Standardizing Software Development and Acquisition in DoD

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Integrity – Service - Excellence
Outline

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

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
Air Force Acquisition Environment
Early 90’s...

- 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

- Air Force Acquisition Memos
Air Force Acquisition Environment

Early 90’s…(Cont.)

- Development Standards

- 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)
Air Force Acquisition Environment
Late 90’s...

- 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?
Air Force Acquisition Environment

Now...

- 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


- 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

Products

Policy
Guidance
Training

Setting Expectations For Air Force Software Management
Air Force Policy

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

AFSSIP Core Metrics

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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
Looking Ahead

- 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
Conclusions

- 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