



United States Army Logistics Transformation Agency

# Common Logistics Operating Environment

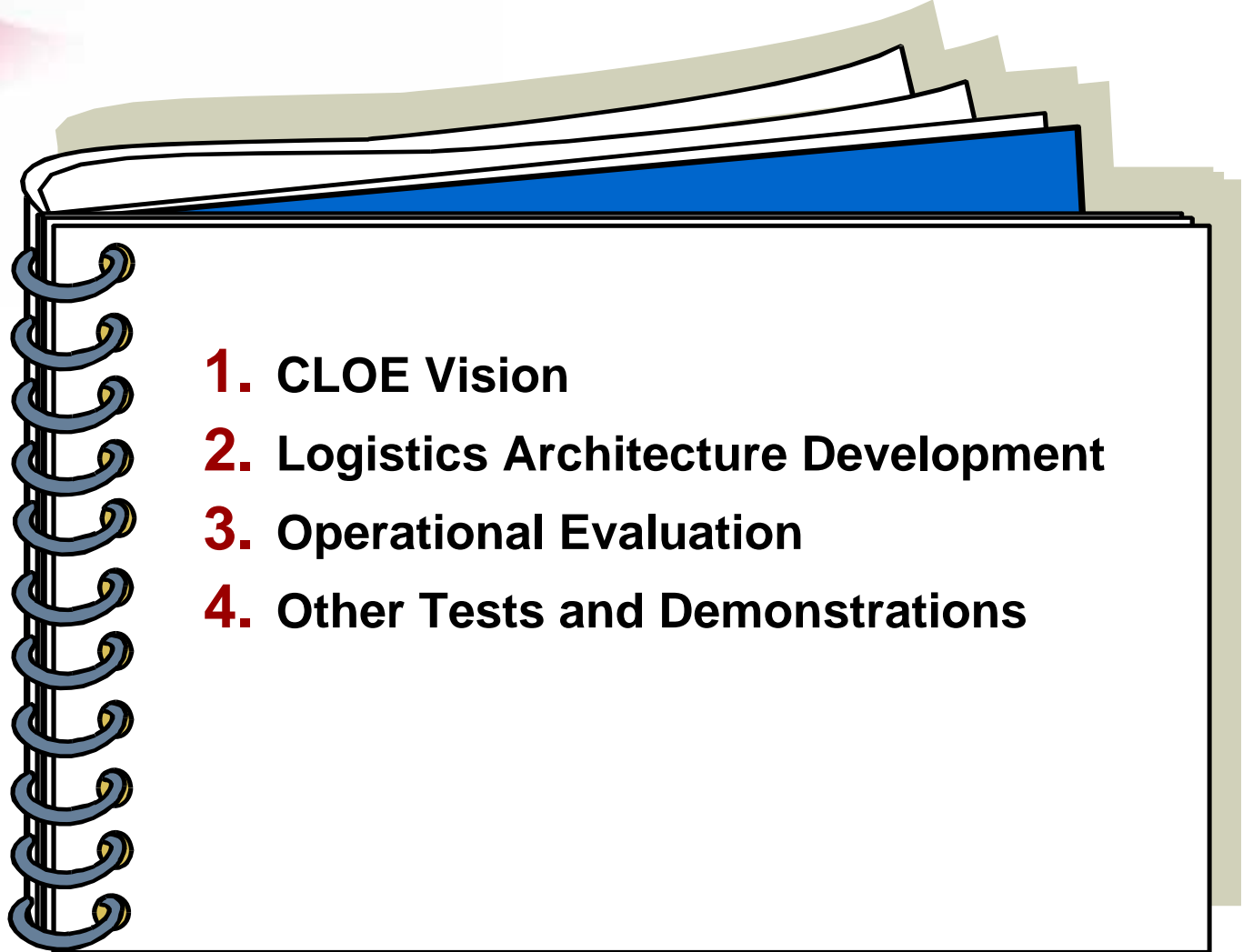
**Information Brief DOD Maintenance Symposium  
25 Oct 2005**

Dr Miranda Keeney  
Center for Logistics Innovation  
[miranda.keeney@hqda.army.mil](mailto:miranda.keeney@hqda.army.mil)  
(717) 770-7600





# Topics



- 1. CLOE Vision**
- 2. Logistics Architecture Development**
- 3. Operational Evaluation**
- 4. Other Tests and Demonstrations**



# What is CLOE?

- **A Program Managed by LTA for the Army G4**
  - Synchronize The Logistics Architecture efforts by working closely with TRADOC-CASCOM, TRANSCOM & AMC
  - Oversee Compliance to Standards Through The G6
  - Govern by GOSC
  
