A New Way of Looking at Old Airplanes

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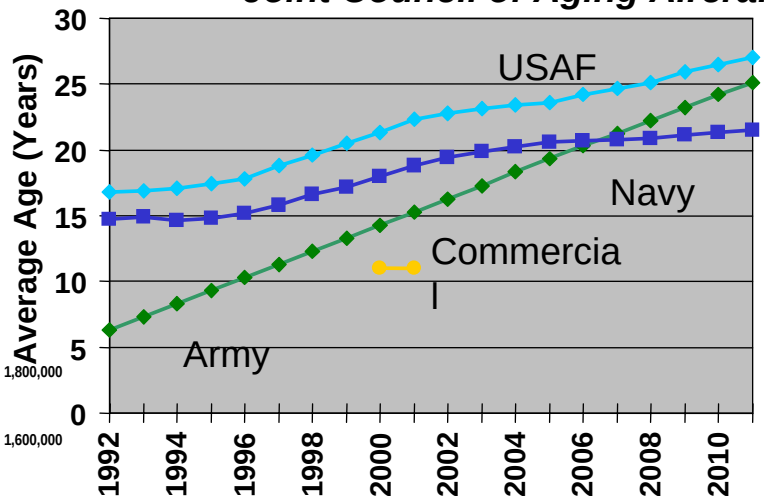
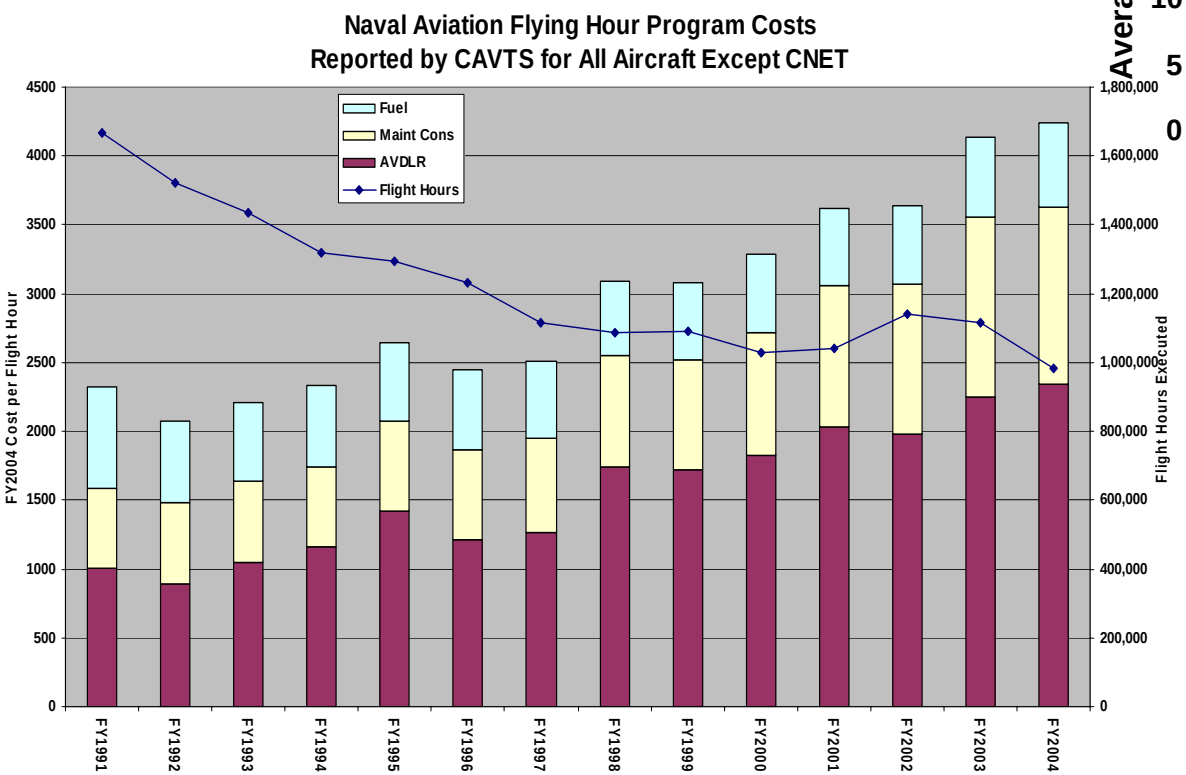
"The Problem"

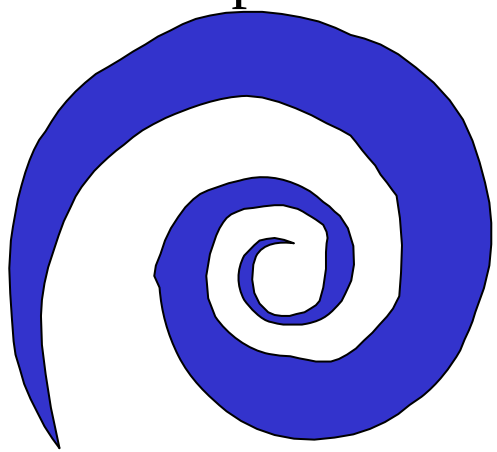
Joint Council of Aging Aircraft

- Continued Cost of Operation Rising at Unprecedented levels
- Age Increasing





Are we seeing the death spiral?



Depot Level Repairables Increasing 6 - 8% Per Year !

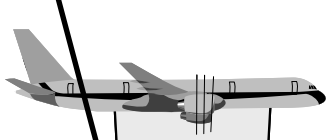
Aging Aircraft IPT

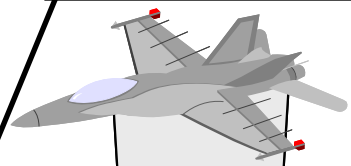
"Improving the fleet's readiness and reducing life cycle cost by aggressively attacking and countering the effects of aging aircraft."

