



# Business Case Analysis (BCA)

## The Engine That Powers PBL

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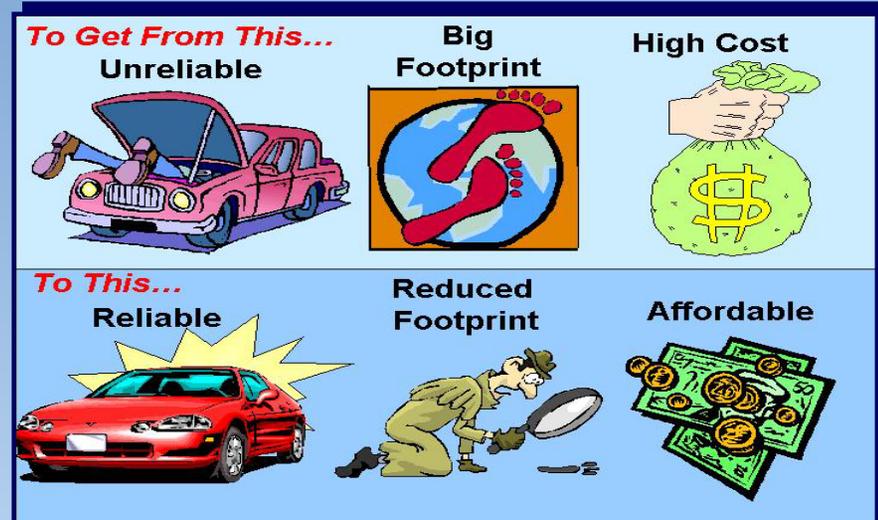
# DOD LOGISTICS

- ◆ **Business: Project and sustain US forces to remote locations in support of our national security objectives**
- ◆ **Employ over 1M People and Engage Over 80,000 Industrial Providers**
- ◆ **Structured to Win the Cold War Multi-Echelon Inventory and Maintenance**
- ◆ **Large, Capital-Intensive Footprint**
- ◆ **Consume over \$85B/year**
- ◆ **Limited Correlation Between Input and Output**

# Performance-Based Logistics (PBL) Goals/Objective

Through the application of Performance-Based Logistics (PBL) we hope to do the following:

- ◆ To Provide Warfighters Increased Operational Readiness
- ◆ To Enhance the Logistics Response Times
- ◆ To Enhance Deployment
- ◆ To Reduce the Logistics Footprint
- ◆ To Reduce Logistics Cost



# Metrics

- ◆ What Is The PM Going To Deliver To The Warfighter?
- ◆ Metrics Should Be Achievable and Measurable
- ◆ How Are the Service Providers Going To Be Measured?
- ◆ Initially Obtained from the Requirements Document
- ◆ May Be Refined By Theater Commanders
  
