



SFAE-AV-AS

PM Aviation Systems Automated Logistics

Presented To:

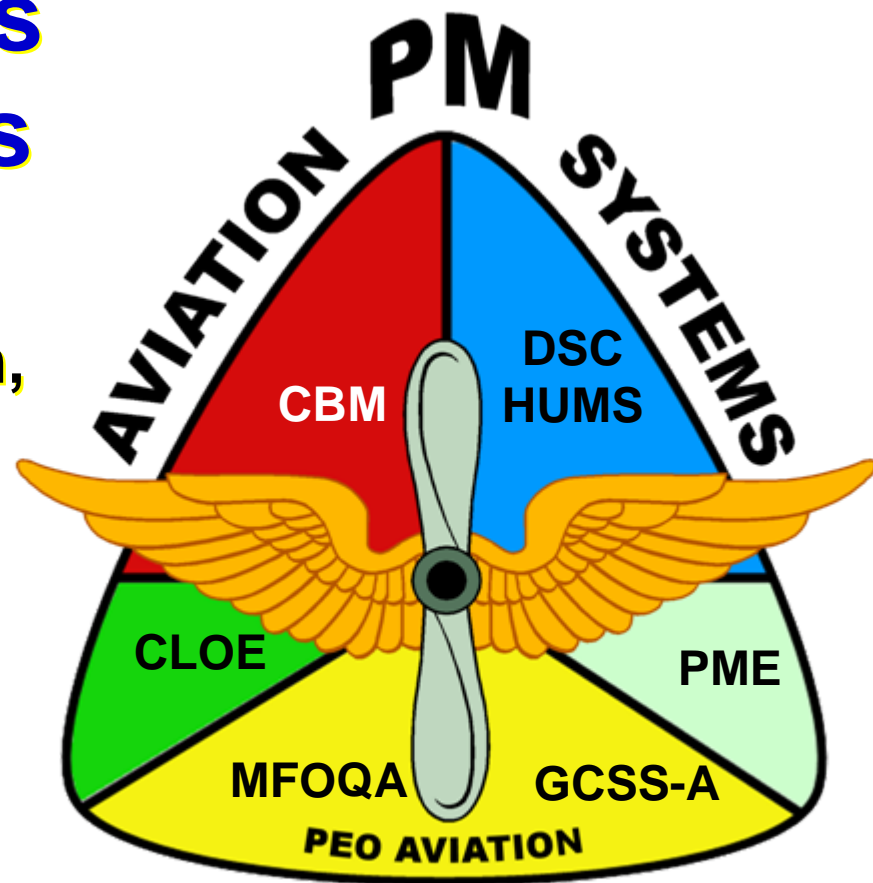
**DoD Maintenance Symposium,
CBM Panel**

Presented By:

Mr. Brian Sabourin

**Deputy Project Manager (Acting)
Aviation Systems**

24-27 OCTOBER 2005





PM-AS Overview



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FIXED WING



8 Systems

SCOUT/ATTACK



5 Systems

ATC



15 Systems

AME



14 Systems

AGSE



15 Systems

AUTOMATED SYSTEMS

CBM
ALOG

FUTURE CARGO



1 System





PM Aviation Systems Automated Logistics Systems Overview



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Responsible for the development, coordination and implementation of future PEO-AVN Logistics automation requirements and the interface into the Single Army Logistics Enterprise (SALE) related programs/solutions



Data Enablers

PME	MSPU	
DSC	HUMS	VMEP
ELAS	AMPS	MDR
CVR/FDR	IDM	ED/EP

Interim STAMIS System

ULLS-A SCP 6



Master Data Management

Information Exchange

CLOE PoE

Army Logistics Enterprise

PME PMA Fleet Mgmt.

Seamless Data Flow from A/C

Products:

US Army Combat Readiness Center requirements
ADEC/DCD, MFOQA, CBM, & DSC requirements
Common ICD/CDD

CBM Future Implementation & requirements

PMA W/GUI
Common Platform Interface

MFOQA

DSC Spec

Common IETM

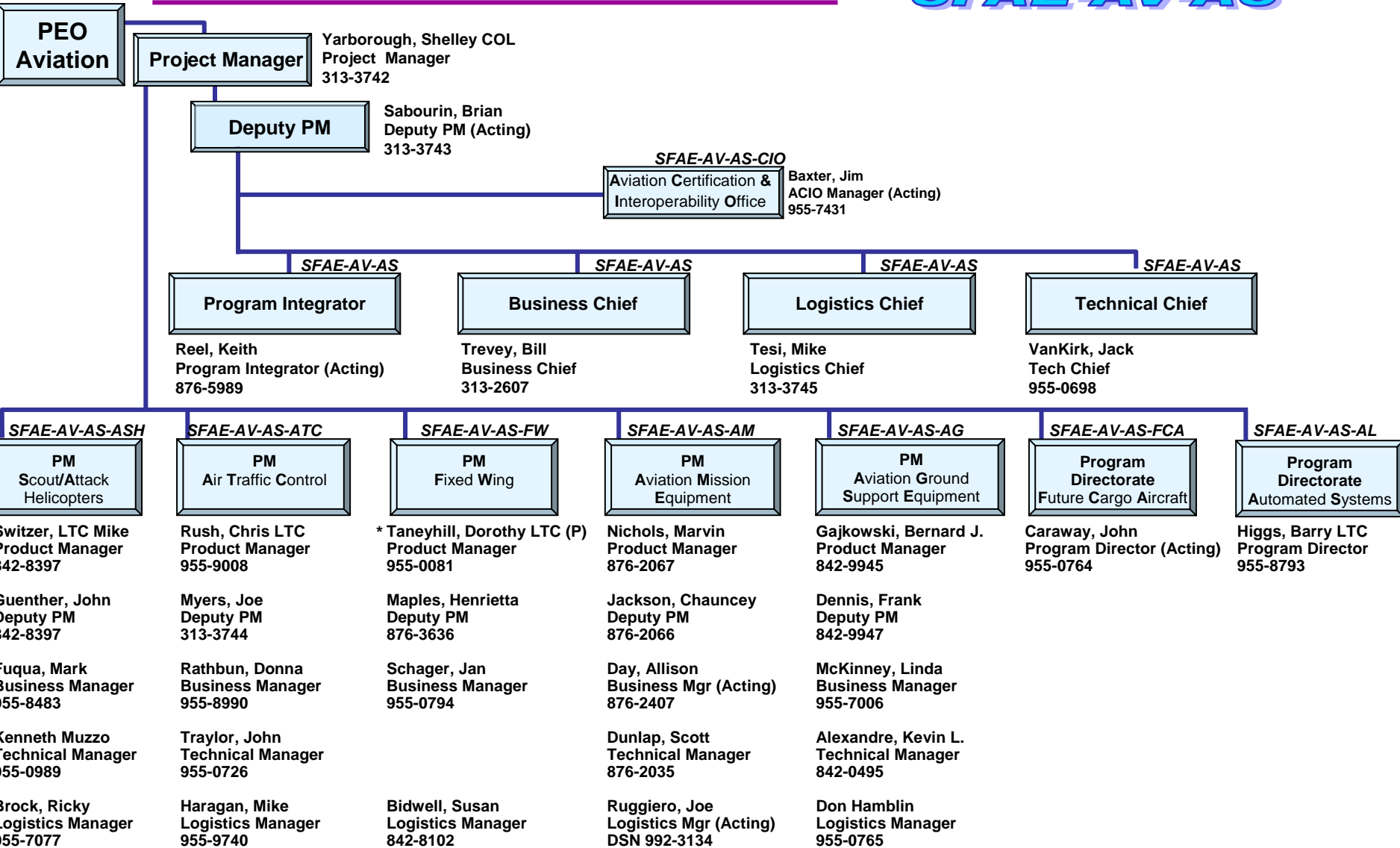
Work with AMCOM G-3 to Identify CBM data elements for CBM Data Base Development



