



WHAT IS THE eLOG21 CAMPAIGN?

Expeditionary Logistics for the 21st Century (eLog21) is a campaign with over 20 initiatives that will fundamentally revolutionize the way the Air Force provides logistics support. The eLog21 Campaign plan is designed to transition Air Force logistic processes from the current reactionary, functionally stove-piped processes to an anticipatory (planning based), cross-functional (highly trained), integrated (fully visibility by all parties), high performance (new metrics) operation.

eLog21 has charted the course for transformation by streamlining and modernizing fundamental business practices, targeting its operational capabilities while minimizing costs to deliver these capabilities. Achieving the vision and goals of eLog21 requires a comprehensive re-engineering of many business processes as well as major improvements in the enabling Information Technology (IT) supporting combat support operations.

WHAT IS ECSS?

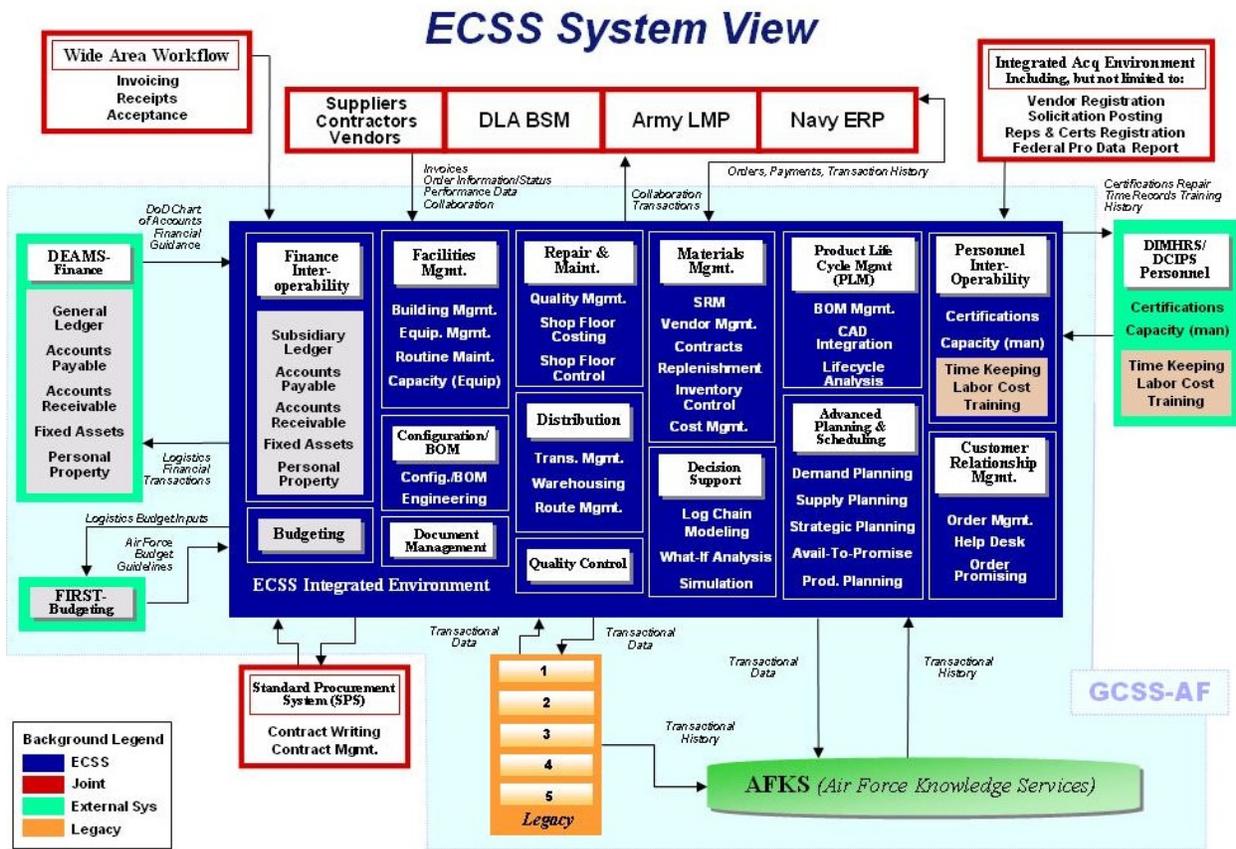
The Air Force currently has over 500 disparate logistics legacy information systems. In order for Air Force logistics to transform, it needs to establish an enterprise view, integrate processes, better utilize resources, and integrate data and technology across the supply chain. The eLog21 initiative, Expeditionary Combat Support System (ECSS), is the Information IT modernization component of the overall logistics transformation effort. The Air Force will improve warfighter capability by transforming its logistics business processes to an anticipatory, integrated operation. ECSS will enable this by establishing a modernized information system, applying best commercial practices, and utilizing commercial-off-the-shelf (COTS) based solutions in order to operate logistics processes with synchronous, near real-time status and location of equipment, parts, people and money. The Air Force is also planning and executing the retirement of many logistics legacy information systems in order to transition to a new enterprise system suite.