- ◆ ***They Form the Basis for Supportability Design Parameters***

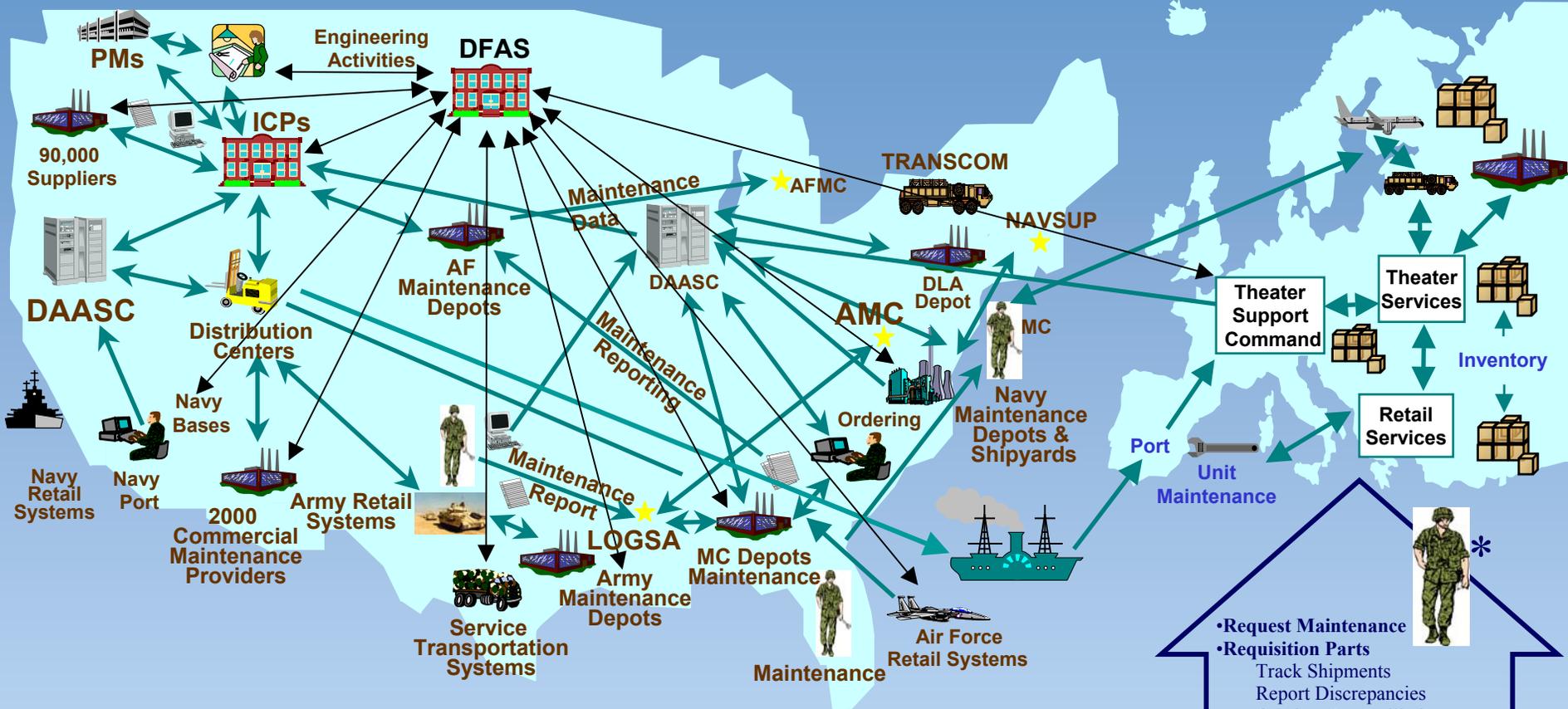
# Business Case Analysis

- ◆ Why Use This Term?
- ◆ What Is A Business Case And Why Analyze One?
- ◆ Forget, for a moment, all the things you've read or heard other people say about BCA's, like:
  - BCA's are the same as Economic Analyses
  - BCA's are Cost Effectiveness Analyses
  - BCA's are....
- ◆ ***BCA IS A TERM USED IN A PBL CONTEXT NOW!!***

# Business Case Analysis

- ◆ PBL Is A Metrics Based Strategy That Promises to Deliver Weapon System Availability (Ao) to the Warfighter at the Lowest Life Cycle Cost and Smallest Logistics Footprint.
- ◆ The Warfighter Will Buy Availability-Not by the Transaction but Delivered
- ◆ ***Major Changes in Business Practices and Financial Systems Needed to Make that Happen!***

# Current Sustainment Process



- Request Maintenance
- Requisition Parts
  - Track Shipments
  - Report Discrepancies
  - Conduct Reconciliation
- Develop material "work-arounds" for: EDD > RDD
  - Obsolete Parts
  - Locate donor system for controlled substitution
- Initiate Local Purchases
  - Identify Sources
  - Research Parts Availability
  - Obtain Drawings/TDP
- Resolve Financial Discrepancies
- Identify/Locate functional POCs

\* Retail depiction based on Army example; retail processes reflect Service unique requirements and procedures.

# Performance-Based Logistics

DFAS

ICPs/Depots

\* *Unique to each Service; Program Manager, Integrated Material Management Center, etc.*