Approx 80 Fleet and Depot Personnel Trained on AWA Equipment

Wash Cycles: Reduced MMH, and labor saving (est. 20,000)

Leveraging Data from F-18 to improve H-60 Seals





Corrosion	Transparencies	Hydraulics	Sub-Systems	**Air Vehicle Team**
Inspections & Training		Analysis	Diagnostics AWA	**Wiring & Power Team**
Obsolete Parts & Investigations	Process	Tools	Training	**Obsolescence Team**
Mosa II	ADEC	Lead Free Solder	Commonality	**Avionics Team**
# of publications Released	Training	Fleet Introduction	AFCB Core Logistics	**Logistics**
		Obsolescence Cost Avoidance	Batteries	**Solutions**

Updated & Released 01-1A-509 Vol. 1 thru -4

4-6 Part Inquires / Week
77% of Investigations Resolved
150 DMSMS Case Review YTD for PMA-275

Fleet Survey's (wiring and corrosion combined) = Approximately 1,000

$3.3M in Savings & Avoidance

$3.2M in Savings in Maintenance & MMH

PM Dilemma – Successful Tech Insertion

Transition	Development	Acquisition	Sustainment

The Frogger Affect

Integrated Wiring Strategy

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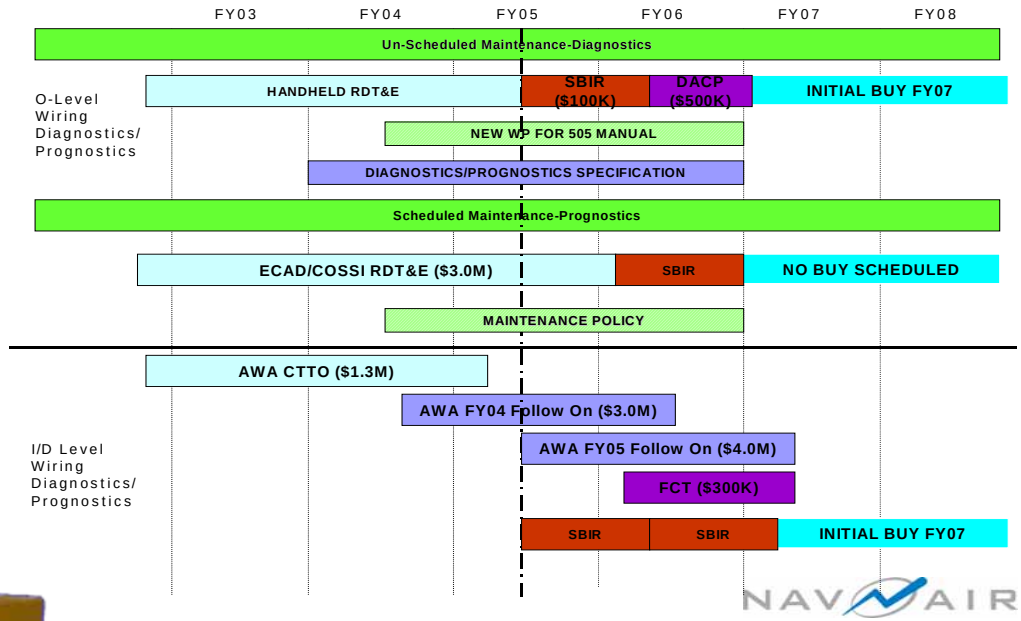
ARC Fault Circuit Breaker

- Reduction in aircraft fires
- Support standardization
- **Joint Logistics Package and Procurement**

AWA (Off-Line Diagnostics) Program

- Develop and Field Depot level Wiring Diagnostic Tool
- Standing Wave Reflectometry (SWR)
- 128,000 point switching

Wiring Diag/Prog Efforts



Balance of technology, conditioned based maintenance (CBM), training and publications

Continuous Tech Insertion

Integrated Roadmap – coordinated Procurement

Tech Refresh –
Key to Cost Wise Readiness

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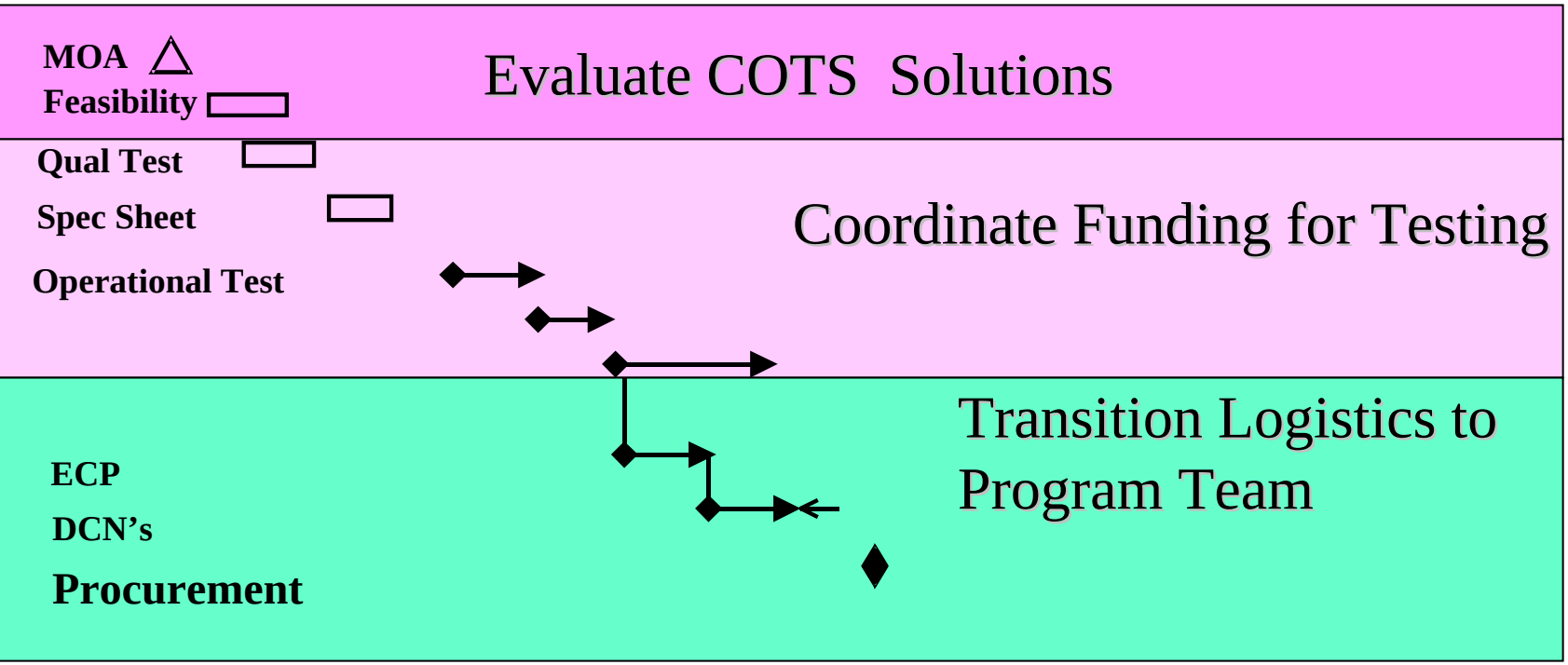
Problem: Current aircraft batteries

- have to be inspected every 28 days (56,000 Man Hours)
- 80% have to be replaced within a year



Providing the mechanism to transition better technology

What's the next successful program?