PM Aviation Systems Organization



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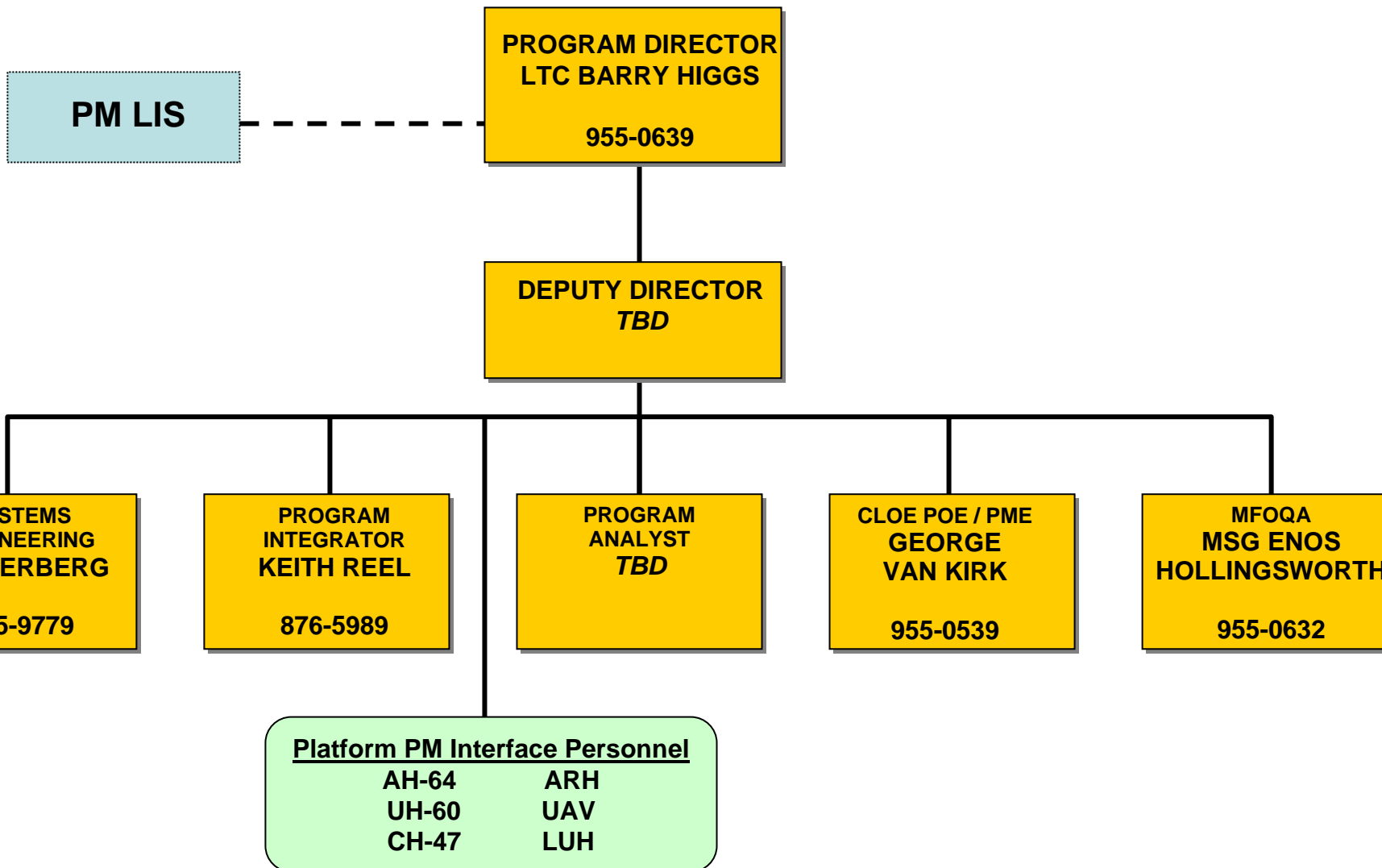


* LTC Keith Brown
(Incoming PM Dec 05)



Automated Logistics Organization Cell Org Chart

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Aviation Automated Logistics Work Group

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Mission

“Develop a single path ahead to define and implement a common AVN Automated Logistics System to be implemented across Army AVN platforms and systems.”

Guidance

Near Term: All PMs develop and field an IETM for their assigned aviation system; Implement ULLS-A SCP 6 across Army Aviation. Mid-Long Term: Define and develop a common Aviation Platform Maintenance Application/Platform Maintenance Environment for all Aviation systems.

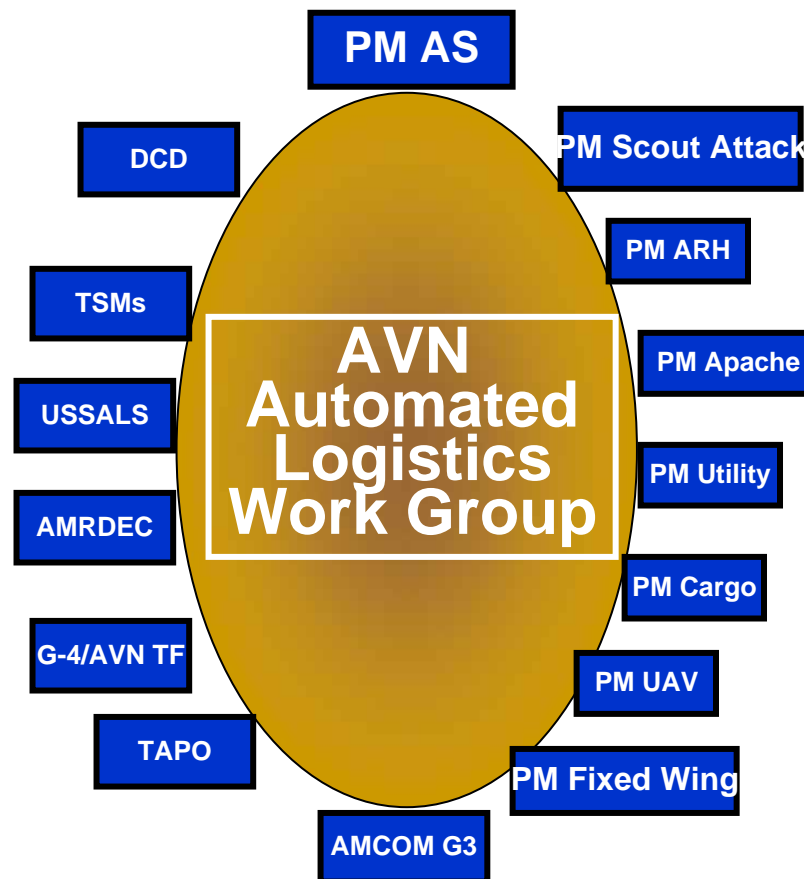
Purpose/Priority

Reduce the burden on the soldier, increase operational readiness, and decrease O & S costs

1. Ensure PMA is common, non-proprietary, and government controlled

2. Implement CBM ASAP

3. Leverage existing applications to minimize training and cost





Aircraft Data Exploitation Capability (ADEC)

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ADEC Requirement DCD Ft. Rucker

Military Flight Operations Quality Assurance (MFOQA)

Condition Based Maintenance (CBM)

**Combining DSC/HUMS, MFOQA and CBM into
one ICD/CDD**

Safety is Primary participant

PM-AS as "Champion"