Industry Suppliers

Integrated Product Support Provider

DAAS

Organic Depots

Buying Availability

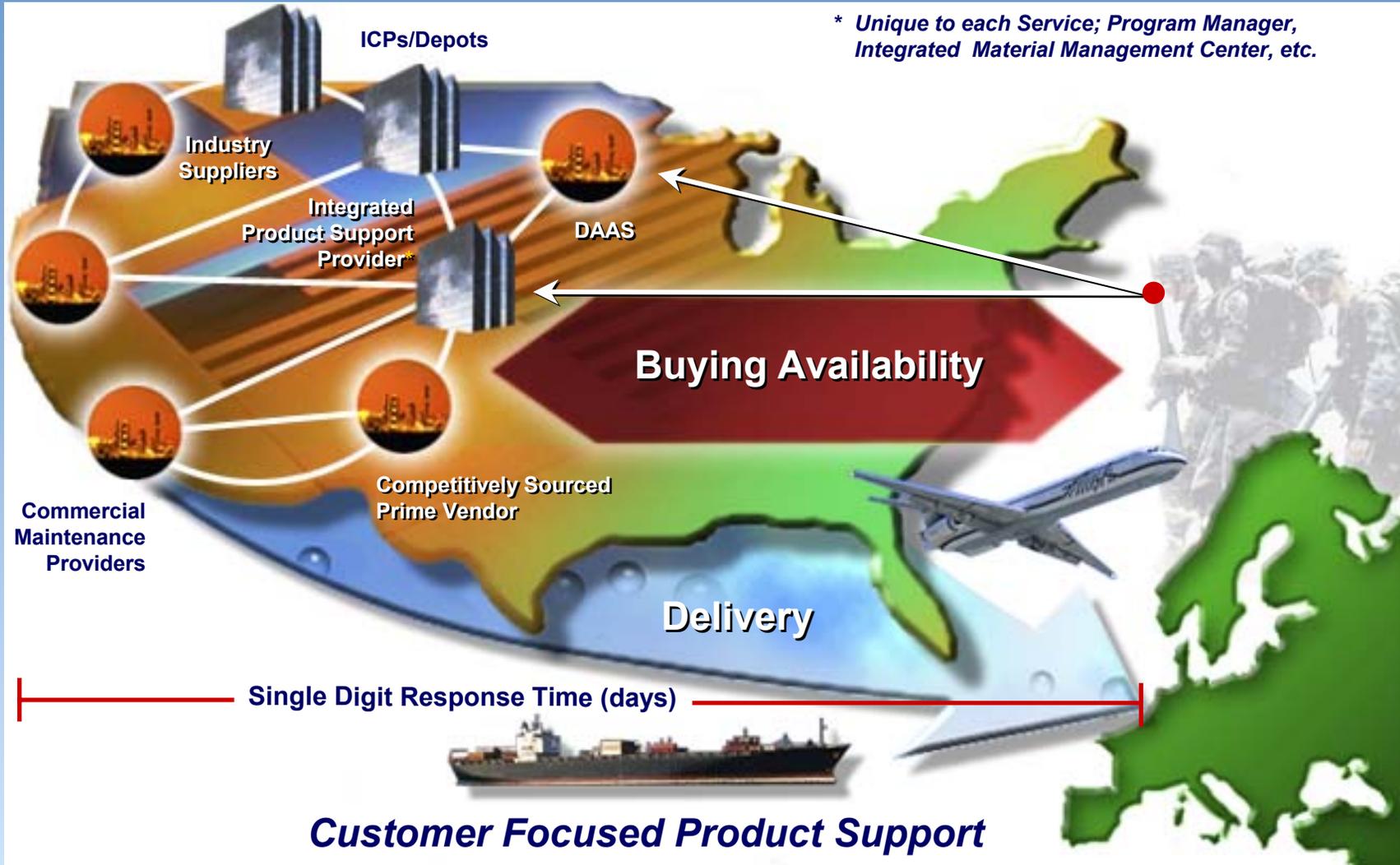
Commercial Maintenance Providers

Competitively Sourced Prime Vendor

Delivery

Single Digit Response Time (days)

*Customer Focused Product Support*



# Business Case Analysis

- ◆ All Know Ao Is Dependent On MTBF, MTTR and MLDT
- ◆ MTBF and MTTR Are Equipment Design Dependent
- ◆ MLDT Is Logistics Support System Dependent
- ◆ 80%-90% of LCC Is Determined by SDD
- ◆ **During SDD You Have To Make A Business Case for All Equipment Design and All Logistics Support Decisions That Affect Ao, LCC and Logistics Footprint**

# PBL Business Case Analysis - BCA

What is a PBL BCA?