Aging Aircraft – Steps to Success

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1. Its not just technology
   - Everything from new tech to pubs & training
2. Listen to Industry – Steal the Good Ideas
3. Leverage Funding – think Joint
4. Don’t forget the logistics
   - Publications, training and Supply Support
5. Tech Refresh = Smart Obsolescence

National Sustainment Technology Center

Resources to help technology refresh

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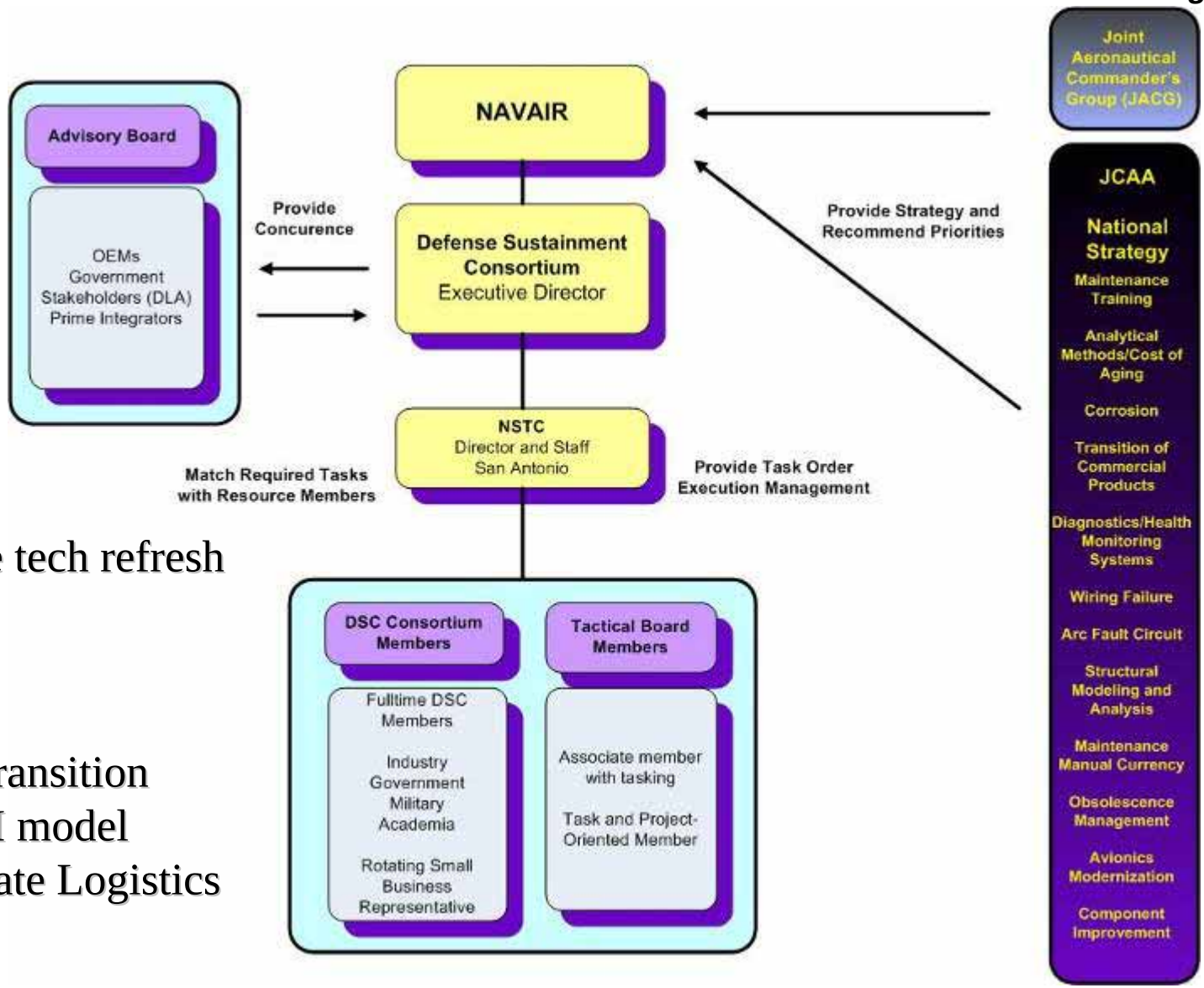

Evaluate tech refresh

- ABDR
- NDI
- Goops

Focus Transition

- SATAI model

Coordinate Logistics

Who is the JCAA?

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Vision

Jointly Identify, Investigate, and Implement Programs that will Field Products to Improve the *Availability* and *Affordability* of all the Services' and Agencies' Aging Aeronautical Systems.

