquarters in the Pacific theater and as an Army service component command theater enabling command, the 8th TSC is already charged with providing responsive, redundant, and

The 8th TSC recognizes that a joint theater sustainment concept would offset the potential for JFCs to become encumbered with uncoordinated logistics and disconnected, ambiguous messaging regarding sustainment priorities. By offering to serve as a joint theater sustainment coordinating component command, the 8th TSC could help fill this void.

Maj. Gen. Edward F. Dorman III is the commanding general of the 8th Theater Sustainment Command at Fort Shafter, Hawaii. He was commissioned as the distinguished military graduate of Tennessee Technical University in 1983. He holds a master's degree in German language and literature from Middlebury College and the Johannes-Gutenberg University in Mainz, Germany, and a master's degree in national resource strategy from the National Defense University. He is a graduate of the Infantry Officer Basic and Advanced Courses, the Command and General Staff College, and the Industrial College of the Armed Forces.

Maj. Marc C. Vielledent is the strategist for the 8th Theater Sustainment Command. He holds a bachelor's degree in American legal studies from the United States Military Academy and a master's degree in strategic public relations from the University of Southern California. He is a graduate of the Field Artillery Officer Basic and Advanced Courses, the Command and General Staff College, and the Basic Strategic Arts Program.

Lock-Step Readiness Requires a Well-Rounded Soldier

Training sustainment Soldiers, maintaining equipment are equal parts of readiness.

■ By Command Sgt. Maj. James K. Sims

Throughout my travels as the command sergeant major of the Army Materiel Command, I have seen great excitement as units tackle the business of re-establishing systems across our various posts, camps, and stations.

To win in a complex world, Army logisticians must be able to provide the timely and consistent support our Army expects and deserves. The ability to install, operate, and maintain each piece of equipment within an organization is a critical component of materiel readiness.

Equipment readiness is a lock-step process that starts at home stations and continues through deployments. Whether they are deploying to a theater for contingency operations or to one of the combat training centers, sustainment Soldiers must always strive to maintain the highest level of readiness.

Readiness extends well beyond maintaining our equipment. Every Soldier must be both physically and mentally prepared. This means that every sustainment Soldier must be physically fit and technically proficient.

Logisticians have the unique challenge of blending their everyday responsibilities with the ability to employ their expertise in the tactical, operational, and strategic environments. Diligent training prepares them to lead convoys and call for air, medical, and fire support as necessary.

Responsiveness

In order to ensure responsiveness, sustainment Soldiers must be highly adaptable subject matter experts. They must be able to anticipate needs, accumulate resources, and provide timely and accurate support.

Each sustainment military occupational specialty plays an integral role in readiness. For example, transportation coordinators must identify the most efficient mode of transportation through rail, sea, or ground for a specified mission, know the deployment requirements for the installation, and be able to communicate those requirements to the units they support.

A tracked vehicle repairer must correctly identify deficiencies, conduct services to standard, and install repair parts. And an automated logistical specialist must be proficient in the Global Combat Support System—Army and work closely with maintainers to ensure the correct parts are ordered and received.

Readiness

Part of building and sustaining readiness is understanding the process. To do so, we must leverage sustainment training to ensure all Soldiers understand their roles and comprehend the big picture of how sustainment forces are aligned, from the forward support company to the theater sustainment command. Sustainers should also know what strategic assets are available to support their missions.

The Army Materiel Command has a multitude of resources available to every unit. It delivers solutions for contracting, transportation, research and development, and life-cycle management from the factory to the foxhole.

Most Soldiers interact with Army field support brigades and battalions that provide training, maintenance, and supply parts solutions through brigade logistics support teams or logistics assistance representatives. These assets provide sustainment Soldiers and units access to the entire materiel command enterprise and its solutions for operational readiness.

Logisticians executing sustainment operations are critical enablers to readiness across our Army. The development of our Soldiers, coupled with investment in their abilities to install, operate, and maintain equipment, will ensure that the Army remains ready during this transition to sustainable readiness.

Command Sgt. Maj. James K. Sims is the command sergeant major of the Army Materiel Command at Redstone Arsenal, Alabama. He has held a variety of leadership positions throughout his career, ranging from supply specialist to command sergeant major. He has a bachelor's degree in business management from Trident University International.

A Professional Development Tool for Quartermaster Soldiers

The quartermaster community is developing and refining career maps to better equip Soldiers to manage their careers.

■ By Command Sgt. Maj. Jimmy J. Sellers

Part of being a good steward of your profession is knowing which critical courses and broadening opportunities exist within your military occupational specialty. Each of us faces the same questions during our military careers, such as how can I take charge of my career? What knowledge, skill sets, core competency training, and mission-imperative schools should I seek to ensure I have a successful career?

Quartermaster Career Maps

The answer to these questions can be found on the Quartermaster Professional Development Models webpage. This page contains newly designed career management field (CMF) 92 career maps for quartermaster Soldiers.

These career maps serve as tools to provide a standardized framework, career-enhancing information, and guidance on assignments, education, and training opportunities. They help leaders, including career branch and proponent managers, effectively counsel subordinates to make decisions that meet organizational requirements and the needs of the Army. Most importantly, the CMF 92 maps help Soldiers make career choices based on their individual talents, needs, and aspirations.

The CMF 92 career maps encompass five important lines of effort: military life cycle, education, assignment/experience, credentialing/experience, and self-development.



These lines of effort are critical to a well-balanced career.

The Vision

The Quartermaster School's proponent office, in concert with leaders in the field, has been instrumental in developing the career maps that will assist Soldiers in making informed and educated career decisions.

Although in the early stages of design, the Quartermaster Professional Development Models website already contains useful hyperlinks that enable Soldiers to access other websites and developmental reading products that will aid them in enhancing their careers.

It is our vision that the career maps will correlate with the Army Career Tracker. This will allow Soldiers to compare their careers and training to others within their occupations.

Soldiers will have immediate access to the most up-to-date information. For example, they will be

able to obtain relevant information on duty positions such as enlisted aide assignments, training with industry opportunities, and advanced individual training platoon sergeant and instructor positions.

Each of us is personally responsible for our own professional development. The Quartermaster Professional Development Models webpage can help Soldiers achieve a successful military career by providing career-enhancing information in one place.

The recipe for a successful career includes a good mix of institutional and functional training courses as well as challenging operational and broadening assignments. Soldiers must maximize every opportunity for self-development while simultaneously performing well in every assignment.

Command Sgt. Maj. Jimmy J. Sellers is the Quartermaster regimental command sergeant major. He has served in various airborne and logistics assignments. He is a member of the Sergeant Audie Murphy Club and holds a bachelor's degree in business management.

The Quartermaster Professional Development Models can be found at:
http://www.quartermaster.army.mil/oqmg/enlisted_proponency/ep_professional_development.html



A Black Hawk helicopter crew fighting forest fires in the Black Forest area just north of Colorado Springs, Colorado, departs the refueling point on June 12, 2013. The point was set up by the distribution platoon of a general support aviation battalion's forward support company. (Photo by Ray McCoy)

Redundancies in the General Support Aviation Battalion FSC

The general aviation support battalion forward support company is typically co-located with other logistics assets, causing redundancies in field feeding, petroleum distribution, and ground maintenance.

■ By Capt. Ryan E. Dennison

Redundancies have been created in the sustainment support structure to cover worst-case scenarios. However, a leaner sustainment footprint may be worth considering.

One unit with overlapping logistics support is the general support aviation battalion (GSAB) forward support company (FSC). Because

of how the GSAB is employed, the FSC is almost always co-located in an area of operations with other logistics elements. This overlap creates redundancies in field feeding, petroleum distribution, and ground maintenance.

While a robust GSAB FSC can be a force multiplier when used to its fullest extent, the current operational

environment and its constraints leave the FSC underutilized. Thus, the FSC could be downsized to a platoon-sized element that falls under the headquarters and headquarters company. (See figure 1 on page 14.)

The GSAB Structure

The mission of the GSAB is to provide aerial command and control

support, limited air assault capability, air movement, and medevac support for the assigned area of operations. The GSAB consists of seven companies: the headquarters and headquarters company, command aviation company, heavy helicopter company, medevac company, aviation maintenance company, air traffic services (ATS) company, and the FSC.

The GSAB is a versatile unit that can easily be split for decentralized operations. Each flight company with the exception of the command aviation company is task-organized with the ability to be split into three elements for separate operations. The mission of the command aviation company necessitates that it be located with the brigade and battalion headquarters.

The air traffic services and aviation maintenance main elements are located with the headquarters but have small teams that support forward operations as the mission dictates.

The FSC is intended to be utilized at forward locations, while the aviation support battalion's (ASB's) headquarters support company and distribution company provide sup-

port at the headquarters location.

Because of the financial and force multiplier value of aviation assets, the main element of the aviation brigade and GSAB are typically located at the most secure locations within the area of operations. Any elements that are pushed forward should still be located with battalion-sized combat units. A forward support medevac team could possibly be emplaced at a company-sized location.

Field Feeding

The GSAB is authorized a field feeding section that consists of 11 enlisted Soldiers, a containerized kitchen, and two assault kitchens. By doctrine, the field feeding section can support one consolidated and two remote locations.

Looking at the structure of the GSAB as a whole, this support structure makes sense; through task organization, the GSAB can operate at three separate locations, one consolidated and two remote. The containerized kitchen can support up to 800 Soldiers per meal, and the assault kitchen can support a company-sized element per meal.

Each remote location is run by two culinary specialists. The consolidated location is run by the remaining nine culinary specialists. When you look at the numbers, the manning is appropriate to sustain long-term operations.

The overlap in field feeding personnel occurs because of where the aviation assets are emplaced. The field feeding structure makes sense only if the GSAB were to deploy without external support. However, the main element of the GSAB will most likely be co-located with the brigade and, thus, the ASB. With an ASB at the location, a combat brigade and various support elements with their own field feeding sections most likely will also be present.

The field feeding structure within the theater aviation brigade contains 19 ASB Soldiers in addition to the FSC field feeding sections when the attack and assault battalions are co-located with the ASB. This simply accounts for the military personnel assigned to the aviation units.

Locations that have an aviation brigade are likely to have a consolidated dining facility augmented by

Proposed FSC Manning Changes															
	Main Location	Remote Location 1	Remote Location 2												
Field Feeding	Covered by ASB or Consolidated Dining Facility	1 - E-6 92G NCOIC 1 - E-5 92G NCO 1 - E-4 92G Cook	1 - E-5 92G NCO 1 - E-4 92G Cook												
Distribution	1 - E-7 92F NCOIC 1 - E-5 92F NCO 4 - E-4 92F Fuel Handlers	1 - E-6 92F NCOIC 2 - E-5 92F NCO 7 - E-4 92F Fuel Handlers	1 - E-6 92F NCOIC 2 - E-5 92F NCO 7 - E-4 92F Fuel Handlers												
Maintenance	1 - 91SA Warrant 2 - E-4 92A Specialist 1 - E-7 91B NCOIC 1 - E-6 91B NCO 2 - E-4 91B Mechanic 1 - E-5 91C NCO 1 - E-4 91C Mechanic	1 - E-5 91B NCOIC 1 - E-4 91B Mechanic 1 - E-4 91D Mechanic	1 - E-5 91B NCOIC 1 - E-4 91B Mechanic 1 - E-4 91D Mechanic												
<p>Legend:</p> <table border="0"> <tr> <td>915A = Automotive maintenance warrant officer</td> <td>92A = Automated logistical specialist</td> <td>FSC = Forward support company</td> </tr> <tr> <td>91B = Wheeled vehicle mechanic</td> <td>92F = Petroleum supply specialist</td> <td>MOS = Military occupational specialty</td> </tr> <tr> <td>91C = Utilities equipment repairer</td> <td>92G = Culinary specialist</td> <td>NCO = Noncommissioned officer</td> </tr> <tr> <td>91D = Power generation equipment repairer</td> <td>ASB = Aviation support battalion</td> <td>NCOIC = Noncommissioned officer-in-charge</td> </tr> </table>				915A = Automotive maintenance warrant officer	92A = Automated logistical specialist	FSC = Forward support company	91B = Wheeled vehicle mechanic	92F = Petroleum supply specialist	MOS = Military occupational specialty	91C = Utilities equipment repairer	92G = Culinary specialist	NCO = Noncommissioned officer	91D = Power generation equipment repairer	ASB = Aviation support battalion	NCOIC = Noncommissioned officer-in-charge
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Figure 1. This figure details the general support aviation battalion forward support company's structure with the author's proposed changes to reduce personnel.

local contractors, leaving aviation brigade culinary specialists to execute non-MOS-related duties for the duration of their deployment.

In many remote locations, the forward aviation element can receive food from the land-owning field feeding section or an internal assault kitchen operated by two culinary specialist Soldiers.

Considering this information, the field feeding section of the GSAB FSC can be downsized to five personnel: one staff sergeant, two sergeants, and two lower enlisted Soldiers. This structure would allow the field feeding section to support remote locations or augment the main element location if military personnel are providing sustenance.

Attack or assault battalions will also likely have assets co-located at the remote location. The two GSAB FSC culinary specialists can feed the entire remote element, freeing up the attack or assault battalion culinary specialists to augment the main location if required.

Petroleum Distribution

The GSAB FSC distribution section is authorized 50 Soldiers, two advanced aviation forward area refueling systems, 22 heavy expanded-mobility tactical truck (HEMTT) fuel tankers, six trailer-mounted modular fuel systems, and five HEMTT tanker aviation refueling system.

The class III (petroleum, oils, and lubricants) section is split into heavy, utility, and air ambulance sections. But, in reality, petroleum supply specialists within the GSAB can fuel any aircraft at their assigned location regardless of their section. Having personnel fuel only specific aircraft would be extremely inefficient and a poor use of assets.

The ASB distribution company has a class III section of 28 personnel whose mission is to receive, store, distribute, and issue fuel. The distribution company also has an aircraft refueling section of 11 personnel. An attack or assault battalion has a distribution section of more than 30



A general support aviation battalion's distribution platoon from Fort Carson, Colorado, set up a refueling point at the U.S. Air Force Academy Airfield in Colorado Springs to refuel Chinook and Black Hawk helicopters fighting forest fires just north of the location on June 12, 2013. (Photo by Ray McCoy)

petroleum supply specialists.

FARP operations. The ASB distribution company's class III section is responsible for forward arming and refueling point (FARP) operations at the main battalion and brigade location. This structure leaves 50 petroleum supply specialists available for the GSAB's remote locations.

FARP manning is dictated by mission, enemy, terrain and weather, troops and support available, time available, and civil considerations. However, the most likely scenario can be used to determine manning while allowing for short-duration surge capabilities.

During normal operations, a two- or four-point FARP can be manned by five personnel or a total of 10 personnel for 24-hour operations. Hot FARP can be used exclusively, or cold fuel can be used for steady-state operations without requiring

any additional personnel.

A high operating tempo would require a surge to more than five personnel working at the same time for short durations. If fast-paced operations are expected for an extended amount of time, the location should be augmented ahead of time. Augmentees can come from the ASB, assault or attack battalion FSCs, or internally. This type of manning would be expected at locations with multiple airframes.

In locations with a forward support medevac team, five personnel can provide 24-hour, on-call coverage since the operating tempo should not be as high.

The GSAB FSC can meet most theater aviation brigade fuel-handling requirements with 26 Soldiers. This would allow for the FSC to man two remote locations for 24/7 operations and provide surge capability or cover-

age of a jump FARP.

Any additional manning requirements can be filled through augmentation from the ASB or the attack or assault battalion FSCs. With the addition of attack and assault battalion FSC personnel, the aviation brigade should be able to sustain at least six remote FARPs 24/7.

