



# **Sustained Materiel Readiness**

**David Pauling, Assistant Deputy Under  
Secretary of Defense for Maintenance Policy,  
Programs and Resources**

# Sustained Materiel Readiness

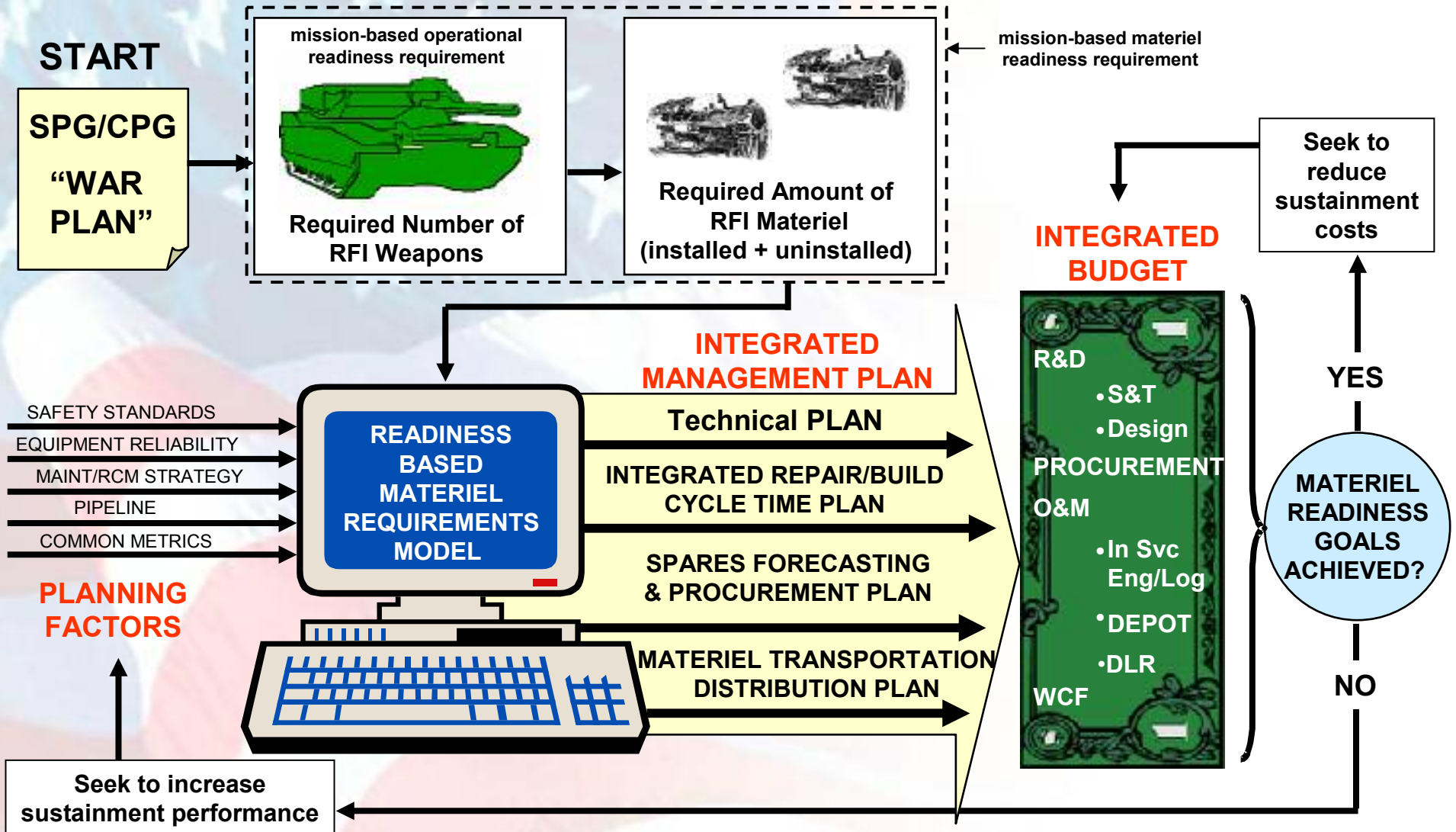
## ISSUE:

