

DESIGNING LOGISTICS INFORMATION SYSTEMS for Global Military Operations

2020

Whitepaper

A look at four challenges in establishing global LIS solutions to sustain critical military systems.



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Introduction

The United States (US) Government employs a variety of force protection and intelligence, surveillance, and reconnaissance (ISR) systems around the world. These systems detect and defend against threats to US service members and allied forces. The vital function of these systems—protecting US soldiers and allies—requires the equipment to be operational at all times, accomplished through responsive and agile logistics operations. Yet, many of these systems reside in remote locations and harsh environments, including active combat zones, which adds complexity to logistics.

A critical tool of successful logistics operations is the Logistics Information System (LIS). An LIS is a database used to effectively collect, validate, and analyze supply and maintenance data throughout the asset management lifecycle. The LIS tracks parts and supplies, maintenance actions, and quality control checks to help keep mission critical systems operational. For example, users can track the time it takes to deliver a part to a specific location in theater or track how often a part needs to be replaced. Analyzing this information, Logistics Specialists can then predict when to order and ship parts so they arrive at the right time and in the right quantities, preventing long system downtime waiting for part replacements. The LIS also communicates a transparent picture of inventory and asset information to geographically dispersed personnel, including Government representatives.

STS International designs, customizes, and deploys Logistics Information Systems for global asset management. Through our experience establishing end-to-end LIS solutions to sustain military systems, STS has identified and solved some of the top challenges faced when implementing an LIS, discussed in this paper.



#1 Customization

Challenges:

Every program's needs are unique, so the most relevant data to capture and processes to implement will also be unique. However, most out-of-the box LIS tools are based on a common standard and can be difficult and time-consuming to customize.

STS Solutions:

Designing an LIS begins with establishing client objectives and project requirements. Our LIS subject matter experts (SMEs) work alongside the client to define their goals and understand their operations, tools, and expectations in order to customize an LIS. Creating a custom LIS can include tailoring the design and function of the system itself as well as integrating the system with other applications.

Part of our solution includes helping the client break down high-level performance objectives into lower-level project metrics. By breaking down objectives into measurable data points, we can then build the necessary fields, modules, work flows, and embedded logic into the system. Using the right lower-level metrics within the LIS, mapped back to high-level objectives, enhances program performance and efficiencies. STS has helped customers achieve high-level objectives for operational availability by breaking down lower-level metrics for supply, maintenance, administrative tasks, and operations.

Custom fields, modules, and work flows are built into the LIS to track the metrics most relevant to project objectives. These metrics are analyzed in dashboards for real-time insight into project performance.





#1 Customization

An LIS can also be customized according to industry requirements and user level. As a logistics provider for the Department of Defense (DoD), STS developed a DoD-custom version of Maximo, tailored to DoD standards for metrics like mission capability status as well as rigorous DoD security requirements. In addition, we developed custom system integration solutions to seamlessly connect

with Government-owned tools such as GCSS-A, COLTS, and others. Even within a single clients' LIS, different user roles may have very different needs. We can therefore create user groups with unique customizations. One user group may have a unique home screen compared to another user group to quickly view and access the most essential information for their job function.





Data integrity is ensured through custom quality control procedures built into the system. We identify critical process checks, create user permissions, and establish procedural ownership to safeguard data integrity. After implementing an LIS with built-in QA/QC measures, our own Procurement Management Team saw an 80% increase in part request information accuracy. Our Inventory Management Team saved 32 hours per month, or about 384 hours per year, in time spent reviewing and correcting data.





#2 Reporting & Analytics

Challenges:

A large amount of data in a database provides little value without effective means of harvesting information and synthesizing meaning. Analytics and reporting should therefore be a significant consideration of any end-to-end LIS solution, to empower leadership with their own data and make informed decisions. While an LIS can be used for some reporting and analytics, running constant or advanced reports against the database can slow down the entire system for users. In addition, the LIS may not necessarily contain all the appropriate data desired for certain advanced analytics (some data needed, for example, may reside in a separate accounting or purchasing system).

STS Solutions:

Best practices for data management include the use of a separate data warehouse to refine the data and perform advanced analytics. Using a data warehouse for reporting reduces the computing demand on the LIS and prevents major slowdowns to the system. An independent reporting application also enables the LIS data to be integrated with and analyzed alongside other data from multiple systems, such as financial data from accounting systems.

As a systems integrator, STS incorporates the appropriate tools and applications into a total LIS solution for our clients' operations, including integration with data warehouses, purchasing systems, modeling and analytics software, and other databases (COLTS, GCSS-A, LMP).

Our data experts help clients interpret data and find logic in data sets for actionable reports. Our suite of analytics tools provides custom reporting and dashboarding capabilities. Dashboard options enable both online and offline viewing, so personnel can access reports even with loss of internet connection. With connectivity, users have interactive dashboard features that show connections among report elements and drill down into lower level details. Custom reporting is aligned with meaningful metrics to measure program objectives and provide actionable insight, improving decision making and enhancing efficiency in daily tasks.