**Requirements
Document**

**Working with the ADEC
community to resolve
issues from User perspective**

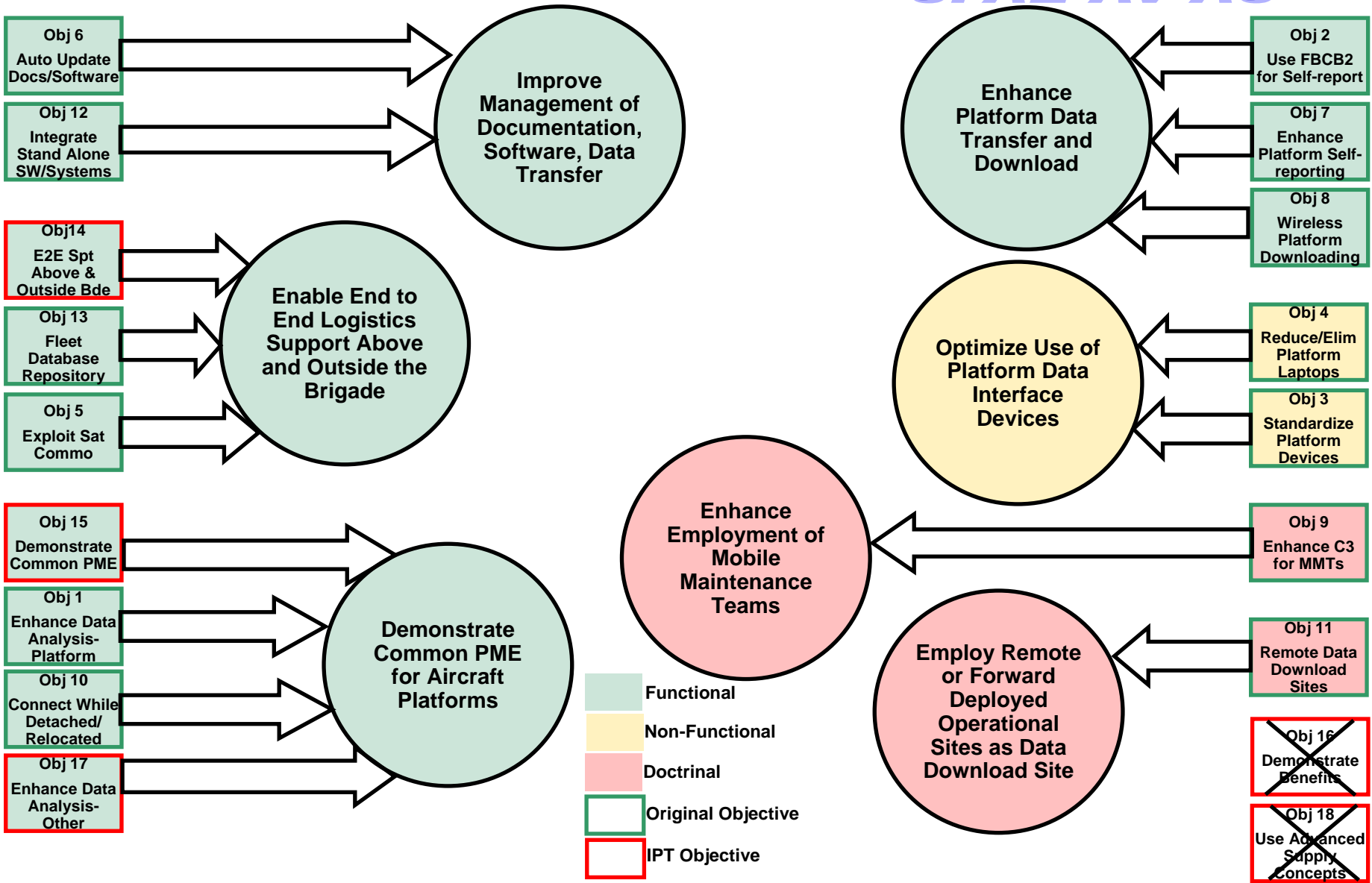
**Working with Platform PMs
to identify constraints
and funding requirements**



PoE Objectives



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Core Enablers

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- **Two Level Maintenance**
- **Condition Based/Predictive Maintenance (CBM)**
- **ED/EP – DSC, HUMS, SUMS and VMEP**
- **Common Aviation Platform Maintenance Environment (PME)**
- **Automated/Integrated Maintenance Management System**
- **Digital Aviation Logistics**
- **Technical Data Management and Delivery**
- **Automated Identification Technology (AIT)/Unique Identification (UID)**
- **Tactical Logistics Data Digitization (TLDD)**
- **Military Flight Operations Quality Assurance (MFOQA)**
- **Centralized Automated Flight Records System (CAFRS)**

Looking at all the Enablers to Enhance Army Transformation



Aviation PoE Development & Function



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- **PMA Specification Development**

- Fills the requirement between GCSS-A and the aircraft platforms
 - > Connects the soldier to SALE
 - > Required for data extraction from platform (DSC) & passing data to applicable systems
 - < Systems include CBM, MFOQA, CAFRS, IETM, Flight Ops and Fleet Management
- Commonality required based on CAB force structure
- Evaluation of software alternatives being reviewed
 - PMA RFI released 10/4/05 with two week turn around by offers

- **PMA software development**

- Will use prototype software for the PoE
- Develop common user interface

- **PMA hardware evaluation**

- Looking at multiple devices to fulfill environmental & user requirements

- **Systems Engineering Plan for PoE & PMA**

- Configuration management
- Document management
- Risk management

- **SED SIL Test Bed for FY06**

- Servers, routers, switches, cables, computers, HUMS, storage devices, Movement Tracking System (MTS), BFT, programming tools, FBCB2, modeling tools, CAISI, VSAT connections

- **Aviation PoE Demonstration**

- Demonstrating 13 Use Cases
- Systems Demonstrating: CBM, CAISI, MTS and RFID tags, BFT, DSC, MFOQA, Data

