



Sgt. 1st Class Bernd Bello, a member of the 377th Theater Sustainment Command deployment support team, uses a half-ton truck to position an expandable light air mobile (ELAM) shelter onto a C-17 Globemaster for transport. The operational command post uses the ELAM as a communications hub inside its tactical operations center. (Photo by Sgt. 1st Class Angele Ringo)



Globally Responsive Logistics

■ By Maj. Armando K. Velasquez, Maj. Kim M. Cohen, Sgt. Maj. Antonio D. Carter, and Richard G. Dell

Army Chief of Staff Gen. Raymond T. Odierno has called upon the service to provide expeditionary, decisive land power to the joint force and be ready to perform across the range of military operations to prevent, shape, and win. The strategic guidance to meet his intent is found in the Army 2020 and Beyond Sustainment White Paper: Globally Responsive Sustainment.

Globally responsive sustainment requires sustainers to fulfill global logistics needs with a force that is regionally aligned. It demands that they be fiscally responsible and anticipate future requirements. It requires distribution and materiel systems and managers across all levels to synchronize and keep pace with ad-

vancing technology in order to meet operational sustainment needs.

This article serves as a guide to help sustainers understand the complexities of distribution and materiel management, which are the two most challenging realms of defense supply chain management.

Distribution and materiel managers must understand that the defense supply chain model is global and extremely fast-paced and that management levels overlap from strategic national providers down to the tactical sustainment unit. Strategic distribution decisions can quickly have tactical implications, and tactical distribution decisions can have strategic impacts.

The following are discussion points to support globally responsive logistics:

- Materiel and distribution managers need to understand the defense supply chain model early in their careers.
- Distribution is a complex task. The defense distribution network is robust and continues to develop.
- Materiel is requested and moved differently. Each commodity grouping uses specific materiel ordering systems and distribution booking and handling systems. Materiel may be categorized and booked for transportation as sustainment cargo or deployment cargo, and each is handled differently.
- Materiel and distribution managers must integrate electronic sustainment information systems to achieve true synchronization.

The Defense Supply Chain Model

Growing strategic logistics is important, and that growth should begin early in a logistician's career. A strategic logistician must study the procurement, inventory, and warehousing procedures that the Defense Logistics Agency (DLA) executes and the physical distribution executed by the U.S. Transportation Command (TRANSCOM) to understand the defense enterprise supply chain management model. The defense supply chain model, taught at the Army Logistics University at Fort Lee, Virginia, has three main levels of supply chain management: source, make/repair, and deliver.

The source, make/repair, and deliver levels overlap each other. The Army's challenge is to ensure that the overlaps are seamless with respect to electronic sustainment information systems, people and organizations, and physical movements.

Without a basic understanding of how the joint defense supply system works, tomorrow's sustainer will lack the strategic vision to develop a theater logistically. It is vital to understand all layers of sustainment from tactical to operational to strategic so that a com-

plete globally responsive sustainment network can be developed.

The operational level is where most uniformed logistics personnel will directly impact distribution and materiel management. It is the connecting link between strategic and tactical distribution and materiel management.

Understanding the flow of sustainment and mobility cargo from origin to the theater is important in order to make this link seamless. It requires understanding critical electronic distribution systems, such as the Global Air Transportation Execution System, Integrated Booking System, Single Mobility System, and the Integrated Development Environment and Global Transportation Network Convergence.

Logisticians should understand how forward enablers, such as DLA theater consolidation and shipping points, prime vendors, pre-positioned stocks, and the commercial port services available to the theater, influence and support their area of responsibility. Tools such as Battle Command Sustainment Support System–Node Management help provide the common operational picture at the operational and strategic levels for all sustainers.

A challenge for operational-level distribution and materiel managers is information and knowledge management. The personnel at the combatant command joint deployment and distribution operations center and the theater sustainment command and expeditionary sustainment command distribution management centers must be knowledgeable about their customers, all sustainment information systems, the geographic environment, and the ever evolving situation. Communicating, maximizing modes, and maintaining a common operational picture is vital to theater sustainment, and these organizations are critical to success.

