The Visibility of Integrated Tactical Logistics Project

■ By Grady M. Embrey

The year is 2025. An armored brigade combat team (ABCT) is conducting combat operations during the initial stage of a conflict against a modern, conventional-force adversary in a distant theater. The theater's infrastructure is austere, with virtually no available host-nation support, requiring U.S. forces to rely primarily on organic capabilities for all logistics functions.

The brigade is currently involved in an offensive mission that began just hours ago and is scheduled to last several days without any significant pauses. This requires logistics planners in the brigade S–4 shop and support operations office (SPO) to have near-real-time, accurate logistics information available at all times so they can ensure that uninterrupted support is provided to subordinate units in accordance with the brigade commander's intent.

They must provide uninterrupted support over internal brigade supply lines that could extend up to 60 miles in length while units constantly maneuver day and night in combat conditions.

Imagine working on the SPO staff of a brigade combat team (BCT) where near-real-time information flows seamlessly to your computer terminal, precluding the need to request up-to-date logistics statuses for commodities and equipment under your purview. Imagine not having to call units for status reports or to make sense out of incomplete, hand scribed numbers jotted down hurriedly by fuelers and ammunition handlers at reissue and drop-off points.

And imagine not having to try to figure out where your logistics convoy vehicles are in the tactical battlespace. This is precisely the direction the Army is headed under the auspices of sense and respond logistics and network-enabled mission command.

Historically, accounting for bulk fuel at supply points and tracking fuel disbursed from tankers and trailers has been a manual process. Fuel supply point personnel use a stick and string to measure fuel quantities. Truck drivers hand write fuel delivery information, such as quantity delivered and location. The information is then passed to the battalion SPO for accounting purposes.

Often, sustainment planners who are responsible for tracking, ordering, and resupplying combat units in the midst of battle never receive the information. If the information is received, it is often fragmented and difficult to read, and aggregating the information while planning the next resupply convoy is time-consuming.

To provide uninterrupted support, the brigade's senior logisticians must have the following key elements of information on a nearly continuous basis for mission planning purposes:

- ☐ Who (which unit) has priority of support during each phase of the mission?
- ☐ What (ammunition, fuel, maintenance support) is needed by whom?
- ☐ When do they need it?
- ☐ Where are they located in the battlespace, and where is the designated logistics rendezvous point?
- ☐ Do we (the brigade support battalion) have sufficient assets on hand, or will we need support from echelons above brigade?
- ☐ What are the current locations of all resupply convoys in the brigade's battlespace, and what cargo are they carrying?
- ☐ Did we deliver the essential support on time to the units that needed it?
- ☐ Can we see the current aggregated combat readiness status of the brigade's subordinate units in the mission command information system (displayed as green, amber, or red) to confirm that the support provided satisfied the requirements of the supported units?

Visibility of Integrated Tactical Logistics

The Logistics Innovation Agency (LIA), a field operating agency of the Army G–4, is currently working to enhance the speed and accuracy of bulk fuel reporting by automating it through an initiative called the Visibility of Integrated Tactical Logistics (VITaL) project. The intent is to use sensor technology to pass real-time data from supply points and vehicles transiting the tactical battlespace through the existing command and control systems (which are part of the Joint Battle Command–Platform [JBC–P]) to the Battle Command Sustainment Support System (BCS3), the Army's system of record for logistics mission command. BCS3 will be used as the commander's common operational picture, allowing the staff to receive automated, real-time updates.

VITaL is not a new system. It is merely a method of linking existing systems to streamline the data flow and enhance visibility of the commodities. The overarching goal of the VITaL project is to explore, develop, test, and demonstrate an initial set of integrated logistics mission com-

mand capabilities in 2014 and 2015. To accomplish this, the project will focus on the critical logistics functional areas of bulk fuel, ammunition, tactical-level in-transit visibility (ITV), and select combat platform readiness.