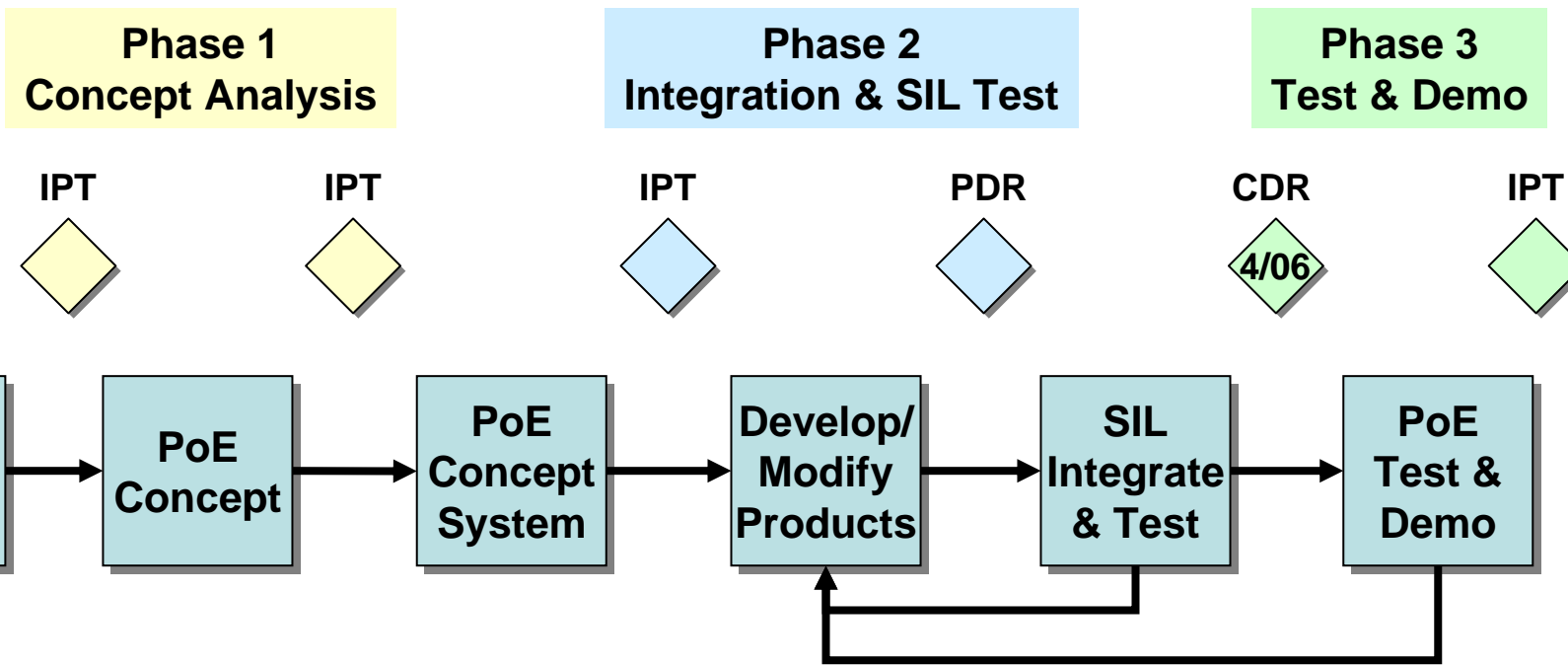
- **Warehouse & common Formatted IETM**

- Prototype of Common PMA



Aviation PoE Development Process

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- Scope
- Objectives
- Key Functionalities
- Candidate Capabilities

- Technical Capabilities
- Prelim Scenarios
- Functional Decomposition
- Functional Candidates/Gaps
- Technical Concept

- Preliminary Architectures
- Platform Configurations
- Gap Alternatives
- Concept System Alternatives
- Requirements Definition

- Select Contractors
- Develop ROMs
- Allocate Funding
- Place Contracts
- Prepare/Approve Development Plans
- Design Reviews
- Developer Testing

- Integration
 - Node
 - Node to node
 - End to end
- Test
 - Node
 - Node to node
 - End to end
- Test System Configuration
- Conduct AWR

- Test & Demo
 - Node
 - Node to node
 - End to end
- Communication Simulations
- Results & Recommendations



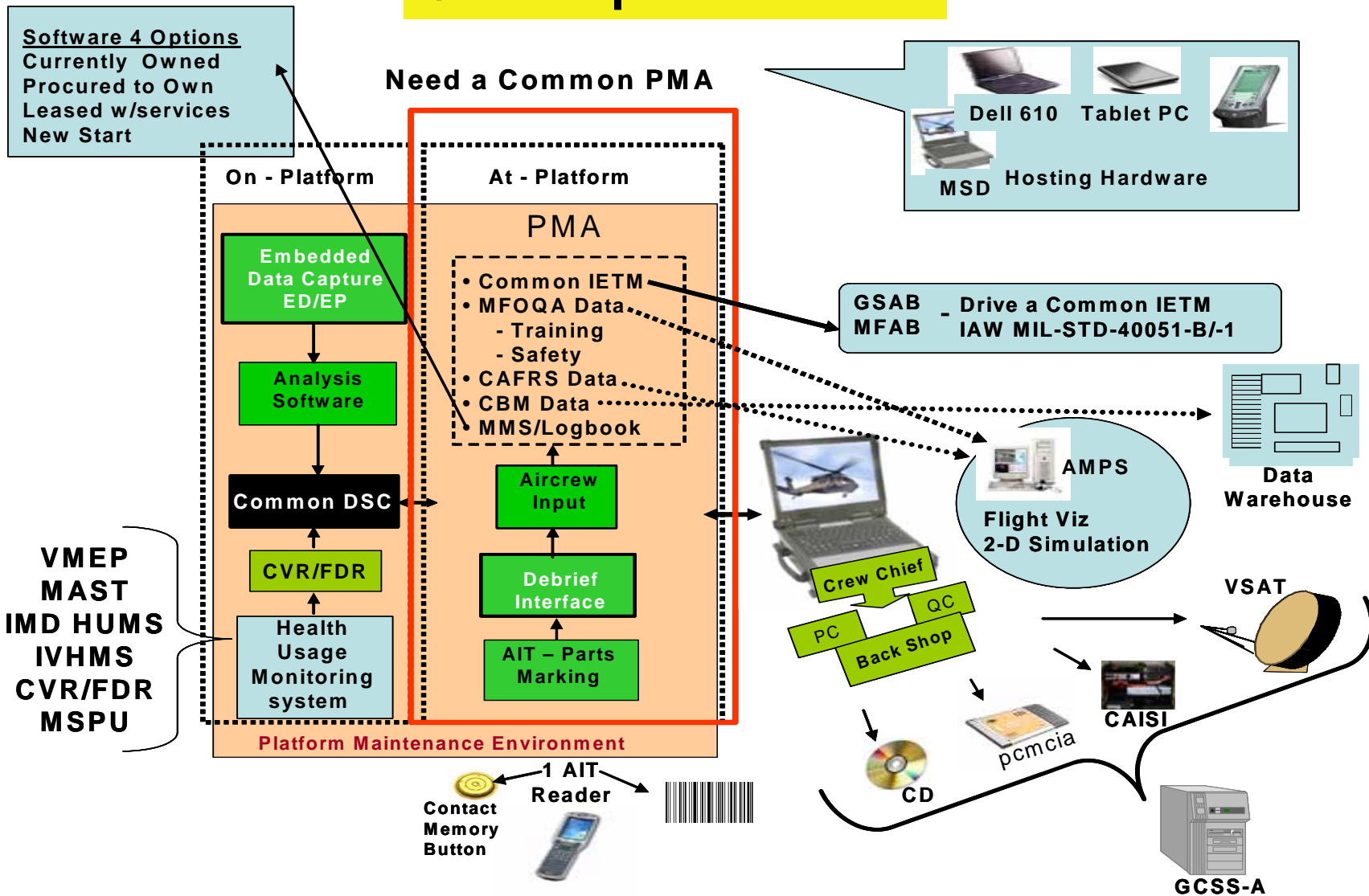
Platform Maintenance Environment (PME)

Platform Maintenance Application (PMA)

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CBM Implementation





Aviation Automated Logistics Acquisition Strategy Schedule



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	FY04	FY05	FY06	FY07	FY08	FY09	FY10	FY11	FY12	FY13	FY14
GCSS-A				GCSS-A 30 MONTHS FIELDING							
Requirements (ADEC)			▲ ICD		▲ CDD						
SED-SIL Development	PMA Reg'ts Assessment ▲	▲ Standup SIL	PoE ▲	PMA Decision ▲	Prototyping/test/coordination		Sustainment/Changes/Help Desk				
PM AS Products		PMA RFI ▲	Draft PMA Spec ▲	Final PMA Spec ▲	PMA Software Release 1.0 ←						
Common IETM	Apache Contract Letter ROM ▲	UH60 A/L ▲	CH47D ▲	CH47F ▲	AH64D Common Look & Feel		AH64D MIL STD 40051-1 ▲				
CAB Fielding											
* DSC systems in two CABs											



Aviation PoE Status



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- **PMA Specification development**