Distribution Is a Complex Task

Distribution within the context of military logistics operations is simple

to define but challenging to accomplish. Army Doctrine Publication 4–0, Sustainment, defines distribution as “a complex of facilities, installations, methods, and procedures designed to receive, store, maintain, distribute, and control the flow of military resources between point of receipt into the military system and point of issue to using activities and units.”

Distribution is made up of a series of networks to accomplish delivery. The physical, financial, communications, and information networks make up the Joint Deployment and Distribution Enterprise, or the global distribution network; all are required to ensure that distribution management occurs according to Joint Publication 4–09, Distribution Operations.

Distribution management is subject to continuous refinement within the sustainment community. Successful distribution relies on the integration of the logistics functions of transportation and supply and depends on movement control and materiel management according to Army Techniques Publication 4–0.1, Army Theater Distribution. Relying on transportation and supply systems integration and depending on movement control and materiel management to achieve successful distribution are considerable challenges within the defense logistics system.

Types of distribution. The two types of distribution—deployment and sustainment—are separate and have distinctly different processes.

Distribution education is generally based on the deployment process. It is taught to logisticians through unit movement officer courses, joint deployment courses, Joint Deployment Training Center courses, and professional military education programs, such as captain's career courses, advanced leadership courses, the Sergeants Major Academy, and the Command and General Staff College.

However, sustainment cargo does not follow the deployment distribution process, and sustainment cargo distribution processes are not as

widely understood throughout the logistics community. Sustainment cargo is largely managed at strategic and operational levels of logistics such as DLA and TRANSCOM. However, it often affects the Army at the tactical level.

For example, sustainment cargo such as class IIIB (bulk petroleum, oils, and lubricants) may be sourced, booked, and transported by a national-level provider. But, if it is not synchronized at the operational and tactical levels for delivery, problems may arise. There will always be considerations for mission, enemy, terrain and weather, troops and support available, time available, and civil considerations.

Many players and systems. Sustainment cargo booking takes place within a few centrally managed offices through a number of data-sharing booking systems. TRANSCOM, the distribution process owner, manages day-to-day booking operations through the Air Mobility Command and the Military Surface Deployment and Distribution Command. Systems such as the Cargo Movement Operations System, the Direct Vendor Delivery Electronic Data Interchange, Global Freight Management, and the Integrated Booking System are used to connect the materiel release points to the shipping mode operator.

TRANSCOM is the distribution process owner. This means that it is the interface among strategic providers such as DLA, the Army Materiel Command, the Joint Munitions Command, and any other provider requiring transportation.

After the strategic booking takes place, the item is physically moved from the port of embarkation to the port of debarkation. At the port of debarkation, the materiel reaches the operational level of materiel and distribution management. This is an important stage because the materiel has now reached the mission command level that is managed by forward deployed military forces.

One of the biggest challenges at

this juncture is gaining visibility and programming lift against ever-changing priorities. The Army continually prioritizes shipments and commodities based on the commander's plan. Operational and tactical distribution is fluid and changes as the operation develops. The defense system cannot simply use a first-in,

streamlined and responsive distribution and materiel management capability. Thanks to technology, distribution time lines are shrinking. But technology changes at a rapid pace and the distribution manager must be able to keep up with it to ensure that sustainment information systems continue to meet requirements.



Airmen from the 455th Expeditionary Aerial Port Squadron push cargo from a C-5 Galaxy aircraft at Bagram Airfield, Afghanistan, May 26, 2014. The squadron services an average of 1,300 aircraft, 12,000 tons of cargo, and 9,000 passengers per month. (Photo by Staff Sgt. Evelyn Chavez.)

first-out system. At the operational and tactical levels, distribution is driven by the commander's priorities.

Materiel Is Requested and Moved Differently

There are many transportation and distribution systems between the strategic and unit levels that ensure distribution occurs within the pipeline. There are also numerous materiel management and supply requisitioning systems. As requirements grow, so does the need to develop systems that procure and distribute supplies most efficiently.