To further define the project scope, the VITaL team is focusing on scenarios that involve the ABCT and Stryker brigade combat team (SBCT) formations in the tactical space during high-operating tempo, high-intensity combat operations. The ABCT and SBCT have been selected because they are at the center of the Army's modular force structure and contain a large number of essential, logistics-intensive weapon systems.

VITaL Capability Blocks

The project will be executed in four distinct increments called capability blocks: fuel, ITV, platform, and ammunition.

Block 1, VITaL–Fuel, consists of automatically transmitting bulk fuel data from gauges on collapsible fuel storage tanks to BCS3 using a data integration interface designed for the project. The VITaL project team successfully conducted a field demonstration of this capability block in March 2013.

Block 2, VITaL–ITV, will focus on generating, transmitting, and integrating data on the visibility of bulk fuel and ammunition being transported on BCT logistics vehicles over the last tactical mile. This will require the use of transport vehicle sensors that are linked to the onboard JBC–P system for transmission to and integration with BCS3.

Block 3, VITaL–Platform, will work to automatically generate and pass platform combat power mission command readiness data from sensors embedded in combat platforms to the JBC–P system and on to BCS3, where it can be reported in a unit-aggregated format for logistics mission planning.

Block 4, VITaL–Ammunition, will focus on automatically generating ammunition storage visibility data through the ammunition management information system at the BCT ammunition holding and transfer point to BCS3.

Project Management

Given the complex nature and multiyear duration of the VITaL project, LIA has implemented a project management structure that is flexible enough to accommodate the requirements of the diverse organizations that make up the project team while ensuring unity of effort. The project management process focuses on the outside agencies that make up the stakeholder team and their active participation, contribution of subject matter expertise, and shared interest in improving capabilities for Soldiers in the field.

Synchronizing team member short-term and long-term schedules, coordinating budget requests and spending plans, and modifying currently existing systems to bring an integrated set of products to a field ready state by the project's scheduled 2020 end date are the keys to success.

The main elements of the project management process include stakeholder partnership, laboratory-based development and integration testing, field demonstrations, and contributions by the project manager and combat developer.

Partnerships among VITaL project stakeholders. Since stakeholder team members have a variety of primary missions, the team must use a consensus-based management process. LIA is the project coordinator and facilitator in this effort, not a directive-issuing authority. Cooperation is the key to success.

Laboratory-based development and integration. The concept of a lab-based development effort enables an integration of this complexity. This lab-based process is cost effective, particularly when multiple facilities are engaged in a virtual laboratory environment. When possible and feasible, this development and testing strategy includes the use of standard Army software, hardware, communications networks, and standards.

Field demonstrations. When each VITaL capability block is successfully tested in a lab environment, the products developed are then subjected to field demonstrations for further user assessment and evaluation. The VITaL team successfully conducted its initial field demonstration (VITaL–Fuel, capability block 1) in March 2013 at Fort Lee, Va.

Project manager (PM) and combat developer contributions. To the maximum extent possible, the VITaL project leverages the work of the participating PMs and combat developers who are responsible for developing field-ready products. The final suite of VITaL capabilities will require its own PM to successfully conduct Army-wide fielding events and technology upgrades and then manage them throughout the life cycle process.

The VITaL project is not inventing new logistics information systems but weaving together key systems that already exist to produce near-real-time logistics mission command information for Soldiers at forward operating bases.

The completion of the VITaL project does not mean the end the of logistics information development process. Many more capability blocks outside the scope of the VITaL project will need to be developed, tested, and demonstrated in order for units to possess full integration across all of the functional areas and classes of supply that exist in the Army's logistics domain. However, so far, VITaL represents a series of first big steps in the right direction.

Grady M. Embrey is the project lead for the Visibility of Integrated Tactical Logistics program at the Logistics Innovation Agency. He holds a bachelor's degree in public administration from George Mason University and a master's degree in public administration from Shippensburg University. He is a graduate of the Army War College.