- Requirements analysis ongoing
- Evaluation of ULLS-A SCP 6 and CPME completed
- Will begin further offers software review in about two weeks

- **Systems Engineering Plan**

- Working Con Ops
- Architecture group formed

- **PMA software development**

- Modeling tools in place
- Additional COTS software coming in from offers

- **Technical Interchange meetings**

- 13 use cases completed and agreed to by all platforms for Aviation PoE Demonstration
- Blue Force Tracker (BFT) and Movement Tracking System (MTS) in process of obtaining
- CAISI SED DITSCAP certification in process

- **CBM**

- UH-60M SIL being updated with IVHMS (HUMS device)
- Data warehouse participation/discussions on-going

- **MFOQA**

- Initial meeting with MFOQA at Ft. Rucker/DCD
- Initial Proof of Concept demonstration completed
- Need additional use cases developed for the MFOQA PoE effort
- Next meeting scheduled with MFOQA in two weeks



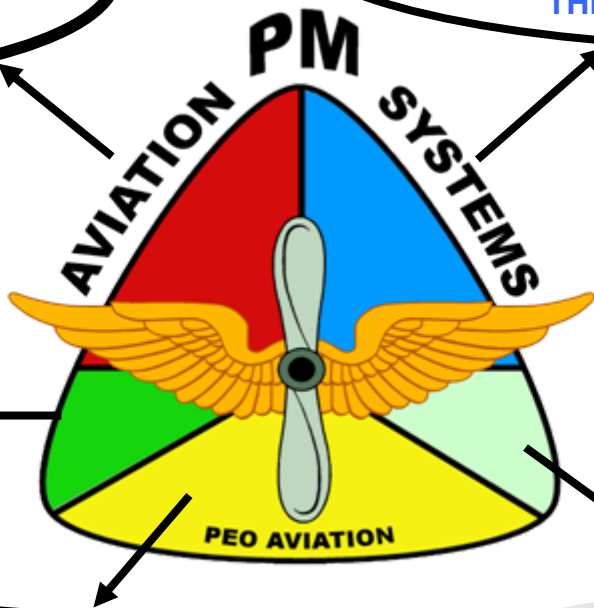
Summary

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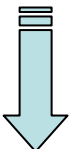


ELIMINATE THE NEED FOR COSTLY, SOPHISTICATED & CUMBERSOME ATE

ALLOW MAINTENANCE TO BE PERFORMED AT THE LOWEST POSSIBLE LEVEL THROUGH A POSITIVE INFLUENCE ON THE STAMIS ARCHITECTURE



DSC	HUMS	VMEP
ELAS	AMPS	MDR
CVR/FDR	IDM	ED/EP
2 - Level		



CBM

MOBILITY ON THE BATTLEFIELD

REDUCE THE LOGISTICS BURDEN BY SIZE/COST OF THE PLL, ASL & USER TOOL REQUIREMENTS

LIMIT THE SKILL LEVELS REQUIRED TO OPERATE & MAINTAIN ARMY AIRCRAFT

Our Focus is on the Soldier



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Backups



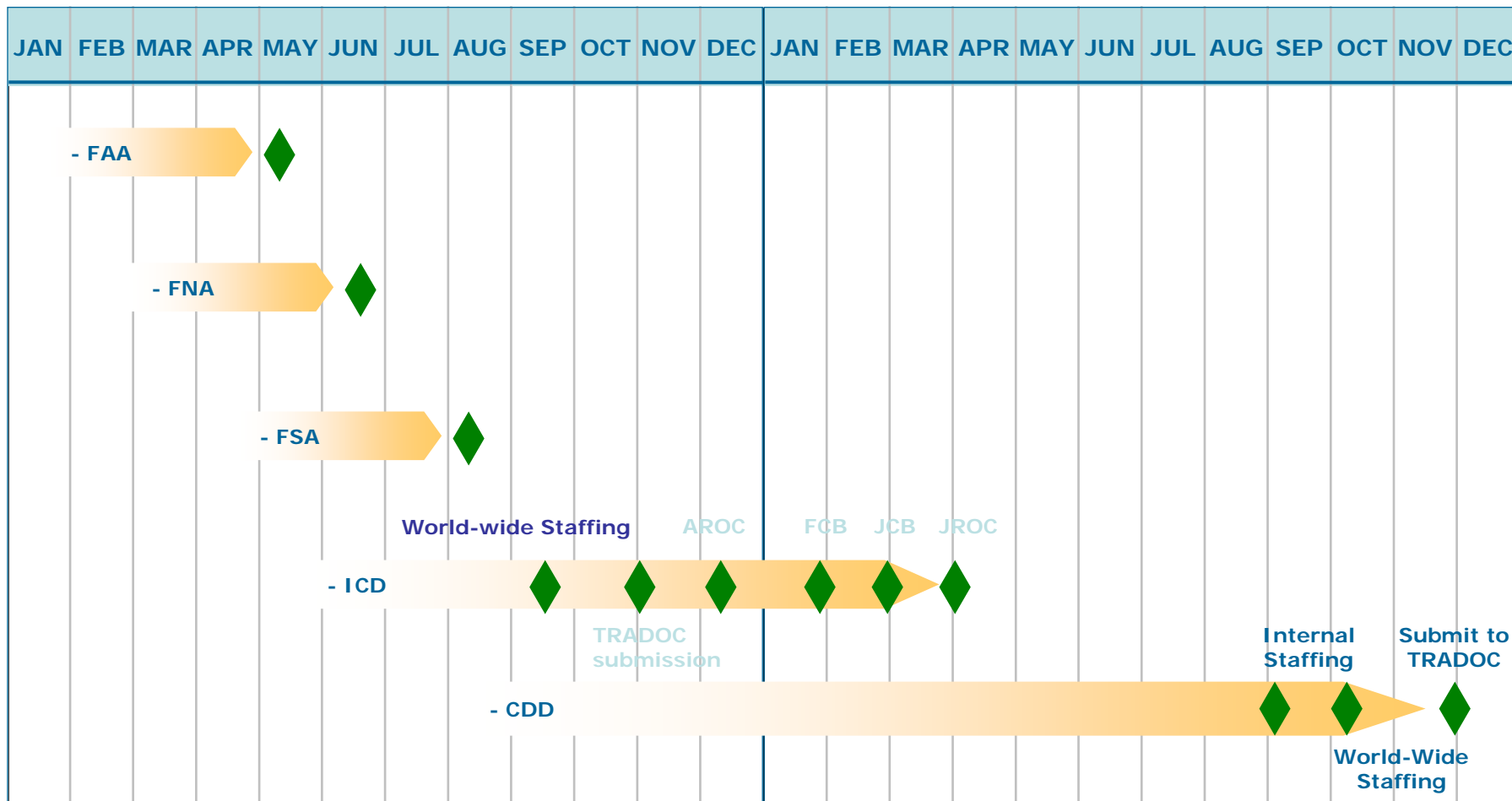
DRAFT ADEC Milestone Chart



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2005

2006



DRAFT

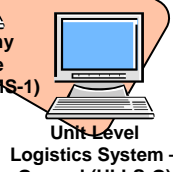
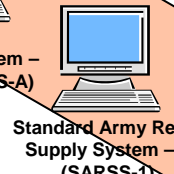
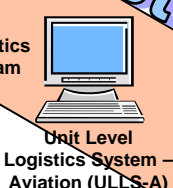
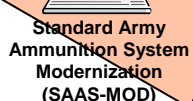
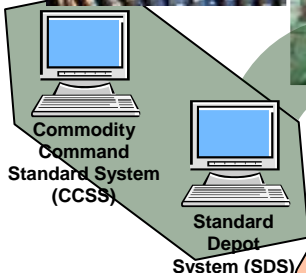