Again, this analysis only accounts for military personnel. In many instances, contractors are brought in to provide cold fuel at robust operating locations. When these contracts are put into place, fuel-handling personnel conduct non-MOS-related duties.

Bulk fuel delivery. The ASB, the combat sustainment support battalion (CSSB), or contractors should deliver bulk fuel. All deliveries should be direct and minimize handoff, even at remote FARPs. This would allow the GSAB to reduce the number of HEMTT fuel tankers required. The CSSB could line-haul HEMTT fuel trucks to the remote locations if FSC internal personnel were not available to conduct the convoy. An alternative would be replace HEMTT fuel trucks with fuel bladders.

Ground Maintenance

The GSAB FSC maintenance section is authorized 47 personnel and a complete wheeled-vehicle repair package to include standard automotive tool sets, a forward repair system, and contact trucks. Specialty repair personnel are also available to repair small arms, night-vision devices, communications equipment, and other unit equipment. The ASB has a robust maintenance section of 83 personnel. The assault and attack battalion FSCs have maintenance sections similar to that of the GSAB FSC.

Wheeled vehicles. The flight companies have few wheeled vehicles. Most of the battalion's wheeled vehicles are in the FSC, the aviation maintenance company, and the headquarters element. The number of GSAB vehicles can be greatly reduced, which would allow for the maintenance section to be downsized.

The GSAB would maintain flight-line vehicles and a small element of medium tactical vehicles (MTVs) and humvees. This reduction would allow the FSC to reduce its wheeled-vehicle capability accordingly. Fewer wheeled vehicles would also mean fewer mechanics would be needed.

The GSAB can use its heavy-lift assets to self-deploy equipment, work with the local CSSB to line-haul large amounts of equipment, or have the Air Force airlift equipment to the area of operations.

Specialty repair. Specialty repair personnel reside in both the GSAB and the ASB. Their skill sets are used for low-priority equipment that can be sent to the rear for repair. These GSAB personnel would only be used to their fullest extent if the battalion is deployed as a standalone element. In that case, the GSAB could rely on the local CSSB or other support elements for these repairs.

Heavy assets. The GSAB FSC maintenance capabilities should be tailored to support a main location and two remote locations. The remote locations can use an MTV and a contact truck to support forward maintenance operations. I propose that this element consist of two wheeled-vehicle mechanics and a generator mechanic.

A wrecker would not be needed because the element would not be expected to convoy. Anything outside of the element's ability to fix could be line-hauled by the local ground element back to the FSC's main maintenance location or directly to the ASB.

I also propose placing a palletized load system with a forward repair system, an MTV, and a wrecker at the main FSC maintenance location and staffing this location with a maintenance warrant officer, two production control specialists, four wheeled-vehicle mechanics, and two generator mechanics. Any work that the section could not complete itself in a timely manner would be sent to the ASB maintenance section.

Convoy Security

Maintaining the current strength of the GSAB FSCs can be justified if the units become tactically self-sufficient. Currently, the GSAB FSC does not have the convoy protection platforms needed to successfully provide logistics convoy security. If the FSC had convoy protection platforms, then it would not have to rely on outside units for convoy security.

Convoy protection platforms would also enable the FSC to fill the GSAB's downed aircraft recovery team needs. This would allow the aviation maintenance company to focus on maintenance while the downed aircraft recovery team and its convoy security stayed within the battalion.

Doctrinally, these changes would not be difficult to implement. The hardest part would be obtaining convoy protection platforms.

Redundancy is necessary because operational environments are always changing. Today's logistics requirements may not be the same as tomorrow's requirements, so having a robust logistics structure makes sense and should be maintained. Support units must ensure they can provide the tactical support that contractors cannot to maintain relevance during times when redundancy and reliance on contractors are high.

If changes to the personnel structure of the GSAB FSC must be made, doing it in the ways described in this article would ensure the required support capabilities are maintained. In this case, tactical capability would have to be provided by outside resources and units.

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U.S. and NATO paratroopers with Task Force Devil, a multinational force led by the 1st Brigade Combat Team, 82nd Airborne Division, conduct pre-mission combined training on Aug. 21, 2015, in Baumholder, Germany. (Photo by Erich Backes)

Solutions for Expeditionary Sustainment Mission Command

The 3rd Expeditionary Sustainment Command trained on providing an expeditionary mission command headquarters by validating its early-entry command post and deploying to Swift Response 15.

■ By Col. David Waddell and Maj. Paul B. Madden

Power projection is the ability of a nation to apply elements of national power to rapidly and effectively deploy and sustain forces in and from multiple dispersed locations. It allows the nation to respond to crises, contribute to deterrence, and enhance regional stability.

By nature of its design, the expeditionary sustainment command (ESC) is the sustainment force of choice when a forward operational command presence is required to provide reach for the theater sustainment command (TSC). As described in Army Techniques Publication 4-94,

Theater Sustainment Command, the forward deployment of the ESC facilitates agile and responsive support by placing it in relative proximity of the supported force and its operational environment.

Continued rotational deployments over many years, however, have limit-

ed ESC operations to fixed facilities. This has atrophied the unit's expeditionary capability and its headquarters' responsiveness.

After returning from a deployment in early 2015, the 3rd ESC headquarters developed a new training path to validate and certify an early-entry command post (EECP). That path culminated in a deployment to Europe in August 2015 as part of Swift Response 15.

The EECP

The EECP is the initial deploying headquarters element of the ESC. The command post is modular and manned according to the mission requirements of the TSC, combined joint task force, or corps. Designed to provide operational-level sustainment mission command, the EECP benefits from these key capabilities:

- A rapidly deployable forward mission command element.
- An initial strategic and operational sustainment operations capability.
- The ability to respond to unified land operations, humanitarian assistance and disaster relief operations, and defense support of civil authorities.
- The ability to be an operational sustainment mission command post for the Global Response Force.

The ESC may also use the EECP to plan, prepare, and execute theater opening operations. The ESC EECP extends the operational reach for the TSC and, if required, may form the basis of an expeditionary joint sustainment command.

Swift Response 15

As the aligned, operational sustainment headquarters of the XVIII Airborne Corps and the Global Response Force, the 3rd ESC proceeded down an aggressive training path to reach the culminating training event, Swift Response 15.

Built around a multinational airborne joint forcible-entry operation, Swift Response 15 was recognized

as the Army's largest combined airborne training event in Europe since the end of the Cold War. About 4,800 service members from 11 NATO nations took part in various crisis response exercises across four European countries.

The 3rd ESC deployed the EECP to Rhine Ordnance Barracks in Kaiserslautern, Germany, in early August 2015. Serving as the forward operational command post for the 21st TSC and directly supporting Combined Joint Task Force Dragon, the ESC was given an area of responsibility encompassing portions of Germany, Italy, Hungary, Romania, and Bulgaria. The ESC was charged with these responsibilities:

- Maintain mission command of two logistics task forces comprising Soldiers from the 16th Sustainment Brigade.
- Establish the intermediate staging base at the Baumholder Training Area, Germany.
- Manage the deployment processing centers at Rhine Ordnance Barracks and Nuremberg, Germany.
- Provide the combined joint task force sustainment common operational picture.
- Integrate partner nations.
- Maintain strategic reach back to the main command posts of the XVIII Airborne Corps, the 21st TSC, and the 3rd ESC.

Using the ESC in these ways established centralized mission command of supporting sustainment forces and enabled the TSC to remain focused on broader strategic sustainment requirements across Europe. This was the first time that an ESC had deployed to Europe in support of the U.S. European Command or under the mission command of the 21st TSC.

Lessons Learned

In December 2015, the 3rd ESC conducted a reverse collection and analysis team presentation to the Combined Arms Support Command

commander and his staff. Observations, insights, and lessons learned from Swift Response 15 were shared with the sustainment community, and a way forward was established to increase the expeditionary capability of all ESCs.

Signal support shortfalls. ESCs are limited in their expeditionary capability because of a lack of organic signal assets.

The ESC modified table of organization and equipment does not provide adequate signal support to enable current sustainment command, control, communications, and computer operations in an austere environment. It also does not take into account the ESC's intrinsic administrative, maintenance, and logistics management system requirements.

Strategic enablers. Early in the execution of Swift Response 15, strategic stakeholders from across the U.S. European Command were pulled into the EECP to synchronize sustainment operations; this proved to be a game changer.

Centralized sustainment mission command is reinforced when the ESC command post is the forward point of synchronization. Maneuver and sustainment planners quickly realized that the ESC was the point of entry for sustainment issues and challenges.

Educating the maneuver force. It was clear from the initial planning conference and through the exercise that maneuver leaders and their staffs, from the Army service component command down to the brigade combat team, do not clearly understand the roles and capabilities of an ESC. This might stem from the limited doctrine available for ESC operations.

The roles and responsibilities of the ESC continue to be refined, but meanwhile, the Army as a whole should seek opportunities to exercise centralized sustainment mission command with TSC and ESC involvement. It is also important to include the 10 Army Reserve and National Guard ESCs in these



Jumpmasters with 1st Brigade Combat Team, 82nd Airborne Division, provide new equipment training to Polish paratroopers with Task Force Devil on Aug. 22, 2015, in Baumholder, Germany. The task force executed Swift Response 15, a multinational training exercise, from Aug. 15 to Sept. 17, 2015. (Photo by Capt. Jonathon M. Lewis)

training opportunities.

Supporting the Global Response Force. In order for the Global Response Force to execute its missions, such as the joint forcible-entry operations that were replicated during Swift Response 15, a sustainment organization with operational and strategic capability must be there to support it.

Centralized sustainment mission command must be established through the TSC down to the ESC command post so that the maneuver force maintains operational reach and freedom of maneuver.

ESCs have developed their own solutions for the layout of command posts and the resourcing of materiel to deploy them. No two ESCs look alike when deployed. The Combined Arms Support Command can help by standardizing command post options for all ESCs and establishing the doctrine and tables of organiza-

tion and equipment to source them. Experiences of active and reserve component ESCs over the past several years can provide a good base.

The lack of commonality has a number of second- and third-order effects. Not having a standard configuration inhibits the accurate forecasting of transportation requirements, which causes issues when units compete for airframes. The lack of a standard command post also impedes the ability to clearly define the expeditionary capabilities that the ESC brings to the maneuver commander.

Lastly, and most importantly, a common solution to the organic signal shortfall within the ESC command post must be resolved. Potential solutions from the field have been offered since 2013, and solutions continue to be explored today.

The bottom line is that if the ESC is expected to be expeditionary, it can achieve that only through its own or-

ganic capability. That capability does not exist today.

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Maj. Paul B. Madden is the chief of operations for the 3rd Expeditionary Sustainment Command. He has a bachelor's degree in aviation administration from Eastern Kentucky University and a master's degree in supply chain management from the University of Kansas. He is a graduate of the Transportation Officer Basic Course, the Combined Logistics Captains Career Course, the Combined Arms and Services Staff School, Intermediate Level Education, and the Joint and Combined Warfighting School's Joint Professional Military Education II.

The U.S. Army Vessel CW3 Harold A. Clinger, Logistic Support Vessel-2, manned by a 163rd Transportation Detachment crew, conducts the first of eight surface lifts between Kaneohe Bay and Kawaihae Harbor, Hawaii, July 2, 2014, in support of the biennial Rim of the Pacific 2014 exercise. (Photo by Sgt. 1st Class Mary E. Ferguson)

Sustainment Mission Command in a Globally Distributed Environment

■ By Maj. Gen. Edward F. Dorman III



In the vast, noncontiguous Pacific theater, the 8th Theater Sustainment Command (TSC) is responsible for building and sustaining land component and joint force readiness despite the “tyranny of distance.” This globally distributed environment includes multiple theaters of operations full of geopolitical intricacies. Almost 25 percent of the U.S. active duty military force is in the Pacific theater, spread across 16 time zones.

What the 8th TSC does not have is direct mission command relationships with subordinate enabling formations. Through a combination of directed authority, sustainment integration, designated roles and responsibilities, and relationships and influence, the 8th TSC controls a supply pipeline that it does not own.

There may be a misconception that “sustainment mission command” is synonymous with the “single logistics command and control” that the 8th TSC lacks. But how the 8th TSC adheres to the six principles of the mission command philosophy—building cohesive teams through mutual trust, creating a shared understanding, providing a clear

commander's intent, exercising disciplined initiative, using mission orders, and accepting prudent risk—proves that sustainment mission command is really no different than any other form of mission command.

The Value of Influence

Sustainment in the Pacific theater is based on operational art rather than tactical function. The purpose of the mission command warfighting function is to synchronize, integrate, and coordinate the other warfighting functions at precisely the right time and place to meet the objective so that Army forces can seize, retain, and exploit disciplined initiative within the commander's intent to gain the advantage over our adversaries and create conditions for favorable outcomes.

Sustainment mission command in the Pacific begins with a complete understanding of the U.S. Pacific Command (PACOM) and U.S. Army Pacific (USARPAC) commanders' intents for the current operation. The 8th TSC serves as the operational conduit from the tactical level to the strategic level of sustainment. One substantial way this occurs is through the PACOM Joint Logistics Hui. (Hui is a Hawaiian word that means community meeting or assembly.)

As the land component and joint force senior logistics synchronizer in the area of responsibility, I chair the Joint Logistics Hui, which is a meeting with joint sustainment leaders in the Pacific and other key stakeholders to assess requirements. The leaders discuss and agree on priorities, where to accept prudent risk, and how to decentralize execution of programs, policies, operations, activities, and actions.

The Joint Logistics Hui shows how the 8th TSC applies the principles of mission command across all echelons by harnessing its operational influence rather than exerting direct control. A shared understanding of roles, responsibilities, and authorities enables leaders to synchronize, inte-

grate, and coordinate the numerous enabling formations into tailored support and supply distribution.

This, in turn, ensures freedom of action, extended operational reach, and prolonged endurance, which give the warfighting commander the assurance that his requirements are anticipated and understood and will be in the right place, in the right quantity, at the right time to achieve his desired effects.

Furthermore, the Joint Logistics Hui develops teams, both within the TSC and with unified action partners, who will directly inform and influence follow-on joint boards, bureaus, centers, cells, and working groups. For example, the PACOM J-4 will influence the J-3 to issue certain orders.

In this way, centralized planning enables joint complementary decentralized execution while ensuring that mission command remains a commander-centric activity even in a globally distributed environment.

Relationships Matter

The 8th TSC relies on several specific relationships to synchronize the warfighting functions necessary to deliver sustainment effects as we prepare for rapid transitions to crises and contingencies. We build these relationships through senior-leader engagements, tabletop seminars, and leader development programs—all of which educate the force, allow for greater shared understanding, and provide a logistics common operational picture.

Key sustainment relationships in the Pacific must include allies and partners, the U.S. Agency for International Development, embassy country teams, and other joint, interagency, intergovernmental, and multinational partners in order to overcome mission command challenges.

The commander's intent drives how national partners, such as the U.S. Transportation Command, Defense Logistics Agency, Army Materiel Command, and industry partners, link the modal exterior lines of com-

FEATURES

In the Pacific theater, the 8th Theater Sustainment Command applies the principles of mission command through operational influence rather than through direct control.

munication to the operational and tactical interior lines of communication. This requires significant team-building across the services, the joint logistics enterprise, and warfighting headquarters.

Summits and conferences supplement and further assess the overall effectiveness of our systems, processes, and reporting procedures in a globally distributed environment.

For example, the 8th TSC hosted the Pacific Sustainer Sourcing Conference in April 2016 to identify fiscal year 2017 training opportunities for reserve component units. These opportunities will strengthen sustainment options in the area of responsibility, increase readiness, and drive long-range planning for future operations, activities, and actions.

