Transforming Logistics

Achieving Knowledge-Enabled Logistics

2005 NDIA Systems Engineering Conference

Jerry Beck OADUSD(LPP)

25 October 2005

QDR Direction
(2001)

- **Project and sustain the force with minimal footprint**
- **Implement performance-based logistics to improve readiness for major weapon systems and availability of commodities**
- **Reduce cycle times to industry standards**

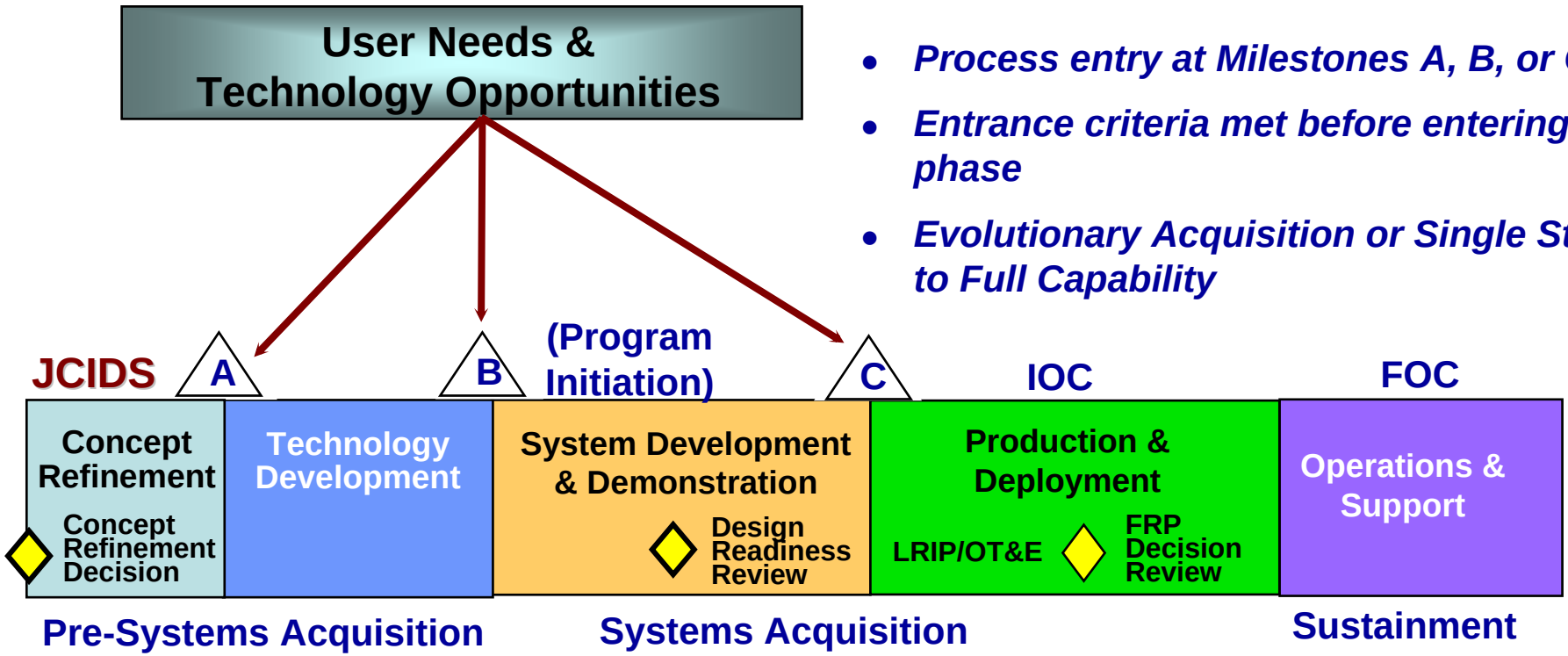
DoD 5000 Policy

Total Systems Approach. The PM shall be the single point of accountability for accomplishment of program objectives for total life cycle systems management, *including sustainment*.

Performance-Based Logistics. PMs shall develop and implement performance-based logistics strategies that optimize total system availability while minimizing cost and logistics footprint. Sustainment strategies shall include the best use of public and private sector capabilities through government/industry partnering initiatives, in accordance with statutory requirements.

DoD 5000 Acquisition Model

Linked With JCIDS Process



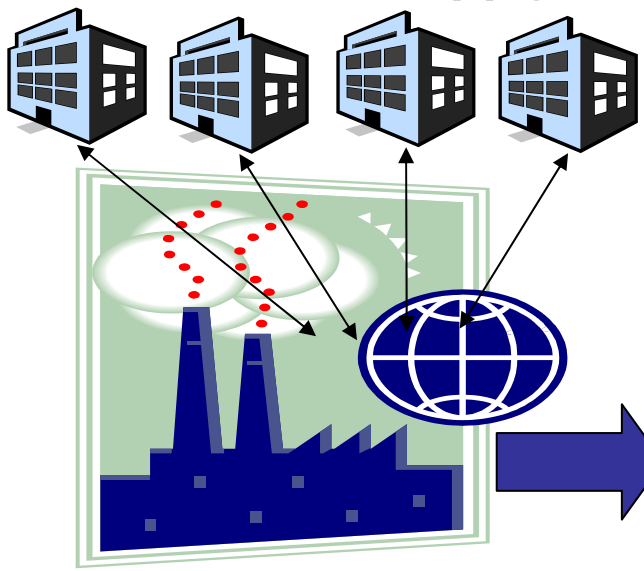
- *Process entry at Milestones A, B, or C*
- *Entrance criteria met before entering phase*
- *Evolutionary Acquisition or Single Step to Full Capability*

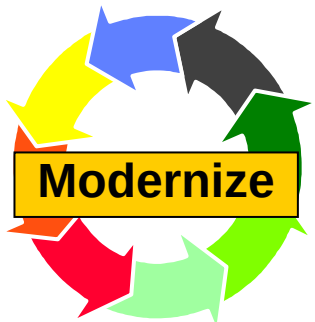
ICD: Initial Capabilities Document
CDD: Capabilities Development Document
CPD: Capabilities Production Document
IOC: Initial Operating Capability
FOC: Full Operating Capability
LRIP: Low-Rate Initial Production
OT&E: Operational Test and Evaluation
FRP: Full Rate Production

Emphasis on Evolutionary Acquisition

Acquisition Framework from the Warfighter View

Sources of Supply





Sustaining the System

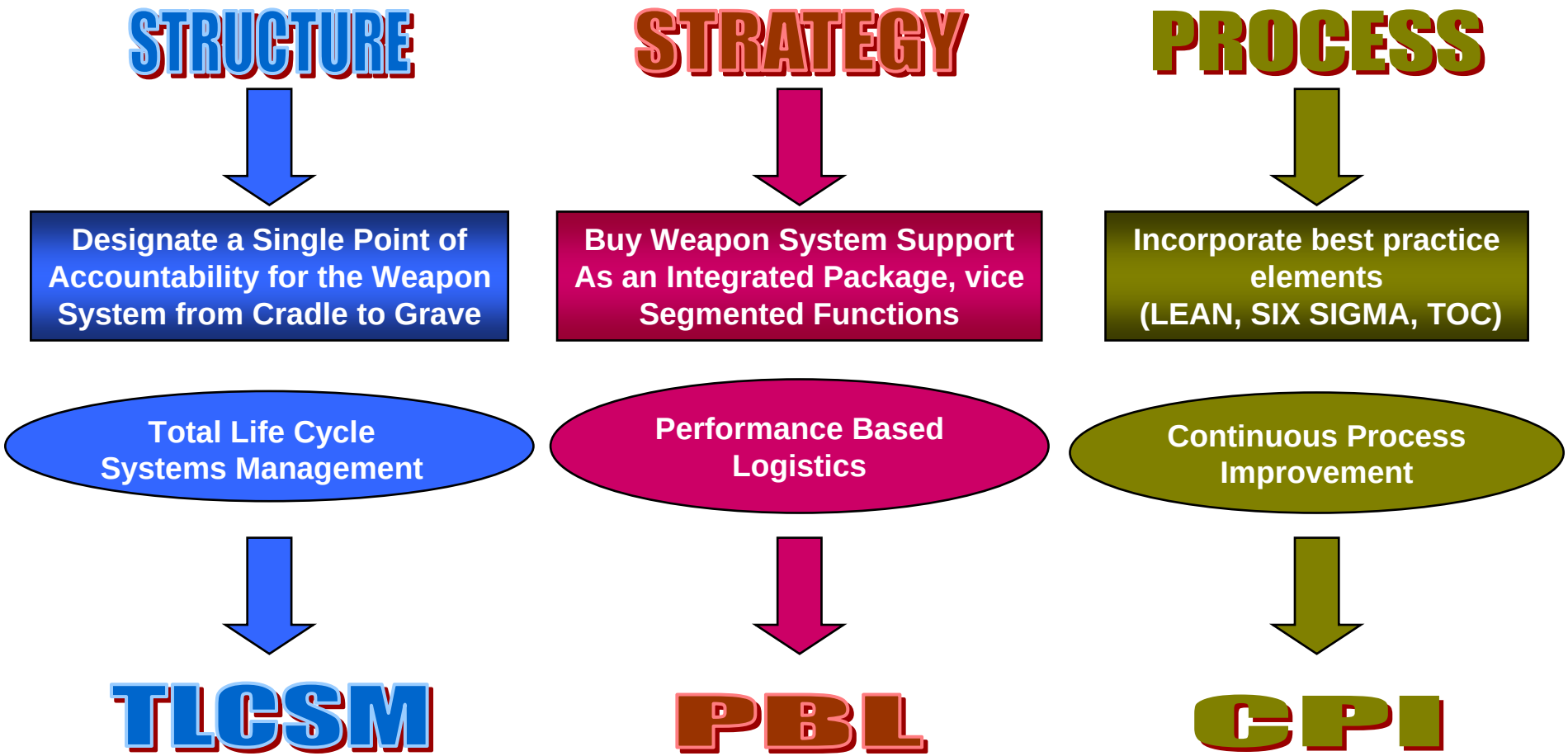
- *Ready Available Safe Assets*
  - *24/7 Availability*
- Reliability & Maintainability
- Affordable Weapon Systems
- Obsolescence/Tech Refresh
- Reduced Footprint
- Logistics Chain Reliability
- Logistics Chain Effectiveness
- Logistics Chain Cycle Time
- Retrograde Management
- Production Flexibility
- Supply Chain Agility

Performance-Based Logistics (PBL)

- **Buy weapons system support as an integrated, affordable, performance package designed to optimize system readiness**
- **Defined performance goals with clear lines of authority**
- **Support structure based on long-term performance agreements**
- **Supplier accountable for continuously meeting the users needs**
- **Compensation based on outcomes, not activities**

Buying performance as a package and a capability.

Structure, Strategy, and Process

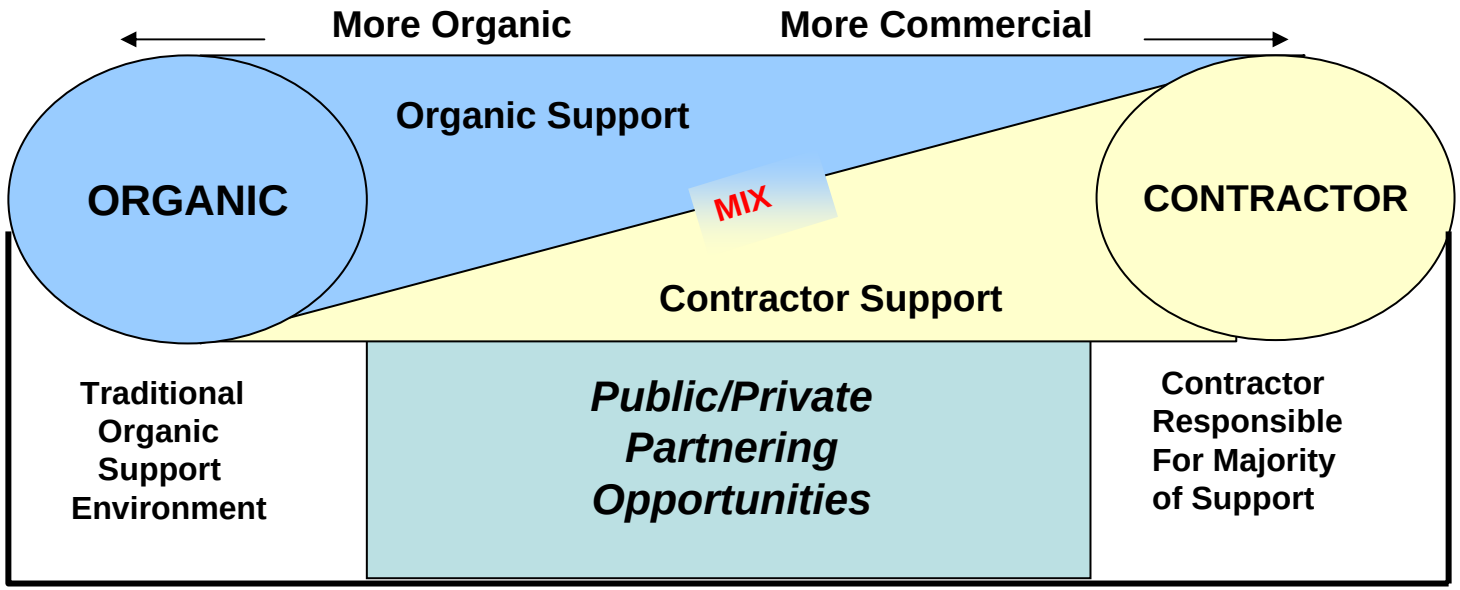


PBL is Performance -Based Life Cycle Product Support

PBL Guidance: **A strategy for weapon system product support that employs the purchase of support as an integrated, affordable, performance package designed to optimize system readiness. It establishes performance goals for a weapon system through a support structure based on long-term performance agreements with clear lines of authority and responsibility to continuously meet the users needs.**

