

Defense Standardization Program Conference

Standardizing Software Development and Acquisition in DoD

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U.S. AIR FORCE

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Integrity – Service - Excellence



- **The Problem**
- **Air Force Acquisition Environment**
- **Process Improvement**
- **Looking Ahead**
- **Conclusions**



Acquisition System Performance And Credibility

- **Systems/Capability Too Often Delivered:**
 - Late
 - Over Budget
 - Without Expected Performance/Capability

- **Acquisition Credibility Is Damaged**
 - DoD Weapon System Acquisition On GAO's High Risk List For 15 Years
 - Congress Passes Legislation To Help



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Air Force Acquisition Environment

Early 90's...

USAF

■ **DoDI 5000.2, Part 6-D, *Computer Resources***

Computer Resources Life-Cycle Management Plan (CRLCMP), Software Metrics, Software Test Management, Ada, Software Engineering Practices

■ **Air Force Regulation (AFR) 800-14, *Life Cycle Management of Computer Resources in Systems***

■ **Air Force Materiel Command (AFMC) Pamphlets**

Software IV&V, Software Risk Abatement, Software Management Indicators, Software Quality Measurement, Software Development Capability Assessments, Etc.

■ **Air Force Acquisition Memos**

Software Engineering, Ada, Metrics, Software Estimating, Software Reuse, Best Practices, Use of Software Development Capability Evaluation in Source Selection, Etc.



Air Force Acquisition Environment

Early 90's...(Cont.)

USAF

■ **Development Standards**

- DOD-STD-2167/2168, MIL-STD-498, MIL-STD-1803
- MIL-STD-882, MIL-STD-490, MIL-STD-499, DOD-STD-1521

■ **Relatively Large Government Program Offices**

- At Least One Senior Software Engineer
- Additional Software Expertise Based On Magnitude of Software Development Effort, Program Phase, Etc.

■ **Air Force Systems Acquisition School Training**

- Computer Resources Acquisition Course (CRAC)



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Air Force Acquisition Environment

Late 90's...

USAF

- **Limited Policy / Guidance Specific To The Acquisition Of Software Intensive Systems**
 - Almost None Of It Mandatory
 - No Standard Way Of Doing Business
 - Decreasing Oversight / Insight
- **Process Focus At Odds With Demands For Reduced Cycle Time**
- **Aging and Diminishing Workforce**
 - ASC Experienced 10 Year Gap For New Hires
 - Acquisition Workforce Still Being Downsized
- **Training Available Through DoD Courses**
 - Limited Exposure?



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Air Force Acquisition Environment

Now...

USAF

- **Agile Acquisition Focus**
 - Decrease Acquisition Cycle Time
 - Increase Credibility In Execution

- **Recognition of Systems Engineering Challenges**
 - Commitment To Disciplined Application of Capable Processes

- **For software, this translates to...**

Setting Expectations



Process Improvement

Help from Congress

National Defense Authorization Act for Fiscal Year 2003, Section 804, Improvement Of Software Acquisition Processes

