

# ***Headquarters U.S. Air Force***

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*Integrity - Service - Excellence*

## **NDIA Division Planning Meeting** ***AF Recommended Initiatives for CY2017***



**Col(s) Laird Abbott**  
**SAF/AQRE**  
**December 2016**

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# Air Force Enterprise Strategic Direction

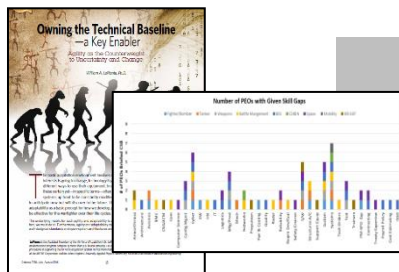
## Key Leadership Focus Areas

Own Technical  
Baseline

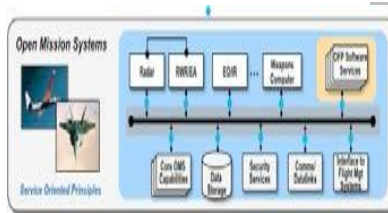
Open Systems

M&S

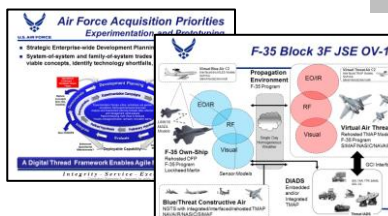
Cyber



- Regain Gov't Control of Pgms
- Informed Decision Making
- Skill-gap Identify/Mitigate



- Industry Consensus Tech Solutions
- Open Key-Interfaces
- Service Oriented Architectures
- Common Messaging Language



- Joint Simulated Environment
- Inventory M&S + Develop Regmts
- Enable Experimentation/Prototyping



- Cyber Campaign Plan
- Cyber Workforce
- Risk Id & Management
- Process & Policy Dev

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# ***Air Force Perspective***

## ***...Initiatives***

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- **Leverage the NDIA study on “*Top Systems Engineering Issues in US Defense Industry 2016*”**
- **Specifically:**
  - **Rapid and Agile Acquisition**
  - **Human Capital**

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# ***Rapid and Agile Acquisition***

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- **Determine best practices to decompose requirements for software intensive programs**
- **Explore best practices for tailoring System Engineering processes for rapid acquisition and deployment**
- **Determine if 3<sup>rd</sup> party evaluations are providing value or should be tailored for rapid acquisitions**
- **Initiate an interface standard activity for M&S tools**
- **Develop Life Cycle Cost models for programming decisions**
- **Explore best practices for generating RFP language which ensures cyber security/resiliency needs are being met and properly evaluated in source selection**



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# ***Human Capital***

- **Develop branding strategies for defense industry engineering**
  - **How to overcome the perception that the defense industry is less desirable than other engineering career paths**
  - **Determine best practices to work with Universities to highlight Defense Industry employment opportunities thru research or internships**
- **Focus on development of systems engineers**
  - **Catalog best practices when it comes to coaching, apprenticeships and on the job training**
  - **Government and Industry engineering exchanges opportunities**
    - **Where/How many are there?**
    - **Who is taking advantage of them?**
    - **Do we have a sufficient pool of personnel for the exchanges?**
    - **Have we gotten the message out?**



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# *The Last One*



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***Backup***

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# Own the Technical Baseline ...knowing the program

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## ■ OTB is 1 of 5 AQ Priorities

## ■ Goal:

- Gov't as able and informed customer
- Manage technical risk and produce agile and adaptable capabilities

## ■ OTB assessment of ACAT 1s

### ■ Key Attributes:

- System Design
- Cost Data
- Performance Data
- System Model
- Interface Defn/Controls
- Data Rights/Architecture
- Tech Risk/Issues