- ***Functions That May Be the Life Cycle Responsibility of the Provider:***
- **DMSMS/Obsolescence Management**
- **Requirements Determination**
- **Engineering and Technical Services**
- **Configuration Management/Control**
- **Technology Insertion**
- **Transportation & Warehousing**
- **Technical Data Management**
- **Retrograde Management**
- **FMS Support (If Applicable)**
- **Public/Private Partnerships or Teaming**

Spectrum of PBL Strategies



PBL strategies will vary along this spectrum depending on:

- Age of System (Phase in Life Cycle)
- Existing Support Infrastructure
- Organic & Commercial Capabilities
- Legislative and Regulatory Constraints

One Size Does Not Fit All

PBL is *NOT* CLS

Examples:

- Total System Support Partnership (TSSP)
- Industry Partnering
- Service Level Agreements
- Performance-based Agile Logistics Support (PALS)
- Prime Vendor Support (PVS)
- Contractor Delivery System (CDS)
- Performance Plans
- MOU with Warfighter

PBL Weapon System Support

Real-Time System Status

Industry/Government

Partnerships

Buys Performance As a Package
(Including Surge/Flexibility)

Weapon System Management

Force Provider

PBA

PBA

Ensure system is sustained at optimum level per PBA

Provide continuous, reliable, affordable support per PBA

Acquisition *Sustainment* *Disposal*

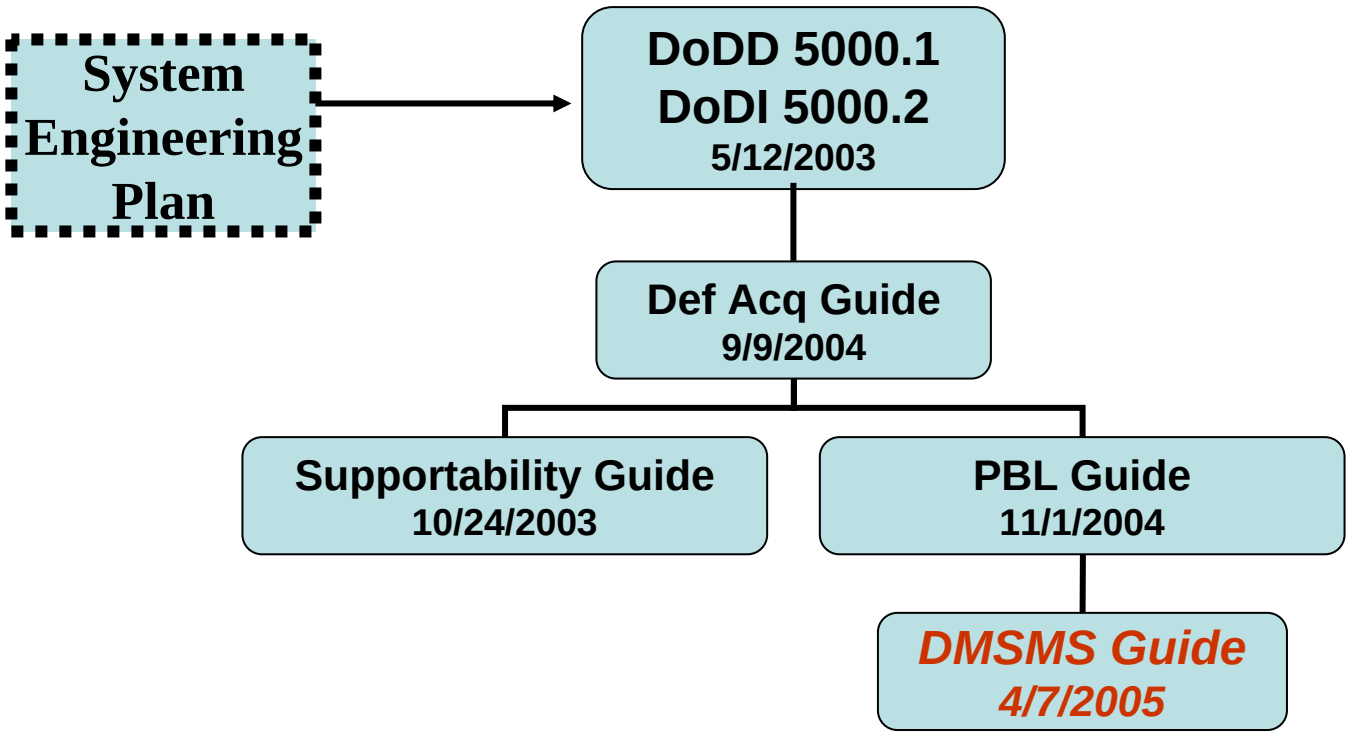
Visibility into cost/risk decisions across life cycle

Developed Output Metrics

	Questions Answered
• Operational Availability	Are we ready?
• Mission Reliability	Will we be effective?
• Cost per Unit Usage	What is the cost?
• Footprint	How much real estate do we need?
• Logistics Response Time	Are we sustainable?

AT&L memo of 16 August 2004 Performance Based Logistics; using Performance Based Criteria

Hierarchy of Key Documents



Total Life Cycle Systems Management (TLCSM)

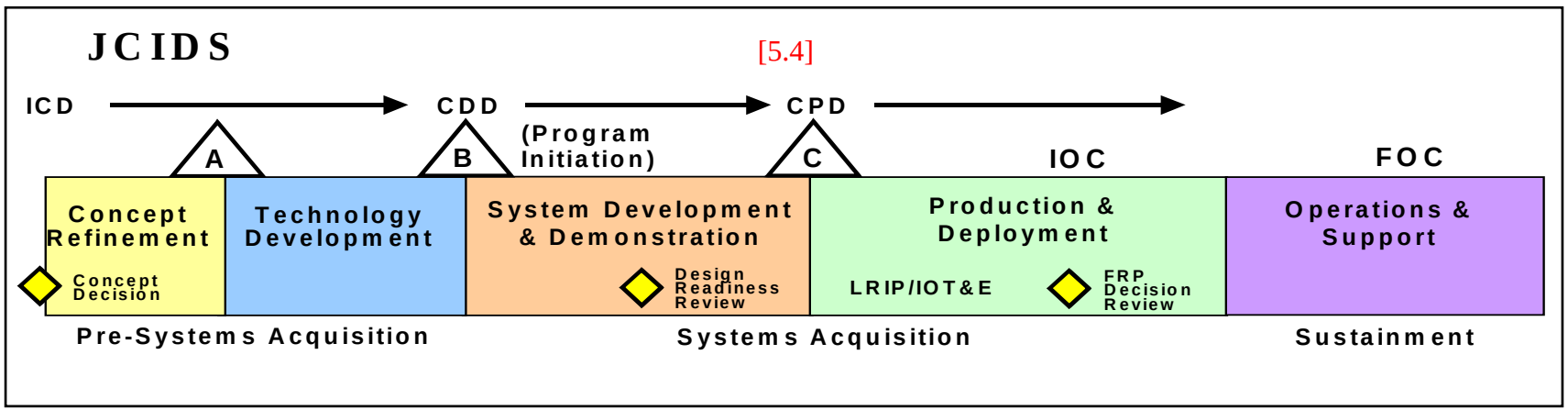
[5.1.1]

Life Cycle Logistics (LCL)

[5.1.2]

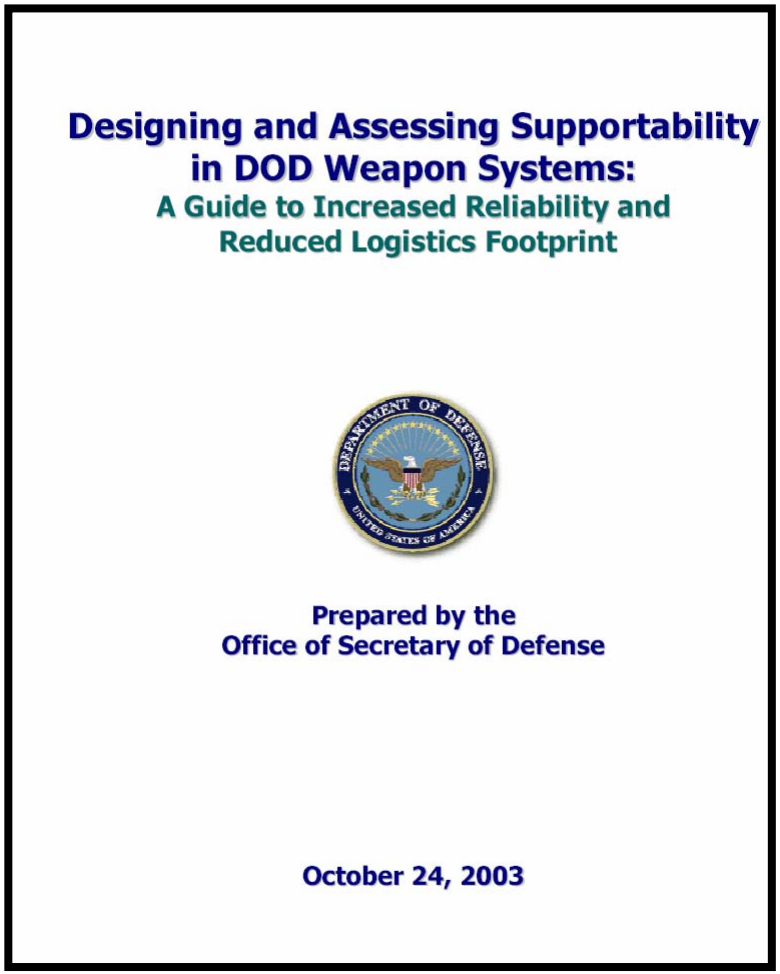
LCL in Systems Engineering (SE) [5.2]

Performance Based Logistics (PBL) [5.3]



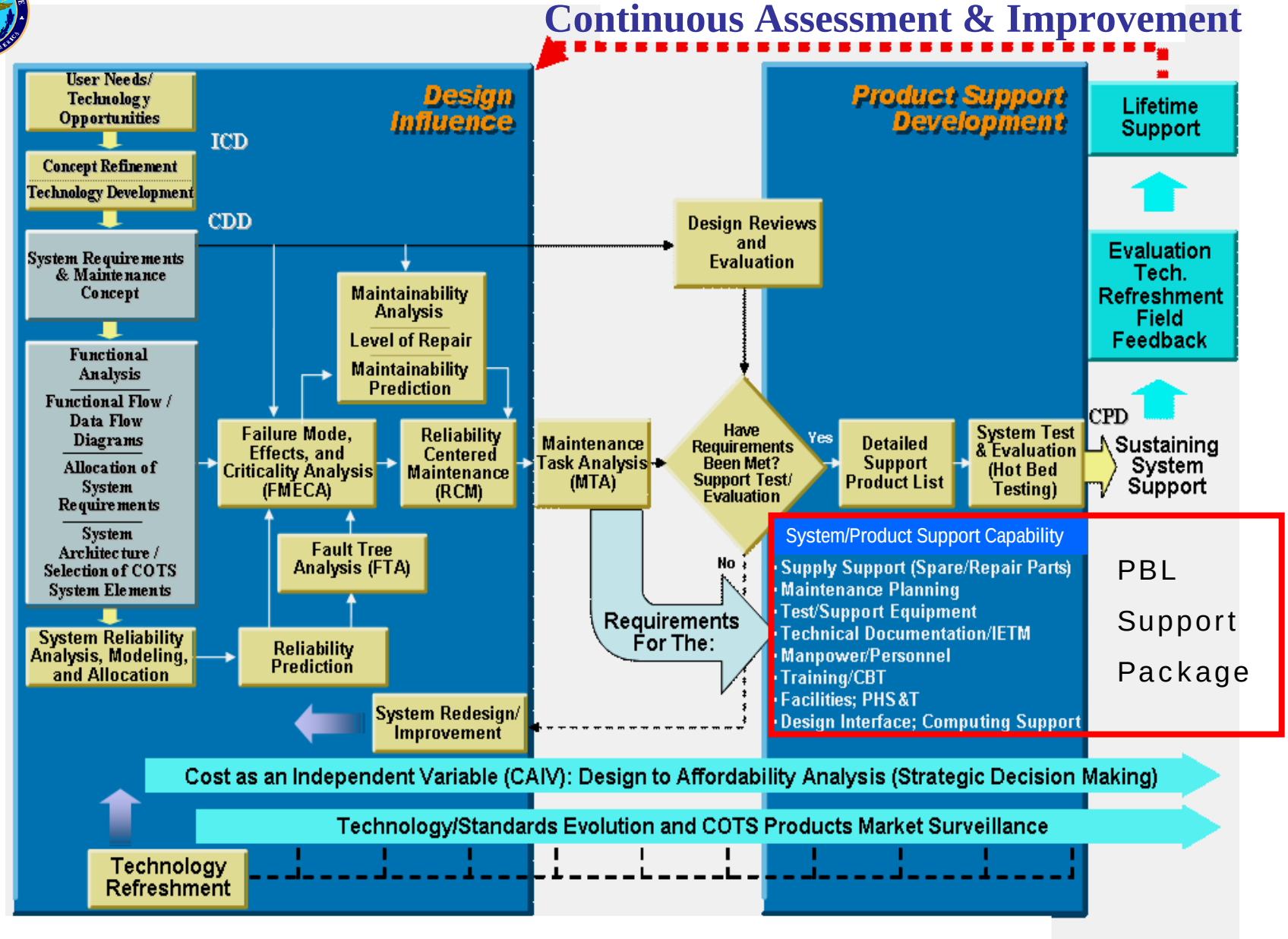
Under TLCSM the PM is responsible for Life Cycle Logistics (LCL), emphasizing LCL in systems engineering and implementing product support through Performance Based Logistics (PBL).