Because practicing on systems and tasks further strengthens relationships, the 8th TSC regularly participates in more than 10 service and joint exercises. The exercises range from training full main command posts to response cells. These events provide opportunities to practice boards, bureaus, centers, cells, and working groups and link training plans and objectives across multiple echelons.

Ultimately, any investment in building relationships facilitates greater integration, coordination, and synchronization, which enhances sustainment mission command.

Leveraging Authority

As the 8th TSC commander, I serve as both the senior logistics integrator in the Pacific and the USARPAC deputy commanding general for sustainment. These roles bear the responsibility for coordinating priorities, setting policies, building readiness, and ensuring the theater is logistically set. I assess these areas by chairing monthly theater sustainment readiness reviews.

As the general officer champion for USARPAC's posture line of effort, I link the posture functions of the G-5 cell to the sustainment functions of

the G-4 cell. I help ensure timely decision-making, inform priorities, and allow for the effective allocation of resources through mission orders from the G-3 cell.

As the 8th TSC commander, I also chair daily operations and intelligence updates and monthly operations and analysis updates to synchronize land component sustainment. Land component G-4s and the forward-stationed and deployed expeditionary sustainment commands, regional support group, and national partners all plug into these forums.

The joint logistics enterprise and service components understand that the 8th TSC does not own the supply pipeline, but they clearly look to the TSC for guidance and synchronization.

Another successful method of leveraging authority is the new theater enabling command (TEC) technical language in the theater campaign support order. The TEC language guides how the 8th TSC works through the Army forces and corps to build and sustain readiness.

Other than the supporting-to-supported relationship, this TEC language is the only link between the 8th TSC and the tactical sustainment units in the Pacific. While the TEC language is not a command authority, this link does speak to the science of control in terms of influence on training, expertise, coordination, leader development responsibilities, and force modernization.

The 8th TSC's advantage as the operational-level integrator and synchronizer lies in its ability to anticipate requirements, balance capabilities, forecast demands and facilitate long-range planning and training for the expeditionary sustainment commands and regional support group. In this manner, the 8th TSC's systems and tasks enable it to direct the release and transfer of materials, supplies, and munitions across the Pacific.

The 8th TSC may not "own" anything, but it leverages this technical

linkage in several ways:

- By managing classes II (individual equipment), IV (construction and barrier materials), and IX (repair parts).
- By managing class V (ammunition) and retrograde operations with directive authority.
- By managing class VII (major end items) through Army structure processes and second destination transportation funds.
- By establishing the theater concept of support.

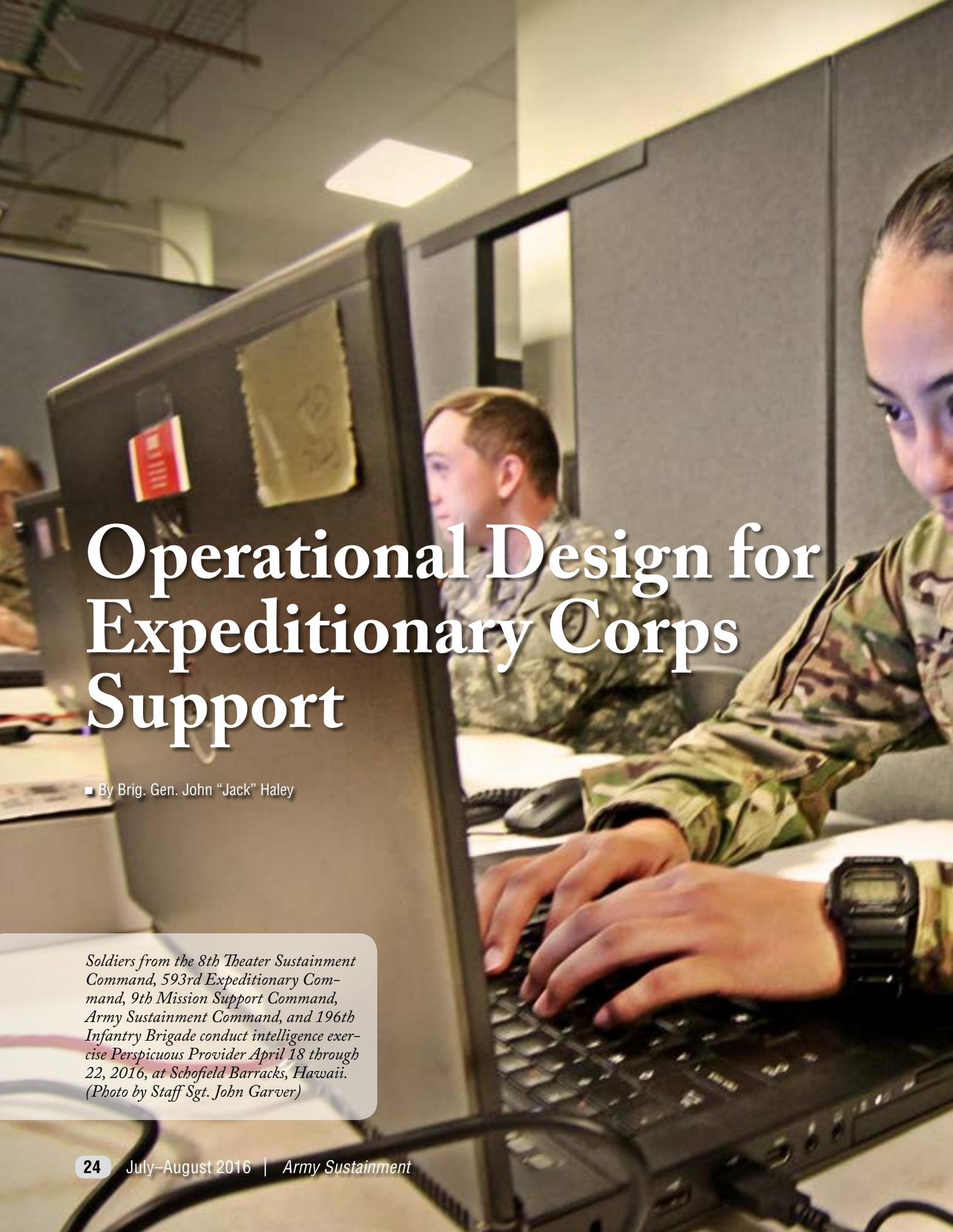
The 8th TSC's facilities and equipment help bring these systems and tasks together. By leveraging a combined operations and intelligence center, enabled through U.S. and coalition networks, the TSC's operations process and knowledge management products ensure sustainment is synchronized across the warfighting functions.

The 8th TSC may not own the enabling formations of the Pacific, but its ability to influence them certainly builds teams through mutual trust and shared understanding. The TSC's efforts to synchronize, integrate, and coordinate provide a clear commander's intent yet still allow decentralized leaders to exercise disciplined initiative.

One might argue that lacking "single logistics command and control" limits the science of control in a globally distributed environment, but even if we accept that as true, we can still generate greater opportunities to achieve mission success through a masterful art of command.

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Operational Design for Expeditionary Corps Support

■ By Brig. Gen. John “Jack” Haley

Soldiers from the 8th Theater Sustainment Command, 593rd Expeditionary Command, 9th Mission Support Command, Army Sustainment Command, and 196th Infantry Brigade conduct intelligence exercise Perspicuous Provider April 18 through 22, 2016, at Schofield Barracks, Hawaii. (Photo by Staff Sgt. John Garver)



Expeditionary sustainment commands (ESCs) are incredibly flexible, scalable, and tailorable organizations. They enable freedom of action in support of unified land operations by providing expeditionary mission command for theater opening, sustainment, distribution, and reception, staging, and onward movement (RSO) operations. The ESCs do all of this while maintaining mission command of subordinate units.

As a deployable headquarters, an ESC can work in a variety of roles: for a theater sustainment command as a forward command post, for an Army corps as the sustainment command, as a joint task force (JTF) headquarters, or as a land component command. The goal of the ESC is to extend forces' operational reach, endurance, and freedom of action.

Alignment of the ESC

In the active component, ESCs are aligned with Army corps. The 3rd ESC is aligned with the 18th Airborne Corps at Fort Bragg, North Carolina; the 13th ESC is aligned with III Corps at Fort Hood, Texas; the 19th ESC is aligned with the Eighth Army in Korea; and the 593rd ESC is aligned with I Corps at Joint Base Lewis-McChord (JBLM), Washington.

Much like the sustainment brigades' recent alignment with divisions, the

ESC's alignment is powerful in its own right because it establishes a strong relationship between the ESC and the operational maneuver commander. This enables synchronized sustainment and better horizontal combat power integration across the corps.

The 593rd ESC headquarters is assigned to the U.S. Pacific Command (PACOM) and is under the operational control of U.S. Army Pacific (USARPAC) and I Corps. However, many of the 593rd ESC's subordinate units are globally available to meet Forces Command (FORSCOM) and Army requirements. On any given day, the 593rd ESC has Soldiers deployed in support of worldwide missions outside the PACOM area of responsibility.

The dispersion of operations across the Pacific area of responsibility and FORSCOM creates a unique and challenging environment as it balances preparing subordinate units to deploy with maintaining the readiness of the ESC headquarters to accomplish its expeditionary sustainment mission.

Command Post Capabilities

To accomplish its mission, the 593rd ESC has developed a flexible, scalable, and tailorable operational design. At its root, the ESC is a deployable command post. The 593rd ESC's focus is on sustaining units

FEATURES

The commander of the 593rd Expeditionary Sustainment Command describes the operational design that enables it to provide expeditionary support for I Corps' widely dispersed units.

deployed in an assigned area of operations (AO). The AO can be adjusted by the geographic combatant commander; the 593rd ESC is able to adapt to these changes by maintaining three deployable command posts and one static home-station element.

The deployable command posts are the humanitarian assistance survey team (HAST), the early-entry command post (EECP), and the main command post (MCP). The home-station command post is the sustainment operations center (SOC). All of the ESC's command posts are modular and can either operate independently or network with each other.

HAST. The ESC can act as the JTF headquarters for humanitarian assistance and disaster relief operations. The HAST is a small, rapidly deployable mission command node that is designed for early-entry situational assessment and initial operational planning. It was originally designed to support humanitarian assistance and disaster relief operations or defense support to civil authorities. However, the HAST can also function as a tactical command post for the ESC.

EECP. The EECP plans, prepares, and assesses sustainment, distribution, theater opening, and RSO operations. It also provides mission command to facilitate continuity for follow-on activities and forces. The EECP is relocatable and can be reassigned to another location as a jump tactical operations center once the MCP assumes mission command at the initial EECP location. This capability increases the 593rd ESC's operational reach.

MCP. The MCP is a fully manned mission command node capable of providing prolonged endurance in support of any operation. It is an operational-level sustainment headquarters responsible for synchronizing sustainment in support of a corps, joint forces land component command, or JTF.

SOC. The 593rd ESC's SOC synchronizes I Corps and JBLM sus-

tainment operations in support of the installation logistics support plan and the senior mission commander's priorities. The center coordinates and synchronizes sustainment requirements, operations, and sustainment stakeholders. The center is also responsible for these key tasks:

- Optimizing and supporting I Corps' sustained readiness processes.
- Providing a logistics common operational picture for I Corps.
- Conducting key sustainment leader engagements.
- Maintaining and improving the sustainment battle rhythm.
- Providing reach back capability for deployed command posts.

The SOC's goal is to provide an operational command center to build sustained readiness for I Corps. I Corps not only consists of units at JBLM but also the 25th Infantry Division in Hawaii, U.S. Army Forces Japan, and U.S. Army Forces Alaska.

Communications Shortfalls

The primary shortfall of the ESC's operational design is its lack of communications equipment. This equipment is the backbone of the ESC's mission command nodes. By doctrine, an ESC is supported by an expeditionary signal battalion (ESB). An ESB is typically a corps or theater asset that supports all theater units without organic signal assets. While the ESB is fully capable of providing the necessary communications network for an ESC, it may not be readily available to meet immediate requirements.

To mitigate this risk, the 593rd ESC procured program manager-managed communication equipment through the Rapid Fielding Initiative to meet the immediate signal requirements. This equipment included a broadband global area network (BGAN) antenna and a secure internet protocol router network/non-secure internet protocol router access point (SNAP) ground satellite terminal.

BGAN. The BGAN is an expedi-

tionary satellite communications system designed to provide small units the size of a HAST or tactical operations center with satellite communications capabilities. The ESC has successfully used the BGAN antenna in the past, but the model it owned is no longer authorized for use on the Defense Information Systems Agency's (DISA's) International Maritime Satellite Network.

The Program Executive Office for Command, Control, and Communications-Tactical (PEO C3T) is developing communications solutions that include BGAN devices. PEO C3T's intent is to extend the Department of Defense communications networks by reclaiming and redistributing the Global Rapid Response Information Package until Transportable Tactical Command Communications (T2C2) systems are phased into the force. The T2C2 systems are designed to be operated by any Soldier, thereby expanding expeditionary communications capabilities.

SNAP. The SNAP terminal is a commercial-off-the-shelf product that was procured for Operations Iraqi Freedom and Enduring Freedom. Armywide, SNAP terminals are being reset and reallocated to ESBs and corps in order to provide added capability until the T2C2 equipment is fielded. The SNAP and T2C2 equipment is managed by PEO C3T and is supported by the Communications-Electronics Command.

The 593rd ESC is not authorized satellite communications capabilities, such as the SNAP or its replacement the T2C2. However, as part of its communications mitigation plan, the ESC purchased one reset SNAP terminal plus optional attachments to make it a tri-band, tactical network solution capable of operating with current DISA networks and architecture.

In units authorized a SNAP terminal, it is normally operated and maintained by a satellite communication systems operator-maintainer and a

nodal network systems operator-maintainer. Since the ESC does not have these specialties, it is using information technology specialists and signal support systems specialists as equipment operators.

None of the equipment mentioned in the ESC communications shortfalls mitigation plan is authorized. However, the equipment does offer possible solutions to communications issues within ESCs if changes are made to modified tables of organization and equipment and personnel. These changes would ensure the personnel, equipment, and training necessary for the ESC's expeditionary communications requirement were met. The Combined Arms Support Command recognizes the expeditionary communications requirement and is actively seeking possible solutions.

Expeditionary Training

The 593rd ESC is in the unique position of supporting both USARPAC and FORSCOM. This provides the ESC with tremendous opportunities to train expeditionary mission command. The 593rd ESC designed an aggressive phased training plan focused on sustaining readiness. The training plan is built on an ability to operate in a variety of environments that enhance the sustainment of bilateral and multilateral interoperability.

For fiscal year 2016, the emphasis of the training plan, "Operation Ripken," is to remain ready as an expeditionary command headquarters that is regionally engaged, globally responsive, and capable of deploying to any environment.

In the first quarter of fiscal year 2016, the ESC deployed the EECF to Japan in support of exercise Yama Sakura 69 to validate its expeditionary capability as the forward headquarters for theater sustainment in support of I Corps. The ESC also provided a bilateral rear-area operations coordination center responsible for the I Corps and Middle Army

Joint Security Area and focused on integration in a joint, interagency, intergovernmental, and multinational setting.

During the fourth quarter of fiscal year 2016, the ESC will deploy its EECF to Southeast Asia in support of an annual joint, combined exercise. During the exercise, the 593rd will practice providing mission command, distribution, and sustainment for I Corps.

While PACOM, USARPAC, and I Corps provide multiple training opportunities across the theater, the ESC is also taking advantage of FORSCOM's warfighter exercises. Taken together, these exercises provide the multiple repetitions needed to maintain expeditionary mission command proficiency.