- Tool used to influence Design for Supportability
- Tool used to select Support Strategy
- Tool used to manage process improvements
- Document that identifies feasible alternatives
- Used to Identify Underlying Support Metrics
- Tailored to each application



## Short Excursion

# Engineering Supportability Into Weapon Systems

# **Systems Engineering Discussion**

Designing a Supportable System  
that Meets the  
Warfighter's Performance Requirements  
at the  
Lowest Total Ownership Cost  
with the  
Smallest Footprint

***METRICS DRIVEN***

# System Design Processes

- ◆ Used To:
  - Convert Agreed-Upon Performance Objectives Into a Set of Realizable Products That Satisfy Acquirer and Other Stakeholders
  - Define Requirements
  - Define Performance Levels
  - Prepare a Set of System Technical Requirements That Are Unambiguous, Consistent, Achievable, Verifiable and Necessary and Sufficient For a System Design

# AR70-1

## ARMY ACQUISITION POLICY

### 13 Dec 2003

*Supportability*\*. Supportability is co-equal to cost, schedule, and performance. System supportability must be fully addressed throughout the system acquisition process. Supportability analyses must be conducted as an integral part of the systems engineering process to ensure supportability requirements are identified to optimize total system performance.

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Supportability planning and execution are a component of the ILS process, as defined in AR 700-127.

\* Paragraphs 1-4,g and 1-5,h

# System Engineering Process

- ◆ Allocate System Level Parameters to Lower Level Systems and Sub-systems Until All System Level Requirements Are Met.
- ◆ Supportability Metrics Can Be Allocated and Distributed to Lower Levels In Exactly the Same Way as Other Performance Requirements.
- ◆ Supportability is Measurable, Allocable, and Predictable.
- ◆ Examples: Ao, MTBMF, MTTR, LCC, Footprint

# Supportability in the System Engineering Process

- ◆ Supportability Management and Control are System Engineering Activities
- ◆ Supportability Issues Must Be Addressed Early In System Development
- ◆ Achieving Supportability Objectives Requires Life Cycle Focus
- ◆ ***PBL Success Depends On a Systems Engineering Approach to Supportability***



**Back To Our Discussion  
of the  
Business Case Analysis**

# Business Case Analysis - BCA

## Included in a BCA

- Warfighter Metric Goal/Customer Satisfaction Index
- Statement of scope – What is and is not included
- Explanation of How Equipment Design Considerations Contribute to Meeting Warfighter Readiness Metric at Lowest Cost and Footprint
- Statement and Analysis of Design and Support Alternatives
- Life Cycle Cost Projections
- Required Measures of Supplier Performance
- Risk assessment for each alternative
- Footprint Assessment

***No Pre Conceived Notions of Outcome!***

# Business Case Analysis Table of Contents

1. Introduction and Executive Summary
2. Warfighter/Weapon System Metrics
3. Additional Metrics Considerations
4. Applicable Laws, Regulations and Policies
5. Supportability in Design
6. Analysis of Support Alternatives
7. Comparison of Alternatives/Risk Assessment
8. Recommended Alternative/PSI Selection
9. PBL Monitoring Activities
10. Performance-Based Agreements
11. Contractual Considerations

# Business Case Analysis - BCA

## 1.0 Introduction and Executive Summary:

- Include the Weapon System description, what it does, who will use it, when, where.
- Show Development, Production and Fielding timelines as applicable.
- Briefly state all Readiness, Cost and Footprint metrics and support alternatives that were included in the analysis.
- Summarize results and state recommended alternative

# Business Case Analysis - BCA

## 2.0 Warfighter and Weapon System Metrics

State what logistics performance parameters have already been included in Requirements Document or Fielding Agreement.

e.g.     Ao or Readiness Rate  
          MTBF   MTTR  
          Life Cycle Cost  
          Crew Size

# FCS Metrics

- ◆ FCS RAM
  - UA (Bgde Level) 150 KM Radius
  - Size Division Operates In Now
    - Ao 90%-Pulse-Threshold
    - 99%-Pulse-Objective
    - 72 Hour Mission
  - Today 1.8 to 1 Tanks to Mechanics In Division
  - FCS 10 to 1 (UA) Threshold, 25 to 1 Objective
- ◆ Emphasis on Reliability
  - One Base Chassis
  - Tool Count
  - Reliability Impacts Over 58% of Life Cycle Cost-AMSAA
- ◆ ***Logistics Sets the Campaign's Operational Limits***

# Business Case Analysis - BCA

## Additional Metrics Considerations

3.0 Statement of Readiness Objective, Footprint, and Life Cycle Cost Objectives peculiar to this weapon system.

Include discussion as to how additional metrics will be arrived at if those stated in program documents are not deemed complete.