Established Supportability Design and Assessment Criteria



Under Secretary of Defense Memo of 24 Oct 03

- **Technical guidance to assist the PM to effectively implement TLCSM and PBL**
- **Incorporates Design for Operational Effectiveness (DOE) criteria into the systems engineering process to:**
  - **Increase Reliability**
  - **Reduce Logistics Footprint**
- **Evaluation Criteria for all Milestones**
- **Establishes IOC and Post IOC Reviews**
- **Provides template for PM & Team to use in defining and assessing program life cycle supportability requirements**



FRAMEWORK: System Design for Operational Effectiveness

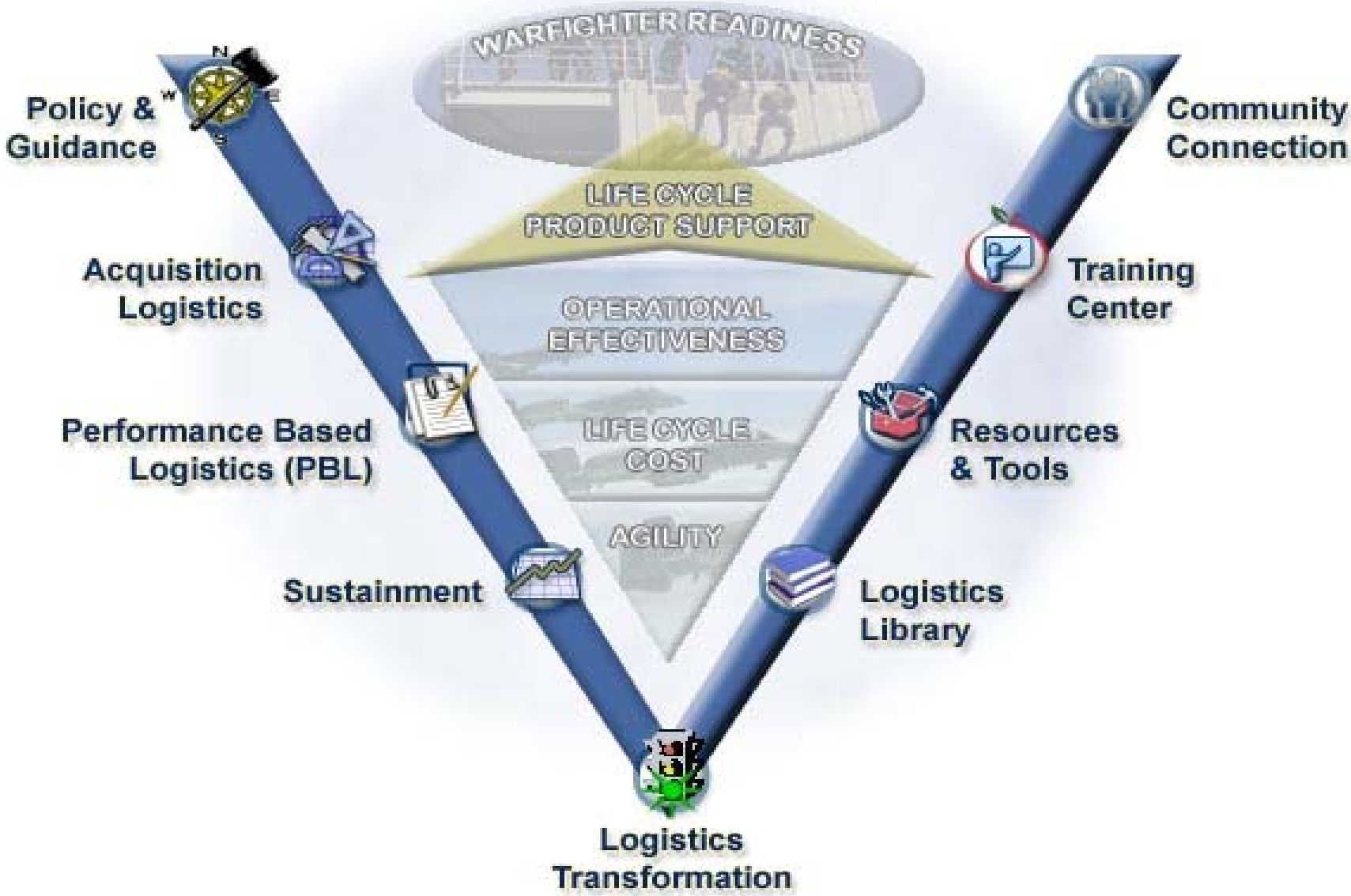
DAU Website

- **LOG CoP provides logisticians with direct access to references, guides, and tools for job support and was recently enhanced to add new resources – like the PBL Toolkit and logistics library. LOG CoP is accessible on the internet at <https://acc.dau.mil/log>**
-
- **The Performance Based Logistics (PBL) Toolkit is now accessible via LOG CoP. The Toolkit assists Program and Logistics Managers in the design and management of PBL strategies for buying weapon system capability. It is based on a 12-step process model that guides users through each step of developing a PBL strategy, and provides ready access to policy, references, examples, and other useful information. The direct link is https://acc.dau.mil/pbltoolkit**

- **Link to: Integrated Framework Chart Main System View http://akss.dau.mil/ifc/**

- **Direct any questions to Jill Garcia at jill.garcia@dau.mil**

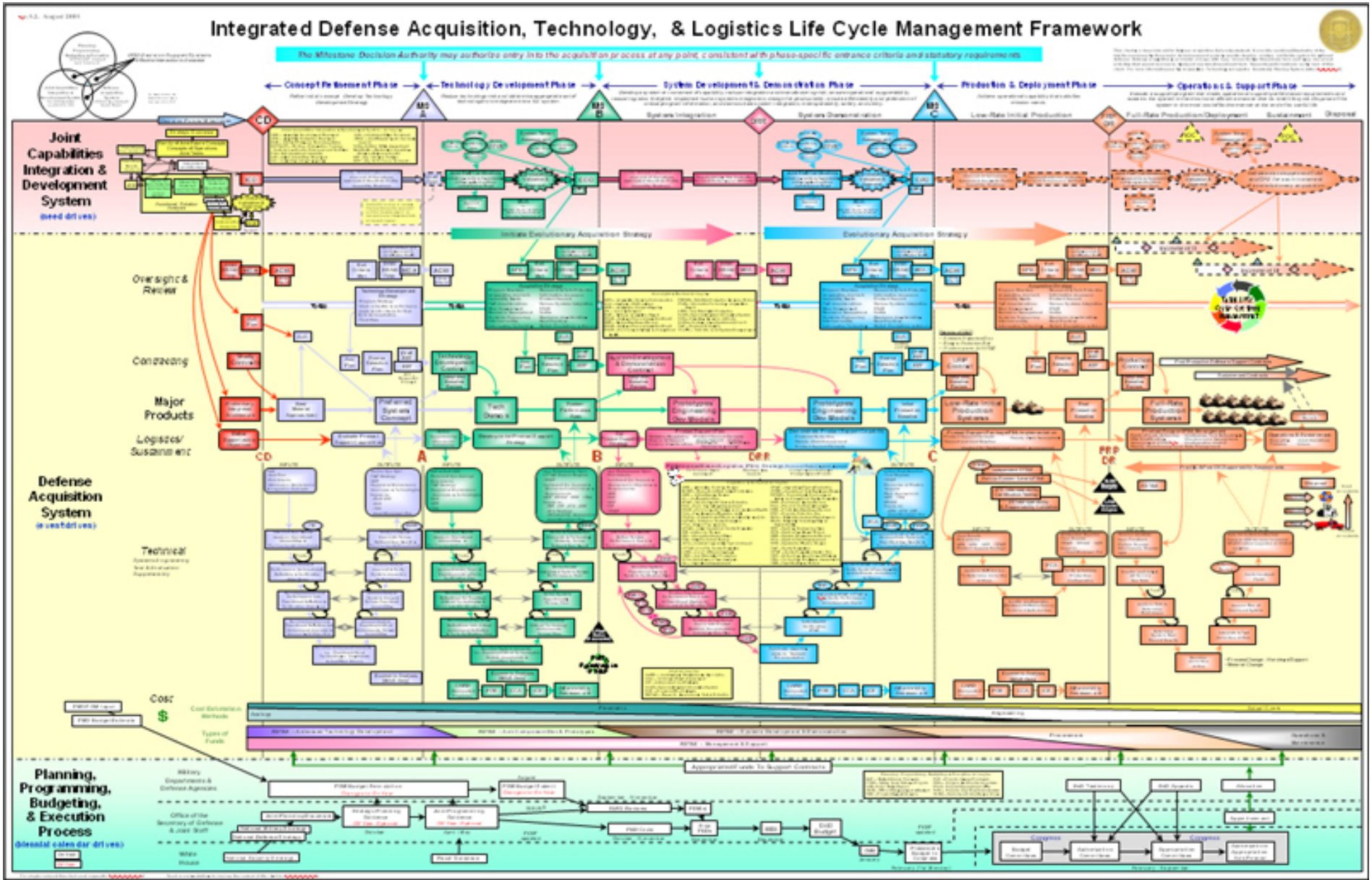
Logistics Management (DAU website)



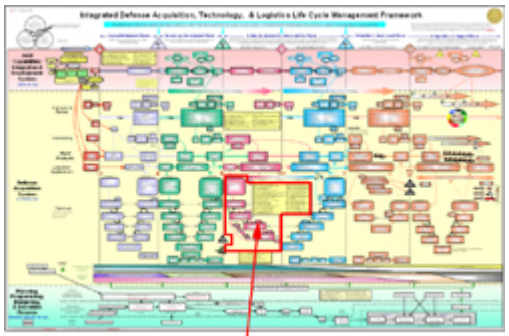
Performance-Based Logistics

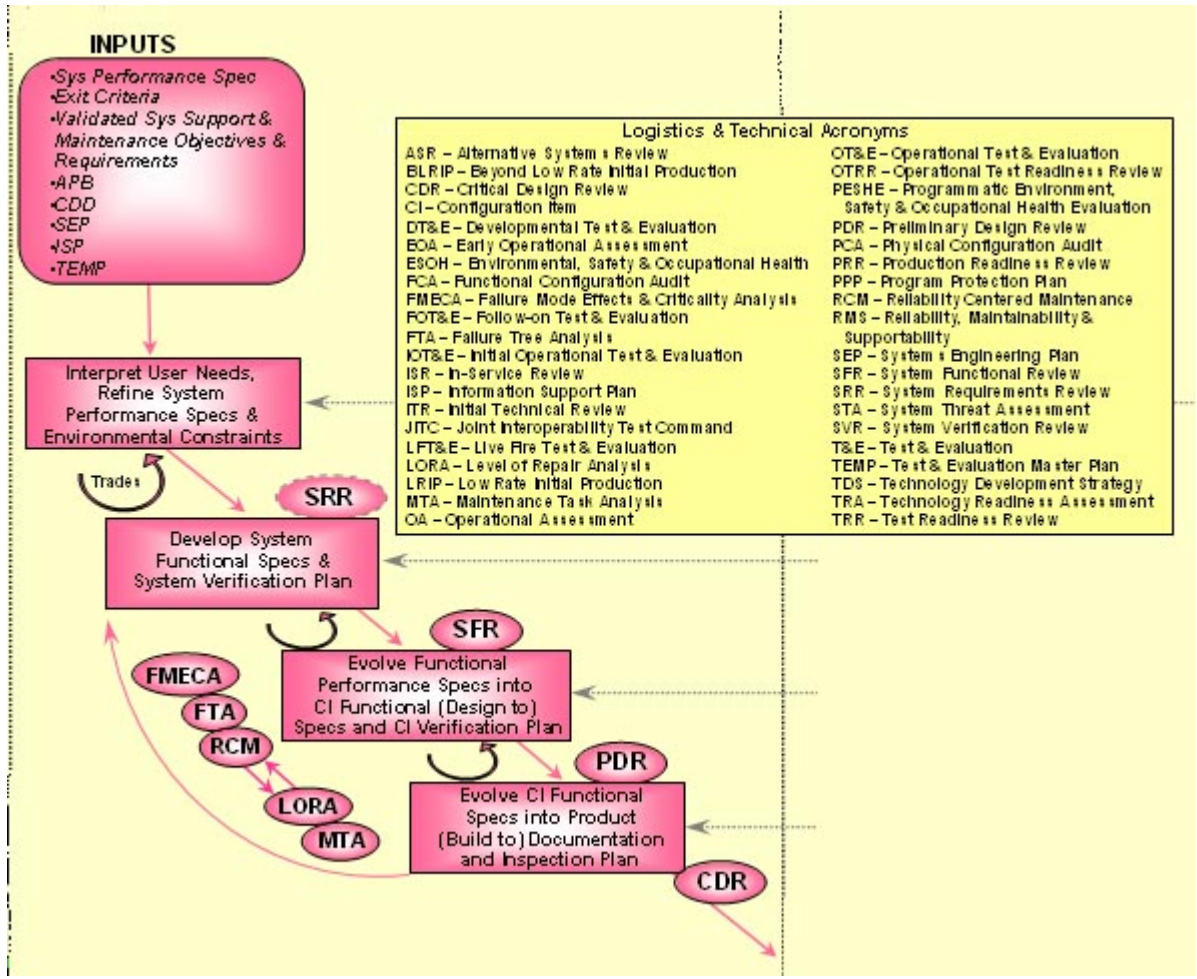
Integrated Framework Chart - System View