Process

Through the use of Integrated Roadmaps, Shared Data and Analyses, the JCAA will:

- Identify Process Recommendations & Improvements
- Advocate/Enable Promising Technology
- Facilitate Transition of Technology/Program Opportunities
- Promote Knowledge Management on Aging Aircraft
- Coordinate Funding for Promising Areas

National Strategy Focus

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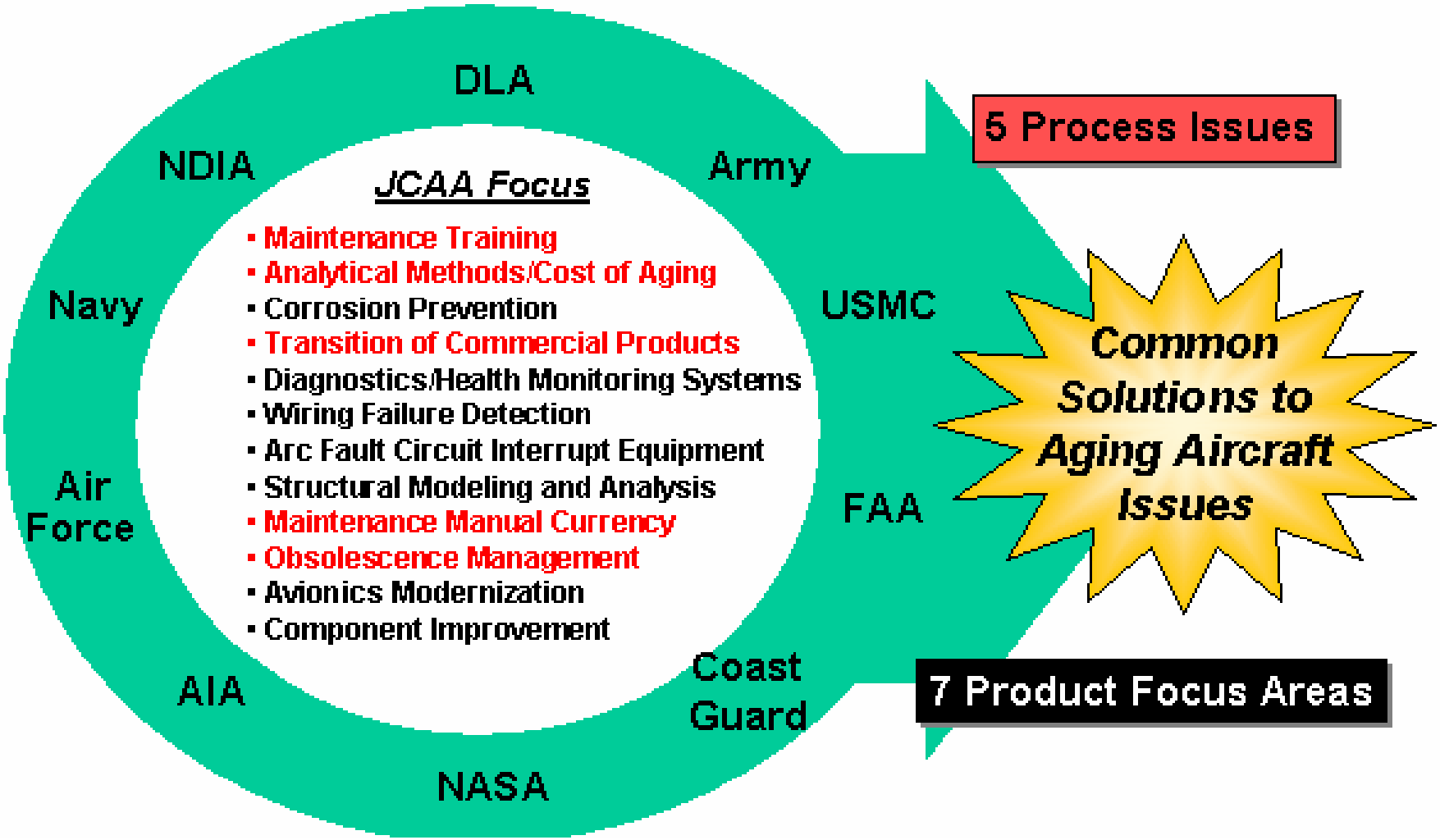

OSD and JLC Charged JCAA to Develop a National Strategy

JCAA Website

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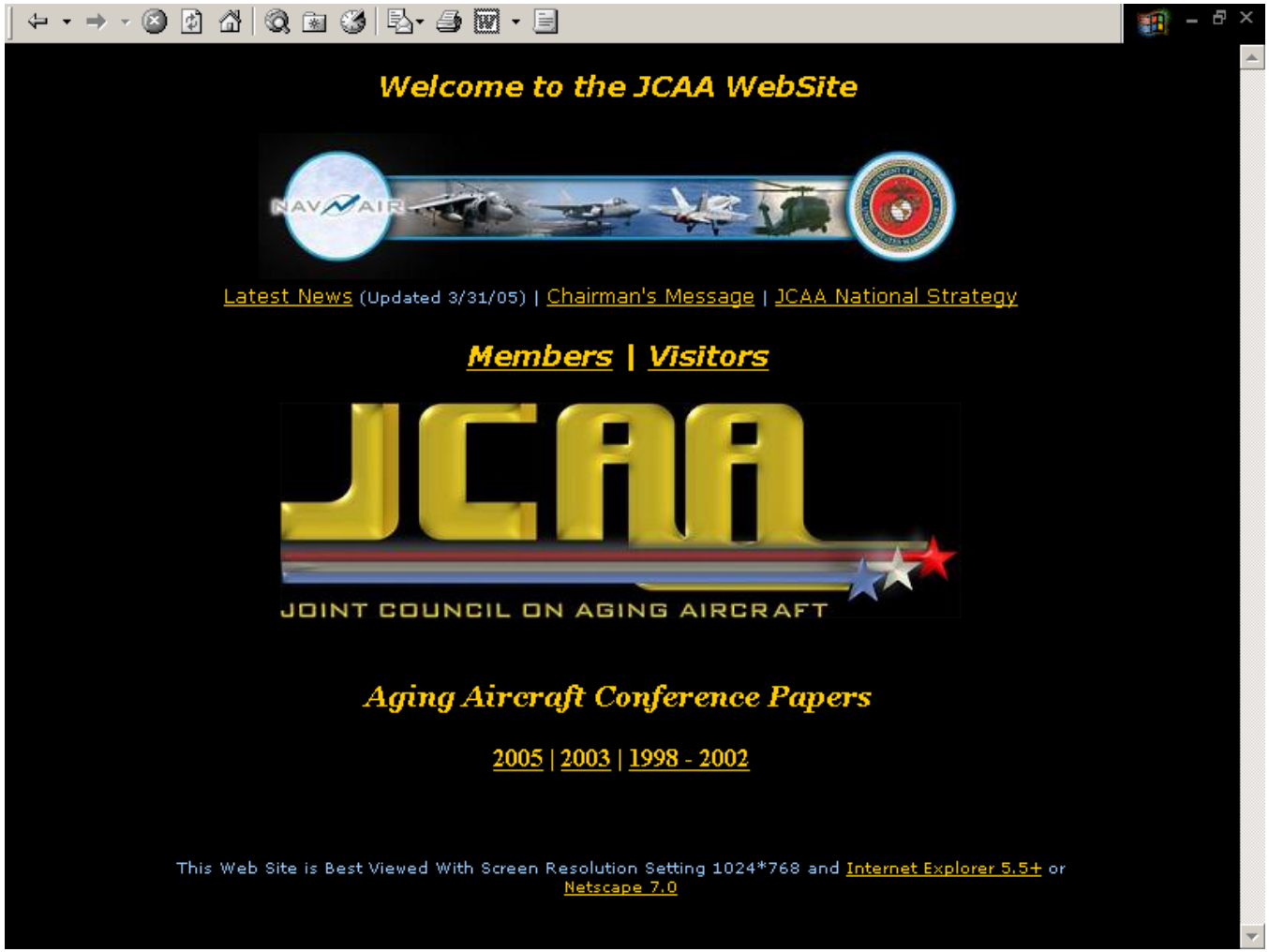

