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The Most Complex Supply Chain

IMPLEMENTING A SINGLE, SYSTEM-WIDE US ARMY MANAGEMENT PLATFORM HAS TAKEN MORE THAN A DECADE, BUT RESULTS ARE BEGINNING TO SHOW.

By PETER BUXBAUM, MLF CORRESPONDENT

The US Army has the one of the world's largest and most complex supply chains. So it should come as no surprise that managing the service's logistics is a cumbersome and multifaceted affair that covers everything from software and networks to processes and hardware.

One effort to get a handle on this unwieldy collection of organizations and systems got its start nearly 20 years ago, with the kick-off of the Logistics Modernization Program (LMP).

The aim of the program is relatively simple to state, but not to execute: the replacement of a myriad of legacy software with a single, commercial-off-the-shelf (COTS) Enterprise Resource Planning (ERP) system.

The effort has had its hiccups along the way, but has since gained some traction and made a good deal of progress. After going live with LMP in 2003, the Army was finally able to retire its legacy systems in 2014.

STREAMLINING SUPPLY

There are many other aspects to Army supply-chain management and there are many different ways it has, or could, streamline its processes, reduce costs and achieve better results.

Among recent and ongoing efforts, the Logistics Support Activity (LOGSA) – one of its tasks being to maintain the mountains of logistics data generated by the Army – has adopted cloud technology and is considering its future options in that arena.

A dedicated tactical logistics network has been introduced, made possible by reductions in size, weight and power consumption of the components of satellite communications networks. Equipment manufacturers do their part as well, by simplifying the processes involved in ordering spare parts, and innovating technologies that can result in inventory and cost reductions.

LMP is one of the world's largest integrated supply chain, maintenance, repair and overhaul planning and execution solutions and uses SAP COTS software to manage and track orders and delivery of materiel to soldiers.

LMP, which captures logistics data from the Army supply system and manages a variety of logistics processes, came to

replace two legacy materiel management systems, the Commodity Command Standard System (CCSS) and the Standard Depot System (SDS).

CCSS and SDS were themselves an amalgam of more than 2,500 stovepiped programs that handled a laundry list of Army logistics functions, including ammunition management, depot maintenance, supply and inventory management, requisition processing, financial management, and goods and services procurement.

Planners opted for a phased implementation of LMP, starting in 2003 with US Army Materiel Command (AMC) and moving on to Communications-Electronics Command, Aviation and Missile Command, Tank-Automotive and Armaments Command (TACOM) and others. The legacy systems were finally terminated in 2014.

LMP has proceeded in two iterations. Increment 2, which is being deployed in three waves, is an expansion of the baseline system to address new and emerging AMC needs.

The final installations of the second iteration of LMP are scheduled to be completed in 2016, at which time the complete available functionality will have been installed throughout the entire Army supply system.

TRANSACTION TRAFFIC

"LMP handles approximately two million transactions daily," said LTC Robert Williams, LMP's product manager.

"It manages $22 billion in inventory with tens of thousands of vendors. The system has 30,000 users at over 50 Army and Department of Defense locations and interfaces with over 70 DoD systems." Increment 2 added 9,000 new users to the system.

"We see the results of LMP in the supply chain," said Mike Ivy, VP for global integrated product support at Oshkosh Defense. "LMP places demands on the supply system for parts and we fill those demands as part of the supply chain."

LMP generates demands from units and depots, which flow towards contractors like Oshkosh by two routes: from contracting commands like TACOM; or from the Defense Logistics Agency, a DoD unit and Oshkosh's largest customer for military spare parts. "The Army keeps certain parts in its portfolio and kicks others to DLA," Ivy explained.

The Army determined to use commercially available software to proceed with LMP in order to minimize complexity and costs, and has performed remarkably little tweaking or customization for such a large system.

"The LMP uses SAP's commercial-off-the-shelf products to deliver capabilities that streamline the business processes associated with the planning, acquisition, supply, maintenance, repair and overhaul of weapon systems, spare parts and services to the soldier," said Williams.

"Various SAP modules are used, configured and code-extended in accordance with SAP-sanctioned software extensions in LMP in order to deliver specific functionality that supports the Army

LTC Robert Williams

Materiel Command's mission. Overall customization in the LMP solution consists of only 29 SAP modifications of the COTS product used at LMP – an incredibly low quantity for the size and scope of the LMP ERP."