- **Suboptimized Materiel Condition Reliability Declining**
- **Maintenance too expensive**
  - Reliability accounts cut ~ 80% over the years
- **We must do things smarter to achieve/sustain SPG/CPG readiness**
  - Balance Safety, Reliability, and Maintenance activities to achieve readiness at best cost
  - Optimize TIME-ON-WING and Repair TURN AROUND TIME

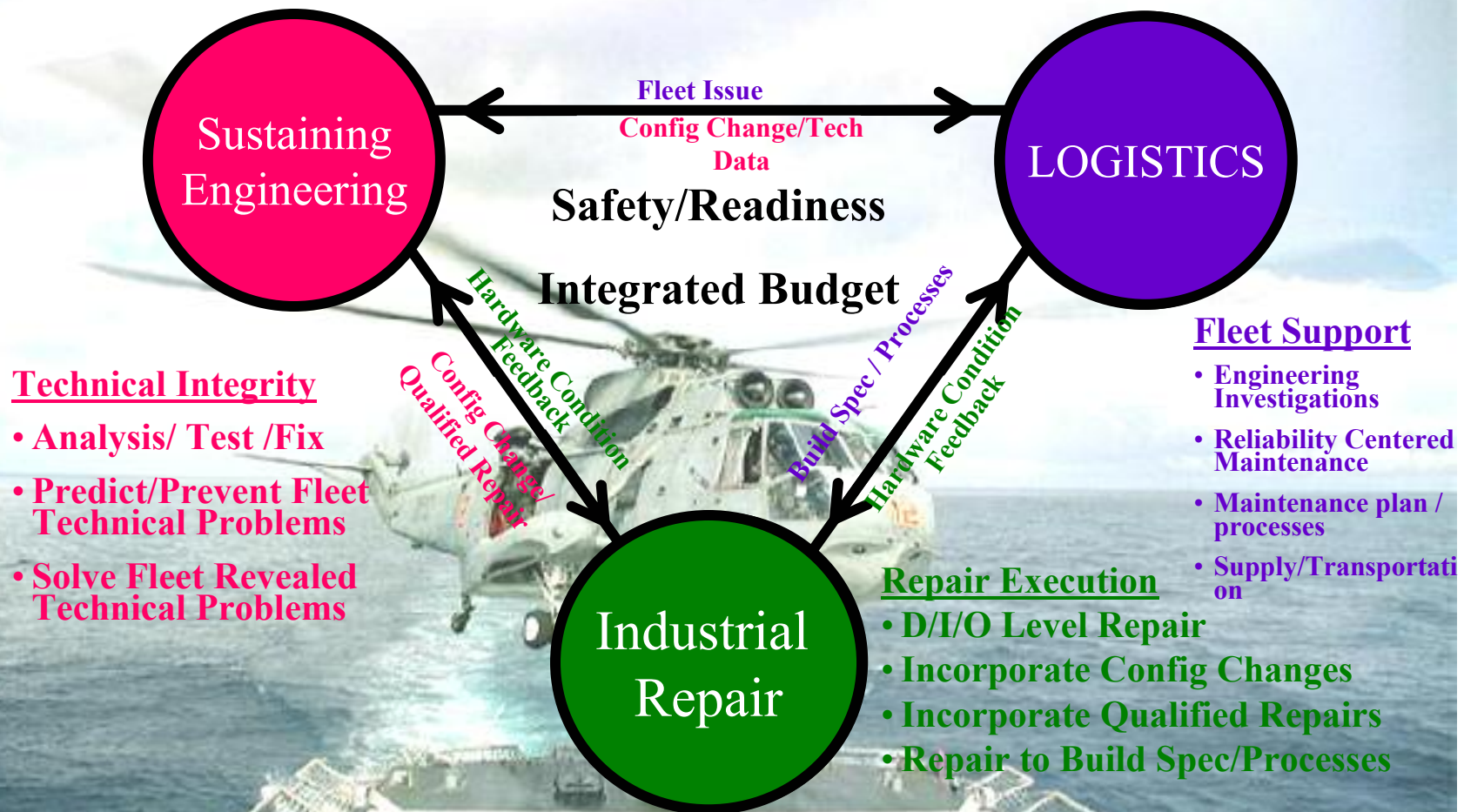
## WAY AHEAD:

- **Cause and effect predictive modeling**
- **Continuous process improvements**
  - CBM+/RCM
  - Lean, Six Sigma, Theory of Constraint
- **Integrated Budgets (engineering, logistics, industrial)**

# Building the Optimum Materiel Sustainment Plan/Budget



# Material Readiness Integrated Management (E2E)



**Integrated Approach Achieves Readiness Goals at Reduced Cost**

# On Condition Maintenance (OCM) VS Reliability Centered Maintenance (RCM)

**OCM**

**vs**

**RCM**

**Repair Only What  
Is Broken**



**Repair Not Only What Is  
Broken but What Will Likely  
Fail Before a Defined Time on  
Wing**

**Maintenance Is  
Unplanned**



**Focus is Planned Maintenance  
*Facilitates Resource  
Requirements Predications***

**No Requirement to  
Build for Time on Wing**



**Build to Achieve Inherent  
Reliability**

**Maintenance Driven by  
Equipment Conditioner  
or Lowest \$/Shop Visit**



**Maintenance Based on  
LCC & Value**

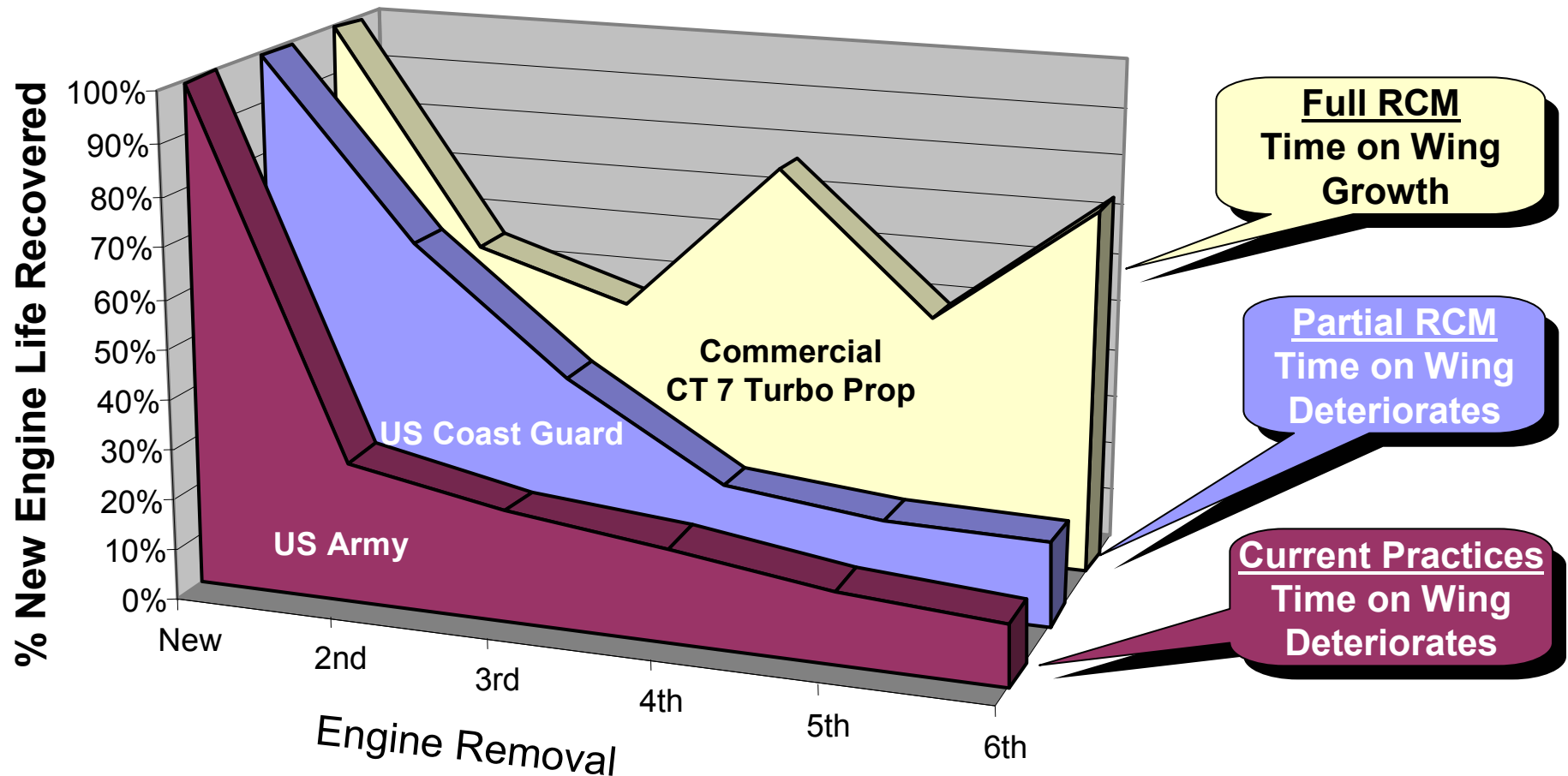
***(What's Easiest Today)***

***(What's Best for the Long Term)***

# T700 Engine Life Recovered After Repair

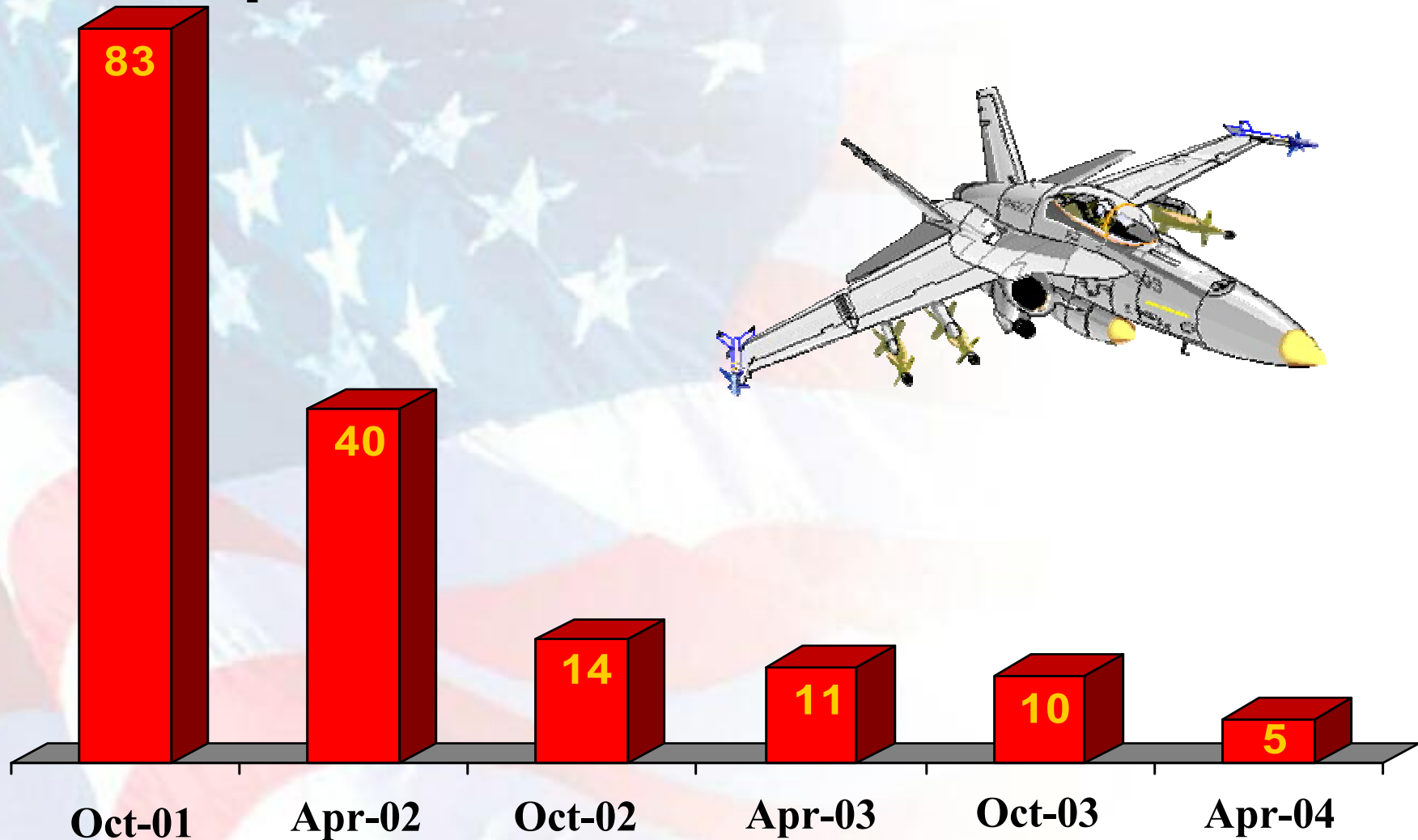
RCM =  
Reliability  
Centered  
Maintenance