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systems



#3 Access

Challenges:

Our technicians are deployed worldwide to sustain some of our Government's most critical technical systems. These systems are often located in remote areas off installations with poor or no connectivity to the internet, which means technicians cannot input real-time data or extract information from the LIS. Without connecting to the LIS to download work instructions, order parts, or communicate with the team, technicians can experience significant delays in repairing systems and restoring operations.

STS Solutions:

The ability to make accurate situational assessments and decisions depends on having the most up-to-date data available. To address connectivity and access challenges, STS instituted several business processes and tools. The first step was ensuring technicians had access to the LIS anytime, anywhere. STS developed and fielded a custom mobile application of our LIS, enabling access to the database from a mobile phone or tablet even without internet connectivity. The mobile application is designed to be fully operational offline, and it automatically syncs with the LIS database once connection is restored, capturing data as close to the event as possible without waiting for manual entry.

A mobile LIS application also allows technicians to download work instructions, technical manuals, or other maintenance data through the app prior to deploying and losing connection. The predownloaded information is readily accessible for technicians on their mobile devices without the hassle of long download times during periods of poor connection. A mobile LIS solution increases technician response times, decreases supply and maintenance delay times, enhances the quality of real-time data from the field, and effectively achieves operational availability (Ao) objectives.



A mobile LIS application enables real-time information with direct entry of failure data and maintenance activity into the system.



#3 Access

Building communication alternatives into the business process also helped resolve connectivity challenges in OCONUS environments. Understanding the importance of real-time data in combat environments, STS adopted a PACE Communication Plan. PACE plans are important communication plans used by the military for operations in contested environments. STS applied this key communication tool to our own business operations to ensure effective, real-time data capture within the LIS database. As shown in our PACE plan, instituting this key business process for data capture enabled response times in 5 minutes or less through the first three process steps and no later than 24 hours under rare, critical circumstances.





#4 Training

Challenges:

The quality of data in any LIS depends on the quality of the business processes behind the data collection, which means *training* for these processes and work flows is crucial for data integrity. One of the most important success factors to implementing an LIS is the quality of training provided to the users of the system. However, delivering quality, comprehensive training poses its own challenges for several reasons.

The first challenge includes the variety of training instruction needed due to different user roles and learning methods. Different users have different functions and system displays/privileges. Training must be tailored by user role, level, and complexity among other factors. In addition, users can be deployed across time zones with varying availability for training, as well as various preferences for learning styles. Methods of instruction should be versatile and flexible to suit client needs.

The second challenge of LIS training is the frequency of training events and volume of ongoing training support. New or refresher training can be triggered frequently from multiple events. For example, the need for training arises any time a new user is added to the system. Training can also be triggered through any changes to processes or security requirements—both of which can occur often given the shifting nature of security threats or evolving customer requirements. Yet, databases like an LIS are often best learned through use. So while beginner training is essential, new users will often require continual 24/7 support as they navigate the system and run through different real-world scenarios.

Another substantial challenge with LIS training is the consistent balance between quality training and burden on the mission. In many OCONUS deployment locations, the mission never stops. Technicians must be ready to respond to service calls and deploy at any given moment. LIS training for deployed technicians must inherently be agile and flexible to balance quality training with the needs of the mission.



#4 Training

STS Solutions:

Our quality LIS training revolves around the tenets of customization, responsiveness, and agility. First, we customize LIS training to both the mission objectives and the user role. Every program's requirements are unique, so system and process training will also be customized into unique training packages. Custom training packages include role-specific instruction, so every user receives the right training relevant to how that user will actually use and view the system.

In addition to role-based training, STS provides a high-level, 360-degree training overview of the entire system. A comprehensive overview enables all users to understand the complete LIS ecosystem and how each user's actions in the system affect other work flows and processes. Empowering users to understand how each LIS action drives the overarching enterprise process results in 1) a greater awareness/buy-in of the system, 2) enhanced compliance with processes, and 3) better quality of data collection.

Truly responsive training requires an availability of trainers and support, as well as a variety of instruction methods that best suit the needs of the user. STS provides 24/7 Help Desk support for real-time troubleshooting and ongoing training, provided by LIS experts who actually use the system every day. In addition, we design curriculum tailored to several methods of learning including inperson, class-based instruction and self-paced, web-based tutorials and learning modules.

Because the mission never stops, personnel training must be agile and ready to adapt to operational needs and training surges. Agile training capabilities enable off-hours scheduling and flexible class rotations. Online course material and work instructions, available through our training portal, provide access to the most up-to-date curriculum and flexible learning schedules.





Conclusion

Successful global logistics operations are reinforced by the supporting tools to track, analyze, and predict logistics data, such as the Logistics Information System (LIS). Implementing a global LIS solution, however, encompasses far more components than setting up a database. It requires a full understanding of the entire asset management lifecycle, from establishing requirements and creating custom business processes to real-time program performance analytics and training support. STS provides an end-to-end LIS solution addressing some of the most intricate, but important, challenges faced in creating an effective tool that supports sustainment programs.