http://www.jcaa.us

Arc Fault Circuit Breaker
Timeline

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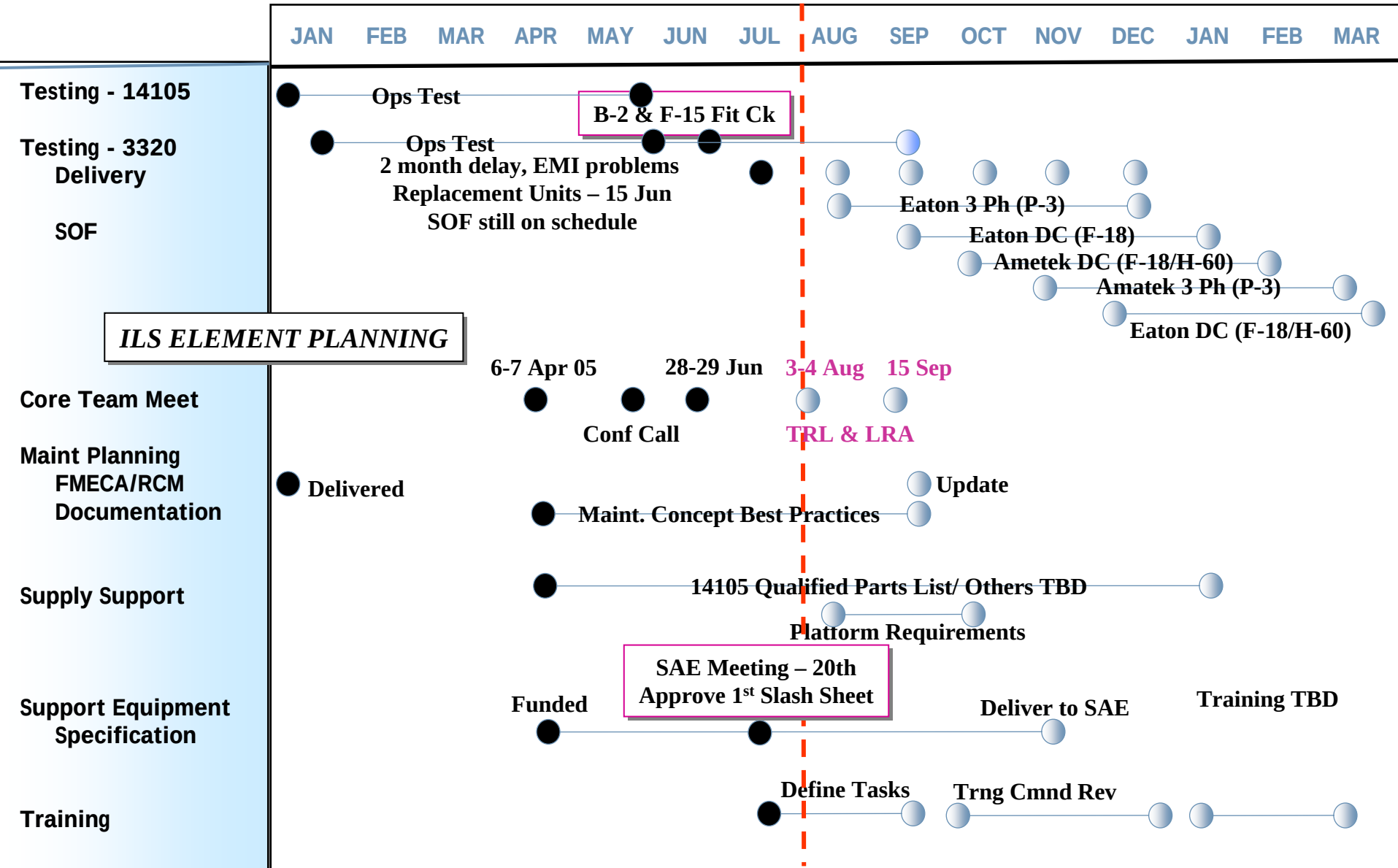

Summary

- Solutions to Aging Aircraft problems are available.
- Integrated Roadmaps optimize balance of new technology, COTS insertion and logistics
- Need to partner with Industry to find the best of breed
  - NTSC/JCAA resources provide leverage
- Need to focus on real *"Cost Wise"* Solutions for our legacy fleet

Next Aging Aircraft Conference

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http://www.agingaircraftconference.org/

Questions?