Today, the integration of both transportation and materiel management systems leaves much to be desired. Gaps, blind spots, and choke points must be overcome for a more

For example, if a materiel management system improves efficiencies for warehousing and cataloging but cannot effectively communicate with the distribution systems, then a choke point occurs. And if a distribution management system becomes so efficient within the transportation realm that materiel management systems cannot keep up with inbound and outbound shipments, then a blind spot occurs. Choke points cause shortfalls in military operations, and blind spots cause commanders to make decisions without all of the facts. Both choke points and blind spots elevate operational risk.

System diversity. Army sustainment information systems do not provide full end-to-end connectivity or visibility of the requisitioning or

distribution flow. In fact, no single system processes all classes of supply requests from initiation to fulfillment. Some classes of supply have their own exclusive systems and seldom interface with others. For example, class V (ammunition) has one system, while classes II (clothing and individual equipment), IV (construction materials), and IX (repair parts) have an-

of information. These manual data transfers introduce the possibility of human error and multiply the likelihood of visibility loss.

Data transfer points, depending on location and complexity, can become information gaps, blind spots, or choke points that impact the distribution flow. That said, in spite of these gaps, the distribution process man-

visualize the interrelationships of the various systems, one might consider the twines of a supporting cable of a suspension bridge. The cable's construction comprises several smaller cables intertwined to increase its combined strength.

In this illustration there are three "cables"—supply requisitioning, distribution, and offline communications networks. The intertwining of these three cables ensures a single purpose is met, and to the uninitiated it appears to be a single cable performing a function.

Furthermore, if any one of these cables is frayed or has a small break, the two surrounding cables continue to provide connectivity. The frays or breaks in the cable equate to information gaps, blind spots, and choke points. To break it down further, each of the three individual cables comprises smaller individual systems or "cables," intertwined to create a single subordinate system.

This construct reflects why we have been unable to achieve the efficiencies of distribution giants like Walmart, Amazon, or FedEx. Although the distribution and materiel management processes have a single overall purpose—getting Soldiers what they need, when they need it—the ownership over the various systems and associated applications prevents the single-minded management that private logistics industries possess.

The structure and framework of commercial logistics companies are focused on a single goal—making money. Outside agencies and activities become part of the company's process based only on the relative value they add and their conformity to the company's structure.

The Defense Department's systems involved in global distribution serve many competing priorities and do not share a single architectural structure and language. The use of middleware, system interfaces, and policy directives ensures logisticians eventually obtain the required information, but this pro-



Senior Airman Terrin Oharra and Senior Airman Brittany Hogue, both assigned to the 3rd Aerial Port Squadron, load cargo onto a C-130H Hercules aircraft from the 145th Airlift Wing on Jan. 21, 2015, at Pope Army Airfield, North Carolina. The operation supported daily joint airborne/air transportability training sorties conducted there. (Photo by U.S. Air Force)

other, and class IIIB has a third.

Also, a request not only passes from one Army system to another but also can pass through a joint or Department of Defense system, depending on the fulfilling agency. Likewise, the movement of materiel has similar system crossovers. At each point between systems, there is the possibility of information loss or delay and an associated loss of visibility.

Some sustainment information systems overcome this by having active interfaces with their handoff partners. Others rely on the "sneaker net," which is the process of transporting a copy of the information to the next operator of an automated system. In some cases, the process requires time-consuming manual re-entry

ages to succeed. One reason for this success has been the proliferation of email and cell phone communication employed within an area of operations. These "offline" communications networks have been used at every level, not only by the requester and personnel in the chain of supply but also by industrial base representatives throughout the theater.

The offline networks have sometimes even provided materiel to the user before the standard program of record process could, but they create yet another layer of complexity. A lack of accountability, unexpected deliveries, unintended excess, and exceeding unit funds can cause frustration.

System interrelationships. To better

cess falls far short of the instantaneous and single point of entry systems that commercial logistics companies enjoy.

Synchronizing Systems

As mentioned earlier, many of the gaps, blind spots, and choke points in the information flow are created as information passes between incompatible systems. TRANSCOM and the Army have taken action to overcome these problems by eliminating some systems and integrating some individual systems and functions into a single source or database. This provides the user with a single source for information and data entry.