ECSS will implement the Commercial-Off-the-Shelf (COTS) solutions to enable the eLog21 vision. It is an information technology suite that is comprised of an Enterprise Resource Planning (ERP) system at its core with "bolt-on" applications in order to extend its functionality where the integrated COTS solution cannot. It also provides an infrastructure to allow for legacy and "bolt-on" integration as required. An ERP is defined as "a set of applications software that brings manufacturing, financials, distribution and other business functions into balance." (Gartner) It integrates all departments and functions across an enterprise onto a single computing system that can serve all those different departments' particular needs. It standardizes business processes and tools across the entire enterprise, regardless of program or site. The integration of systems and technology also enables the reengineering of the business processes by leveraging technological capabilities that were previously unavailable. Oracle Corporation has been selected to provide the software solution for ECSS. Oracle is the leader in innovative software technologies for enterprise information management, and is a proven COTS based solution.

SCOPE

The scope of ECSS will provide a significant number of functionalities that will enable a more effective and efficient logistic supply chain. Figure 1 depicts how each of these functional areas is integrated into the system. The core ECSS functionalities are denoted by the blue background. As illustrated in the figure, ECSS will interface with external systems, such as DEAMS, DIMHRS, GCSS-AF, and AFKS. It will also interface with the other Services. Example proposed ECSS functional modules and their benefits are described in Appendix A.

Figure 1: ECSS Proposed Functional Modules as of 7 March 2006



IMPLEMENTATION

The transition to ECSS is planned to be in production by FY2012. A multi-phased approach will be used to incorporate industry best practices and industry lessons learned using improved business processes to drive information technology. The Business Blueprint phase is the first phase and will initiate the transition to the ERP solution for the Air Force. Part of the blue printing process will include process validation work through the use of Proof of Concepts, Pathfinders and spiral developments for system functionality. This will lower implementation risk and allow for faster system deployment. Legacy processes and systems will also run in parallel while deploying new processes in order to reduce risk, but will be phased out as new processes and systems become fully operational.

A thorough gap analysis will be conducted to identify shortfalls between the newly identified processes and the Enterprise Solution. Additionally, the system integration team will perform an organizational and technical assessment. The results from these assessments will be the foundation for the Change Management Plan. One output from the technical assessment will be a recommendation for the infrastructure (hardware & network) required to support the new solution. Once a foundational base system is implemented, fielding can begin. System fielding will be prioritized, and will occur first to where the solution will have the most impact.

TYPICAL OPERATIONAL AND TECHNICAL IMPROVEMENTS

Below are operational and technical improvements typically achieved from information technology implementations similar to ECSS. These benefit benchmarks and examples were obtained through research performed by AMR, BearingPoint, Gartner, The Hackett Group, IDC, McKinsey, Meta Group and PRTM. A detailed analysis of the expected impact of these improvements for the balance of the ECSS program (beyond APS) has not yet been

conducted. However, we expect that even on the low end of these benchmarks, they will provide a substantial contribution to the eLog21 \$2.75B per year cost reduction stretch goal.

Operational Improvements:

In addition to providing the industry benchmarks from commercial industries, Government, DoD and Aerospace benchmarks and examples were identified, as depicted in Figure 2, to further narrow down the ranges of the expected results for Air Force logistics. It is expected that as a minimum the lowest improvement values captured in the Industry Benchmarks will apply to the Air Force. This alone provides significant benefits.