### ■ Skill gaps id'd

- Addressing as part of overall workforce hiring/retention

<ul style="list-style-type: none"> <li>■ P1 - Continue to get high priority programs right and keep on track</li> <li>■ P2 - Continually improve relationships and transparency with stakeholders: OSD, Hill Industry, Labs</li> <li>■ P3 - Own technical baseline for ACAT 1s</li> <li>■ P4 - Continue to implement highest impact BB2.0 for best outcomes</li> </ul>
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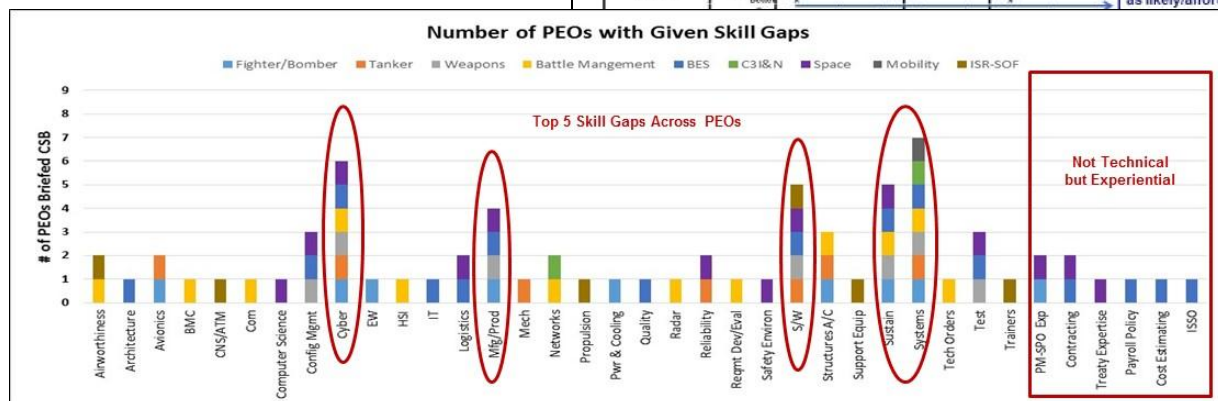
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## OTB Self-Assessments

Key Attribute	TB Expects	MSA Phase				THMR Phase		Post MSA B			
		DELBR	AGC 10.2	LRSD		CSH	OCK	EELV	F-35	KC-46	DEAMS
System Design	Needs Work Good Start Better			X		X		X	X	X	X
Interface Definition & Controls	Needs Work Good Start Better	X	X	X		X	X	X	X	X	X
System Model	Needs Work Good Start Better			X		X	X	X	X	X	X
Performance Data	Needs Work Good Start Better		X			X	X		X		
Data Rights and Architecture	Needs Work Good Start Better					X	X	X	X	X	X
Cost Data	Needs Work Good Start Better	X	X				X		X		

Fidelity tends to increase with the maturity of the program.

Need to identify data rights up front. Data right ownership for legacy programs like F-35 and EELV not as likely/affordable.





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# AF Open Architecture

## ...path forward

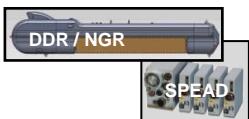
Align Emerging OSAs

OSA Foundation is UCI OMS

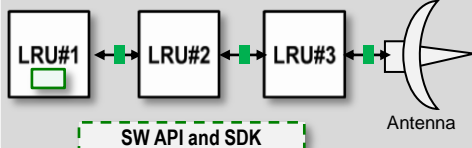
UCI Message Data Model (C2, interoperability)

Broad incorporation of military, commercial standards

### Open Subsystems



Key Standardized ICDs



- ✓ Industry Consensus Technical Solutions
- ✓ Open Key-Interfaces (vertical and horizontal)
- ✓ Service Oriented Architectures
- ✓ Common Messaging Language Across Enterprise
- ✓ Guidelines to Promote/Enable Reuse (SW/HW)

