NAVAIR Enterprise Team CBM+ Update

February 22 , 2012

Presented to:

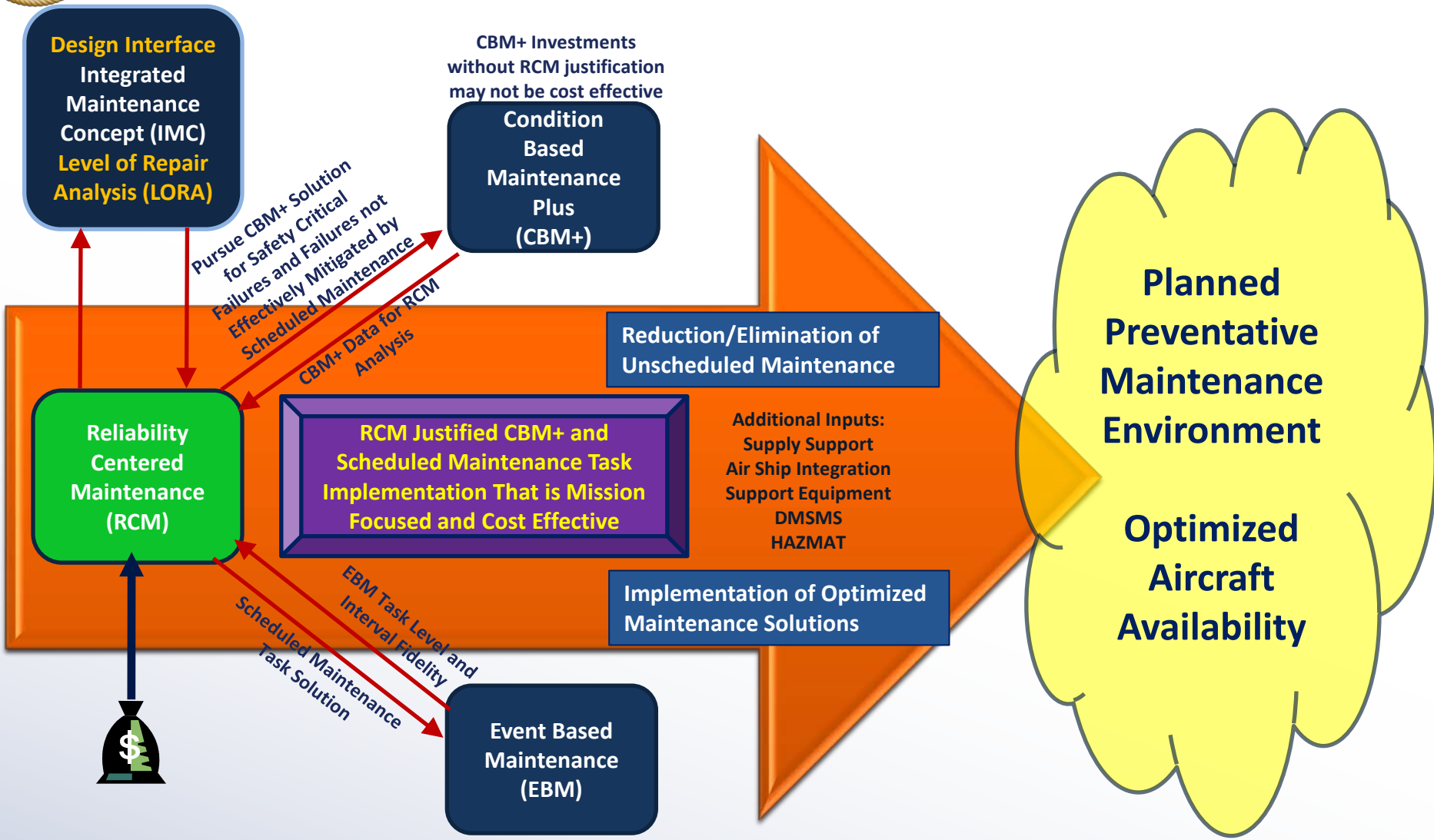
CBM+ OSD AG

Presented by:

Tony Kimberlin
NAVAIR CBM+ Enterprise Team Lead
AIR-6.7.1.3

NAVAIR

NAVAIR Maintenance Planning Vision



RCM IS THE FOCAL POINT FOR INITIAL MAINTENANCE PLANNING INVESTMENTS AND DRIVES WHETHER A SOLUTION IS CBM+ OR A PREVENTATIVE SCHEDULED MAINTENANCE TASK

Mission

Through automated analysis and decision making processes, we will provide stakeholders a Naval Aviation Enterprise solution delivering timely data-driven decisional information to optimize aircraft availability and materiel readiness by incorporating health and usage leading indicators into the failure mode mitigation process, enabling the Warfighter to more efficiently meet mission requirements.

NAVAIR CBM+ Enterprise Team

Executive Steering Committee

- **PEO(A)** RDML Grosklags, T. Balazs
- **AIR-4.3** T. Rudowsky
- **AIR-4.4** T. Cifone
- **AIR-6.6** T. Meier
- **AIR-6.7** T. Moran
- **AIR-6.8** D. Nega *Champion*

Enterprise Team / Working Group

Current Team Structure (as of 19 Jan 2012)
Only 3 Gov't FTE and 2 CSS FTE.
Remaining support depicted is part time.

AIR-6.7.1
A. Wood

CBM+ Lead
T. Kimberlin
GS14 Lead (future)

CBM+ Resources
K. Gass
GySgt Pierce
GS13 (future)

Program Rep
K. Caniglia

NACRA
S. Meizoso

AIR-4.3
M. Thomas

Jennifer Claus
Roberto Semidey
Jason Thomas
FUTURE additions:
Karl Ulmanis
Michelle Allard

AIR-4.4
M. Houck

Ken Savisaar
Bill Hardman
Paul Zimmerman
Richard Bee
FUTURE additions:
Justin Cox
Angelo Viray
Nathan Her
Dave Tustin