ADDITIONAL REQUIREMENTS

Since the inception of LMP, additional critical requirements have emerged from AMC, the wider Army and the DoD. For example, the capabilities provided by the LMP Increment 1 did not address AMC requirements for shop floor automation within the Army's organic industrial base and the service's goal for enterprise equipment management. Nor did Increment 1 address the DoD's mandate for the full retirement of legacy systems.

"In addition to supporting work loading, scheduling, inventory management and parts support for industrial base missions, through Increment 2, the LMP also supports the execution level of maintenance and production," said Williams.

"This means it supports IUID [item unique identification] capture and tracking and weapons system configuration and genealogy. This reduces data entry errors and allows industrial base technicians to quickly view planned tasks and record actual execution. The functionality also supports a standard enterprise solution for shop floor automation."

Specifically, Increment 2 creates electronic work instructions, improves capacity planning and scheduling, and supports IUID capability.

"For example," said Williams, "the typical overhaul of an Apache helicopter takes 30,000 pages of documentation. That's enough paper end to end to stretch across 75 football fields. With LMP, all that is replaced by artisans using a tablet computer to facilitate operations on the shop floor."

LMP Increment 2 replaces several systems currently used to receive, store, survey and issue ammunition, as well as streamline the business processes that run all aspects of ammunition management.

It also allows LMP to tap into the DLA's Army inventory, expanding the system's view of available inventory and allowing the service as a whole to more effectively and efficiently utilize existing inventory.

"Through Increment 2, the LMP better meets requirements to interchange data with the other Army and DLA ERPs," said Williams. "The Total Package Fielding solution improves visibility of plant maintenance assets in the LMP until the hand-off of assets is completed."

INFORMATION WAREHOUSE

LOGSA Information Technology Services (LITeS) is an AMC contract program that, among other things, runs the Army's Logistics Information Warehouse (LIW), a database that collects the immense volumes of data generated internally and provides logistics and business analytics services to more than 65,000
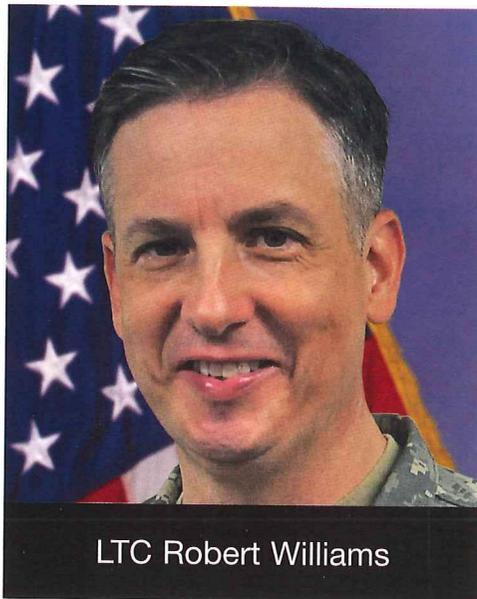
Army users. These analytics are designed to integrate information on materiel, including readiness, force structure and the state of repair of equipment.

The Army is currently using an on-premise IBM Hybrid Cloud based at AMC headquarters in Redstone Arsenal, Alabama, to run the logistics system.

The LITeS contract is scheduled to be re-competed in 2016, and the AMC will be considering whether to maintain the status quo with its on-premise cloud or to locate the data center elsewhere, perhaps with the Defense Information Services Agency (DISA). One alternative that is off the table, according those who attended an industry day meeting on the subject, is to transition the data center to a commercial cloud.

"The essence of LOGSA LITeS is the ability to extract relevant information and provide the right decision support tools," said Kerry Kachejian, director of Army accounts at Harris Critical Networks. The company has assembled a LOGSA team and intends to bid on the contract after the request for proposals is released this year.

"We have been studying LOGSA for a few years," said Kachejian. "My job has been to assemble a team of respected partners and logistics experts to provide alternatives for the government."

LITeS is primarily an IT services contract. The data center which houses the LIW is one big piece of the enterprise, but applications also play an important role in how LOGSA will evolve in the future.