The 593rd ESC's phased training plan validates its ability to execute expeditionary sustainment in complex environments to support I Corps across the range of unified land operations.

The 593rd ESC is organized to provide rapidly deployable and expeditionary sustainment mission command for a theater sustainment command, corps, Army force, joint forces land component command, or JTF. Although challenged with a lack of organic communications equipment, the ESC has emplaced alternatives that can meet immediate requirements.

The ESC's robust training program leverages geographic combatant command, Army service component command, and Army command opportunities and prepares the 593rd ESC to truly "put the E in ESC!"

Brig. Gen. John "Jack" Haley is the commander of the 593rd Sustainment Command (Expeditionary). He holds a bachelor's degree in environmental chemistry from St. Lawrence University and a master's degree in national security and strategic studies from the Naval War College.



Sustainment Integration: The Foundation of Expeditionary Readiness

■ By Brig. Gen. Chris Sharpsten

Soldiers with the 548th Combat Sustainment Support Battalion secure a palletized load system to a railcar, on July 28, 2015, in preparation for their Joint Readiness Training Center rotation at Fort Polk, Louisiana. (Photo by Staff Sgt. Michael K. Selvage)



FEATURES

The 3rd Expeditionary Sustainment Command is focused on achieving unity of effort within its sustainment networks to project and sustain combat power.

The XVIII Airborne Corps is the strike force at the center of the Army's expeditionary capability. Its ability to project combat power on short notice into both permissive and nonpermissive environments to the far reaches of the world cannot be matched. The XVIII Airborne Corps provides the spearhead forces of the Army's Global Response Force (GRF). To remain credible, it must always be ready.

This readiness requires careful and constant oversight. Within the XVIII Airborne Corps, sustainment formations are focused on providing that oversight through a synchronized sustainment network. No single unit is responsible for sustainment mission command. Instead, sustainers operate as a unified team. Each sustainment unit has unique roles and responsibilities based on mission requirements from the XVIII Airborne Corps.

At the corps level, the 3rd Expeditionary Sustainment Command (ESC) orchestrates sustainment operations affecting deployability, readiness, and expeditionary sustainment. The 3rd ESC monitors fleet readiness and ensures installation support plans are focused on the ability to deploy combat power on contingency time lines.

Additionally, the 3rd ESC works closely with the division sustainment brigades to monitor gaps in sustainment support capacity and capability at installations in the corps' footprint. The 3rd ESC partners with the strategic enterprise to leverage its capabilities and extend its operational reach to the XVIII Airborne Corps' tactical formations.

Sustainment operations in the XVIII Airborne Corps have become a living example of the Army Total Force Policy. The 3rd ESC started participating in both active and reserve component exercises at the baseline level but expanded its participation to include key leaders for contingency and home-station sustainment operations.

Partnering with reserve compo-

nent units has enabled the 3rd ESC to develop mutual understanding, share best practices, and establish a system in which everyone has a common forum to focus the professional development of Soldiers.

The 3rd Infantry Division

The 3rd Infantry Division (3rd ID) Sustainment Brigade (SB) serves as lead sustainment integrator for the 3rd ID. It provides synchronized sustainment through the integration of all organic, attached, and available support units. The 3rd ID SB ensures that wherever there is a "Dog Face" Soldier, there will also be 3rd ID SB support.

On Oct. 6, 2015, the 3rd ID SB established and deployed Task Force Water in support of Fort Jackson, South Carolina, water purification and distribution efforts after Hurricane Joaquin. The 3rd ID SB leaders assumed mission command over the operation, and the unit was instrumental in integrating and synchronizing elements from the 3rd ESC, the 82nd Airborne Division (AD) SB, and the 44th Medical Brigade.

The sustainment brigade's ability to deploy within 36 hours of notification, establish a single sustainment mission command, and provide unity of effort to the Forces Command and the Training and Doctrine Command were key to the unit's success.

In addition to deploying Task Force Water, the 3rd ID SB simultaneously assumed responsibility for the 3rd ID's supply support activity (SSA) mission, which was conducted by 1st Armored Brigade Combat Team (1st ABCT), 3rd ID, Soldiers at Fort Stewart, Georgia. The 3rd ID SB provided forward augmentation to the 1st ABCT's supply officer, support operations officer, and the sustainment automation support management office in support of the 1st ABCT's regionally aligned forces (RAF) mission.

Inactivation support. During the inactivation of the 3rd Infantry Brigade Combat Team, 3rd ID, at Fort Benning, Georgia, the 3rd ID SB



Soldiers with the 3rd Expeditionary Sustainment Command set up the early-entry command post (EECP) on April 20, 2015, at the Mission Command Training Center on Fort Knox, Kentucky. The EECP is a sustainment mission command headquarters capable of providing a variety of logistics functions. (Photo by Staff Sgt. Justin Silvers)

recognized the need to maintain equipment transfer and divestiture velocity. To assist with this mission, it provided line-haul by military and commercial transporters and maintenance and supply support through the Marne (3rd ID) repair and divestiture yard.

While the line-haul assets helped the brigade remain on its inactivation time line, the missions have also enhanced the 3rd ID SB's force projection. Every movement between Fort Stewart and Fort Benning was conducted like a deployment—established, synchronized, rehearsed, and led according to Marne combat standards.

The 10th Mountain Division

Within the 10th Mountain Division, many units and activities collaborate and synchronize sustainment support for the senior commander. The division G-4, the 10th Mountain Division sustainment brigade, the Army field support battalion and logistics readiness center (LRC) at Fort Drum, New York, and the logistics capabilities resident in tenant

organizations work together to coordinate and execute sustainment operations.

The 10th Mountain Division SB's contribution to the sustainment network includes working closely with the division G-4, installation support agencies, and the maneuver brigades and chairing weekly logistics synchronization meetings and biweekly division maintenance meetings. These meetings comprise all of the sustainment support agencies across the 10th Mountain Division.

In June 2015—for the first time in the history of the Army—a sustainment brigade headquarters was designated as an RAF unit. The 10th Mountain Division SB was officially regionally aligned under U.S. Army Africa (USARAF) on Oct. 1, 2015. With the assignment came a unique set of training opportunities to improve the readiness of the unit and integrate operational-level logistics with the USARAF headquarters.

The sustainment brigade conducted a thorough military decision-making process analysis of the RAF mission

and published its own operation order. The order laid out a rigid training time line culminating in an “RAF Academy” before the Africa deployment. The academy focused on cultural awareness, basic language skills, driver's training, battle drills, unexploded ordnance awareness, African regional history, and medical Soldier readiness.

The 10th Mountain Division SB filled a critical logistics shortfall in the USARAF headquarters, helping to bridge the gap between strategic logistics planning and tactical execution. This gap was filled by logistics planners who provided the USARAF G-4 with enhanced visibility to oversee its mission.

With over 87 theater security operations planned for fiscal year 2016, sustainment brigade planners helped to identify and mitigate critical logistics shortfalls that occur because of the fast-paced, short-suspense nature of these operations. One such event was a Nigerian infantry school training event. Based on an agreement between the USARAF

commanding general and the Nigerian Ministry of Defence, the school needed to train on short notice 550 Nigerian soldiers in counterterrorism battle drills to counter the growing presence of Nigeria's militant Islamist group Boko Haram. The sustainment brigade logistics planners helped to identify the logistics requirements of the eight-month course, which paved the way for the training to be executed successfully.

The 82nd Airborne Division

The 82nd AD SB provides direct support to the 82nd AD and area support to the XVIII Airborne Corps and its separate units at Fort Bragg, North Carolina. Like other division-aligned sustainment brigades, the 82nd AD SB provides materiel management, materiel readiness, field services, transportation, human resources, and finance

support to the division.

Additionally, the 82nd AD SB commander and command sergeant major oversee officer and enlisted personnel talent management across the 82nd AD's six brigades.

Unique to the 82nd AD SB is its responsibility to enable airborne operations for its division. The 82nd AD SB has a field-grade officer assigned as the division parachute officer (DPO). The DPO is critical to the management of 82nd AD SB aerial delivery systems that enable the division's airborne operations.

The aerial delivery systems are individual parachute systems, heavy-drop platforms and cargo parachutes, joint precision aerial delivery systems, and container delivery system bundles. With the G-3 air officer, the DPO manages the aerial delivery system requirements and the workload of the 11th Quartermas-

ter Company (Aerial Delivery) to plan, prepare, and execute airborne operations.

The 82nd AD SB's ability to generate, maintain, and recover aerial delivery systems is critical to the division's readiness. In an average month, the 82nd AD, along with its Air Force strategic lift partners, perform over 25 airborne missions, dropping between 8,000 and 10,000 paratroopers and conducting nearly 20 heavy-drop missions.

Additionally, the 82nd AD SB drops more than 450 container delivery system bundles quarterly to rapidly resupply combat forces in austere environments.

Lastly, the 82nd AD SB, as part of its GRF mission, executes sustainment mission command and sustainment support functions at any intermediate staging base (ISB). This mission requires the capabili-



ties resident in both the 82nd Special Troops Battalion and the 189th Combat Sustainment Support Battalion (CSSB).

The 101st Airborne Division

The 101st Airborne Division (Air Assault) Sustainment Brigade's (Lifeliners') recent deployment from Fort Campbell, Kentucky, to the Joint Readiness Training Center (JRTC) at Fort Polk, Louisiana, marked a paradigm shift for sustainment and support training exercises. Until recently, the JRTC's role as a training venue for sustainment operations was limited to brigade combat team (BCT) and CSSB enablers tasked to support rotations.

In September 2015, the Lifeliners became the first sustainment brigade to provide mission command to the rotation's CSSB, a role previously executed by the JRTC's

operations group.

Over a 30-day period, the Lifeliners deployed a 45-person tactical command post to provide logistics planning and mission command during reception, staging, onward movement, and integration (RSOI) and maneuver support. While the rotation allowed the Lifeliners to exercise critical mission command systems and increase the core competencies of the brigade's battle staff, the exercise did not live up to the overall training potential.

Throughout the process, the sustainment brigade identified several ways that combat training centers could be used for sustainment brigade validation and more realistic and relevant sustainment training.

Live or constructive integrated training. The Lifeliners established operations at an ISB about 55 miles from Fort Polk. That distance pro-

vided realistic constraints that forced logistics planners from both the supported and sustainment units to become more efficient. The concept of support and priority of effort for the execution included all real and notional combined joint task force (CJTF) units.

The CJTF included a majority of notional maneuver units and CSSBs with only a small part of the scenario including the actual BCT and CSSB. This allowed the Lifeliners to conduct training on their doctrinal mission of supporting echelons above division and the BCT through simulated and actual sustainment operations. The use of digital simulations in future rotations could more thoroughly train the sustainment brigade's staff.

Synchronization. The support operations office broke new ground during the JRTC rotation by fulfill-



A 7th Transportation Brigade (Expeditionary) landing craft utility attempts to dock at the causeway at Fort Story, Virginia, on Aug. 25, 2015. Soldiers from the 188th Brigade Support Battalion, 18th Field Artillery Brigade, practiced loading and offloading equipment and vehicles with the watercraft. (Photo courtesy of the 188th Brigade Support Battalion)



Chief Warrant Officer 2 Stephanie Weber, a human resources operations branch technician with the 3rd Expeditionary Sustainment Command (ESC), manifests paratroopers from Poland, Aug. 21, 2015, in Kaiserslautern, Germany. The 3rd ESC was deployed to support XVIII Airborne Corps during Operation Swift Response. (Photo by Staff Sgt. Justin Silvers)

ing roles and responsibilities for a sustainment brigade headquarters. It synchronized the planning and support of sustainment operations across the CJTF.

Operating out of the ISB, the support operations office served as a critical link between the BCT and CSSB during RSOI operations and the maneuver exercise. With the 101st Airborne Division Sustainment Brigade tactical command post present to allocate and prioritize sustainment, the training audience conducted sustainment operations and used request procedures that better represented those used during actual combat operations.

The 7th TB (Expeditionary)

The 7th Transportation Brigade (Expeditionary) provides a combatant commander with an expeditionary Army or joint force headquarters to conduct over-the-shore intermodal operations globally in support of unified land operations. The brigade exercises mission command of up to seven terminal battalions and is focused on early-entry and

port-opening operations.

Located at Joint Base Langley-Eustis, Virginia, the brigade deploys with its equipment or draws equipment from two Army pre-positioned stock (APS) sites to reduce response time for watercraft missions or logistics over-the shore (LOTS) and joint LOTS (JLOTS) requirements.

The brigade operates as the theater sustainment command executing force, or under the ESC if given a theater-opening mission. The brigade moves equipment and supplies, through LOTS and RSOI tasks to the supported force or acts as the joint task force headquarters for JLOTS. These capabilities connect RSOI from ports to the assembly areas, where forces conduct integration using the brigade's total over-the-shore capabilities including its inland cargo transfer companies and movement control teams. The brigade also provides Army watercraft in support of contingency operations and humanitarian aid and disaster relief efforts where access to port facilities is degraded or nonexistent.

The brigade's internal watercraft

capabilities include logistics support vessels, landing craft utility vessels, landing craft mechanized vessels, and the modular causeway system consisting of a 1,200-foot floating Trident Pier, two roll-on, roll-off discharge facilities (which attach to a strategic vessel to enable cargo offload at anchor), and a causeway ferry to transport cargo to the beach.

The brigade displayed its capabilities at the combined JLOTS 2015 exercise in Korea, from May 2015 to August 2015. The exercise comprised a 1,165-person CJTF consisting of 41 separate active and reserve organizations and included both U.S. and Republic of Korea forces.

The 419th CSB

Activated in April 2013 at Fort Bragg, the 419th Contracting Support Brigade (CSB) enhances installation and operational contract support for Army commands and serves as the RAF contracting enabler for the XVIII Airborne Corps.

As a subordinate command of the Mission and Installation Contract-

ing Command, the 419th CSB is the vanguard contracting brigade in Department of Defense, strengthening contract compliance and oversight while providing installation and global expeditionary contracting support.

The brigade comprises more than 150 Soldiers and 250 civilians assigned to six field contracting offices located at Fort Bragg, Fort Drum, Fort Polk, Fort Stewart, Fort Campbell, and Fort Belvoir, Virginia.

Three contracting battalions are integrated with the field contracting offices: the 900th Contracting Battalion (CBN) at Fort Bragg, the 922nd CBN at Fort Campbell, and the 925th CBN at Fort Drum. In the summer of 2016, the 904th CBN will stand up at Fort Stewart to complete the Army's contracting battalion coverage for each active division.

The 419th CSB focuses on installation contracting support to five Army garrisons and operational contract support to the XVIII Airborne Corps and its four subordinate divisions. The brigade provides contracting reach-back as required in support of expeditionary or garrison operations.

The 419th CSB's contracting center is responsible for awarding contracts valued at more than \$7 million from all of the offices in its footprint and conducting operational contract support to deploying units worldwide. The brigade has two battalions deployed in support of Operation Freedom Sentinel and Operation Inherent Resolve in Afghanistan and Iraq, respectively.

The 406th AFSB

The 406th Army Field Support Brigade (AFSB) located at Fort Bragg is a deployable, modular organization designed to bring logistics power forward to every element of the expeditionary Army. The brigade executes materiel enterprise operations in support of unified land operations in a garrison, joint, or combined environment and integrates acquisition,

logistics, and technology at the tactical, operational, and strategic levels.