AIR-6.6
B. Leavitt

Bill Kelly - 261
Dan Higgins – 261
Jim Alfiere – 299
Pat Cox - 276

AIR-6.8
P. Behrens

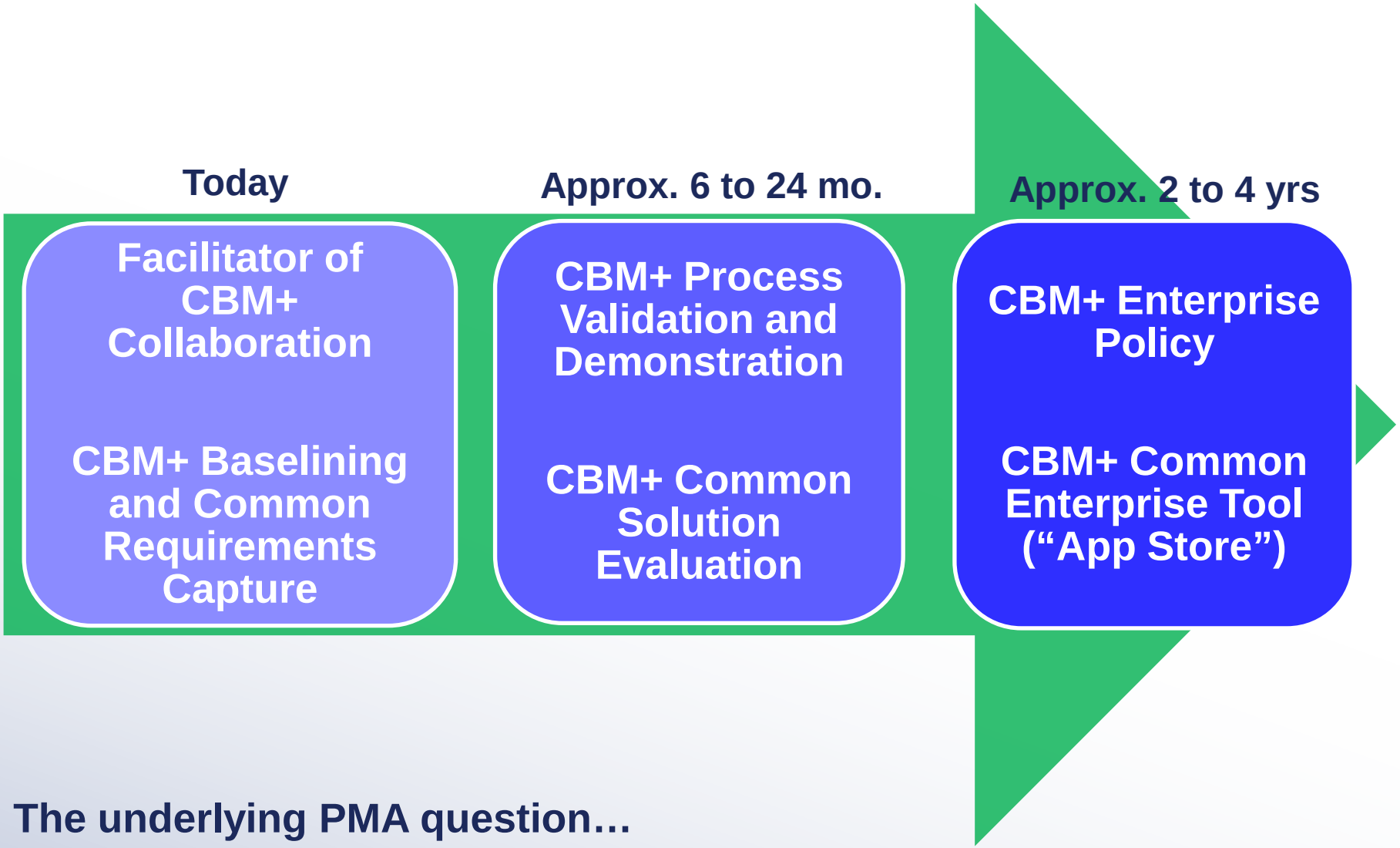
Apryl Gilbert
Bunny Brewer
AMCS Telford
Hyrum Shewell (css)
Karen Rowan (css)
FUTURE additions:
Pam Winder
David Haas
Steve Appell (css)
Bill Burchaman (css)
Rich Tefft (css)
Forest Gray (css)

AIR-6.7.4
M. Pensenstadler

Hank Havanki
John Neal

Future Team structure will aligned to functional capabilities

NAVAIR CBM+ ET Vision



The underlying PMA question…
When does the CBM+ ET impact my CBM+ approach?

CBM+ ET Controlled Study Project Overview (Component Candidates)

Preventative Diagnostic Predictive Prognostic

OBJECTIVES

- Increase Operational Availability
- Improve Flight Safety
- Improve Maintenance Efficiency
- Reduce Total Ownership Costs

