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Reverse Auctions ★ Defense Transportation ★ Afghanistan Retrograde
ILS ★ Supply Chain Efficiencies ★ DMSMS ★ Senior Logisticians

Integrated Logistics Support

**TIGHT BUDGETS DEMAND
EVEN BETTER ILS.**

**By HENRY CANADAY
MLF CORRESPONDENT**

Building logistics into the design and planning of weapons and other systems through integrated logistics support (ILS) has a long history. But it constantly changes as lessons are learned, new tools are developed and new challenges are encountered. The core aim of ILS—more reliable assets supported at more affordable costs—is more essential than ever under today's tight defense budgets.

Every Air Force weapon system has ILS to some degree, according to Air Mobility Command's Directorate of Logistics. Air Force ILS covers many elements, including reliability engineering, maintainability engineering and maintenance, planning for spare parts, support and test equipment, manpower, training, technical data, computer resources, facilities, packaging, handling, storage and transportation, as well as design interface.

ILS is set up through collaboration with the Air Force Lifecycle Management Office and other stakeholders. Formal boards are established to ensure collaboration and prioritization of resources. The ILS process runs from specification and design through develop-

ment, acquisition, test, fielding and support, on through retirement.

ILS benefits include improving reliability, availability, maintainability and safety in logistics. The directorate said ILS is essential to managing the "big three" of any program's life cycle: cost, schedule and performance.

The major hurdle to effective ILS is financial constraints. Costs can usually be cut in only three areas: performance, quantity or logistic support. The directorate said, unfortunately, costs are usually cut in logistics.

Naval Air Systems Command organizes ILS with a life-cycle sustainment plan (LCSP), explained Ildegardo Olea, technical director for logistics management integration at NAVAIR. The LCSP begins at the materiel solution analysis phase of acquisition with a technology analysis and analysis of alternative (AoA) support options. The AoA looks broadly at all logistics choices in light of the concept of operations and other factors.

At this early stage, NAVAIR focuses on key drivers of long terms costs, items that may be unreliable, costly or require highly skilled labor. "We want to see if we can improve here, to minimize the impact," Olea said.



Ildegardo Olea

As technology is developed, NAVAIR establishes the sustainment concept and a framework for execution and sets metrics goals, thresholds and test methods. During engineering and manufacturing development, the LCSP defines support structure and product support package (PSP) requirements. PSP and metric verification methods are established and detailed development and fielding plans are established.

The LCSP defines further steps as the system enters production and fielding. But Olea said the toughest steps are the early ones, especially pushing supportability in design. "We are after capabilities, to complete a mission, kill the target or do surveillance. With limited budgets, sometimes performance wins out over supportability."

One of largest benefits of ILS is that the military can gain the expertise of companies whose sole focus is on logistics, said Rosemary Johnston, vice president of federal sales strategy and business operations at Savi. These companies may be experts in logistics as a whole, or in specific elements of ILS, such as part management, test equipment, training, technical data, facilities, package handling and so forth. "This allows the military and Defense civilians to focus on other critical aspects of the program," Johnston says. "The firms have repeatable processes

that they have fine-tuned to save manpower and costs.”

Savi’s logistics specialties are in packaging, handling, storage, and transportation (PHS&T) and in inventory management. The firm uses historical and real-time data to keep assets headed in the right direction, exploiting automatic identification technology (AIT) tools, barcode and both active and passive RFID, to save manpower and costs in the process.

Johnston said one major hurdle to effective ILS is that there are so many participants, including military, government civilian and contractor staff. “You must make sure you have a tight plan that everyone feels a part of and feels they have invested in.”

Further, the “heart” of effective ILS is metrics, Johnston stressed. “Make sure you have sound metrics that measure both the effectiveness and efficiency of the entire team. And senior management must manage expectations around those metrics.”

Alion Science supplies engineering, technology and operating solutions for defense, government and commercial organizations. About half of Alion’s work is done for the Navy. It also works for the Army’s Tank Automotive Research, Development and Engineering Center and night-vision offices, Air Force Space Command, and the Marine Expeditionary Force.

Alion often brings high-quality engineering to a program very quickly to help the government with tough ILS challenges, said Charles Fletcher, director of the firm’s Army and logistics programs and once director of operations and plans at U.S. Transportation Command. On technical data, the firm has a very strong relationship with the Defense Technical Information Center. It also helps with design interface, making sure new equipment works with older items and simplifying supply chains by using common parts.

Fletcher said ILS has been around a long time, citing the efforts of the U.K. Ministry of Defence (MOD) in the early 1990s to look at life cycle costs as an important milestone. He noted that U.S. services have pursued ILS in many different ways, with the Air Force, for example, putting responsibility on Boeing for the life cycle cost and reliability of the C-17 Globemaster.



Charlie Fletcher

The first step in ILS is to decide on a strategy of support. The U.K. MOD is now putting the full burden of support on equipment manufacturers, after further cuts in budgets and disappointment with some internal systems that were supposed to cut costs. “They figure if they can pick the right provider that firm will be better qualified to do it,” Fletcher observed. He said 80 percent of U.K. defense vehicles are supported by OEMs and MOD is now outsourcing the supply chain.

That might be one model for U.S. ILS in the future. But there are many others.

Fletcher said one big impediment to effective ILS is still the separation of defense funding into acquisition and support accounts, which can make acquisition people seek to stay within their allotment, even if other costs rise down the road. And initial program managers often retire before their products are delivered and accumulate a cost and reliability record, making it difficult to incentivize performance.

On the other hand, Fletcher said there is now a much more sophisticated management oversight of financial, technical and logistical staff and installation managers. ILS means making all of these people accountable throughout the life of a program, he stressed. He believes defense agencies are getting better at the man-machine interface, so operators are not breaking equipment as often and breakages can be fixed more readily.