## Reliability Centered Maintenance vs. Current On-Condition Practices



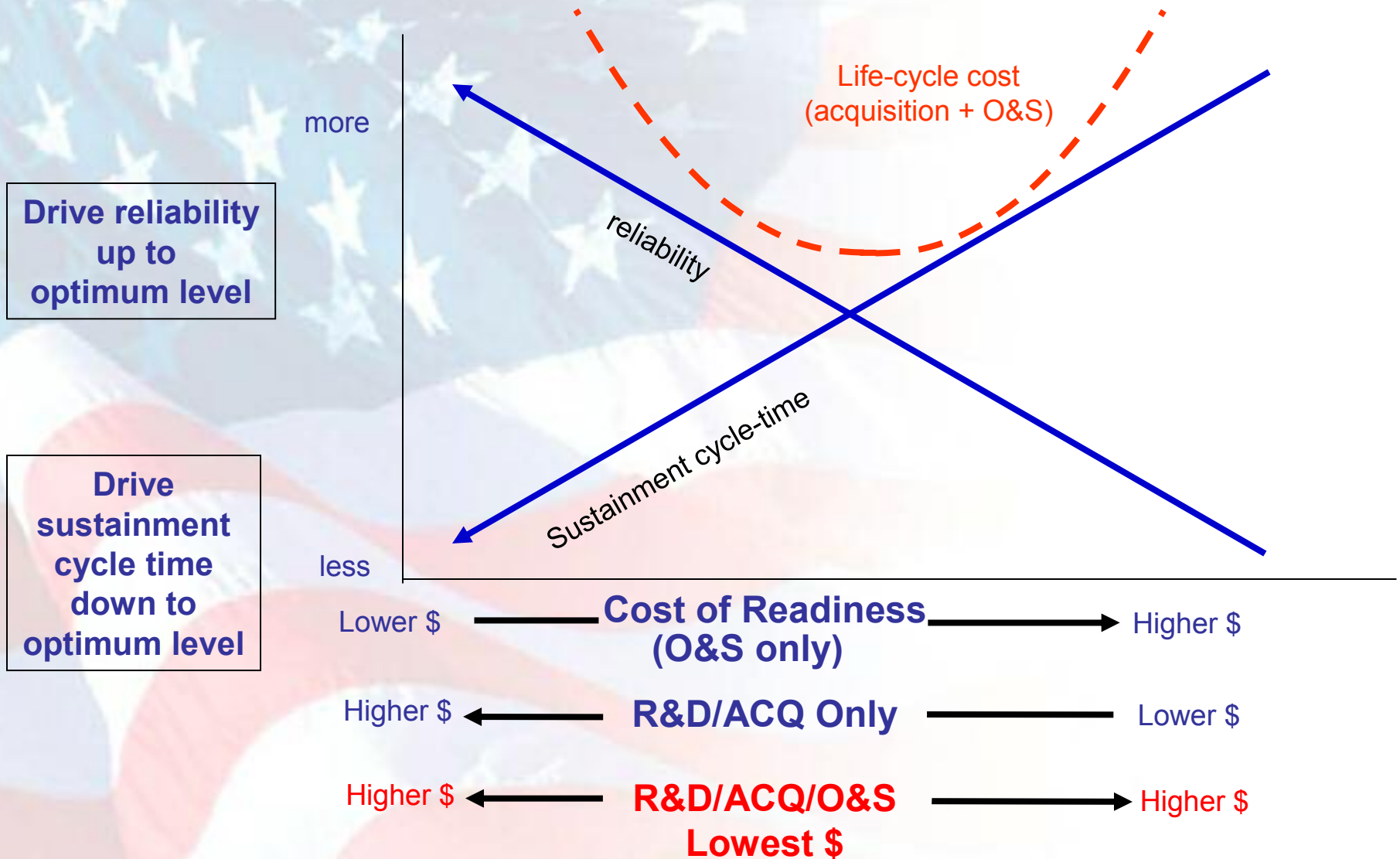
3X+ improvement in Time on Wing (TOW) with Comprehensive Reliability Centered Maintenance vs. Current On-Condition Practices