CBM Enablers

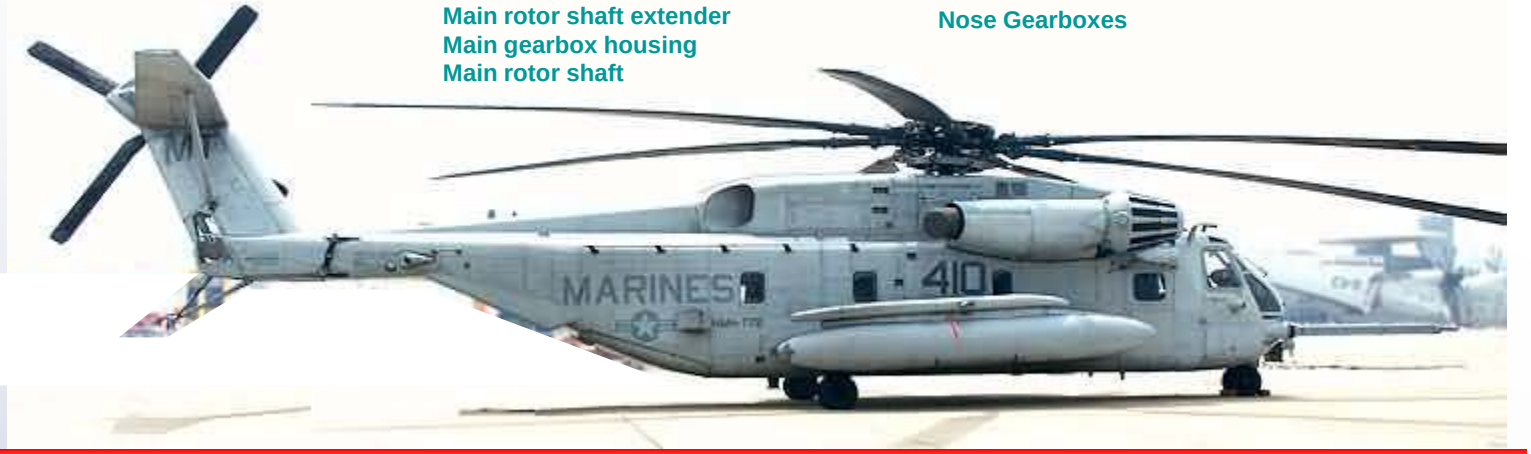
- On-Board Systems (Sensors)
- Ground Based Systems (Flight Line Diagnostics)
- Data Management and Analysis System

Life Management

Main rotor sleeve
Spindle assembly
Main rotor lower hub plate
Main rotor upper hub plate
Main rotor shaft extender
Main gearbox housing
Main rotor shaft

