Headquarters U.S. Air Force

Integrity - Service - Excellence

USAF Systems Engineering

NDIA 9th Annual
Systems Engineering Conference
San Diego, CA
24 Oct 2006

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Chief Engineer
Office of the Assistant Secretary, Acquisition

What I Told You Last Year

- **Institutionalize Technical Advice to the AF Acquisition Executive**
- **Create AF Engineering Vision and Lead Implementation across Air & Space**
- **Effectively Manage Critical S&E Disciplines and Advocate Growth of AF Technical Leaders**

Technical Support to America's Air and Space Force!

Tech Advice to AF Acquisition Executive

- As AF Chief Engineer, SAF/AQR Has Supported
  - 25 Acquisition Strategy Panels (ASPs)
  - 6 Air Force Review Boards (AFRBs)
  - 1 Design Readiness Review (DRR)
  - 18 System Engineering Plan (SEP) Reviews
  - 3 Technology Readiness Assessments (TRAs) -- 10 more over next year
- Currently Working 801 Certification of Tech Maturity
  - MDA certifies all technology demonstrated in operationally relevant environment at MS B
- Standardizing “Deep Dive” Tech Reviews Across PEOs

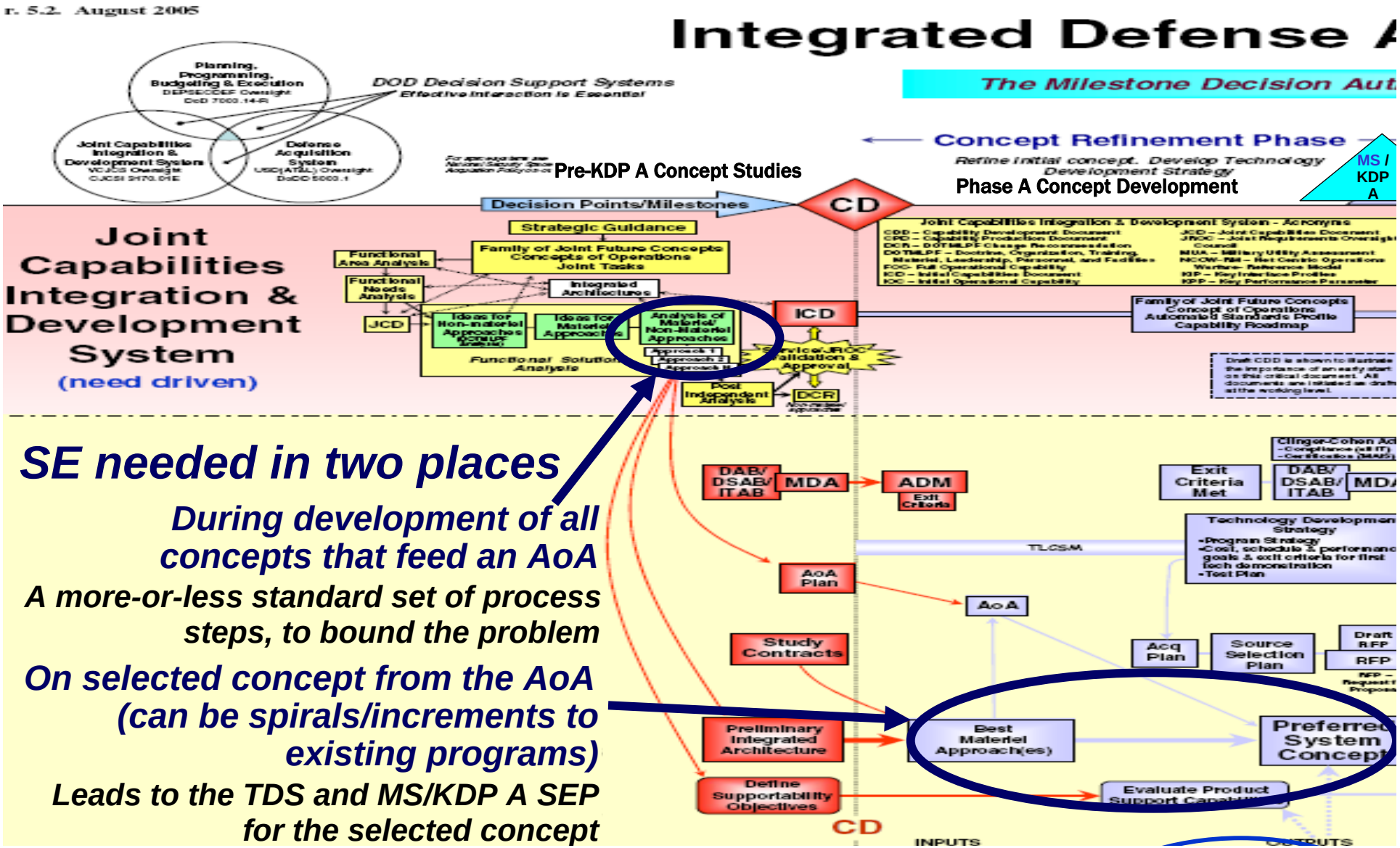
Restoring Credibility with Independent Technical Voice