### Open Mission Systems (onboard)

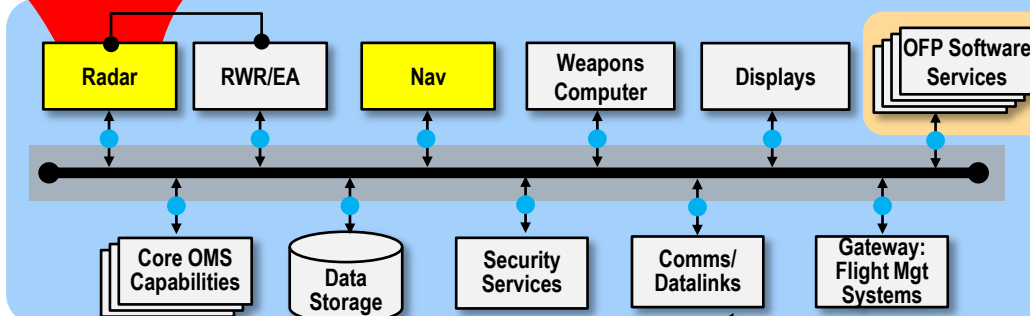


OMS ISR Demo



F-22 Flight Demo

Service Oriented Principles



### Common Mission Control Center and UCI\* Ground Stations

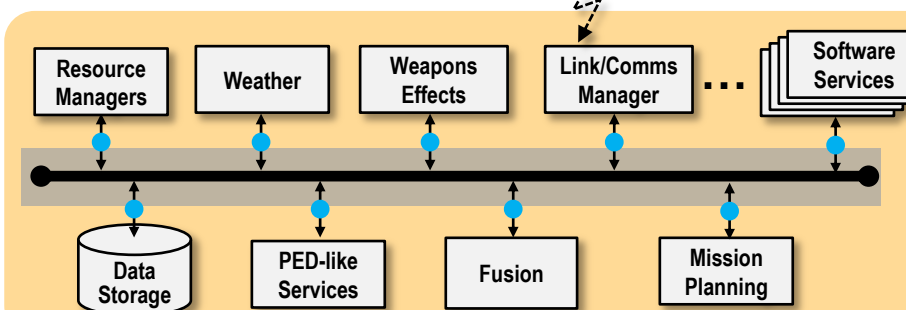


CMCC Prototype



AF Distributed Common Ground System  
DCGS "Sidecar"

Service Oriented Architecture



UCI Messages

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# AF Modeling & Simulation

## .....paradigm shift

*“Whatever the F-35 builds for JSE should be compatible with what the Air Force needs to use in the future”*

*CSAF, Gen Goldfein*

- JSE-AF
  - Next generation SoS M&S capability
  - Test, training and decision analysis
  - Virtual capability across enterprise
  - Maximum information exchange
- Experimentation & Advanced Capability Analysis
  - Support R&D efforts
  - “What-If” analysis for existing platforms
  - Improve technical investment decisions



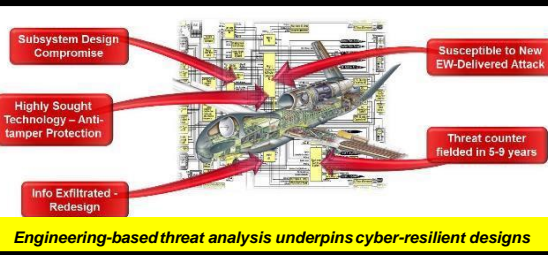


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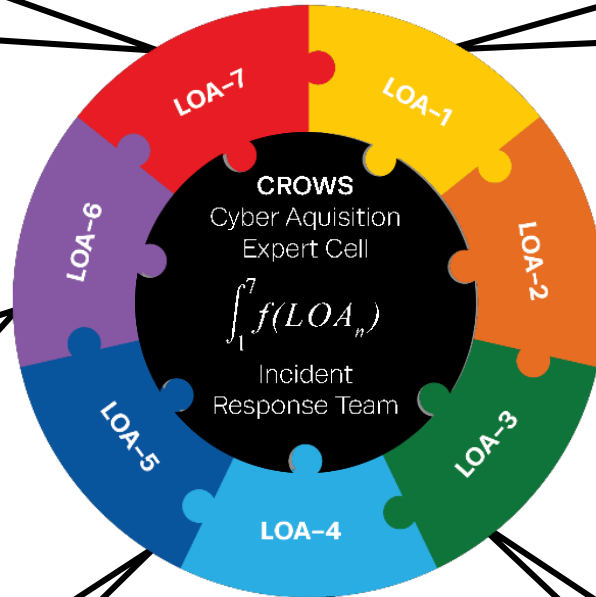
# Cyber Campaign Plan