Automated Logistics Tenant Single Army Logistics Enterprise (SALE)

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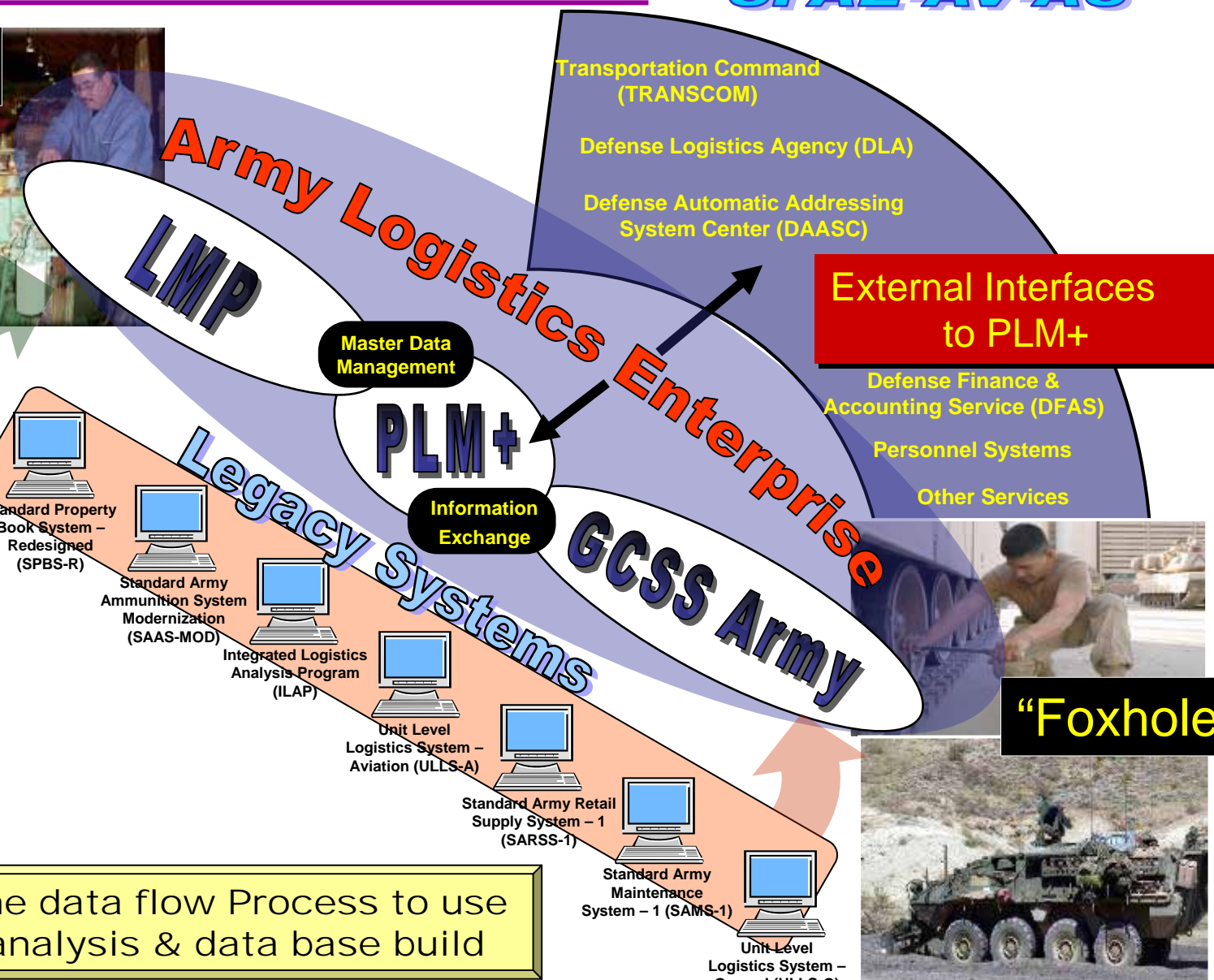


"Factory"



- **LMP:** Logistics Modernization Program
- **GCSS-Army:** Global Combat Spt System-Army
- **PLM+:** Product Lifecycle Mgt Plus

Capturing the data flow Process to use with CBM analysis & data base build



External Interfaces to PLM+



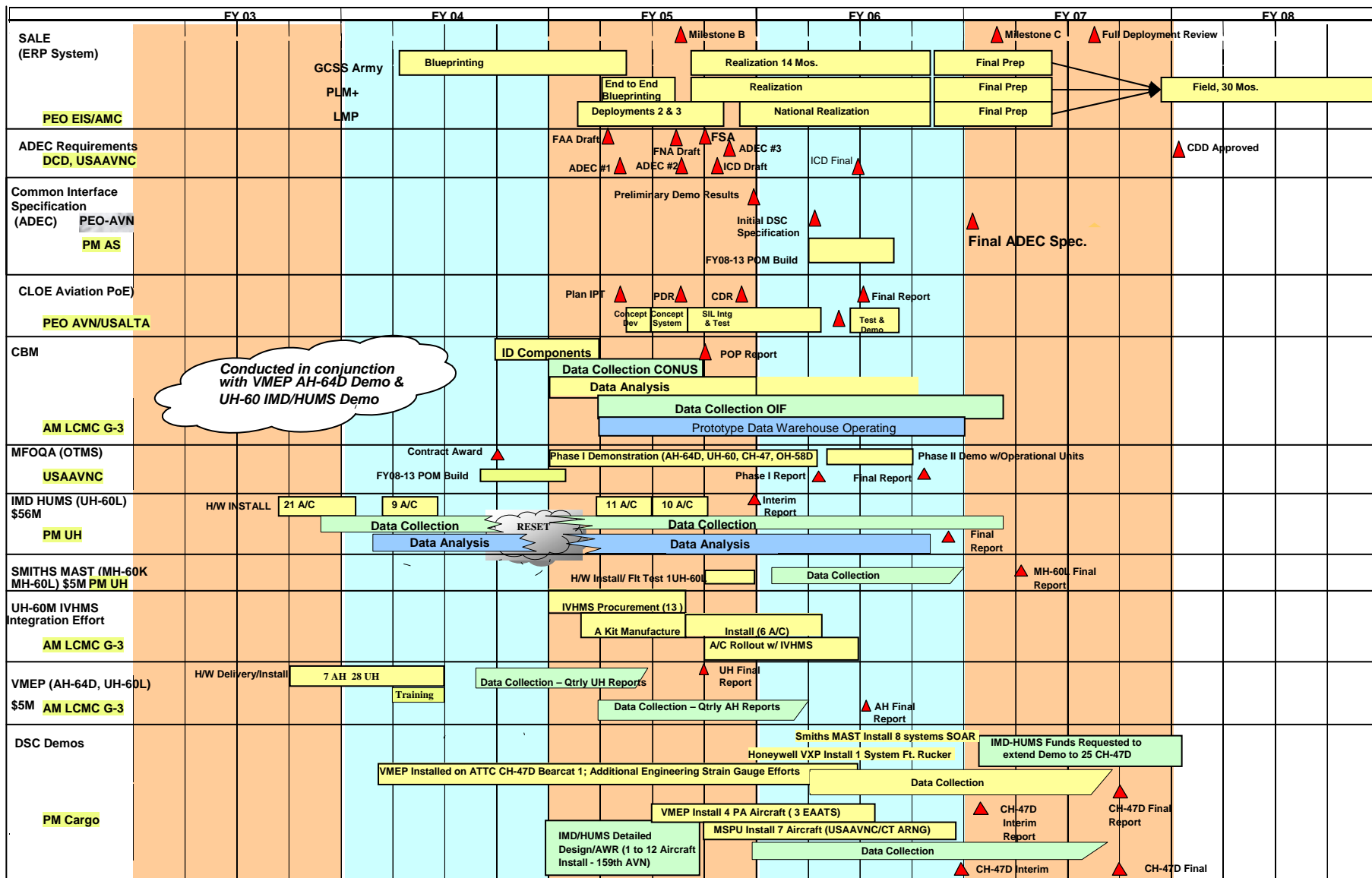
"Foxhole"