Obsolescence Policy – "The Problem"

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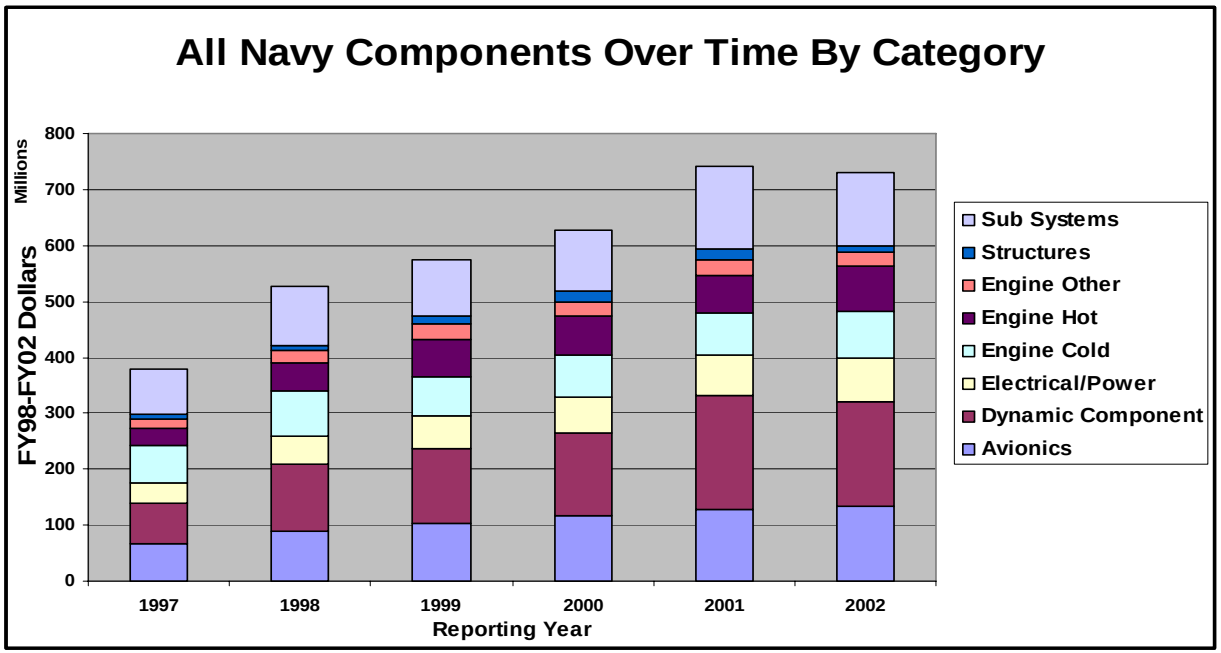
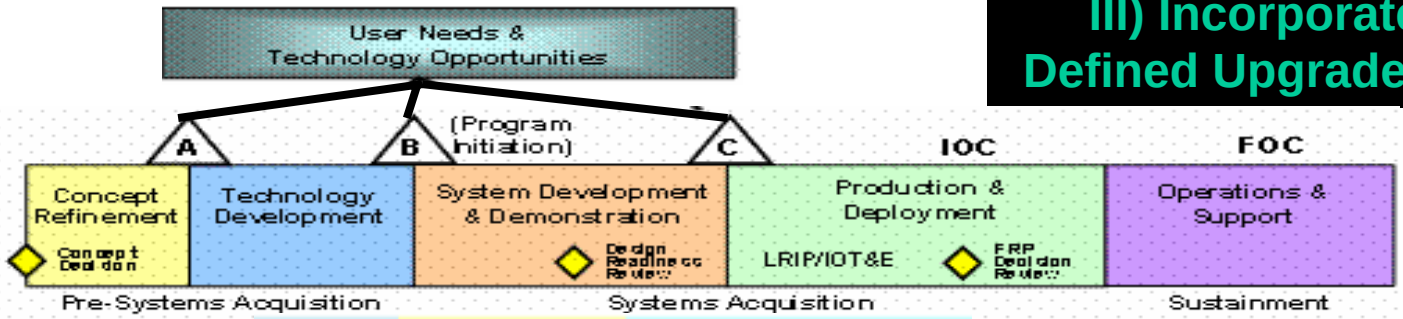


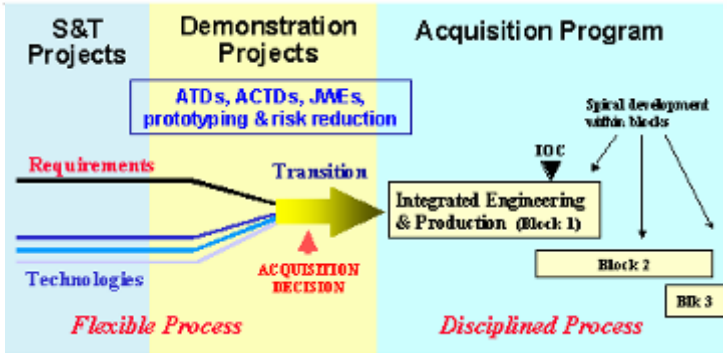
- **Component Repair growing by an average of 7.8% per year**
- **Age Appears As Primary Contributor to ALL DLR Categories**
- ***Obsolescence a Key Factor for Avionics Cost Growth***
- Obsolescence impact to Naval Aviation alone = **$750M**
- PMA 265-$18M

Root Cause Analysis	Age	Obs	Vndr	Dsgn	Log	New Item	Maint Plan
Avionics	27.5%	45.0%	1.3%	8.1%	8.1%	9.4%	0.6%
Dynamic Component	61.0%	0.0%	7.3%	3.7%	11.0%	12.2%	4.9%
Electrical/Power	40.6%	4.7%	6.3%	37.5%	3.1%	3.1%	4.7%
Engine Cold	64.2%	0.0%	0.0%	0.0%	7.7%	28.2%	0.0%
Engine Hot	86.2%	0.0%	0.0%	0.0%	0.0%	10.3%	3.4%
Engine Other	46.7%	8.3%	0.0%	23.3%	20.0%	1.7%	0.0%
Structures	76.7%	3.3%	0.0%	13.3%	0.0%	3.3%	3.3%
Sub Systems	52.9%	5.9%	4.4%	10.3%	14.7%	10.3%	1.5%