## ... weapon system cyber resiliency

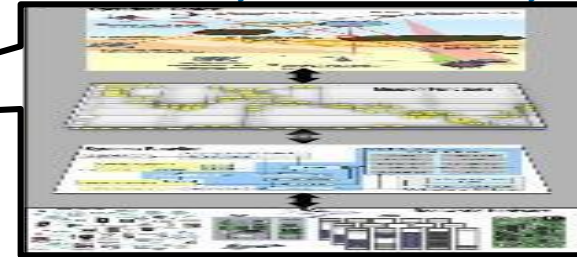
LOA 7: Provide Cyber Intel Support



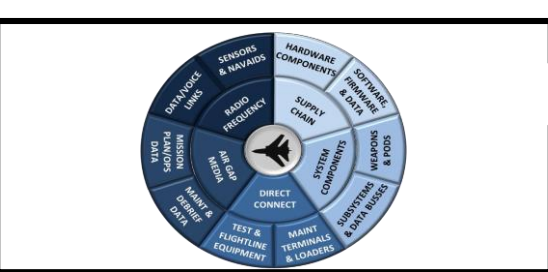
### Cyber Resiliency Office, Weapon Systems (CROWS)



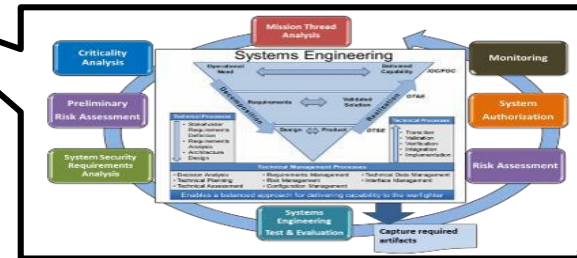
LOA 1: Perform Cyber Mission Threat Analysis



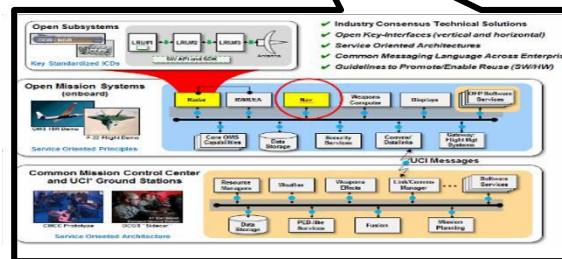
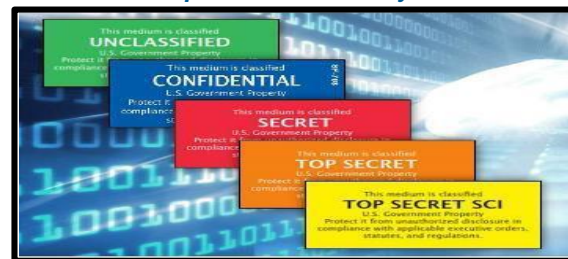
LOA 6: Assess & Protect Fielded Fleet



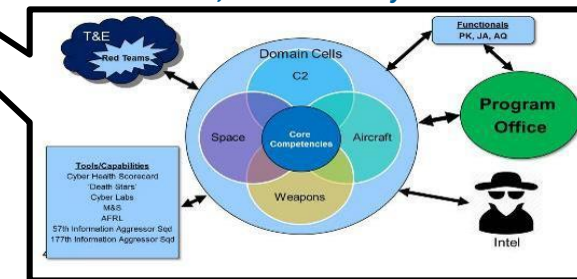
LOA 2: "Bake-In" Cyber Resiliency



LOA 5: Develop Common Security Environment



LOA 3: Recruit, Hire & Train Cyber Workforce



LOA 4: Improve Weapon System Agility & Adaptability

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