Figure 2: Typical Industry Operational Improvements

Industry Benchmarks		Aerospace Examples	
Process	Improvement Values	Process	Improvement Values
Order Fulfillment Management		New Piper Aircraft	
Cycle time of work order repairs	20-75% reduced	50% increase in employee productivity in call-center	
Response time to requests for quotes	60-80% reduced	Raytheon Aircraft	
On-time delivery	25-50% improved	Shortened AOG (aircraft on ground) from 14 days to less than 24 hours	
Order fill rates	20-30% (up to 99.8% rate)	Aerocell Incorporated	
Fulfillment cycle	11-50% improved	200% increase in inventory turns (from 2 to 6)	
Materials Management and Production		25% reduction of scrap	
Inventory	10-60% reduced	GE Aircraft Engines	
Spares inventory	10-40% reduced	50% reduction in customer service response time	
Inventory turns	up to 100%	2.5X improvement in customer satisfaction	
Availability of raw materials for production	80-97% improved	Achieved \$5M in annual cost savings through personal redeployment	
Indirect costs associated with production	5-15% improved	Honeywell Aerospace	
Supplier management costs	30-50% reduced	27% reduction in average customer service response time	
Write-offs/Obsolesce related to inventory	15-40% reduced	30% improvement in customer satisfaction	
Capacity Utilization	10-20% improved	Aviall Services	
Delivery		80% reduction in order processing steps	
Average delivery distance and time	20-30% reduced	99% order accuracy for orders going out of the warehouse	
Report time and effort	40-75% reduced	50% reduction in AOG response time	
Number of warehouses	15-85% reduced	30% improvement in customer satisfaction	
Number of customer complaints	10-30% reduced	ATW Maintenance Channel - System and Process	
Workforce		10% increase in maintenance productivity, reduce inventory 30%	
Staff redeployment	20-40% reduced	22% reduction in maintenance turnaround time, 28% increase in labor productivity	
Planning		30% increase maintainer productivity	
Planning cycle time reductions	up to 70%		
Forecast Accuracy	25-80% improved		

DoD-Related Benchmarks	
Process	Improvement Values
Navy ERP Convergence Accepted Savings Benchmark	
Program Management	5-11%
Plant Supply	5-10%
Warehouse Supply	5-10%
Asset Mgmt & Decision Analysis	5-10%
Maintenance Plant Supply	3-5%
Depot Level Maintenance	5-7%
Reduction in Inventory	10-15%
NEMAIS Benefits	
Time to screen jobs - down from 1.9 days to 0.7 days	
Job rejection - down from 10.9% to 2.9%	
FMAV Planning & execution - up from 56.8% to 77% (jobs completed)	
Rejected job turn around - from 20 days to instantaneous	

Technical Improvements:

In addition to the consolidation of legacy systems, which the savings alone can fund the ECSS program, below are IT cost savings that are industry-wide as well as some related examples:

- Industry - IT interface and support costs are reduced 50-75%
- Example – Boeing projected a 25% reduction in annual IT costs
- Example – Dassault projected a 30% reduction in annual IT costs

Appendix A: ECSS Proposed Functional Module Descriptions

Proposed Functional Module
<p data-bbox="167 302 1373 329">Advanced Planning and Scheduling (APS)</p> <p data-bbox="167 359 1373 415">APS develops unconstrained forecast/requirement across the enterprise (maintenance, supply & maintenance). It determines constrained execution plans based on customer need.</p> <p data-bbox="167 443 272 470">Benefits:</p> <ul data-bbox="167 470 1373 640" style="list-style-type: none"><li data-bbox="167 470 1373 527">• Allows for single, best-of-breed, functionality for analyzing and forecasting requirements based upon operational plans and performance.<li data-bbox="167 527 1373 583">• Creates planning capabilities for: Demand, Source and Supply, Production and Repair/Maintenance, Delivery and Transportation.<li data-bbox="167 583 1373 611">• Enables Logistics process to transition to an operate-to-plan model that is driven by enterprise goals.<li data-bbox="167 611 1373 640">• Ties shop floor scheduling directly to maintenance planning and distribution will be driven by delivery plan.
<p data-bbox="167 640 1373 667">Budgeting</p> <p data-bbox="167 697 1373 835">The purpose of the Budgeting function is to better predict and manage the expenditures associated with procuring, repairing, managing, and distributing material blended with contingency programmatic factors. Activity levels drive the budget from the plans created in APS as well as historical data. The Budgeting function of the Enterprise Solution will enable projections and 'what-if' scenarios. The respective organizational budgets can be assimilated for the POM process to create the AF Budget.</p> <p data-bbox="167 863 272 890">Benefits:</p> <ul data-bbox="167 890 1373 972" style="list-style-type: none"><li data-bbox="167 890 1373 917">• Links the operational data provided to a budgeting application and process.<li data-bbox="167 917 1373 972">• Provides a single enterprise wide tool and process that will support budget development, variance analysis, and re-planning based on high quality, high availability operations, and planning data.
<p data-bbox="167 972 1373 999">Configuration & Bill of Materials (BOM)</p> <p data-bbox="167 1029 1373 1113">This module will enable the establishment and management of equipment masters. It will also maintain BOMs, engineering, and other related configurations. Design and engineering applications will be linked with configuration/BOMs to provide accurate bill-of-materials, routing, revision levels, and effectivity dates.</p> <p data-bbox="167 1140 272 1167">Benefits:</p> <ul data-bbox="167 1167 1373 1306" style="list-style-type: none"><li data-bbox="167 1167 1373 1224">• Provides an engineering change management process that will control the review and approval of material design changes and to link design activities with repair.<li data-bbox="167 1224 1373 1281">• Enables systematic integration that will vastly improve the speed of update and the quality of data and will eliminate much labor intensive activities currently expended in repair to capture, cleanse, and enter data.<li data-bbox="167 1281 1373 1306">• Makes configuration data available that is enterprise-wide and eliminates redundant, error-prone data.