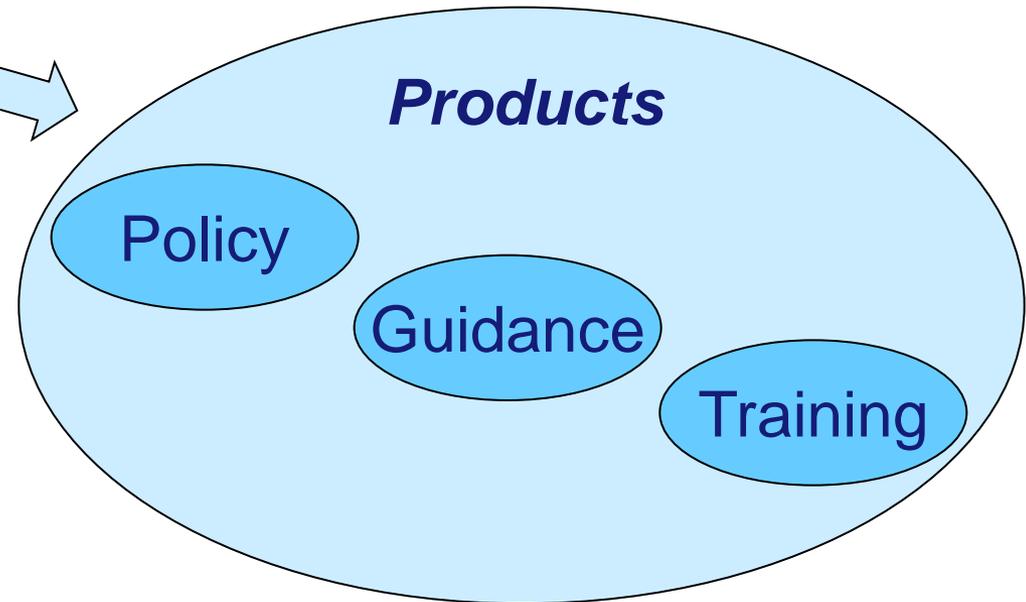
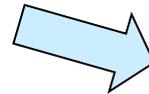
- Documented Processes For:
 - Software Acquisition Planning
 - Requirements Development And Management
 - Project Management And Oversight
 - Risk Management
- Metrics For Performance Measurement And Continual Process Improvement
- Process To Ensure That Key Program Personnel Have An Appropriate Level Of Experience Or Training
- Process To Ensure Adherence To Established Processes And Requirements Relating To The Acquisition Of Software



Air Force Software Intensive Systems Strategic Improvement Program (AFSSIP)

Objectives

- To improve Air Force Software Management and Processes that are part of Systems Engineering and Capability Acquisition
 - To meet the requirements of Public Law 107-314, Section 804, "Improvement of Software Acquisition Processes"
- Define the "As-Is" and "To-Be" states
 - Identify current shortfalls
 - Recommend the way ahead for improvement



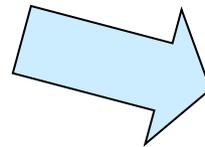
Setting Expectations For Air Force Software Management



Policy Memo
04A-003, Sep 20
2004:

***Revitalizing
the Software
Aspects of
Systems
Engineering***

**Program
Executive Officers
(PEOs) Apply And
Tailor As
Necessary**



Policy Memo Focus Areas

- High Confidence Estimates
- Realistic Program Baselines
- Risk Management
- Capable Developer
- Developer Processes
- Program Office Processes
- Earned Value Management
- Metrics
- Life Cycle Support
- Lessons Learned



Policy Memo Focus Areas

- High Confidence Estimates
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- **Software Size**
- **Software Development Effort**
- **Software Development Schedule**
- **Software Defects**
- **Software Requirements**
- **Software Staffing**
- **Software Progress**
- **Computer Resources Utilization**



High Payoff Focus Areas

- **High Confidence Estimates**
 - Difficult To Accomplish
 - Answer Is Often Difficult To Accept

- **Realistic Program Baselines**
 - Program Should Be Funded And Scheduled At 80-90% Confidence
 - Can Manage More Aggressively
 - Manage Overall Expectations

***Problems Are Unavoidable If Acquisition Programs
Are Not Realistically Planned And Funded***



- **Software Development Standard?**
- **Collaboration With Other Services And DoD Agencies**
 - Common Policy, Guidance, Standards, Training
- **Collaboration With Industry**
 - Contribute To Development Of Improvement Products
 - Partner In Application



- **We Can Speed Capability Delivery**
 - Do It Right The First Time

- **We Must Improve Credibility**
 - Set Up Executable Acquisition Programs

- **Standardized Software Management Approaches, Properly Implemented, Are A Key Part Of The Solution**



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Backups