Parts Process Management –Planning for Tech Refresh

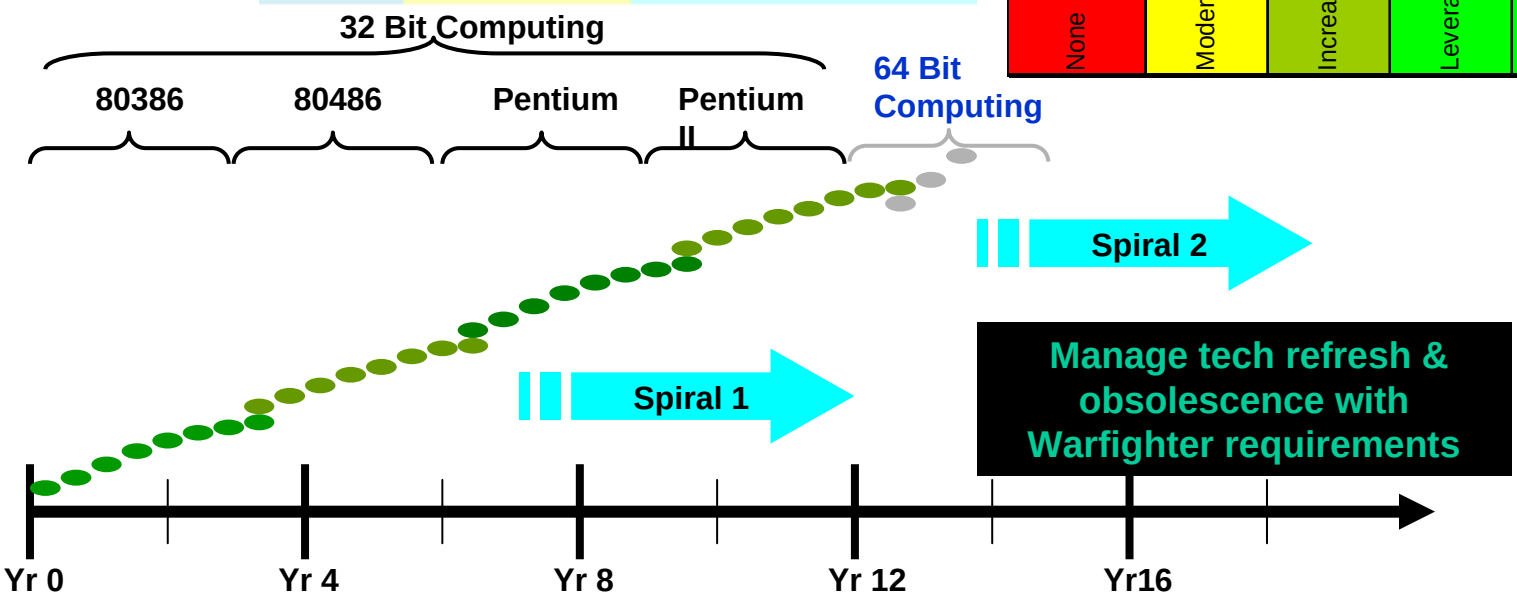
III) Incorporate User Defined Upgrades/Spirals





II) Need to work across all levels of industry

Component /ICs	Cards Boards	Box System	OEM Integrator	User
None	Moderate	Increasing	Leverage	Leverage



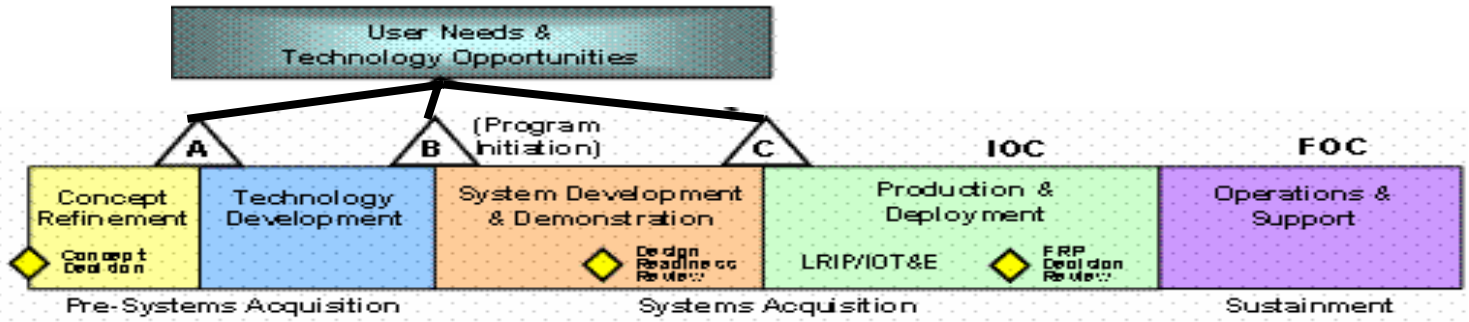
Technology Roadmaps Key Elements

Integrate DMSMS Strategies with Technology Roadmaps

- Ensure DMSMS forecasts and mitigation strategies are an **integral part of the program's technology roadmap**
- Criteria for DMSMS decisions (e.g., DMSMS planning, mitigations, etc.) need to consider:
  - Where the technology is going – availability, size, speed, new technologies, technology trends as related to your system.
  - It should consider your acquisition strategy, maintenance concept, program plan

Integrate DMSMS with Technology Roadmap

Program Elements for each Milestone



- Integrate DMSMS Strategies with Technology Roadmaps
- Utilize Configuration Data to **piece part level**
- Identify and Forecast piece-part obsolescence impacts and mitigations using recognized **forecasting tools**
- Encourage **proactive, cost-effective industry solutions**
- **Leverage** across system/platform solutions
- Provide documentation and **metrics**
- Assess contractors' DMSMS programs
- Utilize **BCAs** to support decisions

Iterative Process

Tech Refresh –
Key to Cost Wise Readiness

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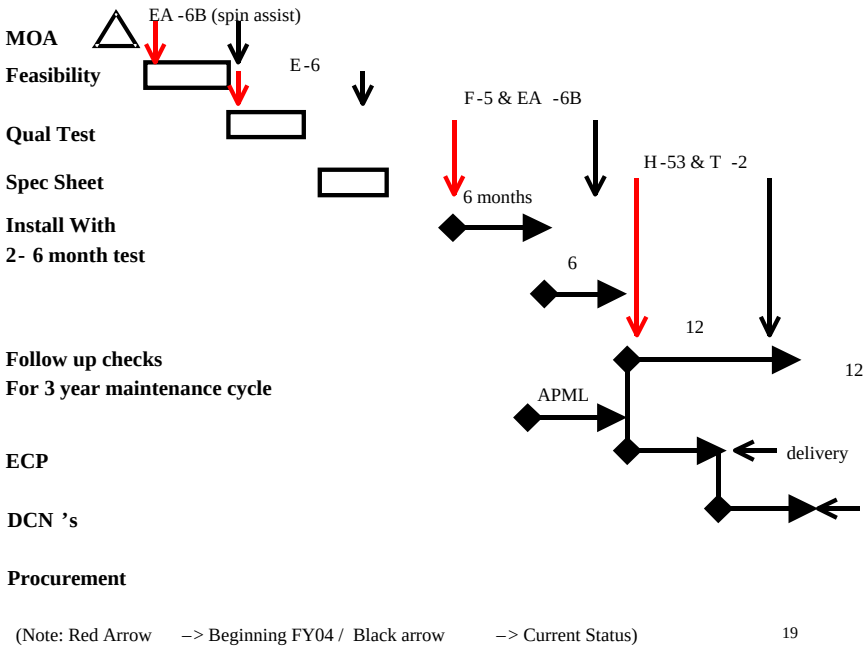