TRANSCOM combined the integrated development environment (IDE) and Global Transportation Network (GTN) into the IDE/GTN Convergence and shifted the Worldwide Port System (WPS) functionality into the Global Air Transportation Execution System (GATES), creating GATES–Surface (the replacement for WPS) and GATES–Air. Soon TRANSCOM will integrate Joint Total Asset Visibility functionality into IDE/GTN Convergence.

The Army has initiated the fielding of the Global Combat Support System–Army (GCSS–Army), an enterprise resource planning system that will replace the supply, maintenance, and property book systems in tactical units by the end of fiscal year 2017. GCSS–Army will eventually replace the Standard Army Retail Supply System, the Property Book Unit Supply Enhanced, and the Standard Army Maintenance System–Enhanced. This will place all of those functionalities into a single database and provide the user a single entry point.

GCSS–Army also integrates financial accountability within its system by working with the General Fund Enterprise Business System. This function will help the Army meet its congressional directive to be auditable. After fiscal year 2017, several other functions could be sup-

ported by GCSS–Army, depending on funding. They include:

- Transportation and distribution currently managed by the Transportation Coordinators’ Automated Information for Movement System II.
- Ammunition supply managed by the Standard Army Ammunition System–Modernization.
- Army pre-positioned stock operations at the installation and tactical levels, which are currently managed by the Army War Reserve Deployment System.
- Aviation maintenance for both manned and unmanned airframes, which is managed by the Unit Level Logistics System–Aviation Enhanced and the Aviation Logistics Platform–Enhanced.

Other possibilities include functionalities that are not currently automated, such as bulk and retail fuel management; shower, laundry, clothing and repair; and petroleum quality analysis and quality surveillance, to name a few.

The transition in the tactical arena to an integrated enterprise resource planning system will overcome many of the existing gaps, blind spots, and choke points and provide Soldiers a single screen for most logistics operations, minimizing keystrokes as entries move from one functionality to another. These changes hold the promise of the Army overcoming challenges that have affected logisticians for decades.

Achieving globally responsive logistics will require tomorrow’s logisticians to understand the entire process and fundamentals of distribution and materiel management. The Army must grow strategic logisticians who understand the defense supply model and the complexities within the model.

As we move forward, strategic logistics will affect tactical decisions, and tactical decisions will have strategic impacts. Logisticians must be conscious of how their decisions affect the mission. Lastly, the globally responsive logistician must understand each distribution

and materiel management system and how commodities move through their respective pipelines in order to integrate transportation and supply across all domains, systems, and staffs.

Maj. Armando K. Velasquez was a logistics doctrine writer at the Combined Arms Support Command at Fort Lee, Virginia, at the time this article was written. He retires from the Army April 30. He holds a master’s degree from the University of Oklahoma and is a graduate of the Command and General Staff College.

Maj. Kim M. Cohen is a doctrine developer/writer at the Combined Arms Support Command. She holds a bachelor’s degree from Voorhees College and a master’s degree in procurement and acquisition management from Webster University. She is a graduate of the Officer Candidate School, the Quartermaster Officer Basic Course, the Combined Logistics Captains Career Course, Combined Arms and Services Staff School, the Support Operations Course Phases I and II, and Intermediate Level Education.

Sgt. Maj. Antonio D. Carter is the 59th Ordnance Brigade S–3 operations sergeant major at Fort Lee, Virginia. He holds a bachelor’s degree in business management from Excelsior College. He is a graduate of the Warrior Leader Course, Advanced Leader Course, Senior Leader Course, First Sergeant Course, Sergeants Major Course, Army Basic Instructor Course, Joint Logistics Course, and Systems Approach to Training Basic Course.

Richard G. Dell is the chief of the Logistics Enterprise Systems Support Branch, Enterprise Systems Directorate, Combined Arms Support Command. He holds a master’s degree in administration from Central Michigan University.

Editor’s Note: This is an edited version of a paper of the same title. The full version of the paper along with associated charts can be accessed here: <http://www.alu.army.mil/alog/2015/MARAPR15/PDF/Global-lyResponsiveLogistics.pdf>.

Col. Robert Barnes and Kenneth Gaines contributed to this article.