# Focus on continuous improvement (Maintenance Cycle Time Days)

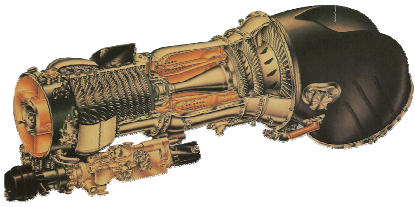


AIMD Lemoore Power Plants Shop  
F404 Engine Repair Cycle Time

# Improving Materiel Readiness Reliability, Cycle-Time, Cost



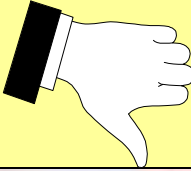




# T58 Integrated Recovery Approach

Current Process is out of **TUNE**

300 Engines Repaired per year  
600 Eng req'd to meet CNO goals  
400 hour MTBR  
**T58-GE-402**  
\$700/Flight Hour  
\$165K/Repair



**Technical**

- Life Management
- Reliability Centered Maintenance (RCM)
- Design Changes
- Engineering Investigations
- Failure Modes/Effects



Integrated Approach is **Harmony.**

108 Engines Repaired per year  
390 Eng req'd to meet CNO goals  
1000 hour MTBR  
**T58-GE-402**  
\$380/Flight Hour  
\$250K/Repair



**Logistics**

- Publications
- Parts Forecasting
- Inventory Tracking
- Build Specs
- Configuration Tracking



**Industrial**

- Industrial Process
- Depot/I-Level (IA5A, FHP)
- Facilities/Capital Equipment (IA5A)
- Parts Forecasting (NWCF)
- Depot/I-Level Production (IA5A, FHP)

**Integrated Approach is HARMONY!**

# **VISION - Focus Areas**

- **Readiness Process(es) Improvement:**
  - **Improve System Life Cycle Management Prediction Capabilities**
    - **Expertise, Tools and T&E Facilities**
    - **Cause and effect modeling**
  - **Optimize Reliability**
    - **Implement CBM+/RCM**
      - **Preventing Maintenance Addresses Failure Characteristics**
      - **Optimize Repair/build specs**
  - **Optimize Cycle Time**
    - **Employ CPI (Lean, 6 Sigma, Theory of Constraints)**
    - **Integrate Depot and Intermediate Level Best Practice and Processes**
    - **Parts forecasting**
  - **Integrate Budgets**
    - **Balance Engineering, Logistics, Industrial Accounts**