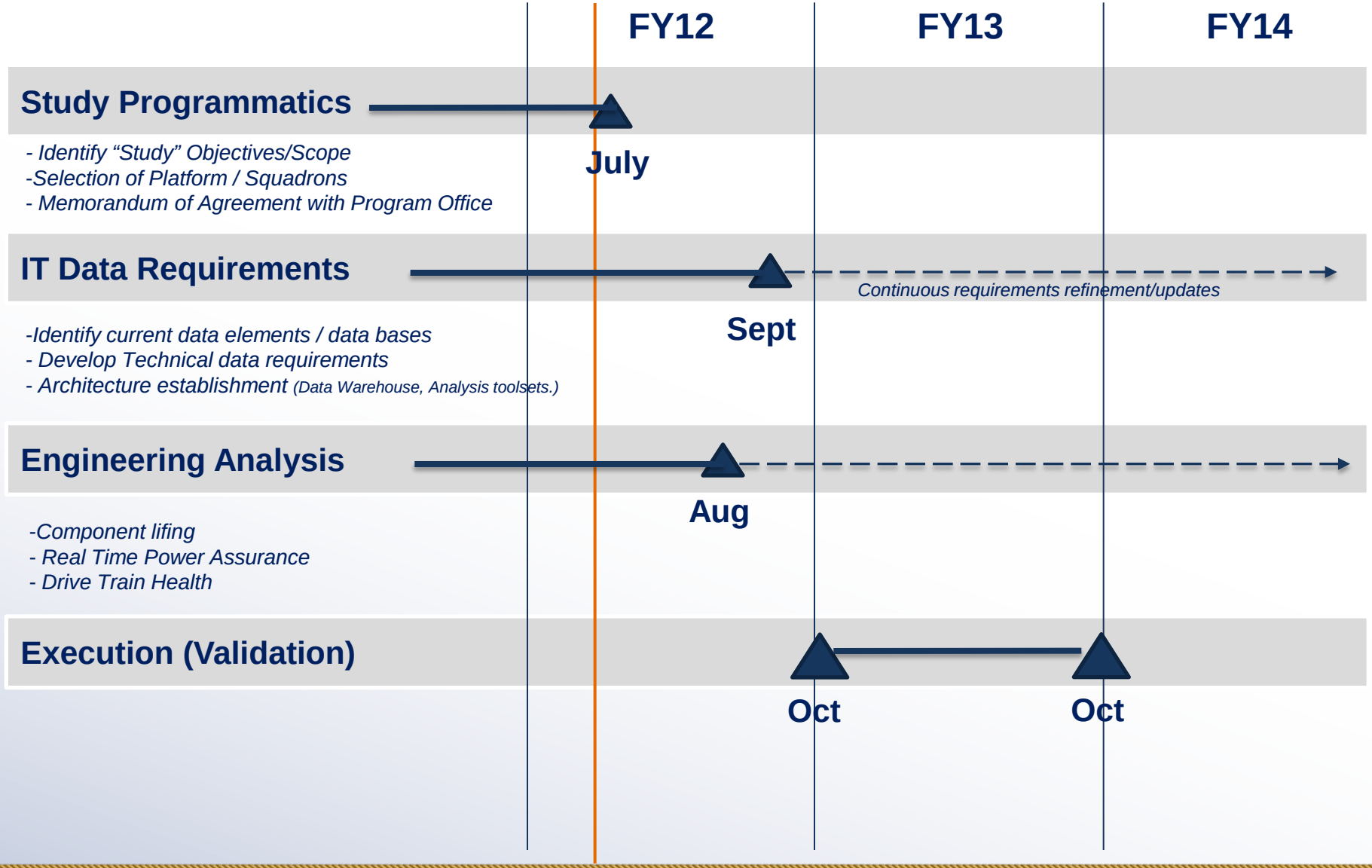
Health Monitoring

Tail Rotor Drive Shaft Hanger Bearing Assembly
Main Rotor Head Pitch Control Rod and Damper Bearing
Main Gearbox Oil Cooler Blower Bearing Assembly
Intermediate Gearbox
Nose Gearboxes