The 406th AFSB has mission command of subordinate Army field support battalions at Fort Bragg, Fort Campbell, Fort Drum, and Fort Stewart. It also has mission command of the APS program headquartered in Charleston, South Carolina, six logistics support teams, 18 brigade logistics support teams, and 26 LRCs throughout its 27-state area of responsibility.

The 406th AFSB's ongoing operational support includes building an armored brigade's worth of mission-ready equipment for the European Activity Set, managing the APS-3, serving as the lead materiel integrator coordinating Army Materiel Command's equipping of the force, managing and maintaining predeployment training equipment, and providing installation-level support to Forces Command and Training and Doctrine Command units through local LRCs.

The 597th Transportation Brigade

The 597th Transportation Brigade is the Military Surface Deployment and Distribution Command's global surface transportation expert focused on the U.S. Northern Command area of responsibility. The brigade headquarters is located at Joint Base Langley-Eustis.

With a workforce of more than 300 military and civilian personnel, the brigade meets the surface deployment, redeployment, and distribution needs of warfighters and Defense Transportation System customers in the United States. The 597th has three subordinate battalions: the 833rd Transportation Battalion at Joint Base Langley-Eustis, the 841st Transportation Battalion in Charleston, and the 842nd Transportation Battalion in Beaumont, Texas.

Each battalion maintains multiple deployment and distribution support teams consisting of 10 military transportation experts who directly assist with the movement of hazardous materials, equipment, containers

and unit movement data preparation and documentation.

Unique to the 597th Transportation Brigade are three specialized detachments assigned to the 833rd Transportation Battalion. The 688th, 689th and 690th Rapid Port Opening Elements support the U.S. Transportation Command's joint task force-port opening requirements. These units deploy quickly in a crisis or contingency operation to help the air and sea ports of debarkation receive follow-on personnel and equipment.

The XVIII Airborne Corps sustainment network is built around key sustainment commands in the corps' footprint. We achieve improved effects when we operate as a team, rather than in silos. The sustainment network's core strength is unity of effort. Together we are focused on achieving optimal solutions to enable our maneuver commanders to project and sustain combat power. Individual units execute our sustainment mission, but as a sustainment network, we are a unified team intent on enabling maneuver commanders.

Brig. Gen. Chris Sharpsten is the commanding general of the 3rd Expeditionary Sustainment Command at Fort Bragg. He previously worked for the Office of the Deputy Chief of Staff, G-4, where he oversaw efforts for Army logistics doctrine and force structure design.

The following individuals contributed to this article: Col. Jered P. Helwig, 3rd Infantry Division Sustainment Brigade; Col. David V. Gillum, 10th Mountain Division Sustainment Brigade; Col. Gavin J. Gardner, 82nd Airborne Division Sustainment Brigade; Col. Kimberly J. Daub, 101st Airborne Division (Air Assault) Sustainment Brigade; Col. Stacy S. Townsend, 7th Transportation Brigade (Expeditionary); Col. Carol M. Tschida, 419th Contracting Support Brigade; Col. Richard L. Menhart, 406th Army Field Support Brigade; and, Col. Stephen J. Riley, 597th Transportation Brigade.



The 16th Sustainment Brigade Sustains a Strong Europe

■ By Maj. Gen. Duane A. Gamble and Col. Michelle M.T. Letcher



Petroleum supply specialists from the 16th Sustainment Brigade refuel vehicles assigned to regionally allocated forces at Tapa, Estonia, during Operation Atlantic Resolve. (Photo by 1st Lt. Hannah Morgan)

FEATURES

An increasing number of commitments and reductions in the size of the force have generated unique challenges and opportunities for the only sustainment brigade in Europe.

The 16th Sustainment Brigade, 21st Theater Sustainment Command (TSC), headquartered in Baumholder, Germany, provides mission command of forces assigned to 16 locations in Germany and Italy. The unit is the single sustainment brigade responsible for enabling readiness and providing sustainment support across the U.S. European Command. It also supports the U.S. Africa Command and the U.S. Central Command areas of responsibility.

The brigade provides tactical-level support for theater sustainment and has a persistent presence in seven nations alongside NATO allies in support of Operation Atlantic Resolve. The 16th Sustainment Brigade ensures freedom of movement, endurance, and operational reach and is focused on strengthening the U.S. alliance with NATO partners and deterring Russian aggression.

The 16th Sustainment Brigade sustains a strong Europe by providing sustainment mission command, establishing the joint operations area (JOA), and following the U.S. Army Europe (USAREUR) commanding general's guidance to make 30,000 assigned and rotational forces in Europe look and feel like 300,000.

Providing Mission Command

The 21st TSC provides mission command at the strategic level across the entire theater and at the operational level for the theater sustainment base. The 16th Sustainment Brigade provides operational- and tactical-level mission command across the Atlantic Resolve JOA and tactical-level mission command within the European theater. These assigned areas of responsibility focus the main effort in a theater with limited resources.

The 16th Sustainment Brigade deploys forces to execute theater opening, theater distribution, and theater sustainment. The brigade holds joint responsibilities to provide common user land transportation and traffic management services in selected

countries through its participation in national movement coordination centers.

Traffic management includes processing transportation requirements, determining transport modes, producing freight documentation, obtaining technical and diplomatic clearances, and coordinating with transportation providers. Additional joint requirements include mail delivery, common item repair, and Logistics Civil Augmentation Program support contracts.

The 16th Sustainment Brigade provides mission command across Europe through decentralized operations. The brigade currently has three subordinate battalions: the 39th Transportation Battalion (Movement Control), the 18th Combat Sustainment Support Battalion (CSSB), and the 16th Special Troops Battalion.

To support Atlantic Resolve mission requirements and sustain the theater, the 16th Sustainment Brigade task organizes its subordinate battalions to ensure that commanders and senior logisticians are present at the decisive points.

The 39th Transportation Battalion provides mission command of Atlantic Resolve–North, which consists of Estonia, Latvia, Lithuania, and Poland. The 18th CSSB provides mission command for Atlantic Resolve–Central (in Budapest, Hungary, and Slovakia) and Atlantic Resolve–South (in Romania, Bulgaria, and Moldova).

The 16th Special Troops Battalion provides operational-level mission command for brigade assets at the forward command post, which is co-located with Multinational Corps–North East and NATO's force integration units across Atlantic Resolve.

Each battalion provides one company command team on a forward rotational basis to provide mission command for support elements across the JOA. The span of control for a single battalion or company commander in Atlantic Resolve stretches across an entire continent. This mission is accomplished with a

formation that reduced its capabilities following the Cold War and has recently faced force reductions.

Sustaining Atlantic Resolve

Atlantic Resolve demonstrates the continued U.S. commitment to the collective security of NATO and to enduring peace and stability in the region following Russia's actions in Ukraine. In 2015, there were more than 51 battalion-and-above-level Atlantic Resolve-related exercises and training events designed to improve interoperability, strengthen relationships and trust among allies and partnered nations, contribute to regional stability, and demonstrate the U.S. commitment to NATO allies and partners in Eastern Europe.

The 16th Sustainment Brigade currently has Soldiers in Estonia, Latvia, Lithuania, Poland, Romania, Bulgaria, and Hungary in support of Atlantic Resolve. It is not uncommon for one of the brigade's 22 company-sized elements to push distribution convoys across multiple international boundaries.

At times junior leaders lead convoys to Tallinn, Estonia, while others from the same company coordinate convoys to Bulgaria and Spain. Last year, USAREUR executed more than 5,700 diplomatic clearances, equating to more than 5,700 crossings of international boundaries.

In 2012, three sustainment brigades and an ESC provided sustainment support in Afghanistan while 19 movement control teams (MCTs)

operated across the country. Today, the 16th Sustainment Brigade provides expanded support using four MCTs working in 33 locations in Europe and Africa.

At each location, the MCT has several roles. The MCT is not only tasked with providing sustainment support to U.S. elements working in that area. It also works on NATO sustainment interoperability, builds partner capacity, and strengthens the NATO alliance.

Five Pillars of Strong Europe

Lt. Gen. Ben Hodges, the USAREUR commanding general, provided the key elements needed to maintain unity of effort in his command guidance, the Five Pillars of Strong Europe. The five pillars are as follows:



Spc. Tyler Hunt, 515th Transportation Company, 39th Transportation Battalion (Movement Control), assists French Cpl. John Parau in fueling a French tanker from a U.S. tanker using a NATO adaptor on Oct. 8, 2015, at Zaragoza Air Base, Spain. The two were part of Trident Juncture 2015's Modular Combined Petroleum Unit, which fueled vehicles from 35 countries for the exercise. (Photo by Sgt. 1st Class Michael O'Brien)

- Empowering junior leaders.
- Army Reserve and National Guard support.
- Allies and partners.
- Regionally allocated forces.
- Dynamic presence.

The 16th Sustainment Brigade supports the five pillars through tactical support to the theater sustainment base, through tactical and operational sustainment in support of Atlantic Resolve and training and operations in Ukraine, and by assisting the 21st TSC in setting the JOA.

Empowering Junior Leaders

The brigade mitigates the risks of stretching a command across a theater by empowering junior leaders to operate in decentralized locations. For example, the 39th Transporta-

tion Battalion rotates transportation management coordinators in and out of the national movement coordination centers in Eastern Europe. These junior Soldiers work directly with host nations to deconflict cross-border requirements and often provide movement recommendations to ambassadors and their senior staffs to reduce friction and allow for the freedom of movement in country and across the JOA.

Last year, more than 23,500 transportation movement requests were made to move convoys in support of major USAREUR training exercises and operations. Junior leaders led those convoys, which tallied nearly a million miles driven across Europe. Empowering junior leaders allows the single sustainment brigade, with a single transportation battalion, the

ability to provide operational reach and freedom of movement for both U.S. and allied forces.

Reserve and Guard Support

The MCTs remain one of the brigade's most demanded resources. Reserve elements that rotate in to augment units provide relief to forward assigned forces and continue to be key to providing freedom of movement for all U.S. elements operating in Atlantic Resolve.

Additionally, the State Partnership Program has 21 U.S. states partnered with 22 nations in Europe. For example, the Illinois National Guard partners with Poland, and the Maryland National Guard partners with Estonia. The Joint Multinational Training Group-Ukraine receives support from its



This map compares the distances traveled by 16th Sustainment Brigade units in Europe to stateside equivalents. The brigade travels these distances for missions supporting the theater base and multinational training such as Trident Juncture in Spain and NATO exercises in the Operation Atlantic Resolve operational area.

partner state of California.

Allies and Partners

The 16th Sustainment Brigade operates all missions in Eastern Europe as an allied force. The brigade is testing and measuring sustainment interoperability across Europe. As of February 2016, it had executed over 30 interoperability tests with a dozen nations. To prepare for potential contingency operations, the brigade is deliberately tracking sustainment functions and partner unit capabilities and interoperability.

Company commanders across the brigade maximize opportunities to test interoperability with allies. For example, the 317th Support Maintenance Company partnered with Hungarian forces during a training exercise in November 2015. The company commander brought recovery elements and tested the company's ability to recover the Hungarian fleet, while the Hungarian recovery assets tested their capabilities with the U.S. equipment.

In October 2015, the 515th Transportation Company supported Trident Juncture, the largest NATO training exercise in 10 years. This interoperability exercise brought together 36,000 troops from more than 35 countries. The Modular Combined Petroleum Unit, which included military members from six nations, provided fuel and other sustainment to support the allied forces participating in the exercise. The unit provided over 500,000 gallons of JP8 during the exercise.

Regionally Allocated Forces

The 16th Sustainment Brigade provides direct support to the 4th Infantry Division, Europe's regionally allocated division headquarters. The brigade also supports the 12th Combat Aviation Brigade, the 2nd Cavalry Regiment, the 173rd Infantry Brigade Combat Team (Airborne), and the 1st Armored Brigade Combat Team, 3rd Infantry Division.

Although stationed in Western Europe, the 16th Sustainment Bri-

gade provides support across seven countries in Eastern Europe. The brigade also provides exercise support across Western Europe and echelons-above-company support for the brigade support battalions of supported units.

Readiness is the underlying theme of all that the 16th Sustainment Brigade does on the European continent.

Dynamic Presence

Working closely with allies requires creative, and sometimes non-doctrinal, solutions to logistics problems. The 21st TSC tasked the 16th Sustainment Brigade to develop a concept of support for Atlantic Resolve and Ukraine. Because the concept would encompass a vast operational area and maturation of the concept of support would be accordingly complex, the brigade co-located with NATO elements to assist in the process.

The sustainment brigade headquarters moved its forward command post to co-locate with the Multinational Corps-North East and six initial operating capability NATO force integration units in Poland. The brigade also nested its staff officers with the NATO units as they developed their NATO support plans in conjunction with the Army's concept of support for Operation Atlantic Resolve.

Readiness is the underlying theme of all that the 16th Sustainment Brigade does on the European continent. The brigade is not only responsible for the readiness of its assigned forces and for sustaining the forward-stationed and regionally allocated forces assigned to USA-REUR. It must also ensure the readiness of NATO forces through its planning and operations.

Over the last year, the brigade instituted a "shock" program designed to test the readiness of the brigade's subordinate units and their ability to provide expeditionary sustainment in a multinational environment. Across Europe, the 16th

Sustainment Brigade is ready to support U.S. forces and their NATO partners.

As the JOA matures, the 16th Sustainment Brigade continues to build readiness and combat power, exercise mission command across multiple nations at the operational level, and execute tactical-level sustainment support to sustain a Strong Europe.

Maj. Gen. Duane A. Gamble is the commanding general of the 21st Theater Sustainment Command in Kaiserslautern, Germany. He has a bachelor's degree in business economics from McDaniel College, a master's degree in logistics management from the Florida Institute of Technology, and a master's degree in national resource strategy from the Industrial College of the Armed Forces. He is a graduate of the Ordnance Officer Basic and Advanced Courses and the Command and General Staff College.

Col. Michelle M.T. Letcher commands the 16th Sustainment Brigade headquartered in Baumholder, Germany. She holds master's degrees from the State University of New York at Oswego, the School of Advanced Military Studies, and Kansas State University. She completed the Senior Service College Fellowship at the University of Texas at Austin.



Improving Army Readiness for the 21st Century

An Interview With Lt. Gen. (Ret.) Robert T. Dail

■ By Arpi Dilanian and Taiwo Akiwowo



Soldiers from the 16th Sustainment Brigade reenlist in the courtyard of the Burg Lichtenberg castle April 1, 2016. The group included Soldiers from Grafenwoehr, Kaiserslautern, and Baumholder representing the 16th Special Troops Battalion, 18th Combat Sustainment Support Battalion and 39th Transportation Battalion (Movement Control). (Photo by 1st Lt. Hannah Morgan)

FEATURES

A former director of the Defense Logistics Agency provides his view of what Army readiness requires now and will require in the future.

When Lt. Gen. Robert T. Dail retired seven years ago, he was one of the most senior military logisticians in the Department of Defense. In his last assignment, he served as the director of the Defense Logistics Agency, where his team was providing 95 percent of the materiel used in the wars in Iraq and Afghanistan. We had an opportunity to sit down with him and to get his perspective on today's Army readiness and the evolving relationships among the Army, its sister services, and industry.

Given the uncertainty in the world, what can logistics leaders do to ensure their formations are ready?

At the tactical level, the job of logistics leaders is to train every day and develop junior leaders in a way that prepares their units to be called upon at any time to deploy in defense of the nation. Logistics leaders should work to keep their units as ready as possible through realistic training. That's the most important aspect of the tactical leader's job.

At the operational level and, to a greater extent, the strategic level, where commands are filled with a combination of military members, career civilians, and contractors, logistics leaders have to be flexible and resilient—ready to change. They have to be ready to deploy their experts to integrate with tactical and regional commands so that responsive support is provided to the troops.