http://akss.dau.mil/ifc/

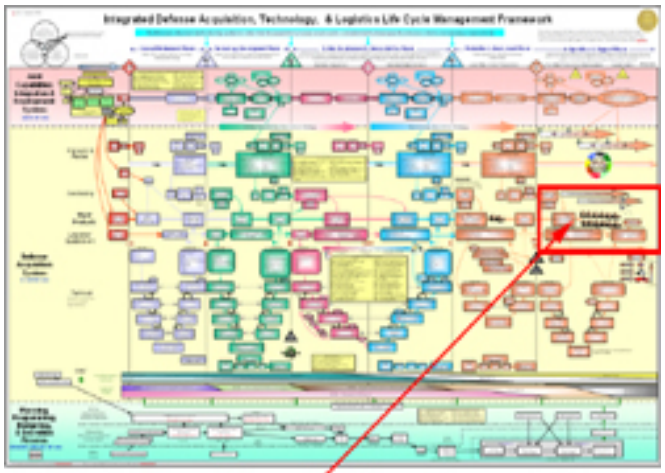


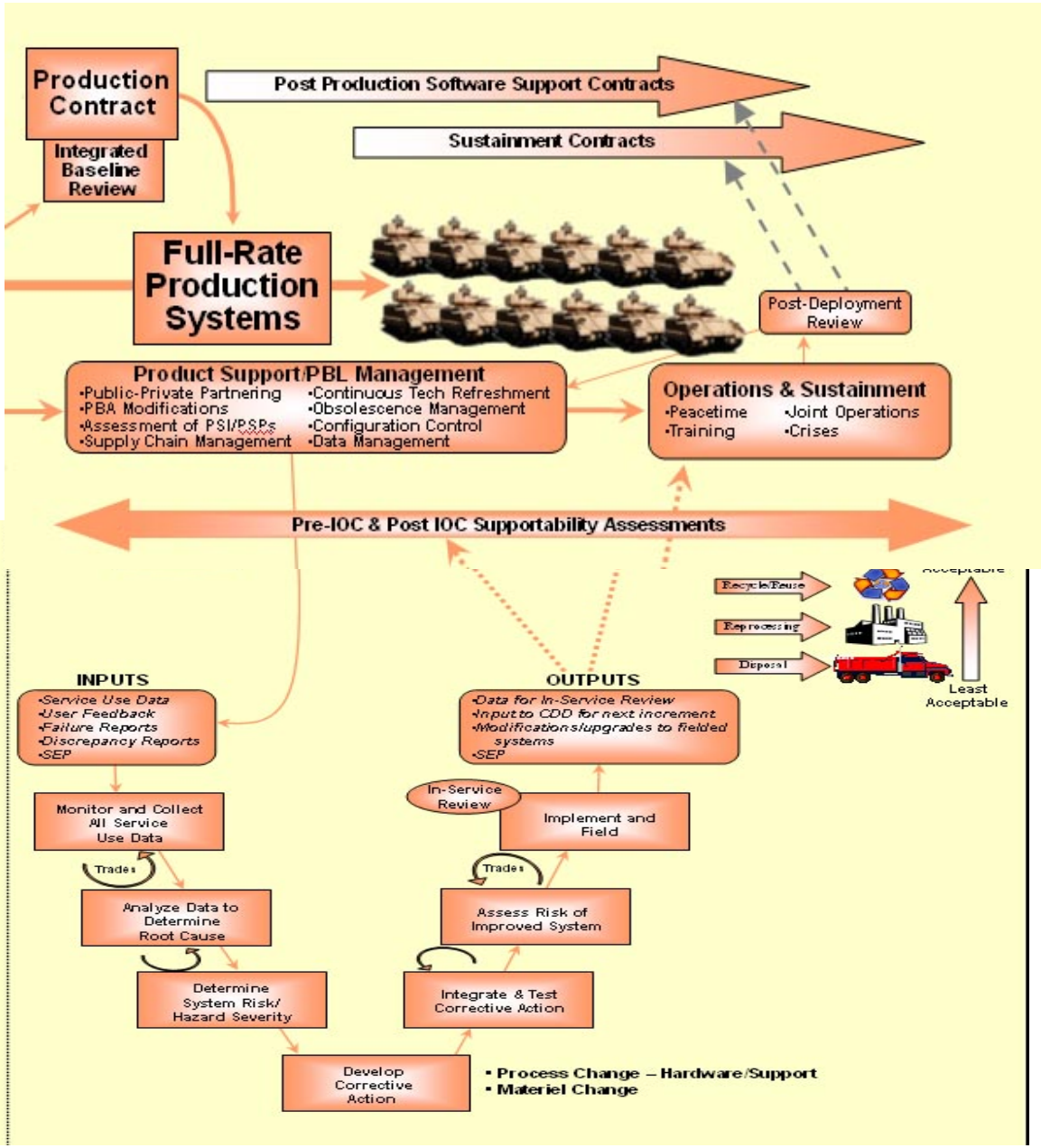
SDD "Design for Support"



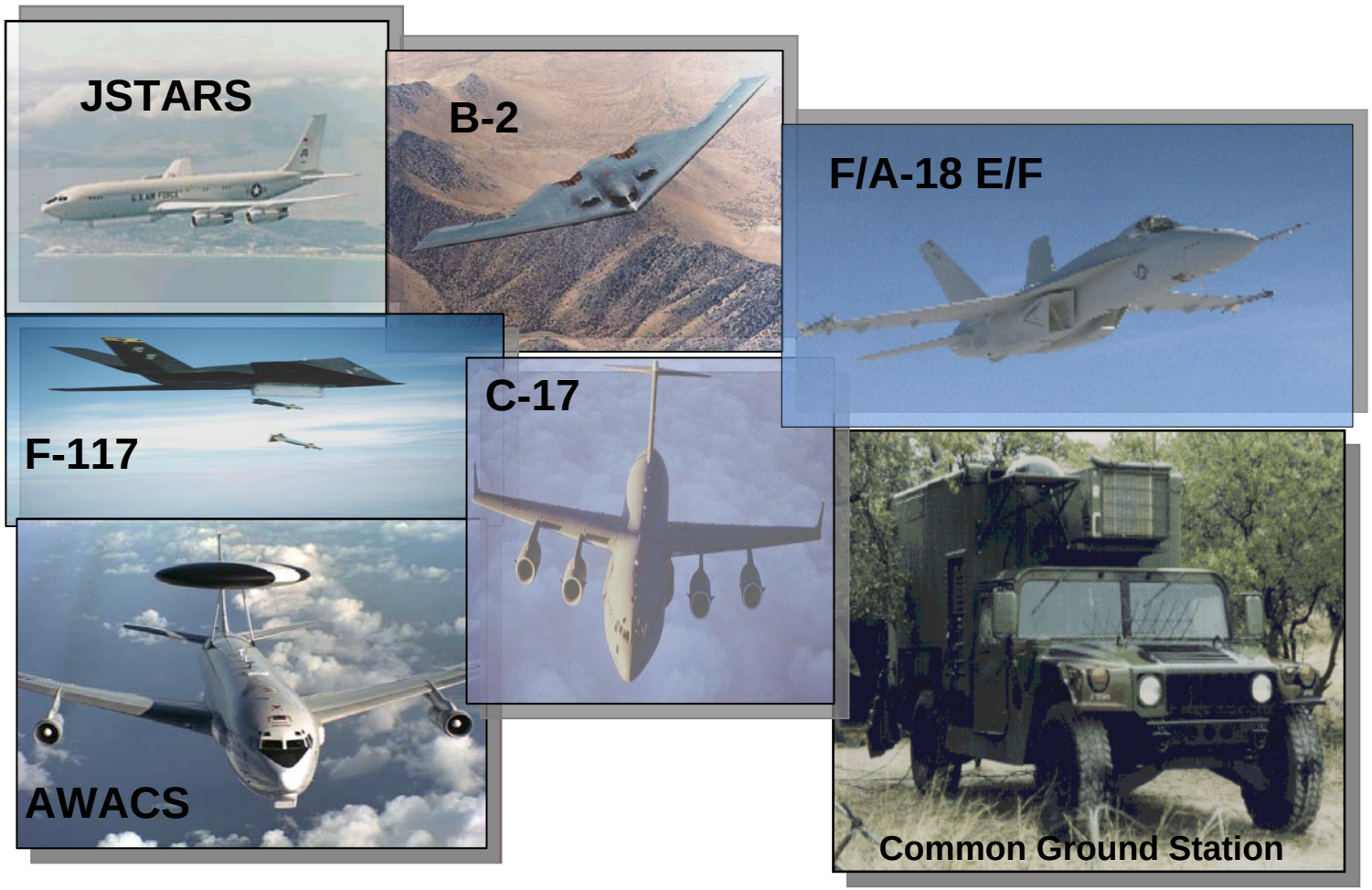


Sustainment "Support the Design"



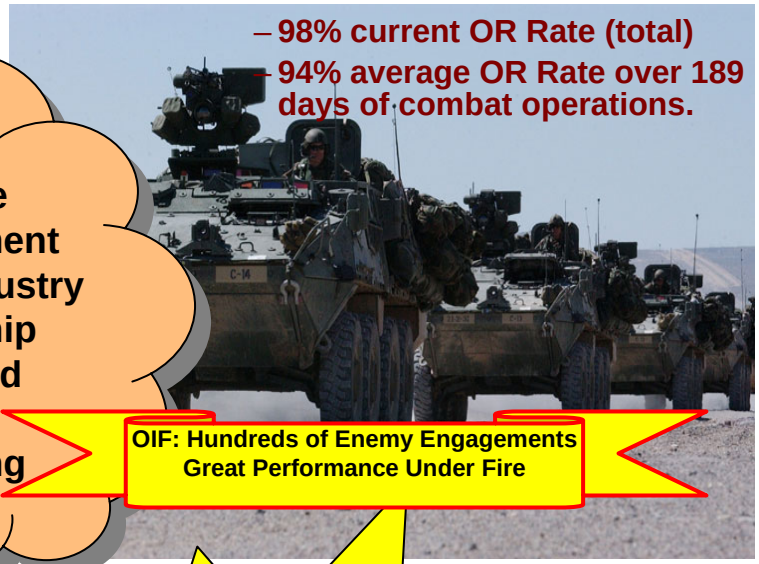


PBL Demonstrated in OEF/OIF



Delivering Capability NOW!

Performance-Based Logistics



- Life Cycle Management
- Gov't/Industry partnership
- Embedded health monitoring

Navy Program	Pre-PBL	Post-PBL
F-14 LANTERN	56.9 Days	5 Days
ARC-210	22.8 Days	5 Days
H-60 Avionics	52.7 Days	8 Days
F/A-18 Stores Mgmt System (SMS)	42.6 Days	2 Days CONUS 7 Days OCONUS
Tires	28.9 Days	2 Days CONUS 4 Days OCONUS
APU	35 Days	5 Days

Decreased Response Time 70%-80%

- Focused on warfighter needs
- Buying outcomes (not inventory)
- Aligning incentives to outcomes

C-17 Globemaster Sustainment Partnership

- Performance-based contract/partnership between AF & Boeing -- requires the contractor to provide sustainment support at continuously raised benchmarked levels
- Includes parts, item management and depot-level repair of airframe and sub-components
- $4.9B FY04 through FY08
- Follow-on PBL relationships
  - Wheels and brakes workload
  - Triumph Air Repair for APU touch labor
  - Parker-Hannifin and ALCS in planning phase

Stryker

“I just did a year in Iraq…. If we did not have [Stryker], there would have been a lot of dead Joes.”

“Stryker is an urban pacification vehicle. I love it.”

“I personally would rather get out of the Army than go somewhere that doesn’t have the Stryker.”

-Sgt. John Hedrington*

“The Stryker Isn’t a poster child gone bad. It has saved the lives of many of my fellow soldiers.”

“One of my sister platoon’s Strykers was hit by five rocket-propelled grenades and everyone on that crew is still walking.”

“Our weapons were plenty for the missions we were placed in.”

“The tires lasted longer than track pads.”

-Staff Sgt. Johnathan Vines*

*Quoted in *Defense News* 1/17/2005

PBL Partnership Vs. Routine Organic Repair

PBL Partnership (GE & JAX)

- Parts Cost: $300,000
- Labor & Admin Costs: $34,000
- Total Cost: $334,000
- Average Life: 2,000 hours
- ***Cost per hour: $167***

Previous Organic Repair

- Used Parts: $120,000
- Labor & Admin Costs: $34,000
- Total Cost: $154,000
- Average Life: 375 hours
- ***Cost per hour: $411***

PBL Process +

•Lean

•Six Sigma

•TOC

>90% Availability

Notional Construct

F404 PBL (F/A-18A-D) Status

- **Four and 1/2 Year Firm-Fixed Price Contract Base Period; Five One Year options**
- **Largest Aviation Fixed Price PBL Contract…BCA Projects $79M Cost Avoidances**
- **Includes 36 F404 Major Sub-Assemblies Covering 1895 Engines**
- **Covers the Overhaul of the Major Sub-assemblies Regardless of Quantity Repaired/Replaced**
- **Provides Flying Hour and War Time Surge Flexibility**
- **Measurable Performance Metrics (LRT, SMA and Durability)**
  - ✓ **85% Availability; Disincentives for Lower Than 75%, Incentives Up to 3% for 90% Availability**
- **Public Private Partnership With NADEP Jacksonville- Leverages OEM "Best Practices" Efficiencies (i.e. Six Sigma, Lean, TOC)**

Exceeding Expectations!