Battery Program

Projected Savings

TMS	No. of Batteries per Aircraft	Current Battery: Aircraft Ct.	Current Battery: Maint. Hours	Current Battery: Consumable Cost $K	Replacement Battery: ROI	Replacement Battery: 10 Year NPV	Replacement Battery: Maint Hr/Yr Savings	Replacement Battery: Consumable $K/Yr Savings
T-2C	2	88	3,249	$ 1,052.61	21.6	$ 6,612.2	2,761.65	$ 894.7
EA-6B	2	113	28,528	$ 824.48	34.1	$ 15,140.4	24,248.80	$ 700.8
CH-53E	3	150	31,540	$ 858.52	20.5	$ 15,486.9	26,809.00	$ 729.7
MH-53E	3	36	5,568	$ 36.76	10.4	$ 1,789.9	4,732.80	$ 31.2
F-5E	1	32	70	$ 56.29	2.8	$ 220.7	59.50	$ 47.8
F-5F	1	4	8	$ 5.50	2.2	$ 18.1	6.80	$ 4.7
TOTALS						$ 39,268.2	58,618.55	$ 2,409.0

Savings $2.4M Material & 56,000 MMhrs

Transition to Production:
AAIPT – Analysis, NRE, Program Coordination
DLA – Qualification Testing
Programs – Logistics, Implementation

Corrosion Repair Kit

- Mechanical and Chemical Kit
  - Design and Implementation
  - Dod Wide Application
  - Accomplish Required Corrosion Efforts
  - Aircraft and Ground Support Equipment
- Accomplishments
  - USA and USAF Implementation of USN Products

One Product Multiple Users

JALC Thrust - Arc Fault Circuit Breaker

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Purpose/Description of Issue:

- The FAA, USAF, USN are jointly developing the arc fault circuit breakers and a core logistics package must be developed prior to implementation

End Product/Outcome:

- Common Core Logistics Elements & Processes will be identified/addressed
- **QPL (Jan 06) ** (168 DLA $, 50k Contr)**
- **Common Training (Mar 06) (FY-06)**
- **Maintenance Concept Doc (Sep 06) ****
- **Navy FY-05 40k Wyle)**
- **Procurement contract (TBD) **(DLA cost**
- **Support equipment (TBD) **(200k DLA funding)**

** FUNDED

Task Group Composition:

- USN Bob Ernst (4.1D)
- USN Andrew Yang (4.4.4.3); Chuck Singer (4.4.4.1); Rick Clarkson (3.1.4)
- USAF **Terry Miller (ASC/AAAV)**
- USCG Keith Stevenson
- USA Jean Grotophorst (AMSRD-AMR-SE-IO-VE)
- DLA Dale Roberts (DSCR)
- FAA Mike Walz (Adjunct member)

Metrics:

- Reduction in aircraft fires
- Support standardization
- Time to transition technology

FastTrack – The Need

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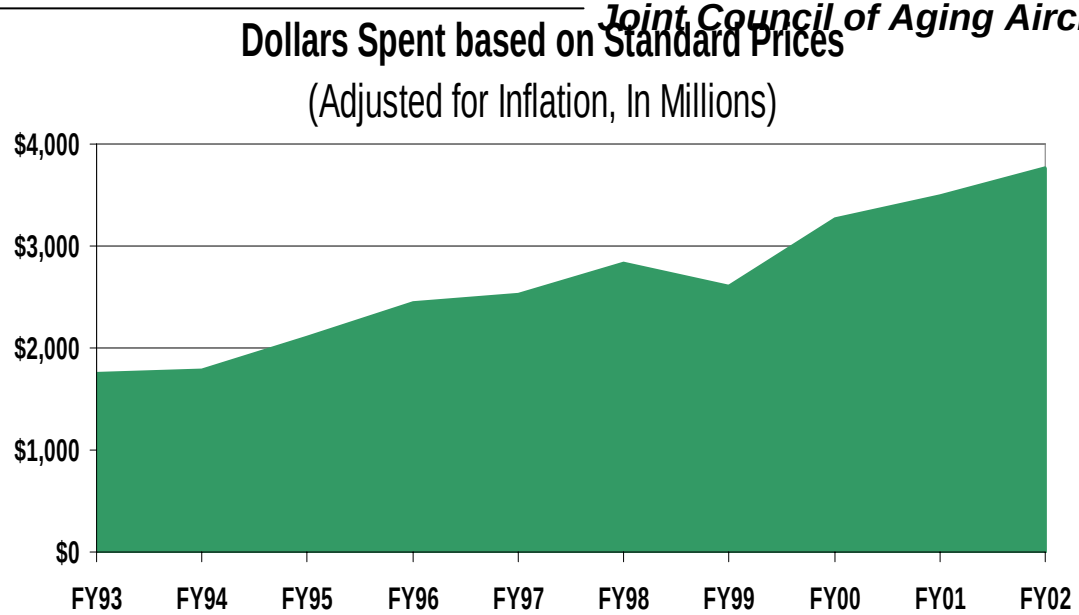
DLA Managed Consumables Have Experienced Significant Increases in Acquisition Costs

- **Many different FSCs**
  - **Many are simple structural parts**
- **up to 300% increase**
- **increased use of OEM's for "readiness at all cost" solutions**



All Aviation Consumable Items - Dollar Demand Chart

DLA Managed items one of two major issues in depot cost growth

Process to qualify alternate sources severely fragmented and inefficient

Smaller Program Teams Don't have the Resources to Establish Stand Alone Contracts for Individual Parts

Proposed FastTrack Role