- **A Logistics Environment Defined By Data Standards And An Overarching Logistics Operational Architecture To Ensure Interoperability & Net-centricity**
  - The Logistics Operational Architecture That Underpins Army Logistics Transformation
  - Technical Standards that Guide Interoperability & Net-centricity
  - The Basis For WMA/BMA Implementation of the Focused Logistics & Logistics Domains support of the Warfighter
  - The Foundation for Condition-Based Maintenance



# CLOE's Guiding Policy

- **ASA(ALT) Memo, 25 Jul 03, Subj: Common Logistics Operating Environment Capabilities And Standards**

“The G4 As The Responsible Official For Sustainment In The Army Will Lead, Coordinate And Implement The CLOE”

- **G4 – ASA(ALT) Memo, 5 May 05, Subj: Implementing The Common Logistics Operating Environment**

**PEO and PMs Will;**

**Use Approved U.S. Army Logistics Technical Architecture Standards, Specifications, and Protocols to Acquire and Field System Health Management Technologies.**

**Program Resource Requirements for Implementation of CLOE Enablers Onto Production Platforms.**

- **AKM Guidance Memorandum, 20 Jul 05, Subj Capabilities-Based IT Portfolio Governance –**

**G-4 Army Lead for Warfighting Focused Logistics Domain**

**J-4 DOD Lead for Warfighting Focused Logistics Domain**

- **Condition Based Maintenance Plus**

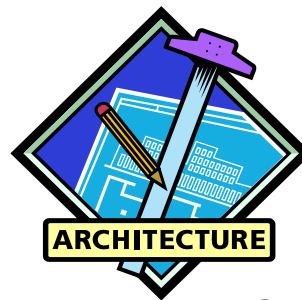
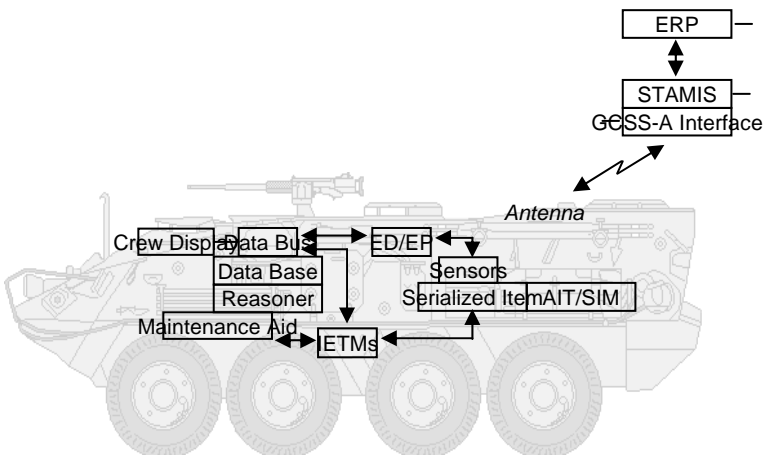
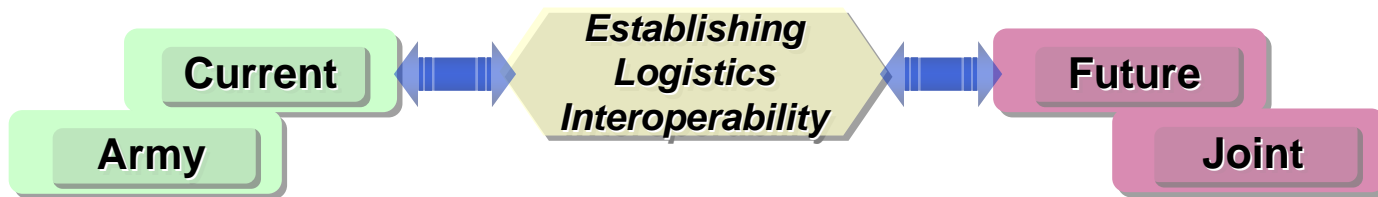
**ASA(ALT) Memo, 17 Aug 2005 – TRADOC Combat Developers will require CBM+ capabilities be designed into all new equipment...**

**G-4 CBM+ Memo, 5 May 04 – CBM+ capabilities are being managed collectively to develop and describe a single operational environment under the CLOE program**



# CLOE Vision

**Vision:** An Overarching Integrated Focused Logistics Architecture That Fuses Information, Logistic Processes, And Platform/Soldier Embedded Sensor-based Technologies To Support Tactical, Operational And Strategic Sustainment Levels Of War Which Operate In A *Joint Integrated Logistics Environment*.