Creating an AF Engineering Vision

- Release of First Lifecycle Systems Engineering Instruction (AFI 63-1201)
- Creating Manufacturing Readiness Assessments (MRAs) Capability in Program Offices
- Co-Leading Development of Cohesive Software Policy Across IT and Weapon Systems with AF CIO
- Refinement of Systems Engineering Plan (SEP) Policy
- Kicked Off Pre-MS/KDP A Systems Engineering Initiatives
  - SMC Developing Pre-AoA & "ProtoSPO" SEPs
  - Center for Systems Engineering Developing SEP Guide
  - Co-Sponsoring NRC Pre-A SE Study with OSD for Policy, Process, People/Resource Changes Needed

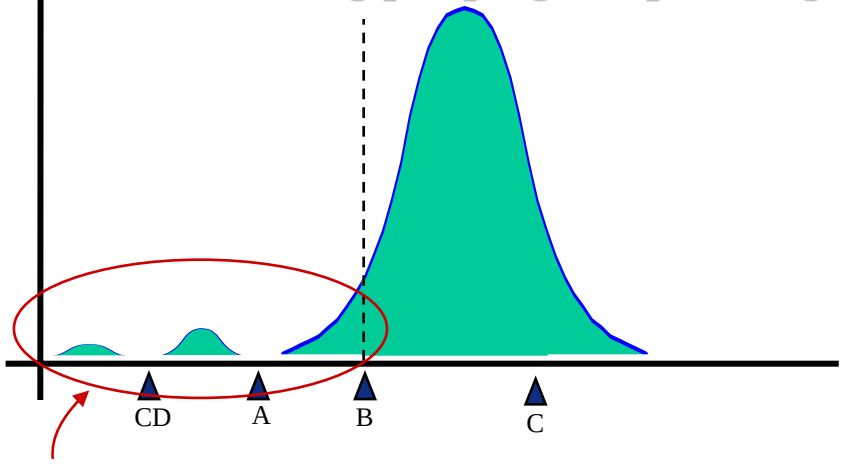
Disciplined Systems Engineering Across Lifecycle

Where in the Pre-MS/KDP A Phase is Systems Engineering Needed



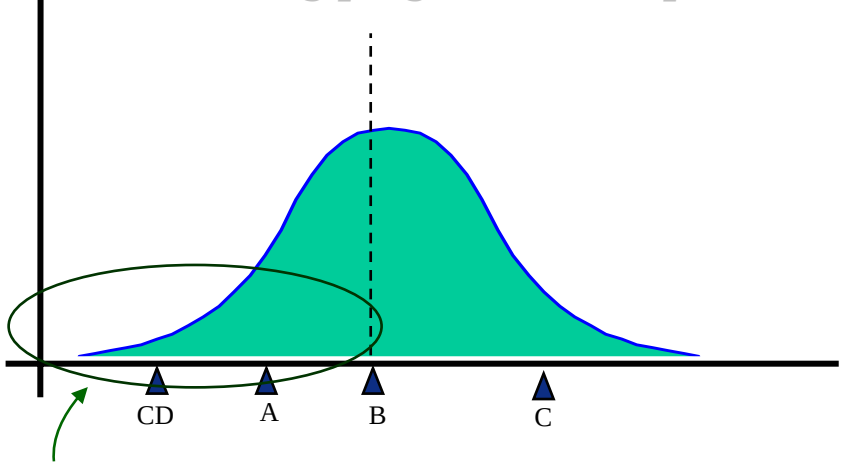
USAF Pre-MS/KDP A Systems Engineering Initiative

"Ad hoc, undisciplined SE currently done during pre-program planning"



- **Ad hoc or no SE performed**
- **Unstable or no funding for SE**
- **Least experienced gov't resources**
- **No documented SE processes (no SEPs)**
- **Breaks in tech planning knowledge Transfer from Planners to SPO**

"Stable, disciplined SE will reduce risk during program's SDD phase"



- **SE routinely performed over lifecycle**
- **Stable funding**
- **Seasoned mid/senior grade gov't resources**
- **SEP for all concepts feeding AoAs & SEP required at ASP for proto-SPO**
- **Knowledge transferred seamlessly**

3-STEP GET WELL PLAN: 1) Stabilize funding for pre-A activities. 2) Raise priority for pre-A manning. 3) Require SE plan for all pre-A SE activities (pre-AoA concepts & post-AoA alternatives).

Effectively Managing Future Tech Leaders

- Implementation of S&E Analysis Framework
  - Tracks Critical Disciplines
  - Guidance to Developmental Teams
- Impacts from PBD 720 Manpower Reductions
  - 13% Scientists & 11% Engineers from FY07-11
  - Force Shaping Boards

Managing Scarce Resources While Growing Leaders

Summary

- AF Committed to Good Tech Planning Across the Life-cycle
- AF Will be Challenged by Resource Constraints
- AF Making Progress in Taking SE to the Next Level