"Some logistics apps have migrated to the ERP system," said Kachejian. "Some will continue to migrate and others will not. The push across DoD to reduce the number of data centers is also an important part of the new LOGSA LITeS contract.

"The Army is considering keeping the data center where it is, or migrating it to larger Army or DISA facilities. The government will be asking bidders to submit proposals based on all three possible scenarios."

A final LITeS request for proposals is expected to be released around May this year. An award could take place as soon as November for a contract that is expected to be for eight years.

DEDICATED COMMUNICATIONS

Soldiers operating in tactical environments have been able to take advantage of a dedicated logistics satellite communications network that was first stood up in 2005.

iDirect Government supplied some of the key components of the network as well as the software that runs it. The technology was refreshed in 2012, and company president John Ratigan expects another refresh to come down the road in 2016 or 2017.

"The logistic guys used to have only a couple of handheld radios and sometimes had to use sneaker mail to get requisitions filled," he said. "We were able to help them by developing small and inexpensive terminals that were deployed ubiquitously

John Ratigan

throughout all forward operating bases. The network provides forward-deployed soldiers [with] a broadband voice and data connection back to sanctuary as opposed to using a low-bandwidth radio."

iDirect continues to reduce the size, weight, and power requirements of its technology. "Our next-generation technology will be half the size and weight of what they have now, will use half the electricity, and will generate less heat," said Ratigan.

OEMs like Oshkosh support supply-chain management by kitting maintenance parts for the medium and heavy trucks the company builds for the Army.

"The trucks require routine maintenance," explained Ivy. "Because we are the OEM and understand the maintenance requirements better than anyone else, we built a number of kits that include everything that is needed for routine maintenance activities. Maintainers in the field can order one stock number and get all the parts needed to perform quarterly, semi-annual or annual service without having to worry about the individual filters, belts and gaskets."

These maintenance kits have been though the provisioning process and have national stock numbers assigned. Maintainers order the kit NSN through the Army system as with any other part.

"We also reduce the costs to the government for spare parts by buying larger volumes," said Ivy. "We also keep some inventory on behalf of the government, especially for fast-moving and critical parts."

COMMERCIAL CROSSOVER

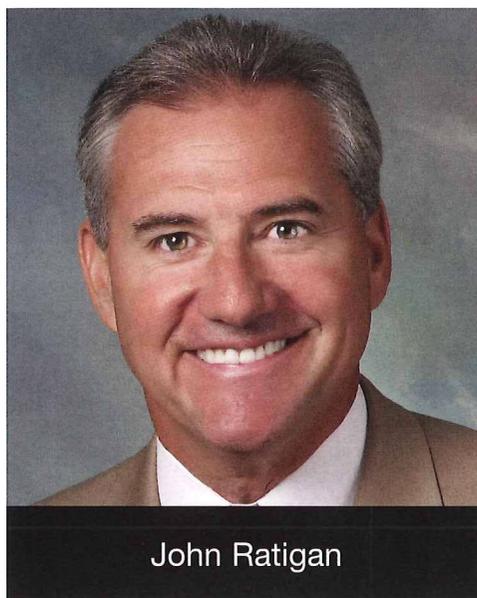Future Army supply-chain enhancements could include technology that is already deployed on vehicles in the commercial sector.

Navistar, which supplies MaxxPro MRAP vehicles to the Army, has deployed its OnCommand technology on trucks it sells to commercial customers. OnCommand allows the vehicles to communicate their health over the air in real time.

"Navistar's architecture strategy is not married to a particular telematics vendor, so we can provide remote diagnostics with almost any of them," said Jim Grooms, VP for logistics and sustainment at Navistar Defense. "This supports the commercial equivalent of what the military calls condition-based maintenance."

Navistar commercial customers have benefited from OnCommand, according to Grooms, by reducing their costs and driving profits to the bottom line. "For the government, OnCommand could reduce ownership costs and allow them to manage assets better and reallocate resources elsewhere," he said.

As for LMP, the Army is currently deploying Increment 2 Wave 3 to its remaining industrial base sites. Williams said: "When that is complete [which is expected in May 2016] the rollout of LMP Increment 2 functionality to the Army Materiel Command will be complete." ∎