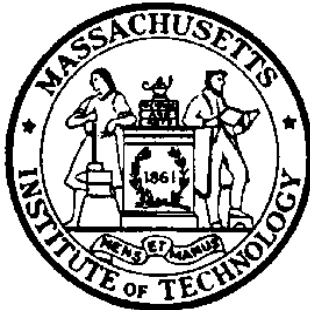


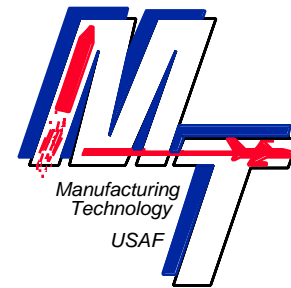
***Lean Aerospace Initiative
Plenary Workshop
April 1, 1998***

***Lean Sustainment Initiative
Overview***



**Wes
Harris
MIT**

Presented By:



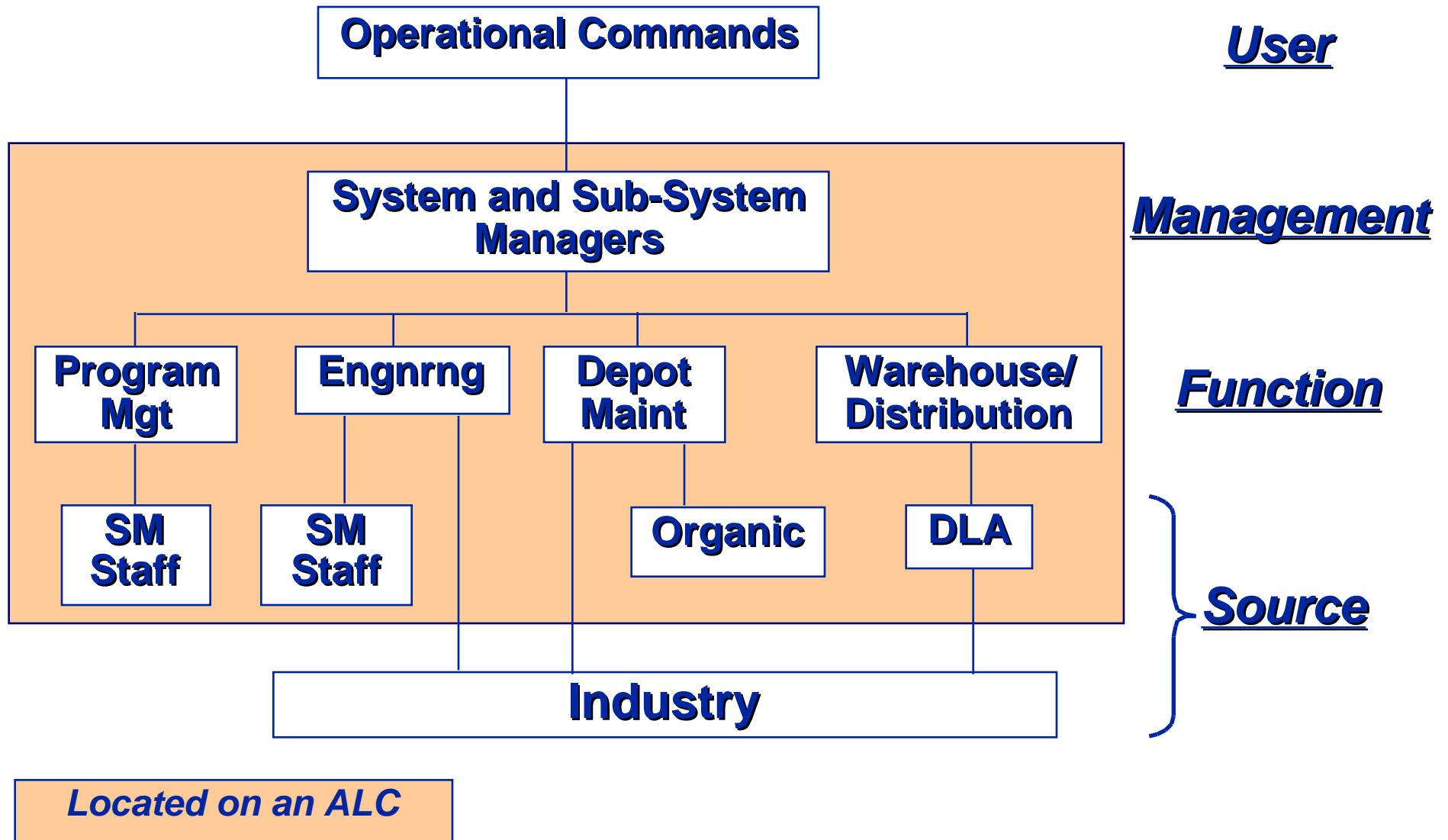
**Dan Brewer
ManTech**



- **Background**
- **Stakeholders' challenges for LSI**
- **Research agenda**
- **Research progress**
- **The future**
- **Summary**