Proposed Functional Module

CRM and OM

Customer Relationship Management (CRM) / Order Management (OM) traces the order fulfillment process from the material/asset request to the fulfillment of the order. It begins by managing all aspects of a customer profile. A customer order is received and managed by performing an availability check, reviewing on-hand balances and location of the material. A promise date is confirmed, material is released, and inventory balances are updated in the enterprise-wide system. If the material is not available, it may be substituted with a like item or placed on backorder.

Benefits:

- Provides customers with improved order creation capability, visibility to order status, and accessibility to a help desk, which will have access to real-time inventory and delivery scheduling information at its disposal.
- Enables advanced shipped notices prior to shipment's arrival.
- Improves order promises based upon Available-To-Promise data.
- Provides accurate information about customer needs that will facilitate collaboration with customers concerning delivery requirements, due dates, and supply alternatives.

Decision Support

This module provides the capability to use enterprise-wide information to help make key management decisions. It integrates information across process and functional areas and can include legacy system data. Decision Support includes both data collection / reporting and modeling / optimization / simulation capabilities.

Benefits:

- Provides accurate and timely information for assessments to drive many decision processes, including Product Lifecycle Management and Financial Modeling.
- Enables AF Logistics to be forward thinking and to base those thoughts on realistic data about supply chain performance and supply chain plans.

Document Management

This module will require the identification of every type of document used in current as well as future state processes. Documents are attached to specific equipment, assets, material, and transactions. Data cleansing will standardize formats and methods used to link data. Extensive data conversion effort will be required that will support the Data Management process. Document maintenance is included for searching and retrieval.

Benefits:

- Enables critical documents initiated in the legacy environment to be processed within the ERP environment with minimum of duplicative effort.
- Populates the ERP data model with critical data that will be managed within ERP at future stages of implementation.

Distribution & Transportation

Distribution and Transportation includes the storage, picking, shipping, and transporting of the materials / assets and the physical control of assets including cycle counting and inventory tracking. Scheduling, warehousing and transportation activities, and the creation of all documentation (e.g. shipping and exporting) required to support the physical process is also included. Addresses partnering and integration with 3PLs or DoD fleet for the shipment of the packages.

Benefits:

- Introduce enterprise-wide best practices of Advanced Ship Notice and Material Tracking, which will increase the certainty with which customers and operations view material availability schedules.
- Repair activities will be able to make use of in-transit information for shop floor scheduling and customers can plan their activities based on time certain delivery.
- Distribution and Transportation will be paperless and work will be automatically scheduled and routed based on material availability and due dates.
- Integration with service providers (3PL and DoD) will be automated and will have positive feedback about status and performance.

Proposed Functional Module

Facilities Management

This module provides vital information regarding the facilities and equipment used across the Air Force. It will focus on enabling the processes used to track, maintain, and value logistics processes, logistics facilities, and equipment broadly defined to include buildings, machinery, or tooling.