What changes to improve readiness should be at the top of the Army's list?

First, the requirement to deliver precise logistics output and support will continue to grow in importance. In the future, however, the Army may not deploy the large numbers of Soldiers that it did in the last decade, when well over 100,000 Soldiers were fighting wars overseas. It may deploy smaller units to work as part of joint task forces that will be dispersed over

greater distances. These forces will still demand the same types of support. So, precision will become more paramount.

Second, and key to precision, is understanding warfighter demand. This task is going to be extremely challenging in a dynamic environment. It is going to require leaders not only to understand their own organizations but also to be more broadly educated about the capabilities of external experts and teams that will rapidly integrate into their organizations during contingencies.

Finally, future logistics leaders will have to employ more visual analysis tools across the enterprise in order to determine the capabilities that will ensure our troops get what they need efficiently.

Where can industry best be leveraged to improve readiness?

The 20th century structure will not deliver the readiness the Army requires for the right efficiency in the 21st century. While the Army had large logistics organizations in the past, the future Army's internal capabilities will be smaller and more distributed. The Army has to continue to aggressively adapt to access the competitive advantage industry offers so that it can get the best outcomes for our troops in the field.

When I was a major in the 24th Infantry Division in Operations Desert Shield and Desert Storm, I first experienced industry capabilities inside the division's rear area. The Army Materiel Command had hired contractors to rebuild and repair M1 Abrams tank components. Over the next 20 years, industry presence grew enormously in overseas theaters.

In the future, logistics leaders will be challenged by senior Army leaders to integrate industry capabilities more effectively through improved mission command and to plan for industry to execute a wider range of functions in forward areas.



Lt. Gen. (Ret.) Robert T. Dail explains what Army readiness requires and how industry will be involved in the future. (Photo by Alan Wallace)

The Army has to do this to preserve its fighting force.

What changes will the Army need to make to more fully integrate industry capabilities?

When we first deployed into Iraq in 2003, we operated on a single line of communication from Kuwait. Several years later, we operated on exterior lines, bringing support in through industry partners and vendors from Turkey, Jordan, and Kuwait. We also flew supplies in from Germany, and we brought supplies in directly from the United States. The role of industry increased dramatically.

As we look to the future, Army mission command will have to be organized to better synchronize the operational capabilities of industry supporting the troops. This will place a huge responsibility on future logistics staffs to understand contract requirements in their theaters in order to best utilize contractor capabilities.

Industry integration will require shared information and systems. It will also require representation from national-level activities that contract for services and materiel in theater, such as the Army Materiel Command, the Defense Logistics Agency, and the U.S. Transportation Command.

Industry will have a key role in assisting Army logisticians in understanding what is possible when providing solutions. Industry will provide Army leaders with current and future business intelligence throughout the planning phase of operations. This business intelligence will include the markets and capacities available in regions for various services and commodities.

The information from industry will complement traditional intelligence such as enemy, terrain, and weather. We can achieve the integration of industry and its information without compromising proprietary information or fairness.

What barriers to sustainment mission command do units face, and what can they do to overcome these barriers?

The most significant barriers to sustainment mission command are related to communication and information sharing. The Army and Department of Defense logistics enterprise are enormously capable. Although each organization desires and attempts to support the troops, natural barriers form between these entities because of funding sources, separate command authorities, specific missions, geography, and organizational culture.

In the end, relationships between logistics commanders and their staffs throughout the logistics enterprise are critical. Leaders have to work hard at these relationships. Trust is the cornerstone.

Strong leadership at every level and node of the network ensures that organizations share information and respond to warfighter demand; this is how units overcome the barriers to responsive logistics.

Subordinates observe their leaders' examples in demonstrating transparency. And senior leaders empower the whole network of leaders to take appropriate action to successfully support the mission. Synchronizing the myriad capabilities from the logistics enterprise is paramount to rapidly organizing, attaching and detaching units, and expanding the Army mission command structure.

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Taiwo Akiwowo is a strategic communication analyst in the Army G-4's Logistics Initiatives Group. She holds a bachelor's degree from Howard University and a master's degree from Trinity University.

The Joint Munitions Command Ensures Ammunition Readiness

JMC is responsible for the life-cycle management of ammunition and provides joint forces with munitions to enable successful military operations.

■ By Brig. Gen. Stephen E. Farnen

Ammunition is loaded onto a cargo ship en route to an overseas ammunition supply point. (Photo by Mass Communication Specialist 1st Class Ryan G. Wilber)



The Joint Munitions Command (JMC) is responsible for providing joint forces with ready, reliable, and lethal munitions at the right place and time to support global operations. JMC comprises teams from across the ammunition enterprise that are committed to delivering ammunition at the point of need.

JMC Mission

JMC's vision is to be the Department of Defense's munitions sustainer, ensuring global munitions readiness. The command stores, distributes, produces, and demilitarizes small-, medium-, and large-caliber ammunition, ranging from the rounds used by all military services to the bunker-buster bombs used by the Navy and Air Force. JMC is the logistics integrator for the life-cycle management of ammunition. Essentially, JMC operationalizes the ammunition enterprise.

JMC manages a nationwide network of organic industrial-base facilities that sustain critical capabilities, meet current mission requirements, and provide the ability to surge production of ammunition stocks as required. This network is commonly characterized by the Army Materiel Command as our national security insurance policy—the centerpiece to readiness.

JMC continuously strives to smartly right-size, make invulnerable, and modernize its organic industrial base so that it can thrive and surge in an uncertain and complex world to fulfill joint munitions requirements.

Centralized Management

Before 9/11, JMC's management of class V was a pull system. Requisitions were accepted through a range of methods from the various services and customers. This provided limited checks and balances and sometimes delivered too much ammunition to ammunition supply points (ASPs).

In 2002, as part of a Chief of Staff of the Army initiative, Centralized

Ammunition Management (CAM) was established to enable the integration of wholesale and retail ammunition management. CAM is a push system that encompasses five regions across the United States: Northwest, Northeast, Midwest, Southwest, and Southeast. JMC ships millions of rounds of ammunition annually to ASPs in these five regions.

CAM aligns JMC's ammunition plants, depots, and customers with JMC's Integrated Logistics Strategy to achieve optimum network efficiency. It allows customers to maintain visibility of requisitions and is a seamless process for the field.

JMC uses CAM to supply ASPs in support of the Army, Navy, Marine Corps, Air Force, and the test community. CAM prevents an excess buildup of ammunition at the ASPs by requiring training authorizations to be assessed against stock on hand to determine the correct ammunition levels.

JMC receives, stores, issues, and distributes ammunition through its regional hubs to enable outload support and power projection of munitions in support of COCOMs, contingencies, training, and operation plans. JMC is also heavily involved in foreign military sales in support of global strategic priorities and operations.

Brig. Gen. Stephen E. Farnen is the commanding general of the Security Assistance Command. He was formerly the commanding general of the Joint Munitions and Lethality Life Cycle Management Command and the Joint Munitions Command. He has a bachelor's degree in history from the University of Richmond and a master's degree in national security and strategic studies from the Naval War College. He attended the Joint Forces Staff College and completed a Senior Service College fellowship as the first military fellow at the Massachusetts Institute of Technology's Center for Transportation and Logistics.

Revitalizing the Field Trains Concept

Some changes to the field trains concept may help ease challenges created by personnel and budget shortfalls.

■ By Capt. Lehman F. Smith III

The current field trains concept leaves much room for improvement, especially considering the tendency for company trains to fail to report properly, placing forward support companies (FSCs) in a reactionary mode.

Army Techniques Publication (ATP) 3-90.5, Combined Arms Battalion, defines a train as “a unit grouping of personnel, vehicles, and equipment to provide sustainment. It is the basic sustainment tactical organization.” The ATP goes on to describe the different types (or levels) of trains: field trains, combat trains, and company trains.

In most cases, field trains reside in the brigade support area and include the assets that are not located with the combat trains. Field trains directly coordinate between the maneuver battalion and the brigade support battalion. Combat trains, also battalion-level functions, are closer to the fight and usually consist of the unit maintenance collection point, the battalion aid station, and emergency resupply trucks (for fuel and ammunition).

The ATP explains, “Company trains provide sustainment for a company during combat operations.” This organization typically comprises the first sergeant, medical evacuation team, supply sergeant, and the armorer.

Current Doctrine

The field trains command post (FTCP) is often based on a linear battlefield and depends on mission, enemy, terrain and weather, troops, support available, time available, and civil considerations.

The headquarters and headquarters company commander is placed in charge of either the FTCP or the com-

bat trains command post (CTCP) and has the responsibility of manning and organizing the work space and layout of the command post’s related trains for mission command and security. The company commander is supported by available headquarters staff for personnel support and other administrative roles.

The location of the FTCP is either within the brigade support area (BSA), where it is co-located with the brigade support battalion (BSB) for security, or outside of the BSA at a location determined by the maneuver commander who has operational control of the FSC.

It is common to co-locate the FSC and the FTCP within the BSA because of manpower issues or the inability of the FSC to protect itself. Fiscal year 2016 personnel changes to FSC modified tables of organization and equipment have significantly increased situations like this.

What Experience Teaches Us

While I was an FSC commander for a cavalry reconnaissance squadron, my company and FTCP were located within the BSA during most decisive action field training exercises. They were accompanied by maneuver supply sergeants and a Soldier from the squadron S-1 section because of the FSC’s inability to provide adequate security.

The S-1 representative was primarily responsible for tracking personnel going in and out of the theater, assisting with the flow of casualties to and from the BSA, and tracking and reporting personnel statuses. The maneuver supply representative (usually the supply sergeant) was there to provide accurate

head counts for meals and to jump in on tactical convoy operations to provide forward-requested supplies.

The CTCP was generally located five to six kilometers in front of the field trains. It was home to the maneuver S-4 and other battalion staff along with the FSC first sergeant or executive officer, who supervised sustainment operations from the FTCP to the company trains.

During my time as the FSC commander, I saw the benefits of emplacing with the CTCP emergency class III (petroleum, oils, and lubricants) with a heavy expanded-mobility tactical truck fuel tanker and class V (ammunition) with a load-handling system or on pallets. These supplies fostered freedom of maneuver during decisive operations.

However, by emplacing this emergency stock, we often encountered the issues of a lack of supervision and misuse of the supply. Maneuver elements were more likely to use the emergency supply as the primary resupply method rather than requesting and waiting for resupply through traditional methods.

Changing Combat Trains

Because the fiscal year 2016 changes to modified tables of organization and equipment reduced the number of personnel in the FSC’s distribution section, a more efficient way of executing the field trains concept must be considered.

Using a co-location approach within the BSA, units can eliminate the FTCP and create tactical sustainment nodes (TSNs) for each maneuver battalion or squadron. (See figure 1 on page 49.) The TSN would consist of the FSC executive officer or commander and a sustainer (staff sergeant

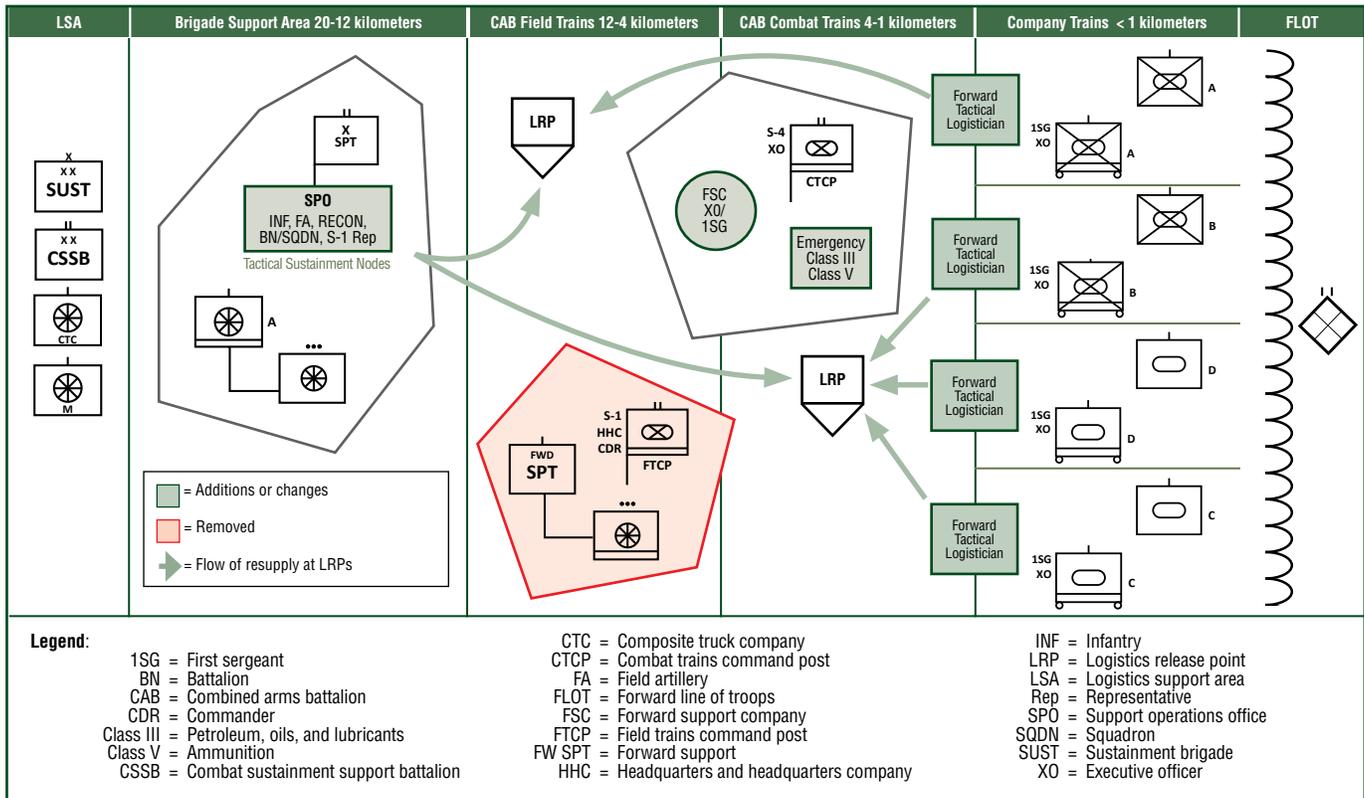


Figure 1. A depiction of the field trains concept proposed by the author to mitigate personnel and security shortfalls in the forward support companies.

or above) who is trained in logistics applications and systems.

The TSN noncommissioned officer would have a support relationship with the support operations officer (SPO). The maneuver commander would retain operational control of the FSC and TSN, but this command relationship would provide the SPO with general oversight for sustainment requirements. The SPO would also be able to shore up connectivity issues faced by standalone FSCs.

The SPO could easily and rapidly communicate with all TSN representatives from infantry, artillery, engineer, and reconnaissance units to accurately manage consumption rate estimates and provide the proper amounts of supplies.

To keep sustainers proficient in the science of logistics, TSNs should plan for consumption rates using the Operational Logistics Planner 8.0 and Student Text 101-6, Combat Service Support Battle Book, or other related sustainment publications found on ei-

ther the Army Publishing Directorate website (<http://armypubs.army.mil>) or the Quartermaster Corps website (<https://www.quartermaster.army.mil>).

Forward Tactical Logisticians

A forward tactical logistician (FTL) in the company trains should assume the first sergeant's role to drive accurate reporting of resupply requests. At the company-trains level, a sustainer in the rank of staff sergeant or above should manage the logistics requirements of the maneuver unit.