Weapon System Management Functions, and Structure





ALC System Management and MRO Responsibilities

	<u>System Management*</u>	<u>Organic Depot Maintenance*</u>	<u>Contract Depot Maintenance*</u>
<u>OO-ALC</u>	ICBM F-4 Landing Gear Photo Recce	ICBM F-16 C-130 (Cargo) Landing Gear	ICBM F-16 Landing Gear
<u>OC-ALC</u>	B-52 C-135 Airframes CLS Aircraft Cruise Missile Engines	B-52 B-1B C-135 Airframes Engines	B-1B B-2 CLS Aircraft C-135 Airframes Guidance & Metrology
<u>WR-ALC</u>	F-15 C-130 C-141 SOF Aircraft Avionics/EC	F-15 C-130 (SAM) C-141 C-5 Avionics/EC	F-15 C-130 Mods Avionics ALQ-161

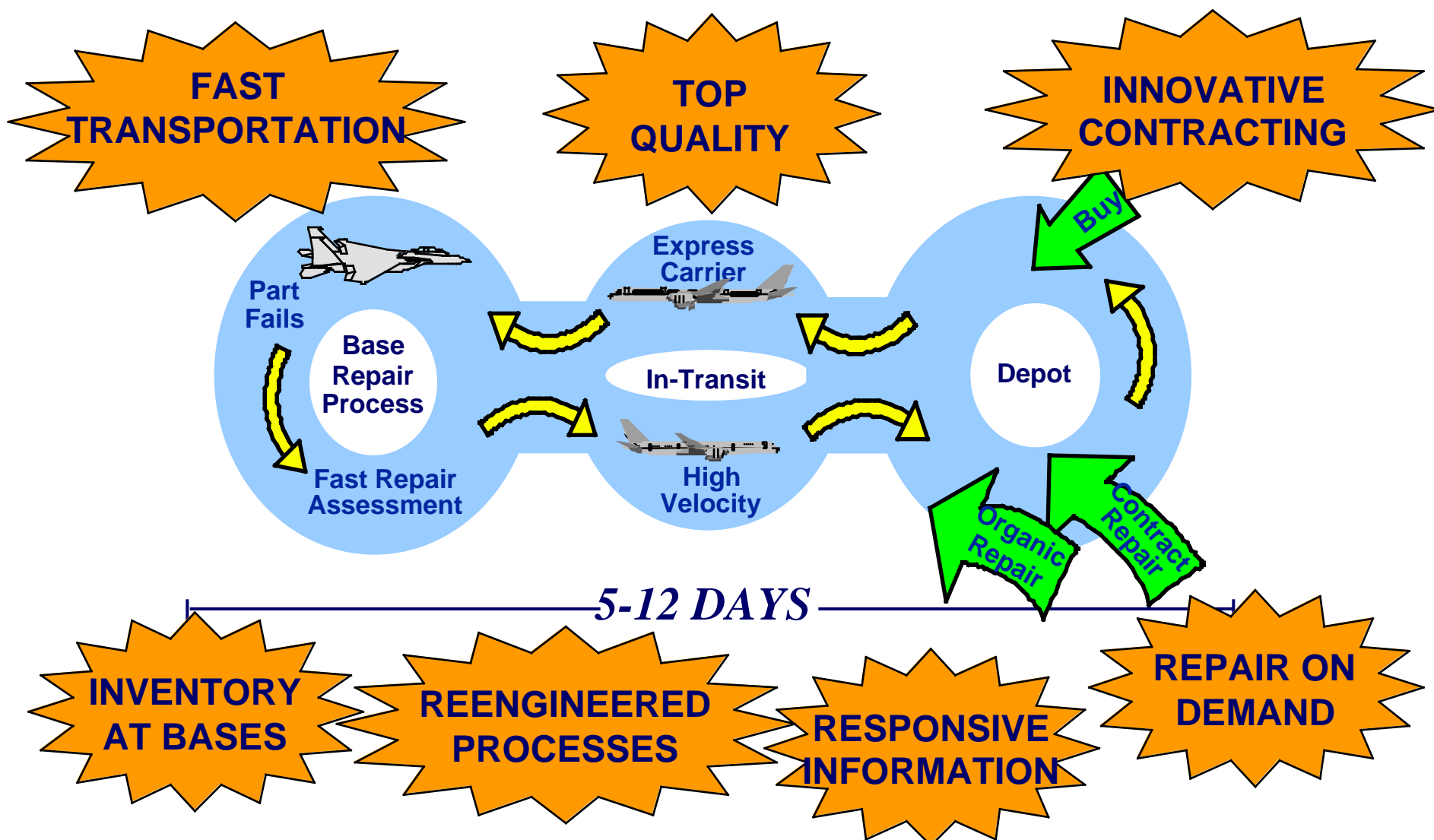
*All ALCs manage and repair many different “commodity subsystems”