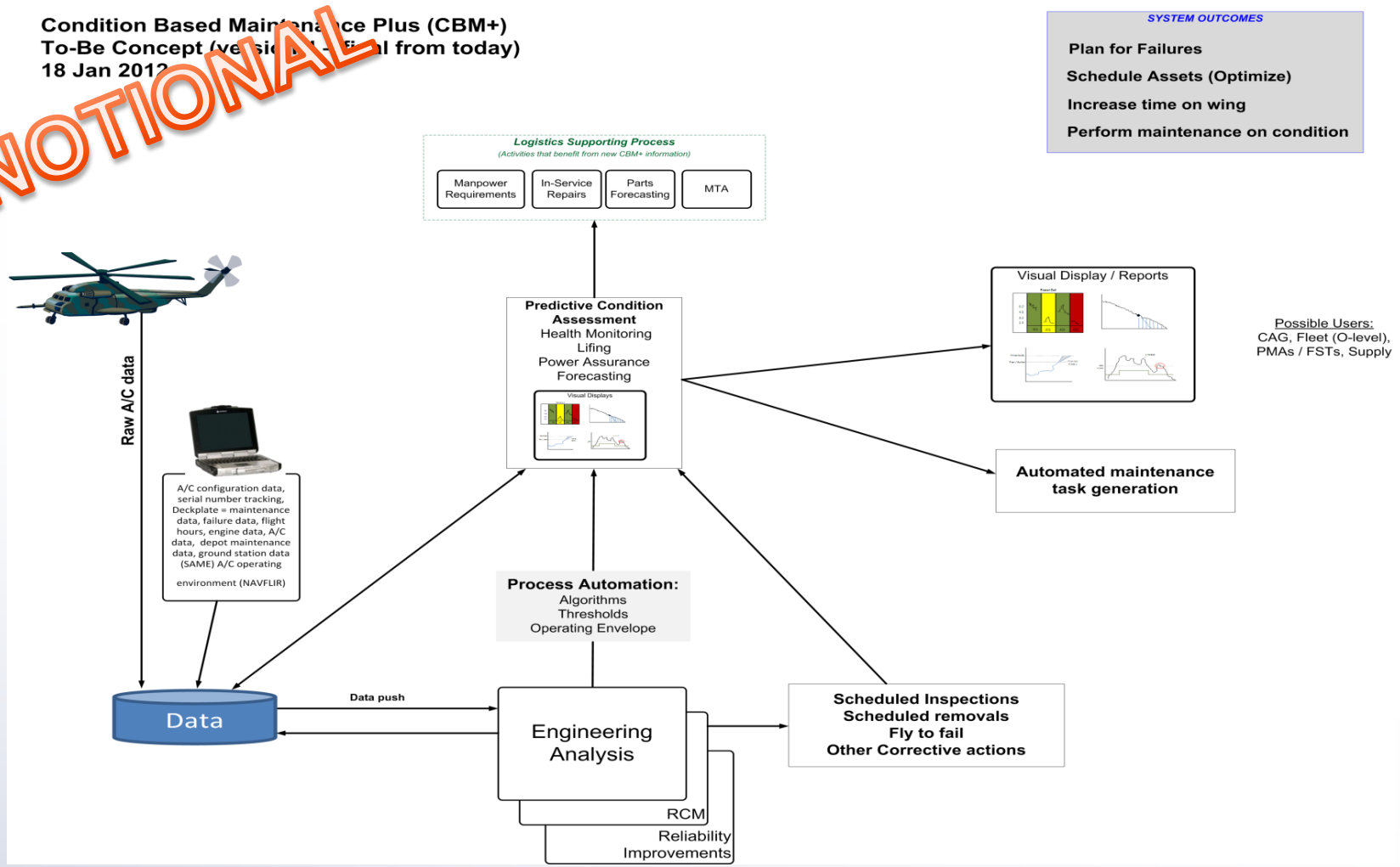


Maximize Combat Power

Controlled Study POA&M (High Level)



NAVAIR CBM+ Concept



NOTIONAL as we are still capturing the over-arching capability and stakeholders functional requirements.

CBM+ ET Challenges

- **NAVAIR CBM+ WORKING GROUP TO ENTERPRISE TEAM (CHARTER)**
  - **CBM+ ET Charter in draft/routing (May 2012)**
  - **Organizational alignment challenges/PMA relationships**
  - **Size and scope of CBM+ Enterprise efforts**

- **NAVAIR CBM+ ET SUSTAINED FUNDING/RESOURCES**
  - **Initial NAVAIR CBM+ Enterprise Efforts built on OCO – above the line in FY12 for OCO/below the line for OCO in FY13**
  - **POM 14 Future Readiness CFT Issue Sheet (ROI 5:1 across FYDP)**
  - **Transitioning from team with part time support to an ET with full time dedicated support to CBM+ ET efforts**
  - **Program Offices have their own resources not centrally controlled by NAVAIR CBM+ ET**

- **FY14 POM ISSUE SHEET FRCFT**
  - **Update Submitted Dec. 7th to CAPT Lorentzen (OPNAV N432)**
  - **FYDP ROI Increased to 5:1 from 3:1 (Based on component candidates and related CBM+ activities encompassed in the controlled study)**

Backup Slides

Goal One (1)

- **GOAL 1:**
  - To maximize components time on wing.
- **Objectives:**
  - To perform maintenance based on material condition
- **Enablers or Actions:**
  - Proactively monitor components to predict failures
  - Provide accurate and updated decision parameters

Goal One (2)

- **GOAL 2:**
  - Improve Operational Mission Effectiveness
- **Objective**
  - More efficient utilization of assets
- **Enablers or Actions:**
  - Accurately forecast component condition using internal or external sources

Goal One (3)