FTL training should include consumption-rate planning and the use of data transfer equipment. Additionally, the FTL should be equipped with a system capable of interfacing with a global network to submit sustainment requests using a developed logistics 10-line report.

Still, the question remains of how the Army could mitigate inaccurate information received from the company trains to accurately reflect consumption rates. This responsibility

would fall on the FTLs.

The FTL in a field environment with an electronic data transfer system would be able to forward a 10-line logistics report, calculate requirements, and forward real-time sustainment requirements to the SPO, TSNs, and other need-to-know staff as directed by the commander.

Following these recommendations would eliminate unnecessary, time-consuming convoys to logistics release points. It would provide genuinely necessary supplies by allowing the FSC to plan for real-time sustainment requirements. This ultimately fosters faster response and delivery times throughout the resupply process.

Capt. Lehman F. Smith III is a Logistics Captains Career Course instructor at Fort Lee, Virginia. He holds a bachelor's degree in management from Azusa Pacific University and is a graduate of the Combined Logistics Captains Career Course.



The 51st Transportation Company stages a convoy in the unit motor pool in preparation to move from Germany to Poland. (Photo by 2nd Lt. Mark Schneider)

Moving Across Europe for Operation Atlantic Resolve

Logisticians must work through the unique challenges of multinational transportation when supporting Atlantic Resolve.

■ By Capt. Alex Brubaker and Sgt. 1st Class Lucas W. Pedigo

Imagine a transportation company operating out of Fort Riley, Kansas, that is required to deliver fuel to New York City, ammunition to Atlanta, and repair parts to California simultaneously. Now imagine that each state communicates in a different language, operates under its own set of rules and

regulations, has its own administrative requirements, and even has its own currency.

U.S. Army Europe's (USAREUR's) Operation Atlantic Resolve is a demonstration of the continued commitment of the United States to the collective security of NATO. It consists of

multinational training exercises and security cooperation activities conducted by maneuver elements throughout Eastern European countries, including Estonia, Latvia, Lithuania, Poland, Romania, and Bulgaria. It also includes operations in the Czech Republic, Hungary, and Ukraine.

Coordinating Movements

In September 2014, the 51st Transportation Company (Light Composite) received numerous distribution missions to set the theater and support Atlantic Resolve. The unit discovered new rules, restrictions, and requirements that challenged its execution of timely distribution.

Anticipatory and response-based logistics are imperative now as US-AREUR increases its operational reach. Maneuver units require light-, medium-, and heavy-lift capabilities, vehicle recovery, fuel, repair parts, and ammunition. This sustainment enables maneuver units to train with allied forces.

Logisticians must understand the challenges associated with multinational transportation on the European continent. During the first several months supporting Atlantic Resolve, the 51st Transportation Company identified six unique challenges of transportation distribution:

- Diplomatic clearances.
- Hazardous materials (HAZMAT).
- Host-nation escorts.
- Secured staging areas.
- March credits and movement bids.
- Oversized and outsized movement requirements (paragraph 29 waivers).

Diplomatic Clearances

A diplomatic clearance is a detailed document that lists the convoy commander's contact information, standard name lines of all personnel, weapons and ammunition, cargo descriptions, vehicle data, origin, destination, border crossings, and purpose for movement.

This clearance is perhaps the single most important document for conducting distribution operations throughout the Atlantic Resolve area of operations. It is required from each sovereign nation to gain approval for the movement of U.S. Soldiers and equipment through its country.

U.S. forces cannot enter a country without this approval. Each sovereign nation that is being crossed has

a specific approval time line, particular requirements, and its own form; unfortunately, no standardization agreement for this requirement exists among the 28 NATO nations.

The submission time line is based on the most restrictive nation that is on the route. For example, the Czech Republic requires the clearance to be submitted 30 days prior to move-

Units that consider the six distribution challenges in this article during their planning processes will be better prepared to provide anticipatory logistics in support of Atlantic Resolve.

ment, but Estonia's requirement is only 15 days. When U.S. forces travel to Estonia from Germany, they are required to submit the clearance documents 30 days prior because they cross through the Czech Republic.

The nations receive the diplomatic clearance documents from the local branch movement control team (BMCT). The unit designated to move the equipment is responsible for filling out the forms and sending them back to the BMCT. The BMCT then forwards the diplomatic clearance forms to the 39th Transportation Battalion (Movement Control) and on to the 21st Theater Sustainment Command, which processes these documents through the diplomatic channels of the countries that U.S. Soldiers are traversing.

Units must follow up on a regular basis to ensure clearances are approved. Moving into these countries without approval strains relationships with allies and affects the approval process for future clearances. Failure to follow diplomatic clearances has resulted in borders being closed to U.S. military movements.

HAZMAT Movements

The two most common types of HAZMAT that are moved in Atlantic Resolve are ammunition and fuel.

HAZMAT moves are particularly complex to execute in Europe and require two specific certifications.

First, military vehicles must be certified by an agent who verifies their ability to travel with HAZMAT cargo across European roads. Second, the driver and truck commander must complete the weeklong Hazardous Materials Drivers Training

Course. The drivers must be aware of what they are transporting, how to safely transport the materials, how to protect civilians on the roads, and how to protect themselves from HAZMAT exposure.

In Europe, military vehicles transporting certain HAZMAT must carry a special certification. Beginning in 2006, all U.S. military vehicles transporting ammunition were required to comply with a 1957 United Nations treaty called the European Agreement concerning the International Carriage of Dangerous Goods by Road, also known as ADR.

The United States has no ADR certification capability, and only two military locations in Germany can perform modifications to make vehicles ADR compliant: Maintenance Activity Vilseck and Maintenance Activity Kaiserslautern. Some common modifications that vehicles require include placard frames for HAZMAT identification signs, new fire extinguishers, warning stickers, electrical rewiring, and pressure tests for fuel tankers.

The equipment must be recertified annually through a small inspection, and a larger, comprehensive inspection must occur every three years. It can take two to six months to certify a new piece of equipment, depending



upon the vehicle type.

Units must follow all ADR certification steps or they put their organizations at significant risk of fines and endanger the public. Failure to comply with ADR requirements may even result in imprisonment.

USAREUR is diligently working to have its European Activity Set ADR certified to enable internal distribution operations for rotational units, but that process is not complete. Continental U.S. units deploying into theater must rely completely on USAREUR assets for HAZMAT transportation.

Host-Nation Escorts

Host-nation escorts are often required for movements of sensitive items, HAZMAT, military equipment, ammunition, and oversized and oversized vehicles. These special con-

siderations should be listed on the diplomatic clearance along with the request for host-nation escorts. The host nation will indicate if escorts are required and, if so, provide meetup times.

Escorts ensure that convoy operations run smoothly. When in doubt, always ask for escorts. They have the capability to block roads for the convoy, assist if there is an accident, and prevent wrong turns.

The host-nation escorts in Germany are civilian, but other countries tend to use military police. Typically, the trucks meet the escort at a border at a specific time. If the unit is early, it is required to wait for the escort to arrive unless the clearance document says otherwise. If the unit is running late, it must contact the escort.

Most escorts will typically wait only 15 to 30 minutes; after which,

they will inform their chain of command that the convoy did not show and they will leave. Missing established escort meetup times is detrimental to the U.S. relationship with allies, so it is vital to adhere to the time line and keep the escorts informed.

Escorts will both lead and trail the convoy. Most operate in two- or three-hour intervals, switching to a new team at a certain number of miles or at a new border.

Secured Staging Areas

Secured staging areas, more commonly referred to as “safe havens,” are host-nation military bases that are open to U.S. troops for parking and, if available, billeting. To request secured staging, a unit must annotate it on the diplomatic clearance. The staging areas are coordi-



Soldiers salute the flag as the colors are posted in preparation for a reenlistment ceremony during the 51st Transportation Company's multinational training exercise in Opole, Poland. (Photo by 2nd Lt. Mark Shneider)

nated by the unit operations section through the 21st Theater Sustainment Command.

Secured staging areas enable Soldiers to safely leave their vehicles and equipment overnight and not worry about their cargo while they stay in barracks or a nearby hotel. Specific considerations must be taken when transporting HAZMAT; many of the currently approved safe havens will not accept large quantities of explosives.

More than 20 safe havens are currently used throughout the Atlantic Resolve countries, and additional sites are available upon request to the host nation. Almost all military bases within the eight countries can be used with enough prior coordination. This is important for convoy planning to ensure Soldiers get enough rest per day.

March Credits and Movement Bids

March credits (in Germany and Italy) or movement bids (in Atlantic Resolve countries) are documents that allow one or more vehicles to move over a controlled route in a fixed time according to movement instructions. The documents specify the departure time, speed, route, and distances between turns.

March credits are required for four types of movements: convoys, oversized vehicles, emergency requests, and HAZMAT cargo. To request movements throughout Europe, units must contact the 39th Transportation Battalion or its BMCTs. The typical turnaround time is less than a week for normal requests and up to 45 days for large vehicles like heavy equipment transporters.

What constitutes a convoy differs from country to country, but all con-

sider a convoy to be at least five vehicles. All vehicles must be marked with the march credit numbers and have rotating amber warning lights, "convoy follows" and "convoy ahead" signs, and flags indicating lead, trail, and convoy commander vehicles.

Emergency requests must still be approved by the host nation. They typically involve crews responding to truck breakdowns and recovery operations.

For HAZMAT moves, having more than 2,200 pounds of net explosive weight or 1,560 gallons of fuel requires march credits. If the cargo is under these amounts and the vehicles are traveling less than 60 miles, march credits are not required.

In Atlantic Resolve countries, movement bids are coordinated in the same way; however, they are routed through the movement control teams responsible for Atlantic Re-

solve. The teams have Soldiers embedded within the country’s national movement coordination center and work directly with the host-nation government to enable a smoother process for travel.

Paragraph 29 Waivers

Paragraph 29 waivers are special requests when the vehicle or load is considered oversized. These requests require at least 30 working days to be approved because the host nation must determine the safest travel route. Oversized movements typically have extra restrictions that must be accounted for, such as the size of the roads, construction zones, bridge weight capacity, and traffic density. The paragraph 29 waivers will come with the approved march credits.

A paragraph 29 waiver is required if any of these dimensions or weights are exceeded:

- A height of 400 centimeters (157 inches).
- A width of 255 centimeters (100 inches).
- A length of 1,200 centimeters

- (472 inches) for a single vehicle and 1,800 centimeters (708 inches) for a truck-trailer combination.
- A military load classification of 50 short tons.
- An axle weight of over 8 short tons per axle. In Germany, the axle weight may not exceed 12 short tons.

Common vehicles that do not require a paragraph 29 waiver are empty palletized load system prime mover trucks, family of medium tactical vehicles, and M915 tractor trucks. Vehicles that always require a paragraph 29 waiver are heavy equipment transporters and palletized load systems with trailer and flatrack or container handling unit.

Logistics planners within rotationally aligned and regionally allocated forces should consider these distribution factors while preparing for operations in Atlantic Resolve. The key to accomplishing the mission is to plan well in advance of anticipated movements. Units that consider the six distribution challenges

in this article during their planning processes will be better prepared to provide anticipatory logistics in support of Atlantic Resolve.

Capt. Alex Brubaker is the commander of the 51st Transportation Company in Baumholder, Germany. He has a bachelor’s degree in history from the University of Michigan and is a graduate of the Transportation Basic Officer Leader Course, the Combined Logistics Captains Career Course, the Contracting Officer’s Representative Course, and the Support Operations Course.

Sgt. 1st Class Lucas W. Pedigo is the senior truck master for the 51st Transportation Company. He is a graduate of the Senior Leader Course, Master Fitness Trainer Course, Master Resilience Training Course Level 2, Unit Movement Officer Course, and Master Driver Course. He is an honor graduate of the Basic Noncommissioned Officer Course and Primary Leadership Development Course and is a member of SOLE—The International Society of Logistics.



The 51st Transportation Company moves Abrams tanks to Estonia as part of Able Falcon, a strategic operation that relocated U.S. assets throughout the Baltic States. (Photo by Sgt. Bridget Cantu)



A railroad crew member observes a vehicle that fell between railcars during loading because the spanners were not secure.

Staying on Track With Military Rail

Movement by rail can be hazardous, so railroad crews must follow safety procedures to prevent accidents.

■ By Howard J. Mayhew

The military's use of the railroad system began during the Civil War, and it is still a vital part of sustaining the warfighter today.

Rail is the primary way that the military moves large quantities of equipment and ammunition. Rail transport has proven itself capable of supporting war efforts over many decades. However, movement by rail can be hazardous, which is why safety is paramount during railroad operations.

To mitigate risk, the Army has a number of rail publications that gov-

ern the management of rail equipment, operations, air brakes and train handling, rail safety, railroad maintenance, track safety, and tie-down procedures for rail movements. All of these publications are driven by Army Techniques Publication 5-19, Risk Management.

Military rail comprises four major areas that contribute to its success: track maintenance, railcar and locomotive repair, rail loading operations, and train and engine operations. The rail operations program could fail if all four of these areas did not work as a team.

Track Maintenance

In accordance with the Code of Federal Regulation, Title 49, Part 214, maintenance of way personnel must protect themselves while working on railroad tracks to prevent accidents, injuries, or fatalities. They must follow on-track safety procedures to ensure worker protection and to prevent a train or runaway railcar from entering their work zone.

In recent accidents resulting in injuries and fatalities, roadway worker protection was not enforced. One such accident closed an installation's railway for more than 30 days and

proved detrimental to the mission.

Mission failure can lead to catastrophic consequences that include derailments, washouts, and grade crossing incidents that could cause injury and damage to equipment or close the tracks to traffic.

Railcar and Locomotive Repairs

When personnel are conducting maintenance on a locomotive or railcar, special care must be exercised.

General Code of Operating Rules, rule 5.13, outlines the requirements for protecting personnel who are inspecting, testing, repairing, and servicing rolling equipment. In particular, because these tasks require work on, under, or between rolling equipment, workers are exposed to potential injury from moving equipment.

Locomotives use sand for traction, so part of the duties of a locomotive mechanic is to replenish the sand receptacles on board. These sand receptacles, such as ones on the GP10 locomotive, are located in the rear, approximately 15 feet above the ground.

It has been a common practice for locomotive mechanics to lift 80-pound bags of sand to the top of the locomotives to fill the receptacles. The personnel performing this task should use fall arrest or fall protection while working to help prevent accidents. The preferred method for lifting sandbags is to use a sand hopper that operates off the locomotive's air system.

Rail Loading Operations

Rail loading operations require coordinated teamwork and attention to detail. Both Soldiers and civilians load and secure equipment on railcars. All personnel must be properly trained prior to the loading operation.

Proper spanners (platforms for bridging gaps between railcars) must be used. Personnel must ensure the spanners are secure and in the correct position. There have been occurrences in which a spanner slipped off

and the vehicle being loaded fell between or off the railcar. This resulted in property damage and drastically slowed down the operation.

In other accidents, railcars were en route to a port of embarkation or debarkation when the vehicles became unsecured, up-armored doors came open, and secondary loads became unsecured, causing damage to railway signals and passing trains.

The keys to a successful loading operation are making safety the first priority and being familiar with all of the publications that reference loading operations.

Train and Engine Operations

One of the most vital parts of train operations is the train operating crew. This crew usually consists of a locomotive engineer, a conductor, and a brakeman. Their jobs have many hazards associated with them, so they must be alert and follow all proper procedures to prevent accidents.

Trends show most accidents are from runaway railcars. In fact, in the past few years, numerous incidents have involved runaways. In one case, a runaway DODX railcar loaded with two M1 Abrams tanks proceeded six miles at approximately 86 miles per hour before it derailed at a split-point derail, which prevented the railcar from entering the mainline. Although no injuries occurred, the cost of the accident was estimated at \$5 million. Properly applying hand brakes and chocking railcars could have prevented these accidents.