Typical Annual Expenses (FY99 projected):

- New parts procurement - \$6-7B
- Organic depot maintenance - \$3.2B (40% new parts costs)
- Contract depot maintenance - \$2.2B



THE LEAN LOGISTICS "VISION"





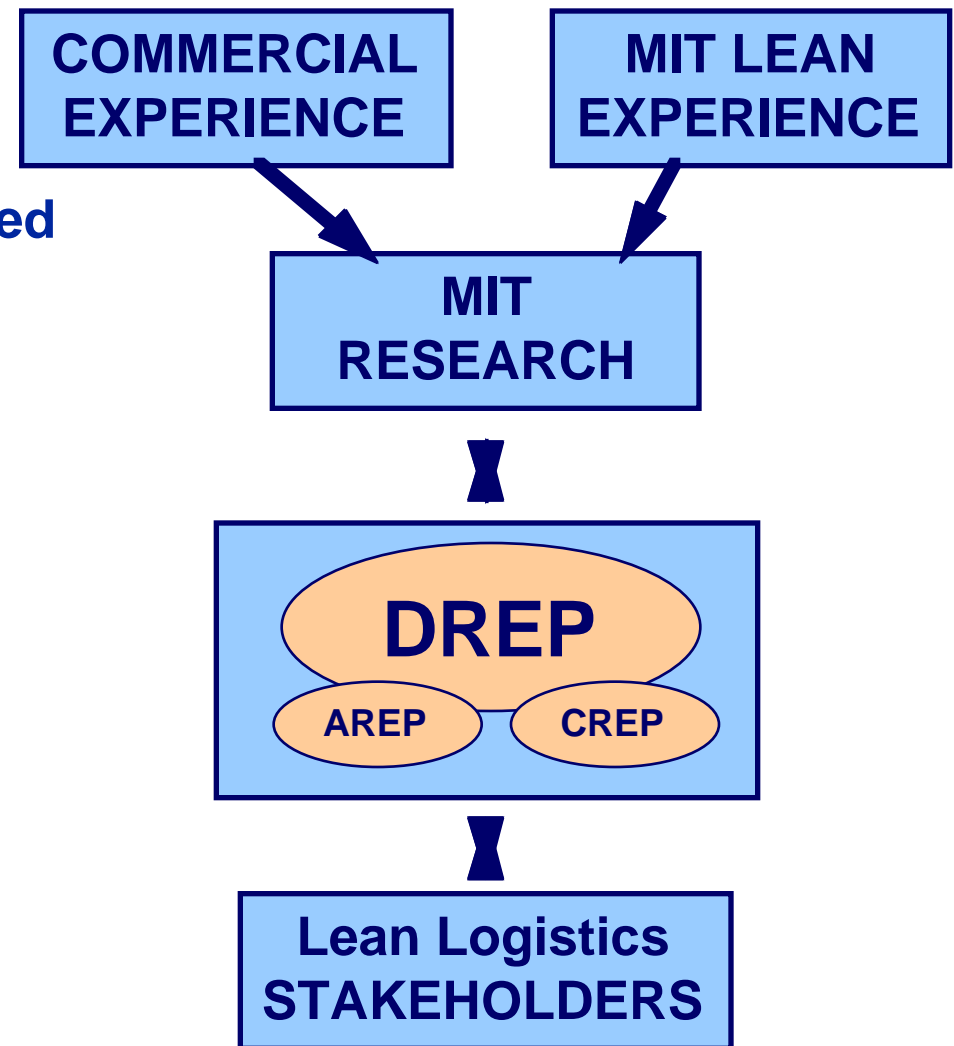
- **A joint HQ AFMC/LGL and Air Force ManTech project to make available to the Lean Logistics community the unique research experience and capability of MIT in the area of lean principles, practices, and change strategies**
 - Partnership
 - Research-driven change process
 - Systemic approach
- **Startup Phase**
 - May 97-May98
 - Three ALCs