- ***100% Total Backorder Reduction Contract-to-Date***
- ***Availability 95% (Historical, 43%)***
- ***TAT Reduced by 25%; Backlog Reduced 50%***

Improving F404 Availability While Reducing $/EFH Cost

TOW IMPROVED TARGET ACQUISITION SYSTEM (ITAS)

TOW/ITAS PBL Concept

Field Repair

- **Soldier Maintainer at Organizational and Direct Support Levels**
  - **BIT/BITE to Line Replaceable Unit (LRU)**
  - **Repair by Replacement**
- **Contractor Forward Repair Activity (FRA)**
  - **Limited Depot Level Repair and Test Equipment**
  - **Co-located With Army Main Support Battalion at Selected Units**
  - **FRA (Personnel and Equipment) Deployable, Commander's Call**
    - **On Unit's Load Plan**
    - **2 Hour Recall - Has Shots, Wills, Personal Equipment**

Depot Repair - Raytheon, McKinney, TX

97-100% Availability to Warfighter since Feb 01

Blackhawk Health Monitoring

Successful application to a fielded system

Description:

- On-board diagnostics and prognostics.
- Crash survivable cockpit voice and data recorder.
- Obtains real time vibration, rotor smoothing and aircraft health usage info.

Benefits:

- Obtains real time vibration, rotor smoothing and aircraft health usage info.
- Supports predictive methods to allow replacement of parts prior to catastrophic failure.
- Reduces O&S costs.
- Improves readiness.

Health and Usage Monitoring System (HUMS)

Fleet Management Recorder (FMR)

Incident Investigation Direct Download through Ethernet

Dramatic improvement in Aircraft Turn Rate on the Desert Deck!

- *89% reduction in manhours for Main Rotor Track and Balance*
- *95% reduction in manhours for Tail Rotor Balance*
- *87% reduction in manhours for Vibration Chuck*

TASKING

- Missions
  - RWCAS
  - Convoy Escort
  - Utility Support
  - Armed Recce
  - CASEVAC
  - Airfield QRF

- 24 / 7 Sustained operations

- Average % Day/Night
  - AH: 58.6 / 41.4
  - UH: 60.6 / 39.4

- FMC / MC (%)
  - AH: 61.0 / 70.7
  - UH: 55.0 / 60.0

“These old aircraft are surviving and succeeding on the backs of our maintenance Marines and at the risk of our aircrews lives.”

Our Challenge

Ubiquitous, cost-effective capability to project and sustain power.

Logistics Transformation

Mass-Based

- More is better
- Mountains of stuff measured in days of supply
- Uses massive inventory to hedge against uncertainty in demand and supply
- Mass begets mass and slows everything down

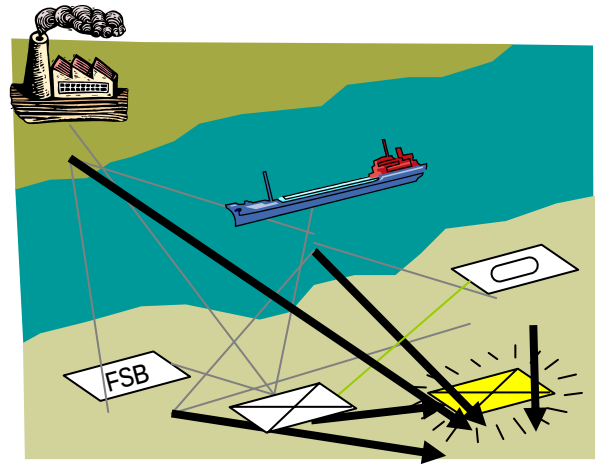
Prime Metric: Days of supply

Just-in-Time

- Precision is better
- Reduce Inventory to a minimum and keep moving
- Use precise demand prediction and optimization to reduce uncertainty
- Works great, except when it doesn't

Prime Metric: Flow Time

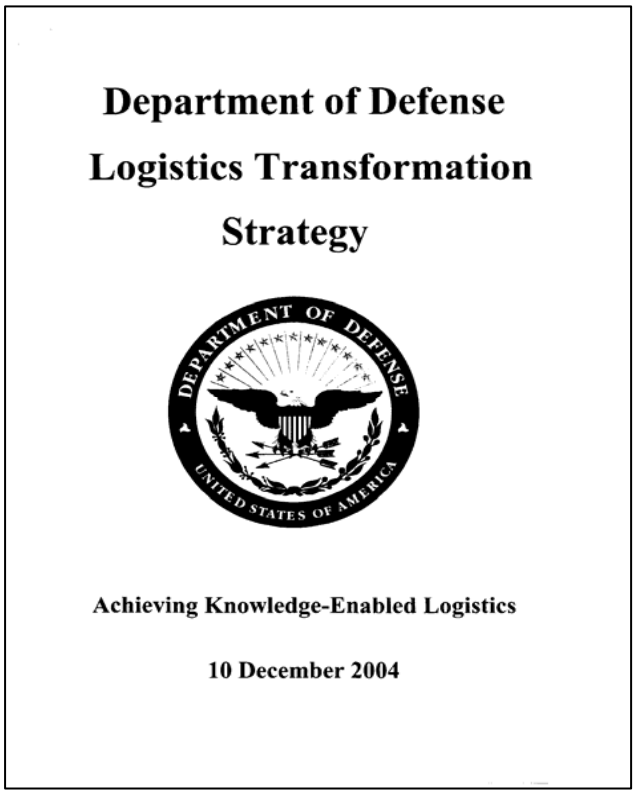
Sense and Respond



- Agile is better
- Dynamically positioned Inventory throughout
- Use transportation flexibility and robust IT to handle uncertainty
- Supports adaptive operations

Prime Metric: Effects

Logistics Transformation Strategy



- **Recognized Focused Logistics as JROC-Approved Concept**
- **Incorporated Sense and Respond Tenets**
- **Subsumed Force-Centric Logistics Enterprise initiative**
- **Recognized emerging transformation concepts**

Fulfillment of DoD transformation strategy requires an integrated enterprise across Government and Industry.

Where We Need To Be

- **Readiness objectives based upon national security strategy**
- **Supply Chains structured to be performance-based**
  - **Clear accountability for performance, outcomes, and resources**
- **Optimize materiel, maintenance, and fuel demands**
  - **System reliability driven by operational requirements**
- **Global end-to-end distribution capability focused on customer needs; enabled by comprehensive asset visibility**
- **Embedded culture of continuous improvement in performance and cost**

Requires significant change in strategy, processes and systems

Why?

- **DoD Logistics cost ≈ $90B**
- **Secondary item inventory ≈ $77B**
- **Customer Wait Time ≈ 24 days**
- **Materiel Readiness ≈ 70-90%**

…and we are a nation at war!

Key Questions

- **What is military utility of high reliability?**
  - Increased use of capital assets; longer periods free of maintenance; improved safety
  - Decreased demand throughout the supply chain
  - Reduced footprint
- **What can be done to achieve high reliability in defense systems?**
  - Early, continuous R, M, & S engineering
  - Increased application of health monitoring, diagnostics, and prognostics
- **What changes would incentivize greater focus on supportability in design?**
  - PBL; sharing product supportability risk with key stakeholders

Innovation from the R, M, & S community is essential!

Performance-Based Weapon System Support

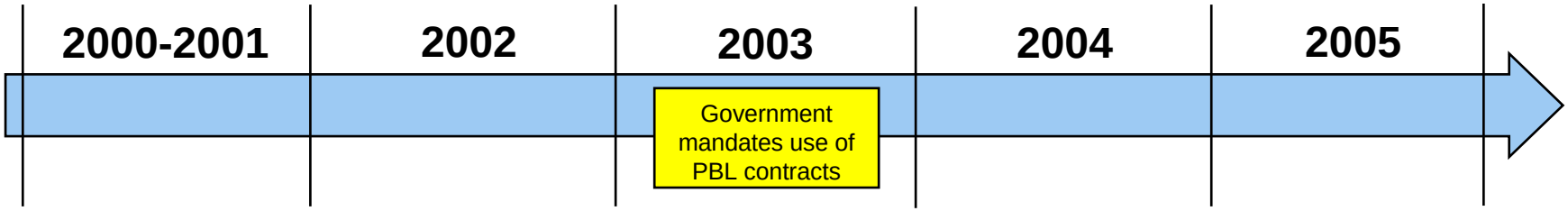
PM is life cycle manager

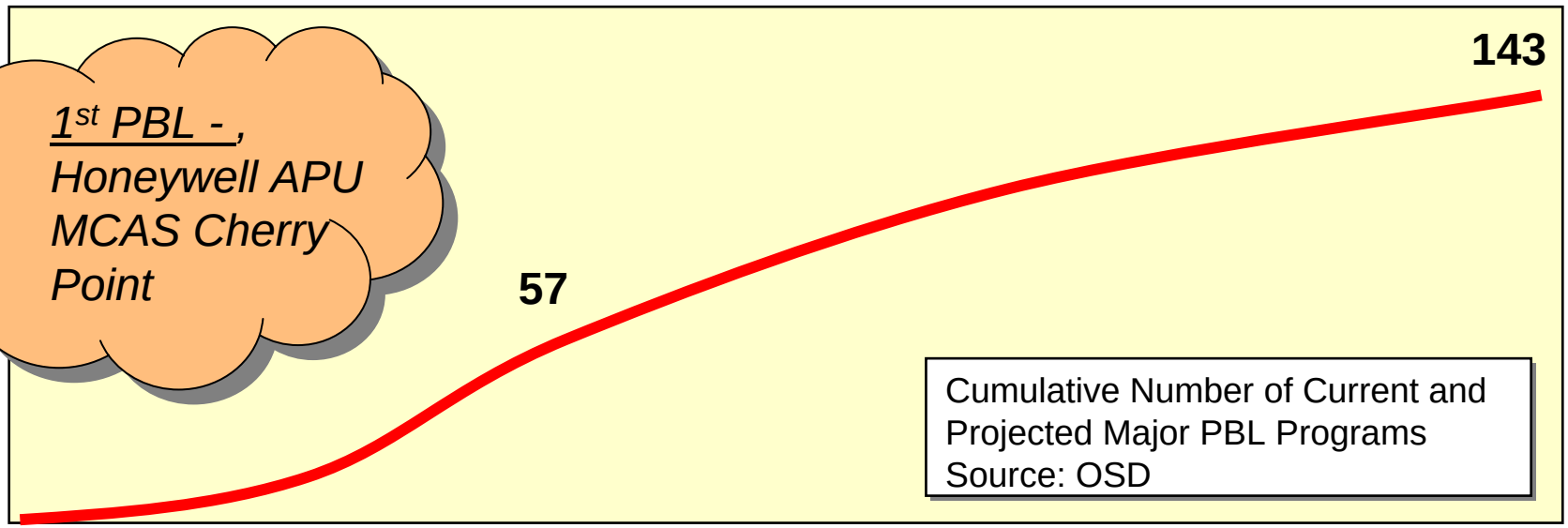
- **Performance Based Logistics (PBL):**
  A strategy for weapon system life cycle support that employs *purchase of performance as a package*
  - Delineates outcome performance goals
  - Provides incentives for attaining goals
  - Facilitates overall lifecycle management of system reliability, readiness, supportability and total ownership costs

- **PBL…Key pillar of DoD's Logistics Transformation**
  - Goal…improve near-term readiness of critical platforms while moving toward an end-to-end weapon system sustainment framework
  - Directed in Strategic Planning Guidance…examine all major systems by 30Sep06!

PBL & TLCSM Examples

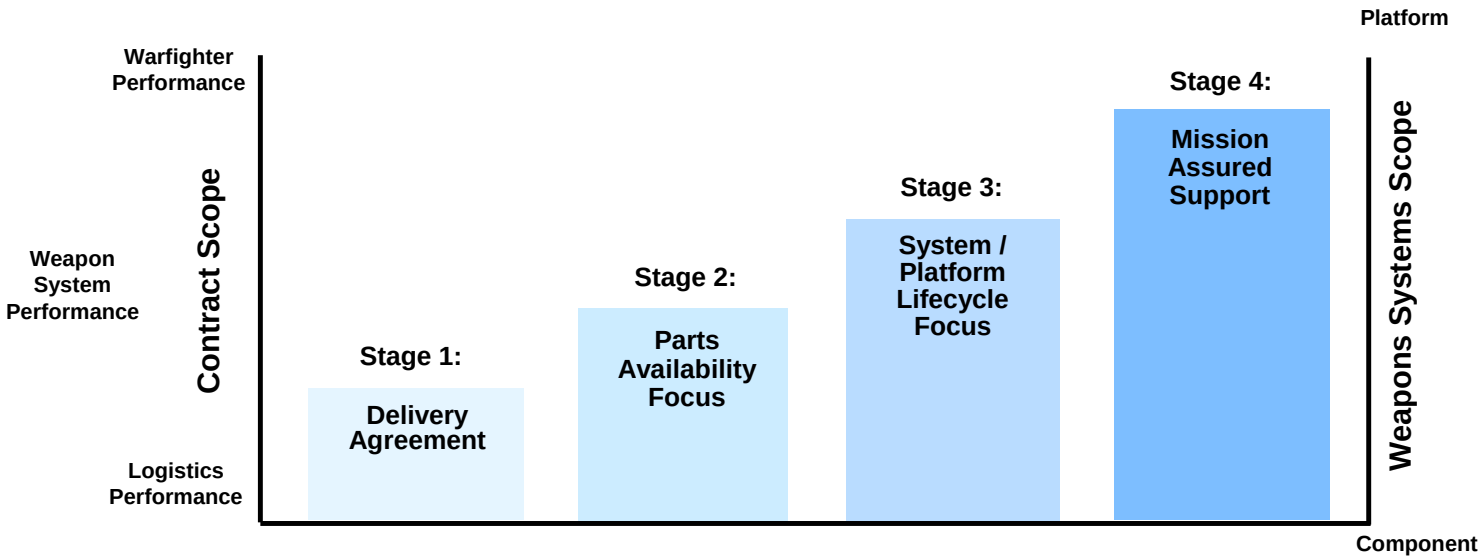
PBL Implementation





DoD Is Aggressively Implementing Performance Based Logistics

PBL Maturity Framework



Provides assessment of PBL maturity…

- Required Practices
- Contractual Elements
- IT Enablers
- Metrics
- Functional Ownership