Benefits:

- Enables serialized tracking of fixed assets, which will allow for better management of logistics assets by making equipment history, scheduled routine maintenance, usage statistics, and other life cycle data available to all users.
- Enables capacity planning and shop floor control during the Repair and Maintenance module.
- Enables systematic accounting for facility and equipment assets, for assessing their performance and capability and for planning Facility and Equipment maintenance, upgrade, and capacity increments.

Material Management & Contracting

This module begins with a single source of master data. Purchase requisitions are managed and procurement methods are evaluated. Potential vendors are selected and open solicitation begins for material acquisition. Proposals are evaluated and awards are proposed. Finally, decisions are made and procurement occurs.

Benefits:

- Provides users with an enterprise view of inventory levels, facilitating robust inventory control processes by automatically creating demands as inventory balances reach predetermined minimum levels.
- Enables inventory replenishment to be managed consistently and in alignment with enterprise needs.
- Triggers material replenishment requirements by Material Requirements Planning (MRP) based on repair schedules and by material requests based upon established inventory levels.
- Improves cost management processes. As materials move through the enterprise, the associated financial transactions including purchase order generation and payment, inventory valuation, material issues and receipts, etc will occur.
- Measures Supplier performance and uses Joint Service Agreements to guide performance improvements.
- Enables the Enterprise to have total asset visibility; how much, where and status.

Product Lifecycle Management

Product Lifecycle Management is a strategic business approach that applies a consistent set of business processes to support collaborative creation, management, and dissemination of product definition information. Three fundamental concepts of Product Lifecycle Management are:

1. Universal, secure, managed access and use of product definition information.
2. Maintaining the integrity of product definition and related information throughout the life of a product.
3. Managing and maintaining business processes used to create, manage, disseminate, share, and use the information across the extended enterprise.

Benefits:

- Links information from many different authoring tools to the evolving product configuration.
- Defines, executes, measures, and manages key product-related business processes.
- Ensures logistics processes are executed against a single-source of authoritative data.
- Ensures and maintains version control for material or parts ordered, and supports technical data is version controlled and accessible to downstream logistics processes.
- Tracks every aspect of a product from cradle to grave.
- Determines how to purchase materials, parts, and services. Reduces redundant material specifications and product data.
- Determines how to modify products to meet customer requirements.
- Gives senior leadership a process to monitor progress against performance goals.

Proposed Functional Module

Quality Control

This module will provide improved capability for managing quality from a comprehensive lifecycle management perspective. It will allow for proactive management of weapon systems, vehicles, equipment, and other major end items.

Benefits:

- Tracks in-shop inspection.
- Enables trend analyses and causal analysis to be performed for diagnosis and improvement.
- Provides visibility of enterprise-wide quality information for assessment and use in supplier evaluations, life cycle assessment, and considers to preventive and predictive repair strategies.

Repair & Maintenance

This module provides the functionality for controlling and managing unscheduled, scheduled, corrective, and preventive maintenance operations. It also provides visibility into maintenance costs, equipment history, and maintainability and reliability data. This module will include control of parts, labor, equipment and facilities, and repair personnel capacity and availability. It will also create shop floor routings and material orders, and will provide technical specifications to operators. Repair and maintenance sends information to and receives information from the APS module.

Benefits:

- Enables Repair and Maintenance to rely upon inventory, supplier, and BOM data, which will greatly improve the accuracy of the shop floor scheduling process.
- Enables Material Management, which requires accuracy in repair schedules and component material needs to create more reliable replenishment and procurement decisions.
- Provides a single, Air Force wide shop floor scheduling and control solution. A common set of data, process, and priorities will drive each repair site.
- Enables workloads, personnel, and tools to be highly interchangeable creating improved load balancing and greater ability to respond to enterprise requirements.
- Enables visibility of work status, backlogs, equipment and tool availability, quality control, and other key repair data across the enterprise, enabling far greater cooperation.
- Automates shop floor scheduling and routing. Work orders will reflect actual parts inventory status. This will eliminate manual activities and will result in shop floor schedules, which can be executed without disruptions from unanticipated material shortages.
- Establishes a work order management system that will track all work performed at the End Item level. This would track costs, work effort and history for end-item levels.
- Establishes Shop Floor Control System to manage parts, labor, equipment and facilities. It will capture, store and manage shop floor capacity and shop floor routings. It will capture failure data, present technical specifications, perform shop capacity scheduling, provide total asset visibility through the shop, and determine repair costing.