Multi-Year Activity



Start-Up Phase Objectives

- **Establish collaborative relationship with MIT**
 - Leverage what has been learned
- **Assist Lean Logistics stakeholders in achieving present goals**
 - Characterize DREP, CREP, AREP
- **Assist Lean Logistics stakeholders in developing integrated sustainment system for future**
 - Analyze process for change, barriers, enablers





Research Agenda Addresses Expectations of ALCs

- **Distill and disseminate existing lean knowledge-base to Lean Logistics community**
- **MIT researchers develop an understanding of AFMC Lean Logistics efforts**
- **Research world-class commercial repair practices and communicate lessons-learned**
- **Compare world-class commercial repair processes with AFMC processes to help define:**
 - What to change
 - What to change to
 - How to change
- **Facilitate three-way dialogue between MIT, AFMC and world-class commercial repair organizations**
 - Address all AFMC products and processes
 - Define implementation strategies



- **Baseline research**
 - Develop baseline definition of Air Force logistics system
 - Define high-leverage areas for MIT research
- **Focused case studies**
 - Conduct focused case studies across ALCs on selected Lean Logistics programs/topics
 - Characterize status of Air Force Lean Logistics efforts
 - Case study focus on:
 - Airframe overhaul (F-15 and KC-135)
 - Landing gear repair and overhaul
 - Lean Logistics information and decision support systems
- **Recommendations to Lean Logistics community**
 - Immediate high-payoff change opportunities
 - Longer-term research agenda

**Communication of lean principles and lessons learned
is an on-going part of the LSI process**



- **Baselined Air Force logistics and sustainment system**
 - Conducted site visits and field research (faculty and students)
 - Interviewed senior Lean Logistics leadership
- **Assessed status of Lean Logistics thrust**
 - AREP: Aircraft Repair Enhancement Program
 - DREP: Depot Repair Enhancement Program
 - CREP: Contract Repair Enhancement Program
- **Developed framework for identifying best commercial maintenance, repair and overhaul (MRO) practices**
- **Identified key priority areas for improvement and implementation strategies**

Lean principles and practices derived from Lean Aerospace Initiative used as a framework



- **Consolidate and validate initial observations**
 - Document cross-cutting research results as well as case study findings
 - Follow-up site visits at ALCs
- **Identify best emerging logistics and sustainment practices**
 - Define major trends and developments
 - Identify leading-edge practices and their impact
- **Set stage for research on government-industry sustainment collaboration**
 - Exploratory benchmarking on selected topics
 - Capture lessons-learned in achieving fundamental change



- **It is essential to address the broader context impacting Lean Logistics to realize systemic change**
 - **Lean Logistics is not an island but is embedded within larger, complex system**
 - **Understanding larger institutional setting necessary for real solutions**



Next Steps: Transition to LSI Phase II

- **Bring closure to past work include:**
 - Out-brief for senior AF Lean Logistics leadership
 - Identify lessons-learned from Start-up Phase research
- **Possible high-payoff topics include:**
 - DoD sustainment financial management
 - Supplier-chain integration
 - Sustainment considerations in design, manufacturing, and modification/upgrade



Strategy for the Future: LSI Phase II

Create a collaborative process, involving government and industry sustainment stakeholders, to provide Agile Combat Support

- **Broaden stakeholder participation -- AFMC/LG, AF/IL, MANTECH, DUSD/Logistics, DLA, MAJCOMS, SPOs, commercial sector, labor, and MIT**
- **Working together as partners, design world-class AF sustainment system for twenty-first century**
- **Establish focus teams concentrating on specific high-payoff topical areas providing value to the Air Force sustainment community & nation**



- **Lean Sustainment Initiative well on its way toward assisting Lean Logistics stakeholders in achieving present goals**
- **Start-up phase is a first and essential step toward realizing significant longer-term benefits**
- **Need to start building a longer-term Lean Sustainment Initiative to achieve these benefits**
- **Broader stakeholder participation necessary to maximize benefits for entire Air Force logistics and sustainment community**