Program Element Schedules

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Conducted in conjunction with VMEP AH-64D Demo & UH-60 IMD/HUMS Demo

PM-AS strategy: Use synergy between all ongoing and future efforts to meet CBM & Army SALE implementation Goals



PME - DSC

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What can be done today based on limited funding available

We can not show an alternative that is unaffordable

Problem Statement: *Fielding a DSC to support the transformation of Army Aviation to CBM within dollars available.* Each HUMS system (HUMS + CVR/FDR) cost between \$75K - \$200K. Total required for fleet \$264M - \$705M and does not include infrastructure or F/W requirement.

This is Best Case based on funding remaining as scheduled

64D BLK III = FY10 – FY15
ARH = FY06 – FY11
CH47F = FY06 – FY20
UH60M = FY05 – FY24
LUH = FY06 – FY13

AH64A = \$7.9M
CH47D = \$20.4M
UH60L = \$112M
LUH = \$14.5M

Funded Programs

AH-64D BLK III: MSPU (currently equipped w/MDR)
ARH: Smiths CSMU & DTS
CH-47F: L3Com CVR/FDR
UH-60M: IVHMS

Unfunded Programs

AH-64A
AH-64D: (currently equipped w/MDR, requires MSPU)
CH-47D
UH-60A/L

- DSC Demonstrations ongoing w/congressional plus up funds include IMD-HUMS, VMEP, MAST
- Platform PMs must leverage as much as possible on congressional plus ups



PMA – CBM/MFOQA/CAFERS/Ops

Disconnect

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Problem Statement: Current STAMIS system (ULLS-A SCP6) as well as Future System (GCSS-A) does not meet all PEO AVN Requirements for a Maintenance Management System (MMS)/Life Cycle Management (LCM) Command

CBM

- **Must enable CBM by having the capability to move data from Platform to data warehouse**
 - STAMIS systems not responsible for any data transactions other than actionable data in the form of some Maintenance and Supply transactions in a connected Ops only

MFOQA

- **Enabling MFOQA includes a PMA device to draw data from Platform and uploading same to the AMPS**
 - Data required for the Combat Readiness Center (CRC) and to recreate flights to show aircraft regime and pilots mission status

CAFERS

- **Additional flight records required to be down loaded from aircraft to AMPS using a common PMA**
 - Data required for tracking/updating pilots work load and capabilities for Safety

Maintenance/Supply/Split Ops

- **Maintenance & Supply data (actionable) will transmit forward through STAMIS however, additional data is required to support LCM within each PM**
 - During split operations the disconnected unit must have the PMA to perform maintenance and supply actions since G-Army is not fielding the capability when disconnected from home unit at the battalion level