…to meet the following objectives

- Tool to evaluate overall PBL Progress
- Tool to assess PBL Performance
- Tool to identify requirements for improvement
- Tool to support rapid development of new PBL
- Tool to identify and address risk
- Tool to support BCA development

Total Life Cycle Systems Management - TLCSM

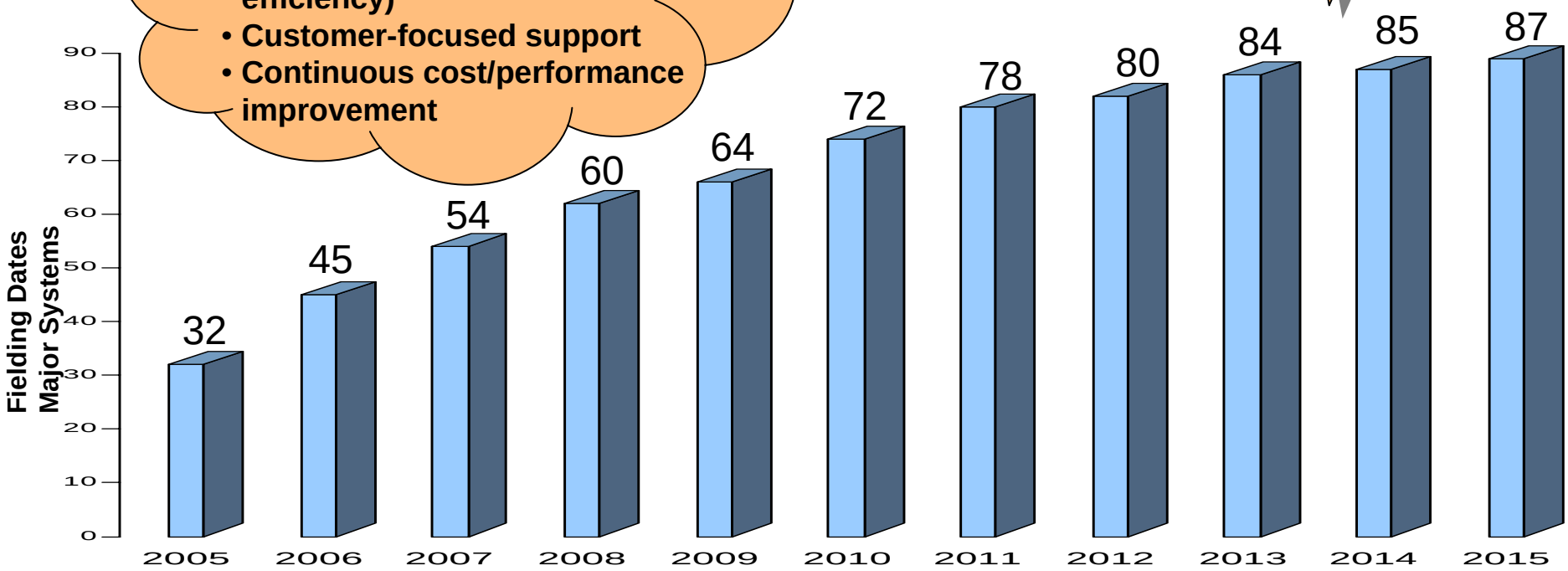
- **Total Life Cycle Systems Management**
  - **Fundamental to the DoD approach**
- **Key features:**
  - ***Single point of accountability;***
  - **Evolutionary acquisition;**
  - ***Supportability and sustainment as key elements of performance;***
  - ***Performance-based strategies, including logistics;***
  - ***Increased reliability and reduced logistics footprint; and***
  - ***Continuing reviews of sustainment strategies***

The Challenge: Move from influencing the re-design to influencing the design at its most basic level

TLCSM Implementation (2005-2015)

- PM accountable for life cycle
- Early emphasis on demand reduction (reliability/fuel efficiency)
- Customer-focused support
- Continuous cost/performance improvement

Leading to a bi-polar support structure



- TLCSM implemented as a go-forward strategy
- Does not explicitly address fielded legacy systems
- Consideration of legacy system varies across Service
- Legacy improvement does not compete well in resource process

QDR: Direct application of TLCSM principles to fielded systems (where appropriate).

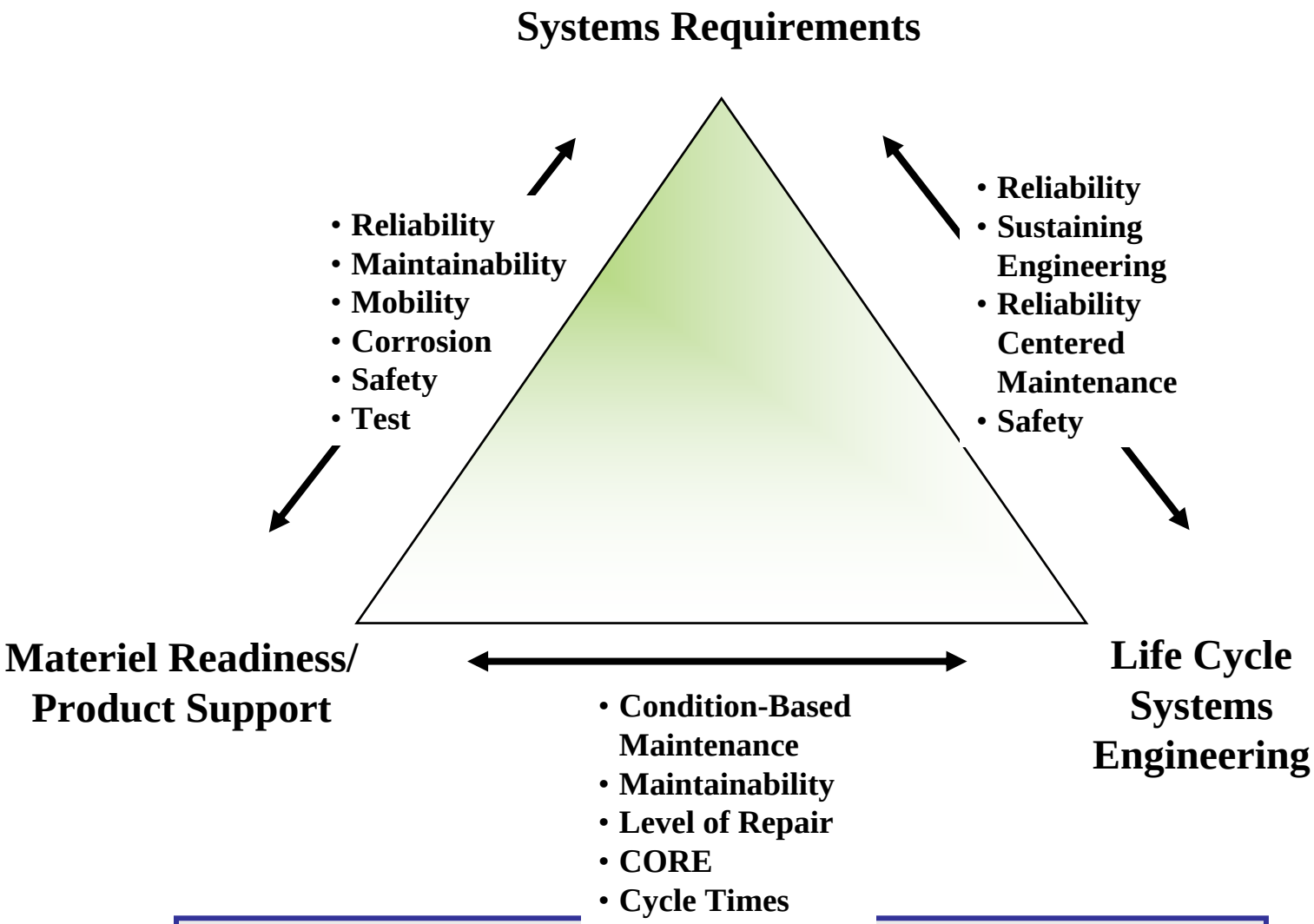
Status of Logistics Initiatives

(QDR 2001)

QDR 2001 Initiative	Completed Efforts	Remaining Work
Weapon System Support	• Established program managers as life cycle manager • Directed comprehensive application of performance-based logistics (PBL) • Demonstrated combat/cost effectiveness of PBL • Demonstrated cycle time and cost gains of lean maintenance practices	• **Implement life cycle principles on fielded platforms** • Expand to outcome-focused logistics system • Implement enabling financial processes • **Codify continuous process improvement program to include reliability, cycle time, and cost**
Consumable Item Management	• Implemented world-class practices for fuel, food, pharmaceuticals, shop materials • Demonstrated efficacy of leading commodity management practices	• Expand to logical war reserve consumable material • Codify commodity councils
Global Distribution Management	• Established USTRANSCOM as Distribution Process Owner • Transformed DLA into global stock positioning • Demonstrated combat/cost effectiveness in OEF/OIF • Ongoing asset visibility programs (RFID, UID)	• **Empower USTRANSCOM with enabling authorities** • **Transform joint logistics enroute infrastructure** • Codify enabling processes • **Fully implement RFID**

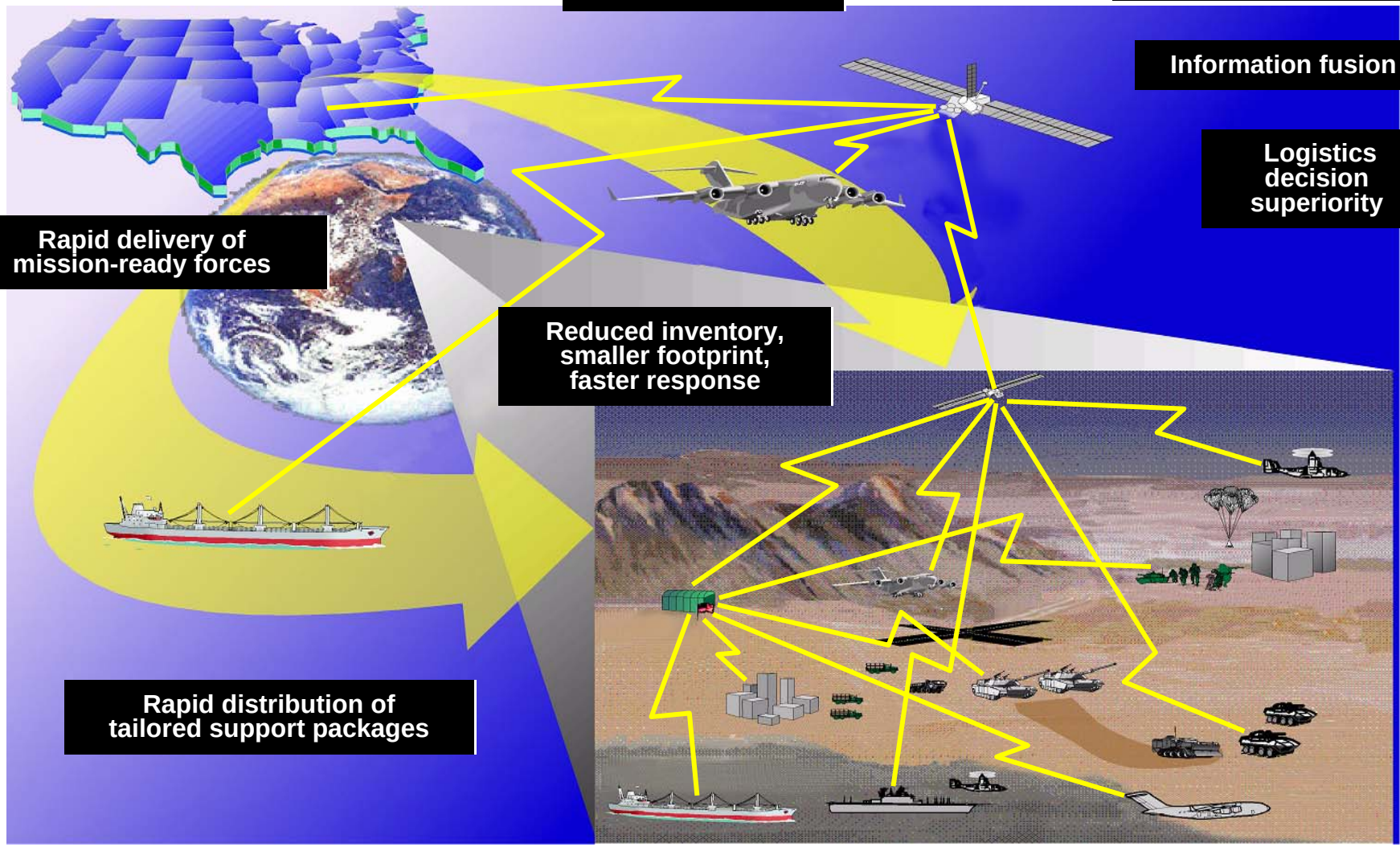
Blue Bold – QDR consideration/actions

The Life Cycle Triangle



Managing Performance Across the Life Cycle

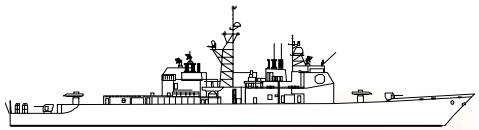
Focused Logistics



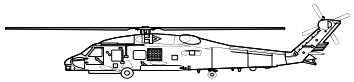
Bottom line: Forces in theater — whether forward-stationed or deployed — deliver more capability, require less support