Back-up Slides

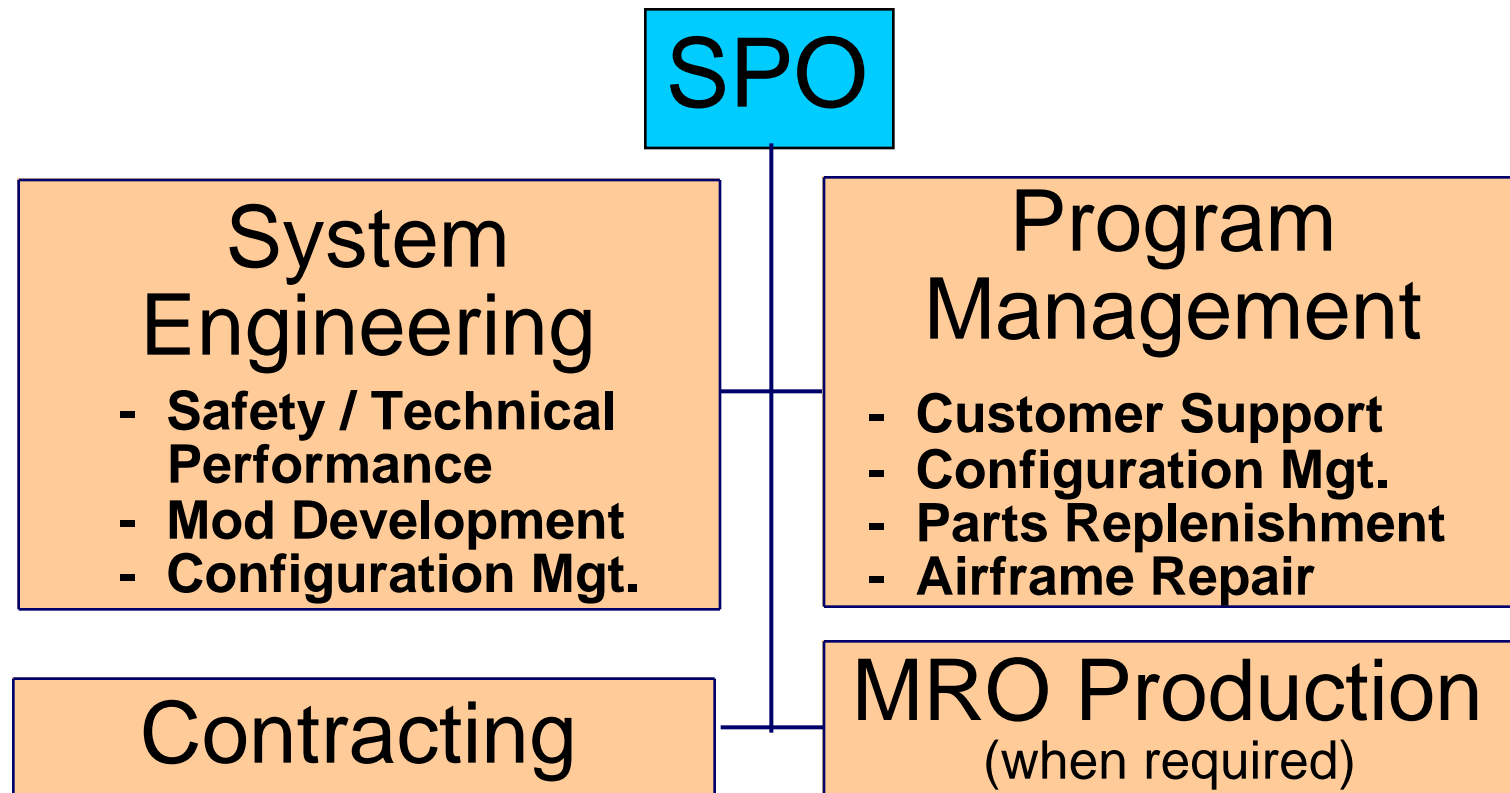


- **Lean Logistics is well motivated and moving in the right direction**
 - Committed leadership, dedicated management at all levels, capable workforce
 - Emerging success stories at ALCs should be a source of pride
- **However, challenges facing Lean Logistics are numerous, complex and daunting**
 - Incremental systemwide improvements not readily discernible
 - Difficult to evaluate progress measured against resources invested



System Program Office Functions

(Post-Production and Sustainment)





- **Joint Vision 2010 calls for focused logistics**
 - The fusion of information, logistics and transportation technologies
- **Global Engagement: A vision for the 21st century Air Force**
 - “The efficiency and flexibility of Agile Combat Support will substitute responsiveness for massive deployed inventories”

THE CHALLENGE:
Providing Affordable Agile Combat Support



- **Ogden ALC, Hill AFB (OO-ALC)**
- **Oklahoma City ALC, Tinker AFB (OC-ALC)**
- **Warner Robins ALC, Robins AFB (WR-ALC)**
- **Sacramento ALC, McClellan AFB (SM-ALC)***
- **San Antonio ALC, Kelly AFB (SA-ALC)***

**** Outside Scope of LSI***