With tighter defense budgets and fewer new programs, Fletcher hopes top engineers will migrate to reliability engineering. But he cautions that this field, while critical, is not as glamorous as designing new systems. “The key to ILS is metrics. You have to establish them, clearly articulate them and measure them against execution. It’s not the kind of thing you put on a company billboard.”

ILS means considering all logistic elements when building a product-support strategy, according to Alan Thompson, former director of the Defense Logistics Agency and now vice president of logistics at Honeywell Technology Solutions. Sometimes effective

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ILS takes a very specific form. “Performance-based logistics (PBL) are an example of ILS that provides exceptional support, cost saving and improved reliability and maintainability,” Thompson said.

Honeywell has several PBLs in which it provides program and supply-chain management and some engineering support, while government depots provide facilities and labor.

The Honeywell exec estimates that, across platforms, Honeywell PBLs have achieved a 20 percent gain in component or system reliability, a 10 to 15 percent reduction in repair cost and shorter logistical response times. “Long term, they also protect the capability of government depots—that’s huge.”

The Defense Department now has an initiative to move to an Enterprise PBL contract that Thompson believes would be very beneficial. PBLs have evolved differently over a dozen years in the Army, Navy and Air Force, and they could be made more consistent.

At Hill Air Force Base, Honeywell provides program and supply-chain management and engineering for components on the C-130 and the F-15, while at Corpus Christi, its PBL just supports the supply chain. “If we moved to a fuller PBL there, we could provide real benefits,” Thompson argued. “We do not want consistency for consistency’s sake, but to make PBLs more comprehensive to provide more benefits.”

Hurdles to effective ILS through PBLs include differences in practices among the services, and “any time you try to standardize you are going to have frictions,” Thompson said.

The new Enterprise PBL approach has picked up momentum in the last six months. It would consolidate a firm’s individual PBLs into a single defense-wide contract. “We expect to see an RFP soon,” Thompson noted.

Other managers speak of ILS from operational experience.

“Logistic support is critical to sustaining a force in operations,” said Bill Newton, now vice president of the Phoenix Group and a former submarine officer. “If you can’t fix

something in the field, sometimes you are out of business.”

Newton said effective ILS means field staff must have the right information in the right format. He recalled the Navy’s move to online technical manuals. “That is wonderful if you are sitting at a desk, but when you are climbing a mast, there are no laptops.”

Newton said planners must ensure they can support any product before they put it on a ship. “There is a disconnect sometimes between installation engineers and logistics engineers.” But he said things are moving in the right direction, with defense making total cost of ownership and life cycle cost key metrics.

Newton argued that private support of ILS is essential. “The government is too large a bureaucracy to respond quickly. It takes at least a year from learning about a need to awarding a contract. Look how many thousands of new applications come out each month. The military is still using barcodes, while the rest of the world is on QR codes.”

Phoenix helps the Navy evaluate the readiness of aircraft-carrier modifications, figuring out if the logistics is ready three months before installation or if an exception can be made to this requirement. “If the operating manual is not ready, they can’t do testing, so it’s not okay,” he explained. “But if it’s a coffee maker, it’s okay. We help make those tradeoffs.”

For 20 years, NCI has worked for Program Executive Officer Soldier, helping ensure everything a soldier wears or touches is supportable and has the lowest life cycle cost possible, explained Senior Technical Advisor Alan Cartwright.

Cartwright has worked in ILS since 1979 and once was ILS manager for Army Materiel Command, where he worked on the AH-64 Apache Longbow, the CH-47 Chinook and the Aquila remotely piloted vehicle.

“ILS has well-established benefits, maximizing supportability and minimizing cost,” Cartwright summarized. “Before ILS, the military found that a lot of systems were fielded without the consideration of logistics.

The ILS veteran said software is now much better than when he started. Among major ILS elements, computer resources are

increasingly important. Cartwright argued that the most important ILS requirement is that logistics be designed into equipment up front. He recalled that an early mentor insisted that engine compartments of the Bradley fighting vehicle be made easily accessible so that the power pack did not have to be removed to replace frequently repaired items.

Other evidence of ILS benefits: Both the Longbow and Chinook have been highly successful, while the Aquila was canceled because it could not meet ILS requirements.

Cartwright said the ILS process varies by system, but is always iterative and integrated and is both art and science. “Many qualitative and quantitative tradeoffs must be made between operating and logistics and within logistics to find the optimal mix of ILS elements.”

The process is aided by Logistics Support Analysis (LSA) and the LSA Record, which documents the process. “Processes differ depending on the system being developed. For instance, life-saving equipment, such as mine-resistant ambush protected vehicles, was deployed rapidly during conflicts in Iraq and Afghanistan. Other systems take 10 years or more to get into the combat zone.”

Cartwright said some acquisition managers are still not as aware of ILS processes and benefits as they should be, although this hurdle is declining. “They must plan for the time and budget to do ILS well and seek the best subject matter experts they can find. It’s not easy to do this because budgeting for ILS adds money and time to the acquisition process. But it pays off in reduced life cycle costs and increased system readiness.”

Cartwright pointed out that one ILS improvement made in PEO Soldier was NCI’s development of the Soldier as a System, which means looking at everything the soldier has to carry, especially the weight, to determine the effectiveness of systems as a whole.

Cartwright predicted ILS will become more scientific in the future, with more prescribed steps, because there have been many lessons learned. “We have learned how to better customize ILS to fit the systems being acquired. We can also expect software to become more powerful in influencing designs to improve supportability and minimize cost.” ★



Alan Thompson



Bill Newton

For more information, contact Editor-in-Chief Jeff McLaughan at jeffm@kmiemediagroup.com or search our online archives for related stories at www.mlf-kmi.com.