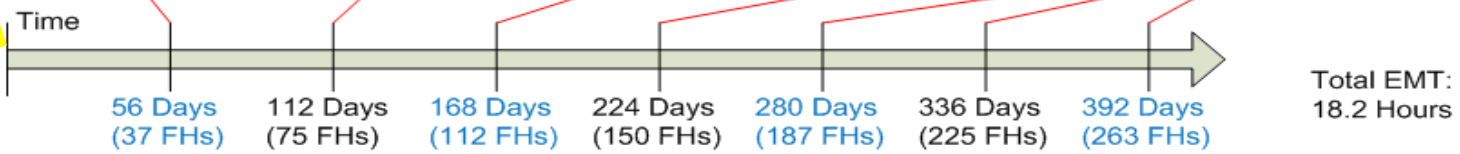
- **Goal 3**
  - Effectively and efficiently execute the NAE CBM+ strategy.
- **Objective**
  - Standard CBM+ processes, procedures and policies.
- **Enabler/Action**
  - Implement the CBM+ enterprise solution for Data Management standards.
  - Integrate CBM+ unique attributes into NAE ALE Environment.
  - Utilize NAE/ALE

Event Based Maintenance (EBM) Illustrated

Traditional H-53E 56 Day Inspections

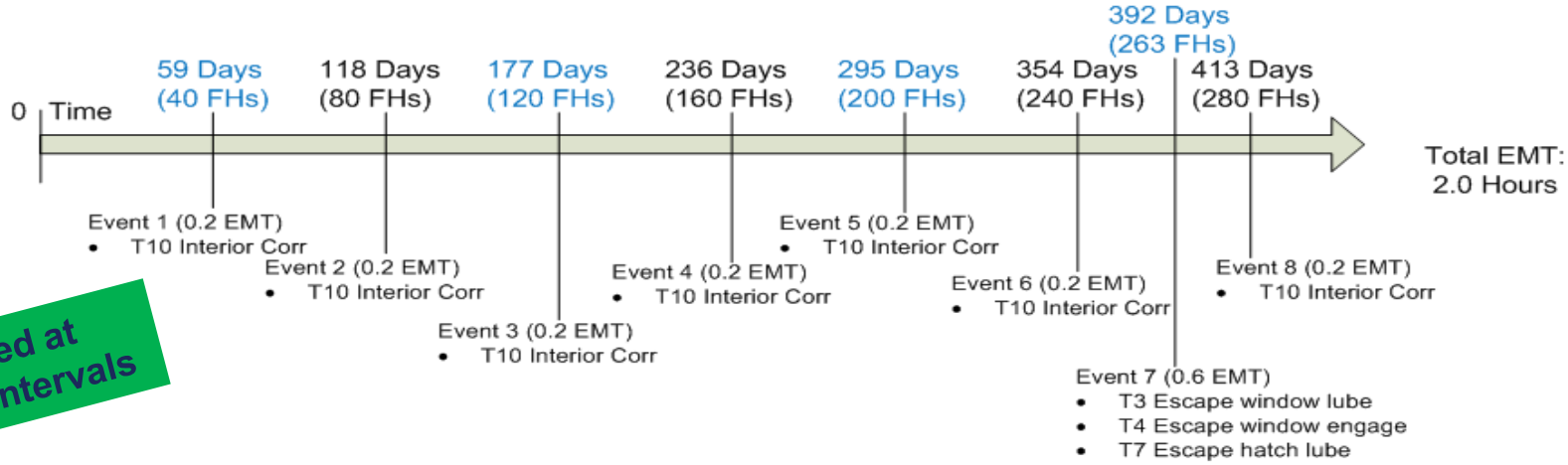
Tasks grouped by 56-Day package

56 Day pkg (2.6 EMT)
- T1 Esc win cracks
- T2 Esc win worn
- T3 Esc win lube
- T4 Esc win engage
- T5 Esc win struts
- T6 Esc win seals
- T7 Esc hatch lube
- T8 Esc hatch seals
- T9 Esc win damage
- T10 Int corrosion
- T11 Up Longeron corr
- T12 Int frames corr



EBM Events **

Tasks performed at RCM derived intervals



****EBM timeline depiction based on 2007 HM-15 Historic Squadron Flight Hours**

Reliability Centered Maintenance (RCM) and Event Based Maintenance (EBM)