Platform/Soldier



Strategic

Tactical

Platform Enablers

Operational



# Logistics Architecture Development



# Integrated Concepts & Architectures

## Chairman of the Joint Chiefs of Staff Instruction (CJCSI) 3170

- Mandates Integrated Architectures
- Joint Capabilities Integration And Development System (JCIDS) Implements A Capabilities-based Approach That Utilizes An Integrated Architecture
- Architecture Views Are Mandatory Appendices To ICD, CDD And CPD

### Joint Operating Concept Categories

		<i>Major Combat Operations (JFCOM)</i>	Homeland Security (NORTHCOM)	Stability Operations (JFCOM)	Strategic Deterrence (STRATCOM)
<b>Joint Functional Concepts</b>	Battlespace Awareness				
	Command and Control				
	Force Application				
	Protection				
	<i>Focused Logistics</i>				

### Joint Integrated Architectures

Battlespace Awareness
Command & Control
Force Application
Protection
Logistics



# Architecture Accomplishments

- **Briefed J-6, Deputy Chief Information Integration Division, Aug 05**
  - “J-6 And J-4 Communities Are In Sync With Where The Army Is Going And See The CLOE Effort As A Flagship Model For The DOD Community...”
- **Completed Development Of Version 1.0, Ground – Jul 05**
- **Developed Nine Architecture Products Used in GCSS-Army Capabilities Development Document (CDD)**
- **Assisted TMDE to Develop OV and SV Products and CDDs for Next Generation Automatic Test System and MDD**
- **Published CLOE V1.0 Standards in the DISR**





# Architecture Integration Activities

## ■ **TRADOC**

- Briefed Deputy Director Of Future Center And The AIMD Director–Aug 05

## ■ **AMC/SALE**

- Initiated Mapping Between SALE And CLOE Architecture Products.  
Completed OV5 Mapping

## ■ **Future Combat Systems (FCS)**

- Interoperability Kit (B-Kit) And Spin Out 1 Synchronization
- OV Architecture Coordination Meetings - May 05, Jul 05
- Participated in FCS/GCSS-Army Process Modeling Effort - Sep 05

## ■ **TRANSCOM**

- Briefed TRANSCOM JDA Team - Apr 05
- Participated in Working Group To Align SALE And CLOE Activities To The 566 Activities In The JDA – Jul 05

## ■ **USMC-Autonomic Logistics (AL)**

- Briefed USMC-AL Team – Sep 05



# Tests and Demonstrations In Support of Condition Based Maintenance +



# CLOE-Supported Tests, Demonstrations, Implementations

<b>Activity</b>	<b>Lead</b>	<b>Objective</b>	<b>Timing</b>
Operational Evaluation	CASCOM	Implement Focused Logistics Capabilities in an SBCT	FY07/FY08
Aviation Proof of Enablers	PM AS/USACLI	Demonstrate Technical and Operational Feasibility of Logistics Architecture in Combat Aviation Brigade	3Q FY06
M1/M2 Proof of Enablers	PM CS	Demonstrate Technical Feasibility of Logistics Architecture on Heavy Combat Platforms	1Q FY 06
SAMS Embedded Logbook Demonstration	USACLI/PM ALIS	Demonstrate Technical Feasibility of SAMS-1E to Stryker Platform Interface	1Q FY 06
Reference Architecture for Heavy Combat Platforms	USACLI/PM CS	Develop Reference Logistics Architecture for Heavy Combat platforms	1Q FY 06
Joint Ground Logistics (Tentative)	USMC AL/USACLI	Demonstrate Technical and Operational Feasibility of Joint Ground Logistics Architecture	FY 06/FY 07
EBCT Logistics Interoperability Evaluation (Conceptual)	UAMBL/PM UA/USACLI	Demonstrate Logistics Interoperability of FCS BCT	FY 08/FY 09



# Operational Evaluation

- **Follow-on to Successful SBCT Proof of Enablers**
- **Objectives are to Implement Focused Logistics Capabilities in an SBCT, Validate Operational Benefits and Costs, and Test Scale-up Effects on Bandwidth and Doctrine**
- **Addresses TRADOC Operational Capability Gap 4a (Remote monitoring, diagnostics, and prognostics; network logistical information systems)**
- **CASCOM Lead with Technical Support from USACLI**