Document all additional metrics to include Warfighter Approver

# Business Case Analysis - BCA

4.0 Statement or review of applicable laws, regulations, policies.

e.g. Title 10 Sec 2464 Core Depot Requirements

Contractors on the Battlefield

Force-centric Logistics Enterprise (FLE)

# Business Case Analysis

## 5.0 Supportability During Development Phases

Describe how supportability considerations impacted technology selection

Describe how supportability considerations impacted design choices

Supportability Considerations: Ao, LCC, Crew Size  
Training, Spares

# Business Case Analysis - BCA

## 6.0 Weapons System Support Alternatives Considered

- Statement and Discussion of all feasible support alternatives that meet PBL goals.
  - CLS, Two Level Maintenance
  - Field Service Representatives-Contractor or Organic
- State all assumptions.
  - Garrison vs Deployed

# Business Case Analysis - BCA

## 7.0 Analysis of Alternatives

- Analysis will likely require logistics and cost modeling and Source of repair analysis (SORA).
- May include the selection of a Product Support Integrator (PSI) for each alternative.
- Analysis of Risk, quantified if possible, of each alternative.

# Analysis of Alternatives Modeling for BCAs

To determine type of support that

- Meets Warfighters' Expectations
- Lowest Reasonable TOC
- Smallest footprint
- Meets statutes and regulations
- Enterprise wide solution

# Modeling for BCAs

## Modeling in the Life Cycle

- ◆ Begin modeling as early as possible
  - Concept Formulation
    - Pre Milestone B
- ◆ ASOAR
  - Achieving a System Operational Availability Requirement
- ◆ SESAME
  - Selected Essential Item Stockage for Availability Method
- ◆ COMPASS\*
  - Computerized Optimization Model for Predictions and Analyzing Support Structures
- ◆ ACEIT\*
  - Automated Cost Estimating Tool
- ◆ LCET\*
  - Logistics Cost Estimating Tool

\* Tools linked electronically

# Business Case Analysis - BCA

## Life Cycle cost projections for each Alternative

- ◆ LCET/ACE IT Modeling
- ◆ LMI Data Required
  - MIL-PRF-49502
- ◆ Investment Opportunities
  - ROI
  - Cost savings

# Business Case Analysis - BCA

## Analysis of Alternatives

Life Cycle cost and color of money identified

**Benefits** – quantifiable and other

**Risk** – peace, war, joint, industrial base

Effect on standard systems

e.g. Financial – OMA; CLS; AWCF

Maintenance – Organic; FSR; CLS

Supply – TAV; SSF; ...

Transportation

Effects of each Alternative on Warfighter Metric

***Determines Performance Levels of All Providers***

# Business Case Analysis - BCA

## ◆ 7.0 Comparison of Alternatives

- Cost
- Process
- Performance
- Risk
- Benefits
- Footprint

# Business Case Analysis - BCA

Comparison of Alternatives in Terms of  
Readiness , Cost and Footprint Metrics

Alternative	Readiness	LCC Cost	Footprint
A	.90	\$775 M	LRU Spares
B	.95	\$850 M	FSRs
C	.96	\$950 M	Minimal LRU Spares

# Business Case Analysis - BCA

## **8.0 Recommended Alternative and Delineation of Product Support Provider (PSP) supporting metrics which are necessary to meet Readiness Objective.**

- Must Answer the Question:
- Why Was This Support Concept Chosen?

# Business Case Analysis

- ◆ **Conclusions, Recommendations and Issues**
  - Recommend Alternative X because
    - 
    - 
    -
  - Issues to be considered/resolved
  
- ◆ **Action Plan**
  - Coordination
  - Schedule
  - Budget

# Business Case Analysis - BCA

## Identification of PSI

- ◆ Rationale For Selection
- ◆ Responsibilities

# Business Case Analysis - BCA

## 9.0 PBL Monitoring

- What metrics will be collected?
- How often and by whom?
- How will metrics be analyzed?