Focused Logistics Vision

Enabled by Better Knowledge and S&R Support



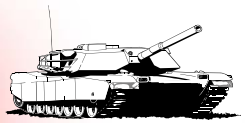
Embedded Sensors



Integrated Data Bus

Sense & Respond Logistics

Maintenance

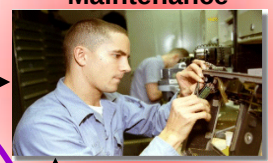


Anticipatory Materiel

Reduced Footprints

On-Board Diagnostics and Prognostics

Maintenance



Data Transfer

Interactive Training & Tech Support

IETMs

Pedigree Manage-ment

CBM+

Predictive Maintenance

Preventive Maintenance

Troubleshooting and Repair

RCM Data Analysis

Condition Monitoring Reliability Analysis

Integrated Logistics Information

Portable Maintenance Aids

UID/SIM

Maintenance History Configuration Control

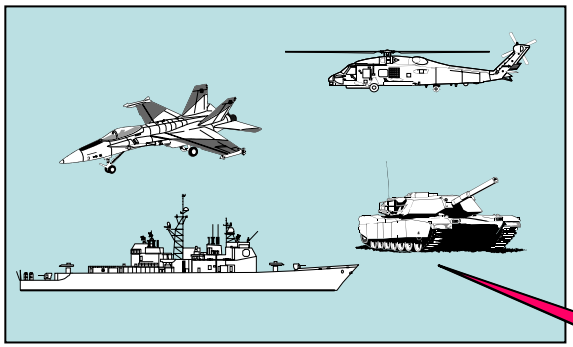
Battlespace Network

Linked to Warfighters

Total Asset Visibility (RFID)

- **Real-time Status of Equipment Material Condition**
- **Integrated Supply/Maintenance via Serialized Item Management**
- **Total Asset Visibility**

Building Blocks to S & R Focused Logistics



1. ***Product Support Engineering***
   - CBM +
   - Data Management
   - Configuration Management

2. ***Data Transmission***
   - •GCCS
   - •GCSS

Data Warehouse

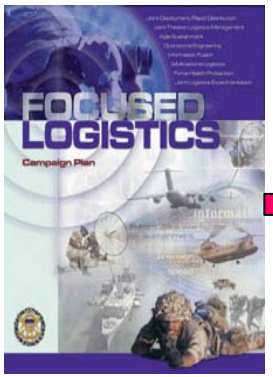
IETMs

Customer Support Services
- Support System Mgmt
- Supply Chain Mgmt.
- Sustaining Engineering
- Help Desk
- Maintenance Data
- Configuration Mgmt.
- Tech Refreshment
- DMSMS

Technical Data is a Major Enabler to Achieve S & R
- •Technical Publications
- •Product Data Management
- •Professional Development
- •Technology Development

3. ***Technical Response Center***
   - Industry/Government Team
   - Maintenance & Supply Data

Defense Logistics Roadmap



Defense Logistics Executive (DLE)

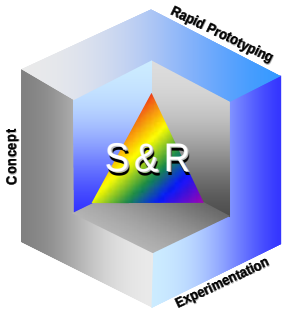
Joint Theater Logistics Management

FLE 2005 - 2010

"Knowledge-Enabled Logistics"

Logistics Transformation Roadmap

2010 - 2015



Sense & Respond Logistics

JFPSO

Single Joint Strategy to Deliver "Focused Logistics" 2015 - 2020

Source of Supply

RDT&E | Acquisition | Storage | Inter-Theater Mvmt | Intra-Theater Mvmt | Tactical Mvmt & Dist

Point of Effect

Distribution Process Owner (DPO)

* Joint Force Projection and Sustainment for Full Spectrum Operations

Maintenance Excellence Must Fit with War Fighter Vision

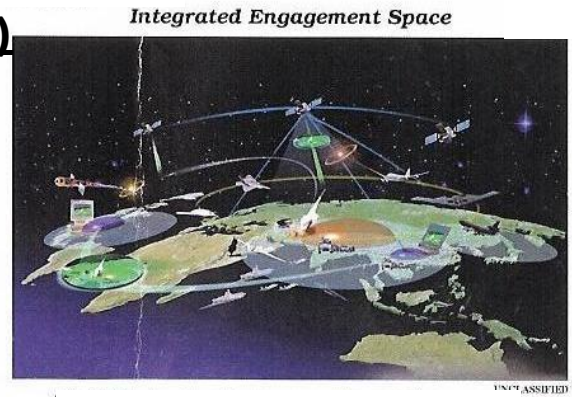
+

+

Network Centric Global Command & Control System

Global Joint Integrating Concept (JIC)

- GCCS Definition
- Integrated Engagement Space
- Critical operational capabilities identified
- Global Combat Support System



Focused Logistics Enterprise

F/A-18

Tanks

F-22

MMA

Comms

Common OSD Portal

Secure Access System

USN/USMC/
USAF/USA

JSF

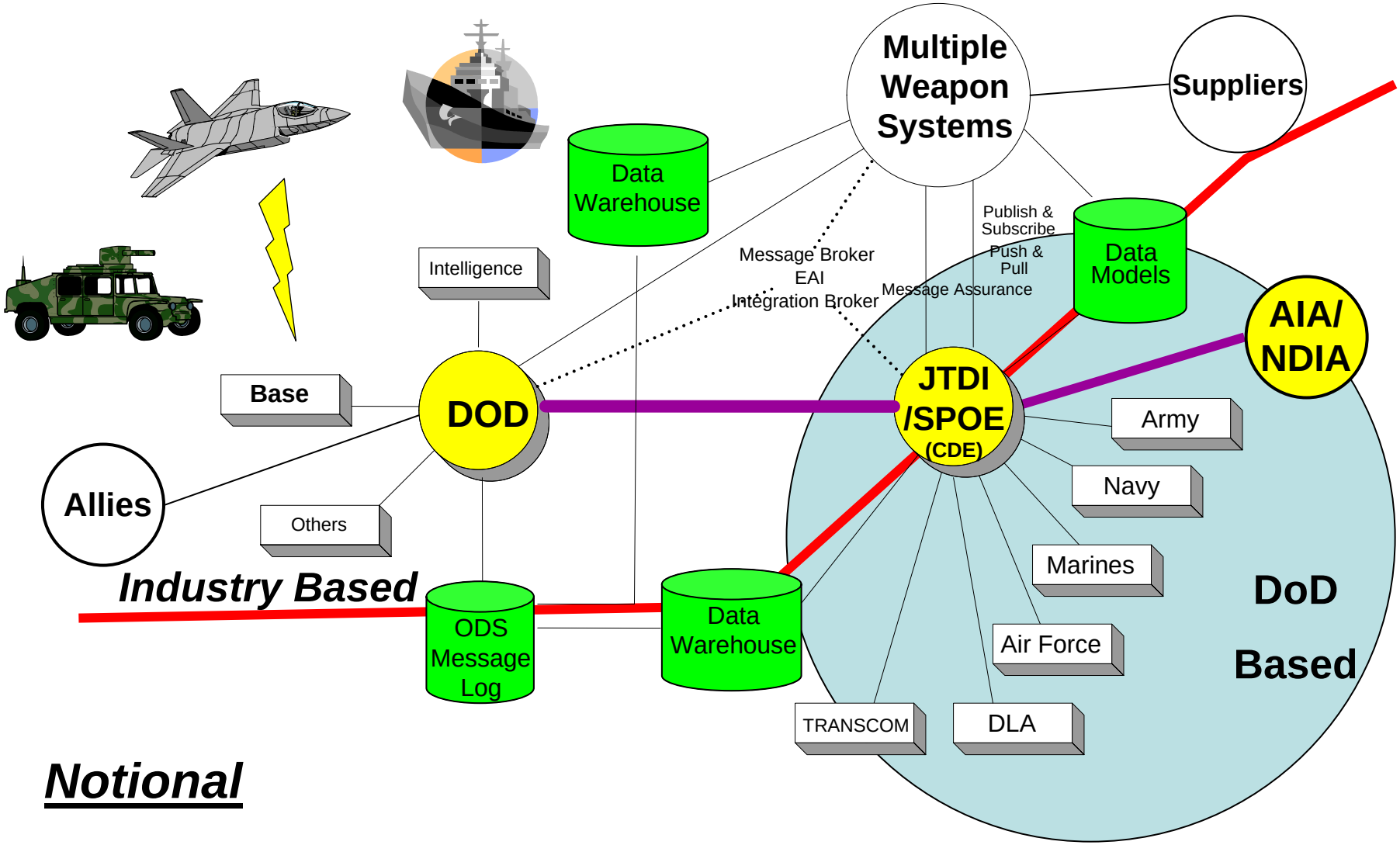
Ships

Howitzer

Subs

Blackhawk

Support for FCS, JSF, DDX, F/A-18 and others



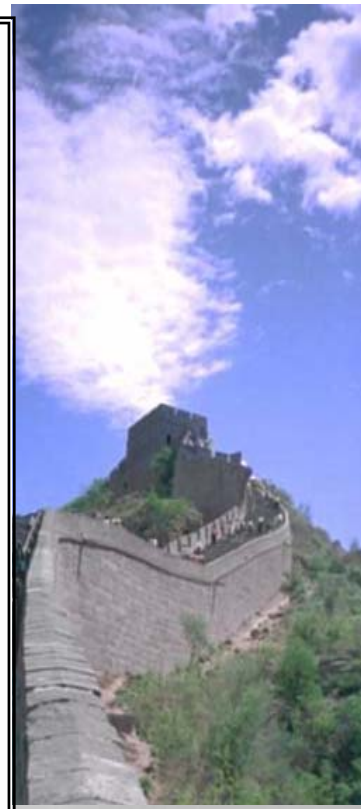
Stay Focused!

“On my signal … unleash hell….”

The Logistics Challenge: Ubiquitous, cost-effective capability to project and sustain power.

Cultural Barriers

Cultural Barriers is a politically correct disease, invented by consultants to justify high fees and adopted by some as an excuse for a lack of leadership and courage!



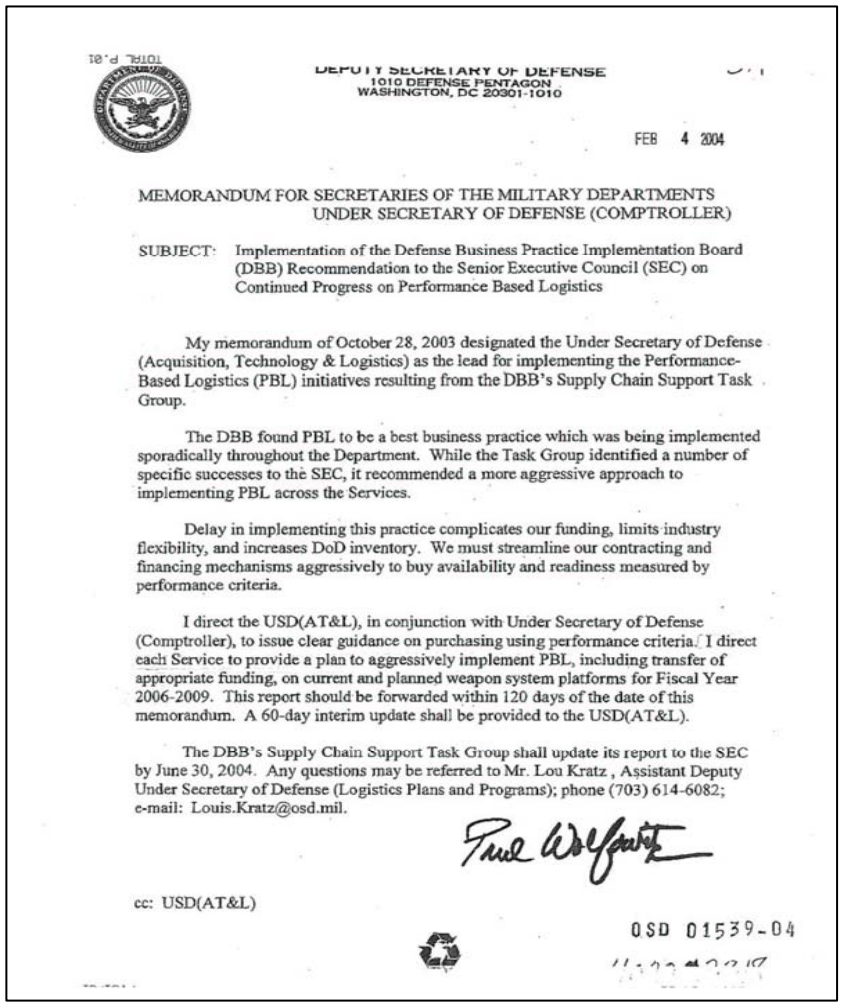
Summary

- ***Government and Industry must work together to achieve this objective***
  - ***Framework has been established***
    - *Program Managers are Total Life Cycle Systems Managers*
    - *PBL is the preferred sustainment strategy*
  - ***Performance based products***
  - ***CBM, UID, and RFID are important enablers***
  - ***Challenge to implement, must be cost effective***
  - ***Change is hard, but we owe it to the Warfighters to succeed***

Meeting Warfighter needs Around the Clock, Around the Globe.