There have also been several accidents at railroad crossings involving motor vehicles and trains that have resulted in injuries and property damage. Most of these accidents could have been prevented if the train crew and vehicle operators were following proper procedures.

Preventive Measures

To reduce rail accidents, the Transportation Regimental Safety Office of the Combined Arms Support Command, the Joint Munitions Command, the Army Sustain-

ment Command, the Military Surface Deployment and Distribution Command, and the Army Combat Readiness Center have partnered to conduct rail safety assistance visits.

These visits identify safety concerns and enable installations to address them before they contribute to an accident. During these visits, an Army rail safety specialist can present the Rail Safety for Safety Professionals Course. This course teaches attendees to identify safety concerns that could affect rail operations.

The course can be requested by organizations that oversee military rail operations. Organizations can schedule this training by contacting the Transportation Regimental Safety Office.

According to Technical Manual 4-14.21, Rail Safety, the Transportation Regimental Safety Office investigates accidents. Notifications and investigations are used to identify problem trends in order to develop accident prevention methods for the entire Army rail community. Accidents can be reported by contacting usarmy.lee.tradoc.mbx.rail-safety@mail.mil.

Rail is a vital part of the military's deployment process. All rail operations must be conducted in a safe manner to avoid injuries to Soldiers, equipment damage, and mission disruption.

Personnel avoid accidents by planning properly, paying attention to detail, following proper procedures, and incorporating the risk management process into all aspects of rail operations. Conducting safe operations ensures the sustainment of our warfighters and keeps military rail on track.

Howard J. Mayhew is the chief of Army rail safety for the Transportation Regimental Safety Office at Fort Lee, Virginia. He is a retired Army transporter and has been recognized as a Distinguished Member of the Transportation Corps Regiment.



This painting depicts the Union Army during the Siege of Vicksburg. The siege was commanded by Gen. Ulysses S. Grant with the assistance from the Navy under the command of Rear Adm. David Porter. (Courtesy of the Library of Congress)

Cutting Loose With Expeditionary Logistics in the Vicksburg Campaign

Establishing a flexible sustainment system was Gen. Ulysses S. Grant's key to success in the Vicksburg Campaign. Lessons learned from this campaign can still be applied today.

■ By Karl Rubis and Brig. Gen. Kurt J. Ryan

Enabling a sustainment system that provides the combatant commander with the freedom of maneuver to establish and retain the initiative in order to conduct decisive action over long distances is key to winning wars.

Gen. Ulysses S. Grant's series of initial failures during his march to Vicksburg, Mississippi, in 1862 and

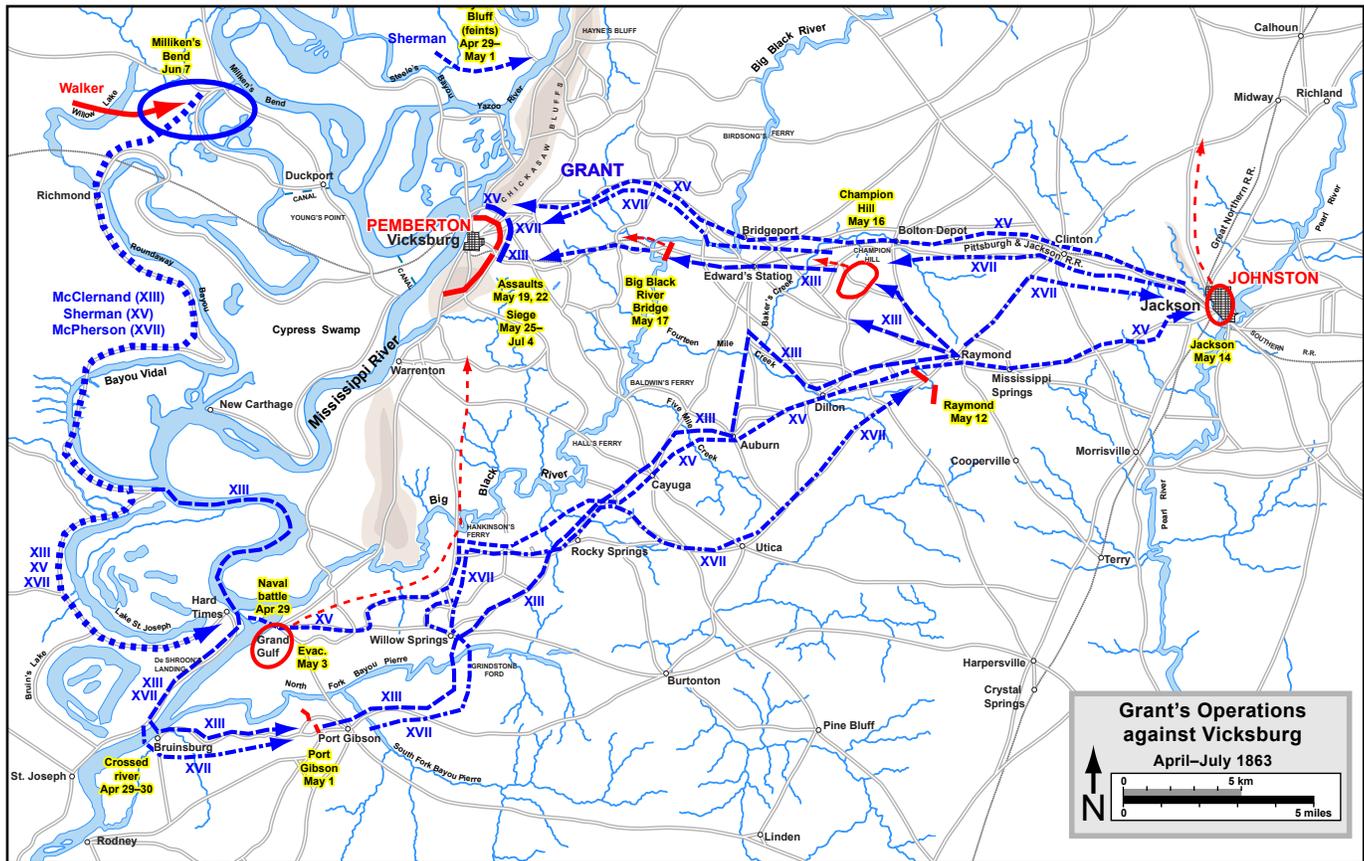
1863 brought him to this realization. Gaining freedom of maneuver through a strong sustainment system led him to victory.

Setbacks and Failures

Grant began his campaign to capture Vicksburg in November 1862 only to confront setbacks and failures. His first attempt was a two-pronged

campaign consisting of an advance by both land and river to the region between Vicksburg and Jackson, the Mississippi state capital.

During this attempt, effective cavalry raids by Confederate generals Nathan B. Forrest and Earl Van Dorn effectively disrupted Grant's extended supply lines and destroyed his northern supply depot at Holly Springs,



Following the Union Army's crossing at Bruinsburg, Grand Gulf became the main supply base for its movement to Jackson and Vicksburg. During the next three weeks, wagon trains with ammunition and supplies were escorted from Grand Gulf to the various units along the route of march. Once Grant reached Vicksburg, supply bases just north and south of the city sustained the Union Army during the siege. The Roman numerals on the map depict the Union Army corps involved in the operations. Blue depicts the line of march of the Union Army and red depicts Confederate defenses. (Map by Hal Jespersen, www.CWmaps.com)

Mississippi, forcing him to cancel the overland element of his campaign.

The waterborne element, commanded by Gen. William T. Sherman, met the same failure. After disembarking just north of Vicksburg, Sherman's force was decisively defeated at Chickasaw Bayou.

Lessons Learned

In his memoirs, Grant claimed it was Van Dorn's raid that showed him how the Army could forage and requisition supplies locally instead of depending on a fixed, garrison-based supply line. After the raid on Holly Springs disrupted the supply line, the Union Army had to find another way to resupply. Grant realized that the area of operations could provide food for his troops and pack animals.

Transporting bulky forage over land for pack animals had especially hindered operations because of the tremendous space that it occupied in wagon trains. The amount rose exponentially the farther units operated from fixed logistics bases.

In addition, the need to garrison the intermediate supply bases required the stationing of combat and support forces, which decreased the combat potential of the Union Army as it advanced. Once freed from this requirement, more Soldiers could be brought to bear in combat operations.

Grant planned his future land operations against Vicksburg based on two principles. First, he would use the Mississippi River and its tributaries to move and stage supplies in support of Union land offensives.

Second, he would not establish fixed supply garrisons to sustain the advance but instead would disconnect as much as possible from his logistics bases and operate independently.

The Union Navy controlled the Mississippi River and could operate freely. The real question was if Grant could successfully operate without fixed supply lines and with limited lines of communication while on the march and seeking decisive action against the Confederate army.

Waterborne Logistics

Grant established a series of supply bases on the west side of the Mississippi River in Louisiana. The supply base at Milliken's Bend served as the largest and was located just 20 miles upriver from Vicksburg.

A network of roads and navigable bayous extended nearly 70 miles south along the west side of the river, bypassing the impregnable river fortifications of the Confederate army at Vicksburg, Warrenton, and Grand Gulf. The Union established intermediate bases at Young's Point, New Carthage, Perkins Plantation, and Hard Times. These bases provided logistics support to Grant's three corps as they marched south from Milliken's Bend in April to prepare for an amphibious assault across the Mississippi River south of Vicksburg.

Grant suffered several setbacks in his operations against Vicksburg in early 1863, but the solid foundation of his logistics system gave him the operational freedom to try alternate advances on Vicksburg without losing ground from his primary base at Milliken's Bend.

By the end of March, Grant had ordered Maj. Gen. John A. McClelland and his XIII Corps to depart Milliken's Bend and march south in order to cross to the east side of the Mississippi. On the nights of April 16 and April 22, ironclad gunboats and transports steamed south, under the command of Rear Adm. David Porter, and ran the gauntlet of Vicksburg defenses. Grant used Porter's gunboats and transport ships south of Vicksburg to transport the Union Army across the Mississippi.

The Union Army landed at Bruinsburg on April 30. By the end of the day, 22,000 Union Soldiers had disembarked. During the next week, Grant brought all three corps of the Union's Army of the Tennessee to the east side of the river at Grand Gulf and prepared for an advance against Confederate Gen. Joseph Johnston at Jackson.

"I was now in the enemy's country, with a vast river and the stronghold of Vicksburg between me and my base of supplies," Grant wrote in his personal memoirs. "But I was on dry ground on the same side of the river with the enemy. All the campaigns, labors, hardships, and exposures, from the month of December previous to this time ... were for the

accomplishment of this one object."

Supply in Motion

Grant's memoirs reveal that following his capture of Grand Gulf on May 3, he decided to "cut loose" from his base of supply and live off the land by foraging in the countryside as he advanced through Mississippi. Many historians and readers of Grant's memoirs interpret this to mean that he completely severed his line of supply to the Mississippi River. In reality, Grant maintained a flexible supply system after learning lessons from his army's defeat at Holly Springs.

During the inland march and subsequent battles at Raymond, Jackson, Champion Hill, and Big Black River, Grant continued to receive critical supplies by wagon train. Brigades escorted these trains from Grand Gulf inland, providing "supply in motion" and eliminating the need to garrison and protect temporary supply depots along the line of march. These supplies consisted of commodities such as ammunition, weapons, medical supplies, coffee, and hardtack that were not available through foraging operations.

On May 14, Brig. Gen. Francis Preston Blair Jr. completed the escort of one wagon train in excess of 200 wagons to the outskirts of Raymond. This resupply proved crucial following the battles of Champion Hill and Big Black River on May 16 and 17.

As a result of the defeat at Holly Springs, Grant was inspired to order his subordinate commanders to complement this supply with foraging operations to provide the bulk of food for the troops and animals. Wagon trains and foraging operations supplied the Union Army with all of the commodities it needed until its encampment outside of Vicksburg.

Expeditionary Logistics

When Grant finally arrived at Vicksburg on May 18, he had already set in motion the establishment of river supply bases just north and south at landings in Warrenton on the Mississippi River and Snyder's Bluff on the Yazoo River. Porter was able to pro-

vide food from the new supply base at Snyder's Bluff to the Union Army encircling Vicksburg as early as May 21.

The risk Grant assumed paid off. Vicksburg was under siege and ample supplies were routinely provided to the Union Army.

Establishing a flexible sustainment system to support his campaign against Vicksburg was Grant's key to success. Initial failures halted and turned back the Union Army, but once Grant began to rely on the Mississippi River as the backbone of his supply system, he could cut loose from a rigid, supply-base system and conduct high-tempo decisive operations deep into Confederate territory.

The Confederate army's inability to react effectively to Grant's movements enabled Grant to win a swift set of battles and lay siege to Vicksburg. Success at Vicksburg opened the Mississippi River to the Gulf Coast and demonstrated to President Abraham Lincoln what could be accomplished by a commander backed by expeditionary logistics.

Grant was ordered east to become general-in-chief of all Union armies. In this position, he exhibited all of the characteristics of sustainment prowess he had learned at Vicksburg. The lessons learned during the Vicksburg Campaign were put to use during Sherman's March to the Sea and the Army of the Potomac's Overland Campaign in 1864.

Karl Rubis is the Ordnance School and Ordnance Corps historian. He holds a bachelor's degree in history from Pepperdine University and a master's degree in American history and military history from the University of Kansas. He is a graduate of the Naval Command and Staff College.

Brig. Gen. Kurt J. Ryan was the 39th Chief of Ordnance. He holds a bachelor's degree from York College, a master's degree from the Florida Institute of Technology, and a master's degree in strategic studies from the Army War College.



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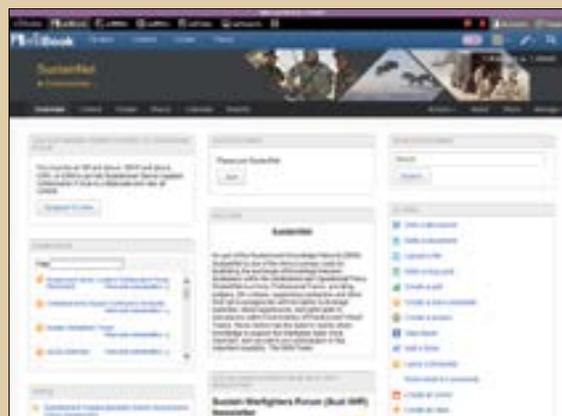


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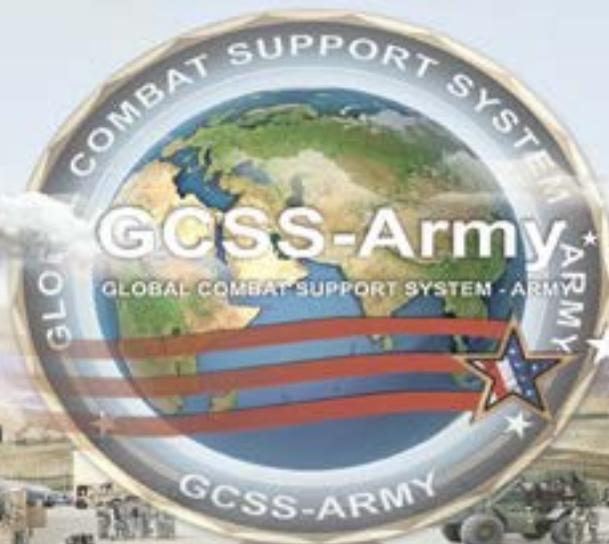
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