# Business Case Analysis - BCA

## 10.0 Performance-Based Agreements

PM to Warfighter

PSI to PM

PSI to PSPs

# Business Case Analysis - BCA

## 11. Contractual Considerations

Type of Contract

Incentives

Dispute Resolution Process

# Business Case Analysis

**Conclusion**

# Business Case Analysis - BCA

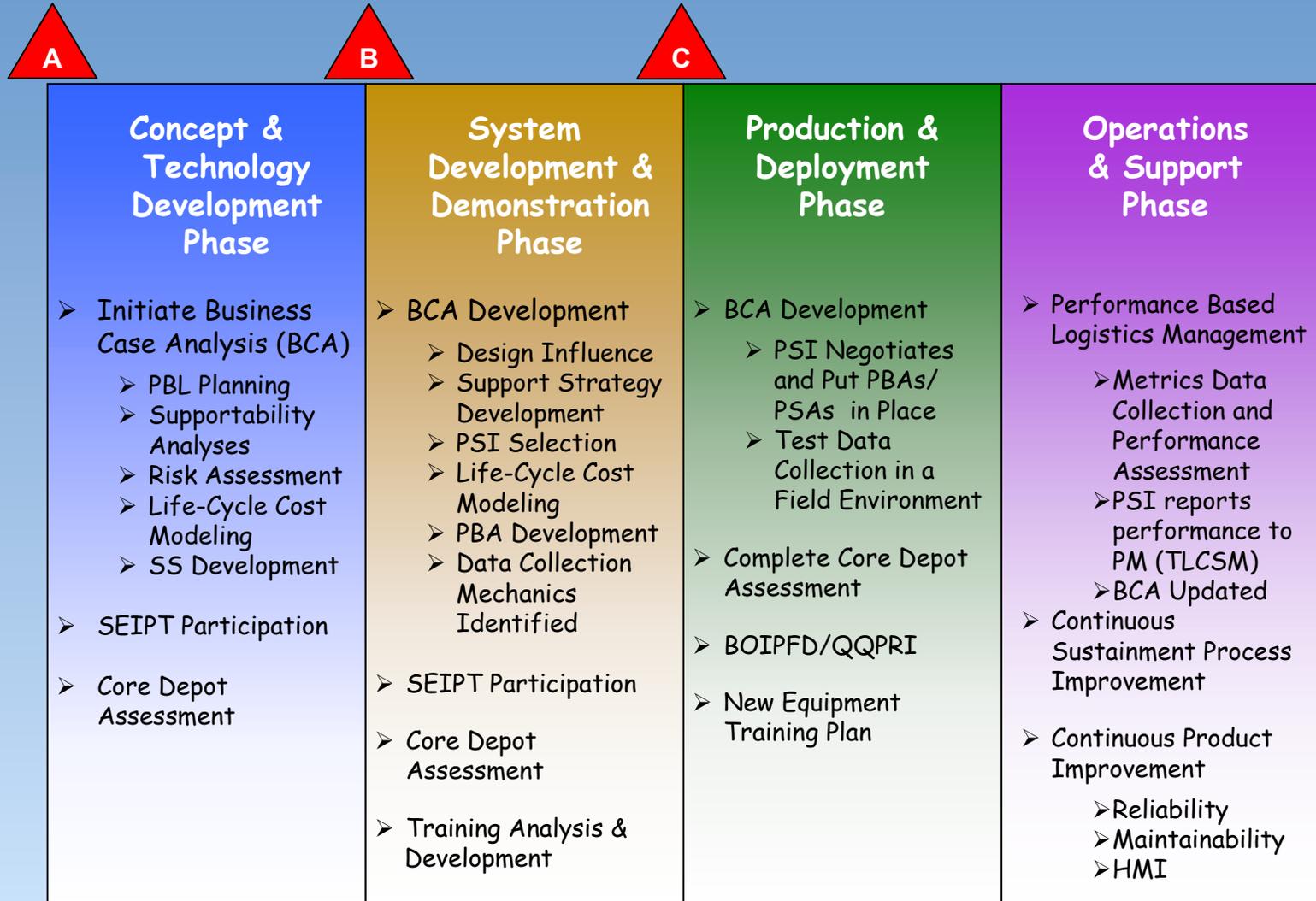
## BCA's Continue Over Life Cycle

- Data Driven
- Integral To PBL Accomplishment

Need BCA Started In Concept Refinement and Technology Development Phase But No Later Than During SDD Phase

Production Models Incorporate CAD and SDD Decisions

# “Life Cycle PBL”



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