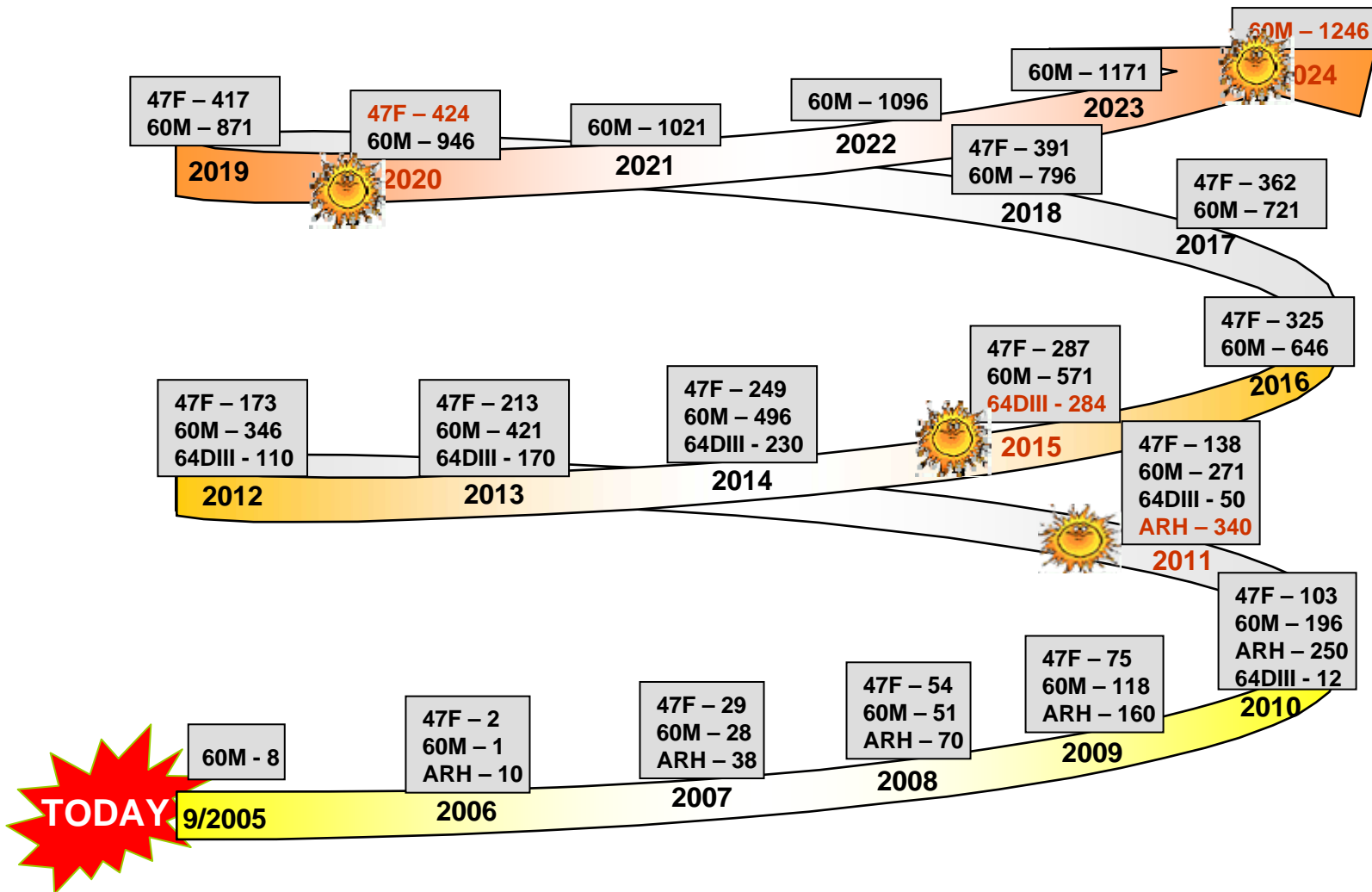


Spiral Development - Modernized Fleet

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CBM & MFOQA - w/DSC



Note: Only Modernized Fleet CBM Complaint

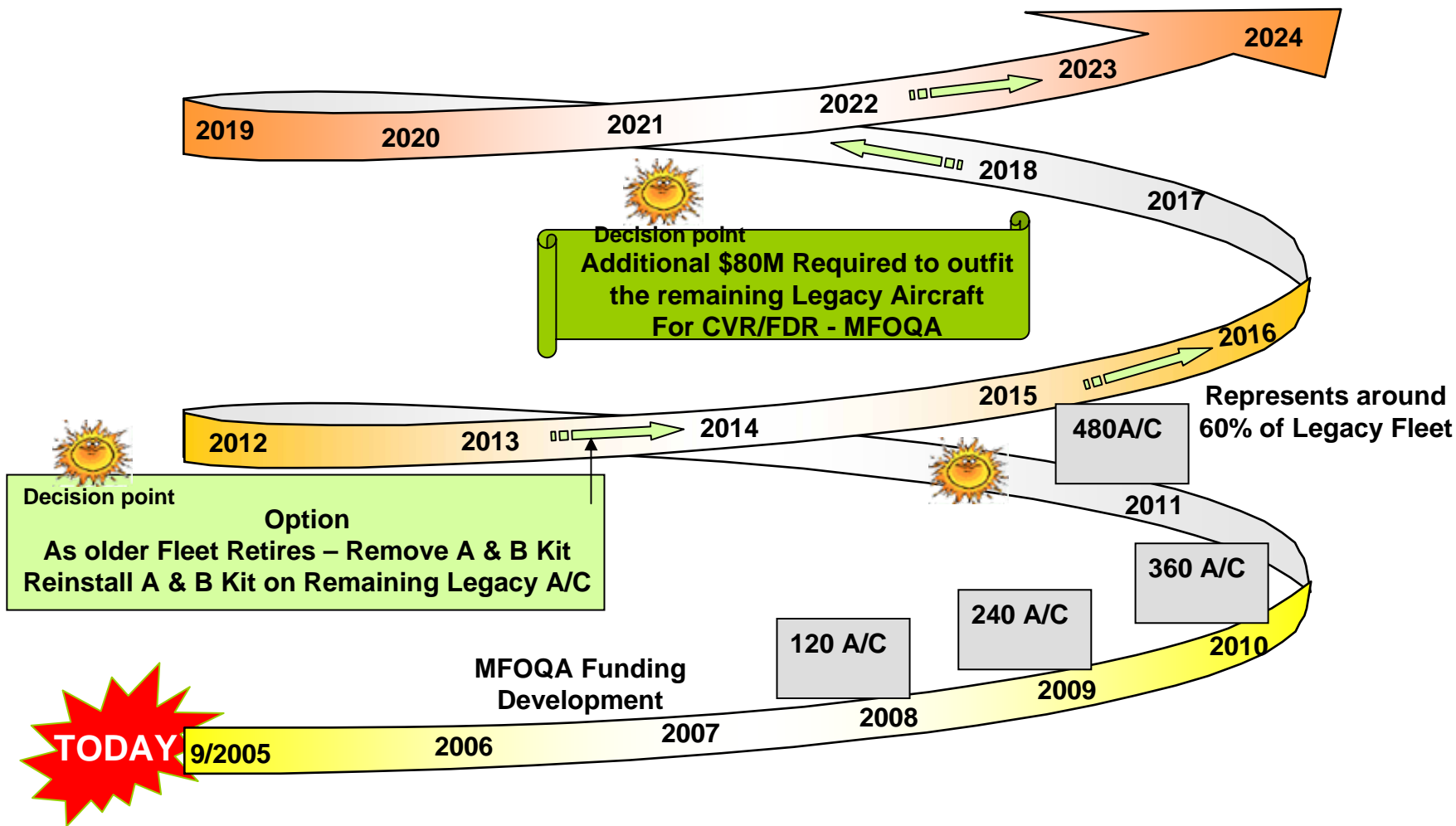


Spiral Development – Legacy Fleet



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CBM & MFOQA - w/DSC



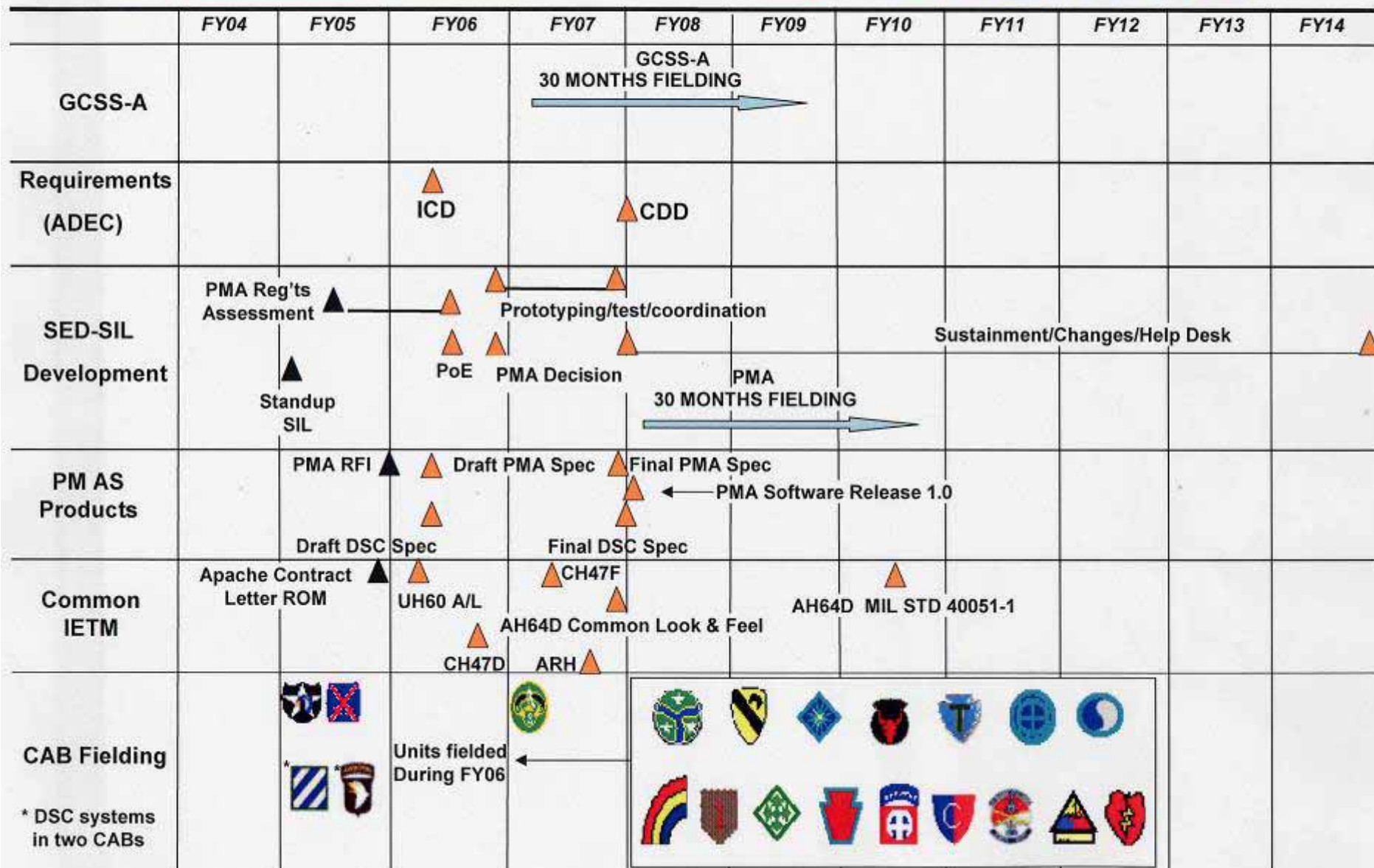
Note: No Full DSC procured for Legacy Aircraft



Aviation Automated Logistics Acquisition Strategy Schedule



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* DSC systems in two CABs