BACKUP

Deputy SecDef PBL Guidance



DEPUTY SECRETARY OF DEFENSE
1010 DEFENSE PENTAGON
WASHINGTON, DC 20301-1010

FEB 4 2004

MEMORANDUM FOR SECRETARIES OF THE MILITARY DEPARTMENTS
UNDER SECRETARY OF DEFENSE (COMPTROLLER)

SUBJECT: Implementation of the Defense Business Practice Implementation Board (DBB) Recommendation to the Senior Executive Council (SEC) on Continued Progress on Performance Based Logistics

My memorandum of October 28, 2003 designated the Under Secretary of Defense (Acquisition, Technology & Logistics) as the lead for implementing the Performance-Based Logistics (PBL) initiatives resulting from the DBB's Supply Chain Support Task Group.

The DBB found PBL to be a best business practice which was being implemented sporadically throughout the Department. While the Task Group identified a number of specific successes to the SEC, it recommended a more aggressive approach to implementing PBL across the Services.

Delay in implementing this practice complicates our funding, limits industry flexibility, and increases DoD inventory. We must streamline our contracting and financing mechanisms aggressively to buy availability and readiness measured by performance criteria.

I direct the USD(AT&L), in conjunction with Under Secretary of Defense (Comptroller), to issue clear guidance on purchasing using performance criteria. I direct each Service to provide a plan to aggressively implement PBL, including transfer of appropriate funding, on current and planned weapon system platforms for Fiscal Year 2006-2009. This report should be forwarded within 120 days of the date of this memorandum. A 60-day interim update shall be provided to the USD(AT&L).

The DBB's Supply Chain Support Task Group shall update its report to the SEC by June 30, 2004. Any questions may be referred to Mr. Lou Kratz , Assistant Deputy Under Secretary of Defense (Logistics Plans and Programs); phone (703) 614-6082; e-mail: Louis.Kratz@osd.mil.

cc: USD(AT&L)

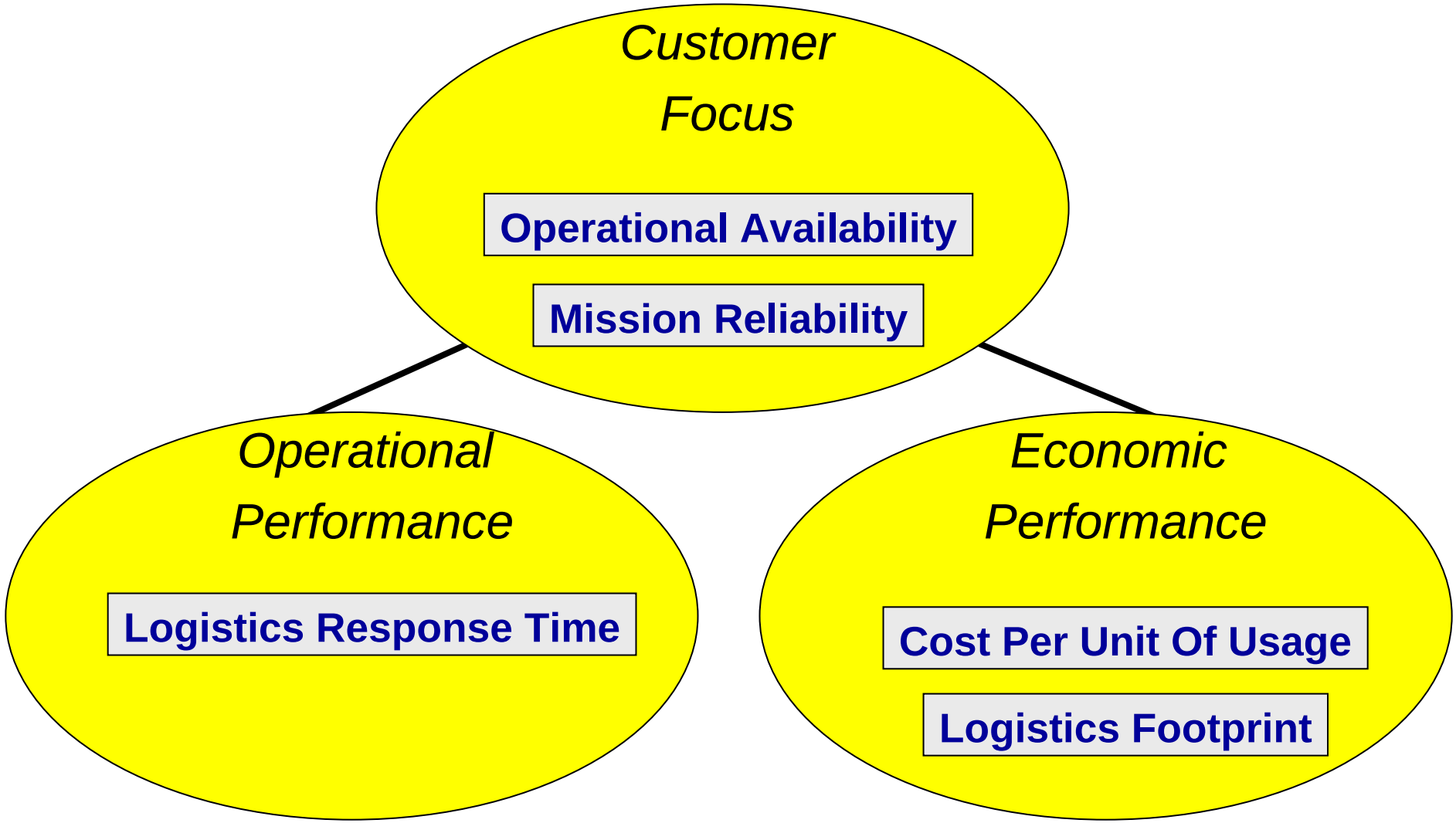
OSD 01539-04

- **PBLs established as a DoD best practice**
- **More aggressive approach for PBL implementation**
- **Direction to issue "clear guidance" on performance-based purchasing**
- **Each Service has 120 days to provide a plan for aggressive PBL implementation**

Recent PBL Efforts

- ✓ DepSecDef PBL Guidance
  - AT&L issue consistent guidance
  - Service plans for all ACAT I and II programs
- ✓ Strategic Planning Guidance
  - Service BCAs for all ACAT I and II by FY 06
  - Initial management review by September 04
- ✓ Clear PBL BCA Guidance
  - Total life cycle costs
  - Best value
  - Operationally driven
- ✓ Clear PBL Contracting Guidance
  - Accelerate PBL Contracting
  - Establish PBL Metrics
- ✓ Established Supportability Design and Assessment Criteria — *24 Oct 03*
  - Incorporates SDOE
  - Technical Guidance by Milestone
- ✓ New Defense Acquisition Guidebook — *On Line*
  - PM's TLCSM and PBL responsibilities clearly defined
- ✓ Updated PBL Product Support Guide — *10 Nov 04*
  - A Tool for Program Managers
  - Incorporates latest lessons learned
- ✓ MID 917 – PBL — *20 Oct 04*
  - Lead programs
  - Program/budget to single activity group

Total Life Cycle Systems Management Metrics



Weapon Systems Selected

Category A: (Candidates)	**23**
Category B: (Possible Candidates)	**87**
Category C: (Not Candidates)	**38**
Total	**148**

Weapon Systems Selected Continued

Category A: <u>Candidates</u>

- ***Joint Services***
  - MV-22 Osprey
  - Joint Strike Fighter
- ***Navy/Marine:***
  - Advanced Amphibious Assault Vehicle/ Expeditionary Fighting Vehicle
  - F/A-18 Hornet
  - LDP-17 San Antonio Class
  - E-2 Advanced Hawkeye
  - RQ-8 Fire Scout
  - Broad Area Maritime Surveillance (BAMS) UAV
  - E-6 Mercury
  - US-101 Presidential Helicopter
  - P-8 Multimission Maritime Aircraft
  - H1 (4 Blades)
- ***Army:***
  - FCS (Future Combat Systems)
  - Stryker
  - AH-64 Apache Longbow
  - Blackhawk
  - RESET Program
- ***Air Force:***
  - B-2 Spirit
  - F-22 Raptor
  - MQ-1 Predator UAV
  - F-117A Nighthawk
  - F-16 Fighting Falcon
  - C-17 Globemaster III

Weapon Systems Selected Continued

Category B: <u>Possible Candidates</u>

- ***Joint Services***
  - Aerial Common Sensor
  - UH-1 Huey
- ***Navy/Marine:***
  - AH-1 Cobra
  - EA-6B Prowler
  - KC-130 Hercules
  - UC-35C/D Ultra/Encore
  - AH-1W Super Cobra Helicopter
  - CH-53E Super Stallion Helicopter
  - CH/RH-53D Sea Stallion Helicopter
  - M1A1 Main Battle Tank
  - M60A1 Armored Vehicle Launched Bridge (M60A1 AVLB)
  - M88A1E1 Hercules Recovery Vehicle
  - C-20 Gulfstream Logistics Aircraft
  - C-130 Hercules Logistics Aircraft
  - C-40A Clipper Logistics Aircraft
  - E-2 Hawkeye Early Warning and Control Aircraft
  - E-6A Mercury Airborne Command Post
  - EA-6B Prowler Electronic Warfare Aircraft
- ***Navy/Marine Cont.:***
  - T-6A Texan II Turboprop Trainer
  - T-39N/G Sabreliner Trainer
  - T-45A Goshawk Trainer
  - RQ-2A Pioneer Unmanned Aerial Vehicle (UAV)
  - HH/UH-1N Iroquois Helicopter
  - CH-53D Sea Stallion Helicopter
  - MH-53E Sea Dragon Helicopter
  - 5-inch Mark 45 54- Caliber Lightweight Gun
  - AGM-154 Joint Standoff Weapon (JSOW)
  - Joint Direct Attack Munition (JDAM)
  - Mark 75 - 76mm/62 Caliber 3" Gun
  - Phalanx Close-In Weapons System
  - Harpoon Missile
  - AGM-88 HARM Missile
  - AGM-114B/K/M Hellfire Missile
  - AGM-65 Maverick Guided Missile
  - Penguin Anti-Ship Missile
  - RIM-116 Rolling Airframe Missile (RAM)
  - Sea Sparrow Missile
  - AIM-9 Sidewinder Missile
  - SLAM-ER Missile
  - Standard Missile
- ***Navy/Marine Cont.:***
  - Tomahawk Cruise Missile
  - Attack Submarines-SSN
  - Fleet Ballistic Missile Submarines - SSBN
  - Guided Missile Submarines - SSGN
  - Aircraft Carriers - CV, CVN
  - Amphibious Assault Ships - LHA/LHD/LHA(R)
  - Cruisers - CG
  - Destroyers - DD, DDG
  - Sea Lift
  - Landing Craft
  - Combat Logistics
  - Special Operations
  - Mine Warfare
  - Auxiliary
  - Intelligence
  - Cutters

Weapon Systems Selected Continued

Category B: <u>Possible Candidates</u> Continued

- ***Army:***
  - CH-47 Chinook
  - Patriot
  - Javelin
  - TOW Missile System
  - MLRS
  - M109 Paladin
  - Abrams
  - M2 Bradley
  - M113 Family
  - M1070 HET/m1000
  - HEMTT
  - HMMWV
  - Palletized Load System (PLS)
- ***Air Force:***
  - A-10/OA-10 Thunderbolt II
  - AC-130H/U Gunship
  - B-1B Lancer
  - C-20
  - C-32
  - C-37A
  - F-15 Eagle
  - F-16A/B Fighting Falcon
  - HC-130P/N
  - KC-10 Extender
  - KC-135 Stratotanker
  - MH-53J/M Pave Low
  - T-1A Jayhawk
  - T-38 Talon
  - T-43A
  - T-6A Texan II
  - U-2S/TU-2S
  - WC-130 Hercules

Weapon Systems Selected Continued

Category C: <u>Not Candidates</u>

- ***Navy/Marine:***
  - AV-8B Harrier II
  - CH-46E Sea Knight Helicopter
  - C-2A Greyhound Logistics Aircraft
  - C-9 Skytrain Logistics Aircraft
  - C-12 Huron Logistics Aircraft
  - EP-3E (ARIES II) Signals Intelligence Reconnaissance Aircraft
  - F-5N/F Adversary Aircraft
  - F-14 Tomcat Fighter
  - P-3C Orion Long Range ASW Aircraft
  - S-3B Viking Detection and Attack of Submarines Aircraft
  - T-2C Buckeye Jet Trainer
  - T-34C Turbomentor Training Aircraft
  - H-3 Sea King Helicopter
  - TH-57 Sea Ranger Helicopter
  - VH-3D Sea King Helicopter
- ***Navy/Marine Continued:***
  - Mark 38 - 25 mm Machine Gun System
  - U.S. Navy Mines
  - Torpedoes - Mark 46, Mark 48, Mark 50
  - AIM-54 Phoenix Missile
  - Vertical Launch ASROC (VLA) Missile
  - Frigates – FFG
- ***Army:***
  - OH-58D Kiowa Warrior
  - Avenger
  - M119 Towed Howitzer
  - M120/M121 Mortar
  - M252 Mortar
  - M93 NBC Recon System
  - M88A2 Hercules
- ***Air Force:***
  - C-141 Starlifter
  - C-21
  - MC-130E/H Combat Talon I/II
  - MC-130P Combat Shadow
  - OC-135B Open Skies
  - RC-135U Combat Sent
  - RC-135V/W Rivet Joint
  - T-37 Tweet
  - UH-1N Huey
  - WC-135 Constant Phoenix