# Overview of CLOE SBCT Technical Demonstration

- **Purpose** Demonstrate Technical and Operational Feasibility of Enablers Required to Implement the Common Logistics Operating Environment on an SBCT
- **Location** Ft Hood - Central Region Test, Integration, and Support Facility and Central Technical Support Facility
- **Schedule** Late August thru Early November 2004
- **SBCT Elements Included** Stryker, HEMTT, HMMWV, FMTV, BSB TOC, HQ FMC, CTCP, CRT





# SBCT PoE Partners

## Army Participant

## Support Contractor

	Army Participant	Support Contractor
PEO EIS	PM LIS	L3 Communications
	APM TLDD	BearingPoint, Enigma, Integrated Data Corporation
	PM MTS	Comtech Mobile Datacom
	PM ALIS	L3 Communications
	PM AIT	–
	APM CAISI	Science Applications International Corporation
PEO CS-CSS	PM TV	–
	PM TMDE	Science Applications International Corporation
PEO GCS	PM SBCT	General Dynamics Land Systems Control Point Corporation
PEO C3T	Central Technical Support Facility	Northrop Grumman Mission Systems
	PM FCB2	Northrop Grumman Mission Systems
	PM BCS3	Northrop Grumman Mission Systems
	PM TRCS	Anteon
TRADOC	CASCOM	–
DCS, G-4	LTA	LMI Pacific Northwest National Laboratory Dimensions International
AMC	AMCOM SED	Science Applications International Corporation Brockwell Technologies, Inc
	TACOM	IBM, O’Neil Associates
	National Automotive Center	DriverTech Integrated Concepts and Research Corporation

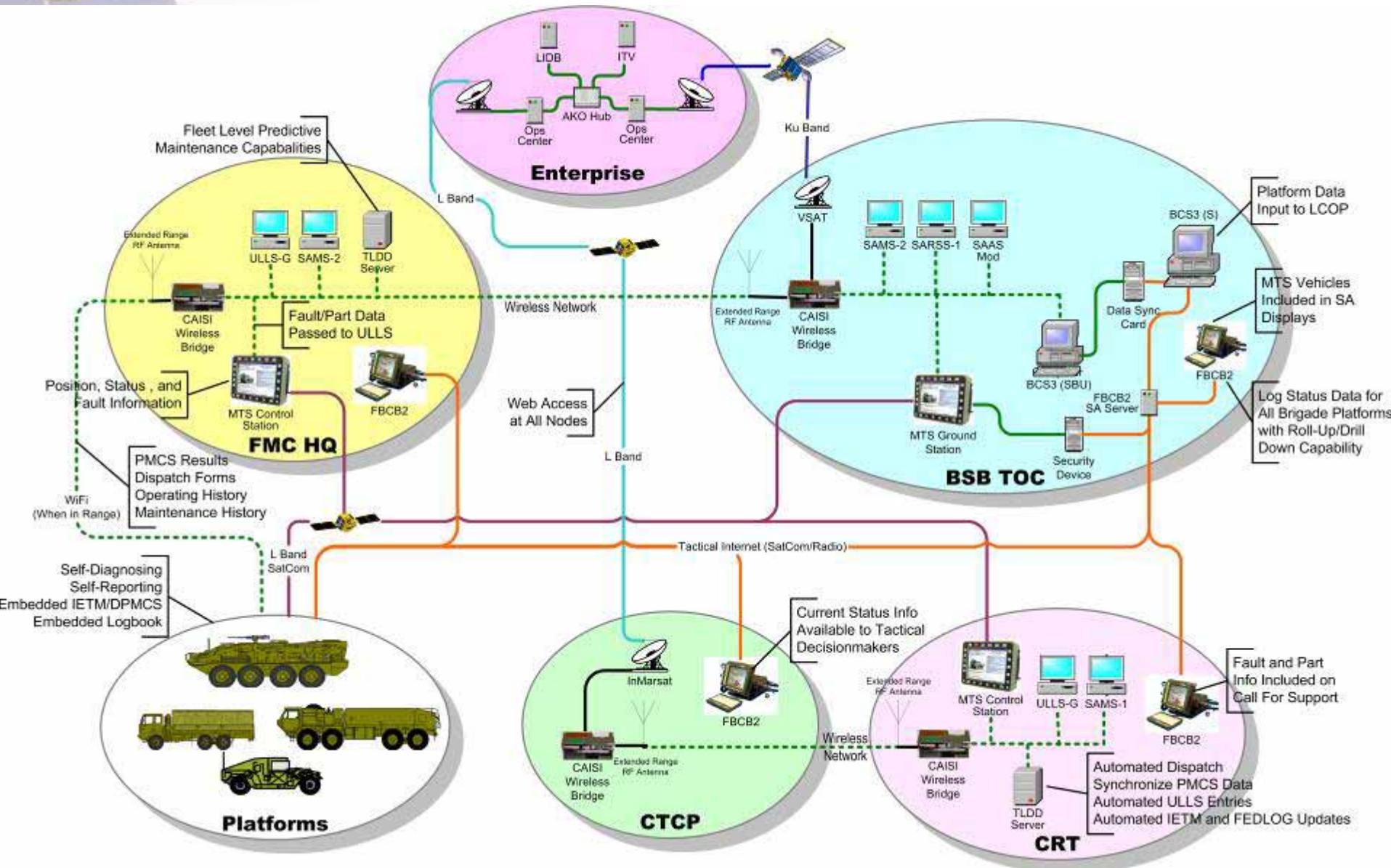


# Functions Demonstrated

- **Automated Platform Status Reporting Over FBCB2 and MTS**
  - Fuel Status
  - Platform Ammo Inventory
  - Equipment Health
    - **System Status**
    - **Critical Faults**
    - **Predicted Faults**
  - Crew Health
  - Enhanced SA Displays for Tactical Commanders and Log Staff
  - MTS Status and Position Info Visible on FBCB2 SA Displays
  - Platform Data Feeds to BCS3
- **Electronic Maintenance**
  - Embedded IETMs with Browser Interface
  - Embedded Digital PMCS with Portable Display
  - Faults from Diagnostic System Linked to Troubleshooting Tracks
  - Enhanced Crew Status Displays
- **Business Process Automation**
  - Automated Dispatch and LogBook Updates
  - Automated Transfer of Fault/Part Info from Platform to ULLS
  - Automated Update of Embedded IETMs



# SBCT POE Operating Concept







# CLOE Savings for the Warfighter

## Summary of SBCT PoE Simulation Results

### OR rates:

- Base Case
- CLOE Enabled

### Combat Vehicles

74.2%  
81.8% (+7.6%)

### All SBCT Vehicles

80.6%  
86.0% (+5.4%)

### Average vehicle downtime:

- Base Case
- CLOE Enabled

**Increased OR Rates  
= Greater Warfighter  
Capabilities = Victory**

9.5 days  
7.3 days (-23%)

### % NMC vehicles repaired:

- Base Case
- CLOE Enabled

72.8%  
79.0% (+6.2%)

**Base Case:**

- No Satellites
- Manual PMCS

**CLOE Enablers have Proven Results**

**CLOE Enabled SBCT:**

- Satellites
- Digital PMCS on all platforms



# Status

- ✓ **G4 Direction to Proceed - Jan 05**
- ✓ **Coordination with Key PMs - Feb 05**
- ✓ **IPT Formed - Mar 05**
- ✓ **IPT Meetings - Apr 05 and Jun 05**
- ✓ **First Cut Implementation Approach Developed - Apr 05**
- ✓ **Approach Endorsed by PM SBCT and PM FBCB2 - Apr 05**
- ✓ **Coordination Meeting with G8 USF Lead at Ft Lewis - Apr 05**
- ✓ **Coordination / Discussions with CASCOM – May / Jun 05**
- ✓ **Working with CASCOM on Way Ahead**



# Approximate Timeline

Event	Date
Finalize Approach and Publish Plan	1Q FY 06
Engineering Development Work for Increment 1	1Q-4Q FY 06
Work with G-8/FORSCOM to Select Target SBCT	2Q FY06
TTP and Training Package Development	3Q FY 06 to 1Q FY 07
Field Increment 1 Capabilities	1Q-2Q FY 07
Engineering Development Work for Increment 2	1Q-4Q FY 07
Field Increment 2 Capabilities	1Q-2Q FY 08



# Demonstration of Aviation Logistics Enablers

- **Purpose** Demonstrate Technical and Operational Feasibility of Enablers Required to Implement the Logistics Operational Architecture in a Combat Aviation Brigade
- **Lead Organizations** PM Aviation Systems and USACLI
- **Tentative Locations** LPC: LTA, New Cumberland, PA; SIL: AMCOM SED, Redstone Arsenal, AL; full demo site TBD
- **Tentative Schedule** 3Q FY 06
- **Aviation Bde Elements Included** AH-64, CH-47, UH-60, AMC, ASC, DISTRO, FSC, Brigade TOC, Units in Split-based Operations

