
Challenges to Enhancing DOD Systems Engineering and Developmental Testing Activities

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Agenda

- Background
- Study Objectives
- Findings
- Conclusions
- Potential Fixes

Background: Weapons Acquisition Program Investments

- 15 programs estimated at \$77 billion entered
- 13 programs estimated at \$147 billion exited

Portfolio status	Fiscal year 2008	Fiscal year 2010
Number of programs	96	98
Total planned investment	\$1.64 trillion	\$1.68 trillion
Funding expended	\$834 billion	\$968 billion
Funding to complete	\$802 billion	\$712 billion

Background: Weapon Acquisition Program Cost Trend Data

FY 2011 dollars	Last 2 years (2008 to 2010)	Last 5 years (2005 to 2010)	Since first full estimate (Baseline to 2010)
Increase in estimated RDT&E costs	\$15 billion 5 percent	\$29 billion 10 percent	\$102 billion 47 percent
Increase in estimated procurement costs	\$121 billion 11 percent	\$186 billion 18 percent	\$287 billion 31 percent
Increase in total acquisition cost	\$135 billion 9 percent	\$217 billion 16 percent	\$402 billion 35 percent
Average delay in delivering initial capabilities	5 months 8 percent	9 months 13 percent	22 months 30 percent

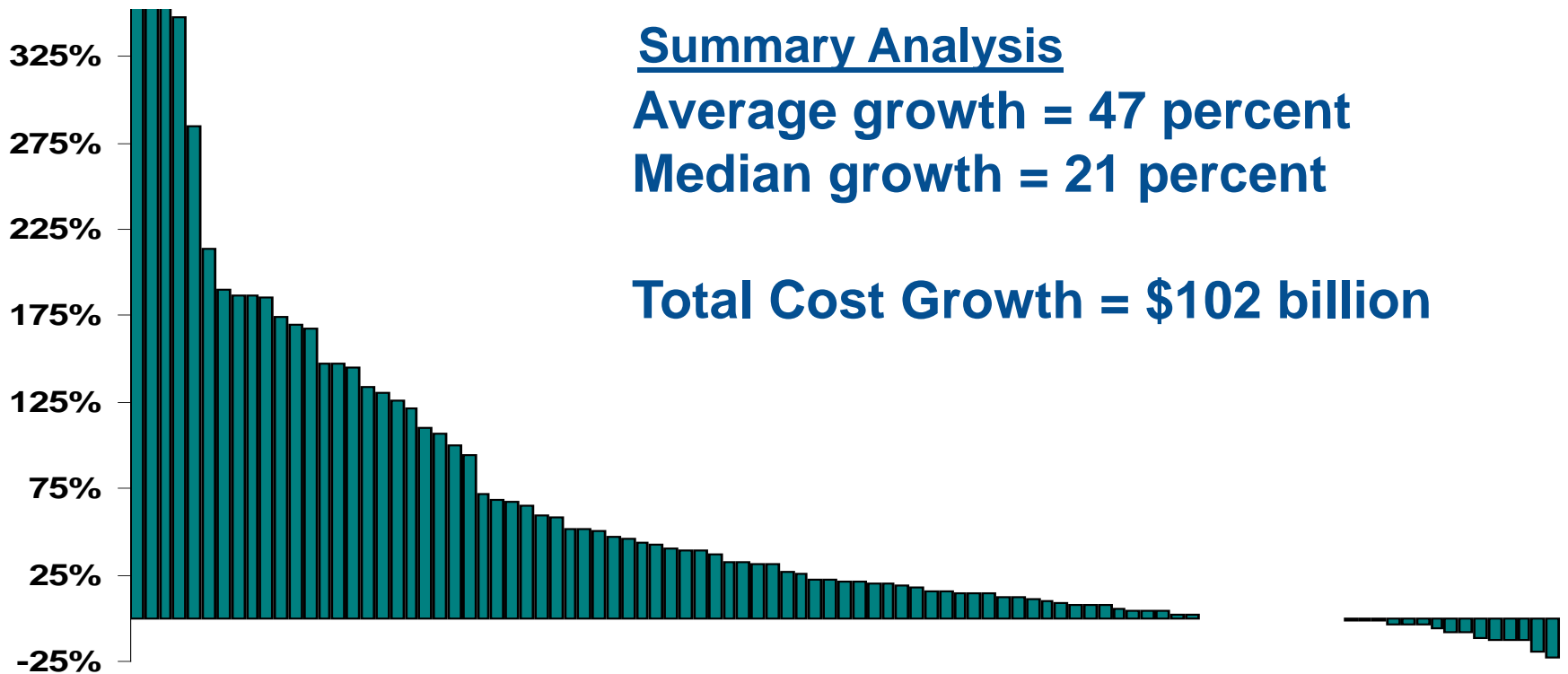
Background: RDT&E Percentage Cost Growth From Baseline per MDAP

Summary Analysis

Average growth = 47 percent

Median growth = 21 percent

Total Cost Growth = \$102 billion



Note: Four programs have greater than 325 percent RDT&E cost growth. The four programs that exceed 325% range from 348% to 3633%.

Background: New DOD Policies Could Improve Outcomes

- **More discipline and up-front knowledge in early acquisition phases could put programs on more stable footing**
 - Early Materiel Development Decision required for all programs
 - Preference for incremental development
 - **PDR required before system development start**
 - **Competitive prototyping required during technology development**
 - Configuration Steering Boards established to control requirements creep
 - Acquisition strategies required to describe measures taken to ensure competition throughout the program lifecycle
 - **Trade-offs among cost, schedule, and performance objectives required at Milestone B approval to ensure affordability**

Background: Weapon System Acquisition Reform Act of 2009

The Reform Act created new OSD offices for systems engineering and developmental testing with responsibilities to

- Review and approve acquisition program planning documents
- Review, assess, and report on major acquisition programs
- Develop new policies
- Advocate for the respective workforces

Study Objectives

1. Identify the progress DOD has made in implementing the Reform Act's systems engineering and developmental testing requirements
2. Determine whether there are resource issues the military services are facing that could impact their systems engineering and developmental testing activities

Objective 1: Implementation Status

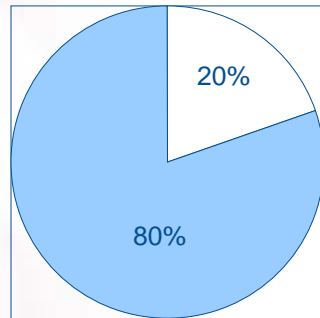
- On-going activities: Since last year, both offices have:
 - Added more staff (mostly contractors)
 - Reviewed/approved more acquisition planning documents
 - Assessed activities on more weapon acquisition programs
- New activities:
 - The Deputy Assistant Secretary for Developmental Test and Evaluation is serving concurrently as the Director of the Test Resource Management Center
 - Offices have identified performance criteria to assess weapons acquisition programs

Objective 1: Implementation Status

Concerns identified:

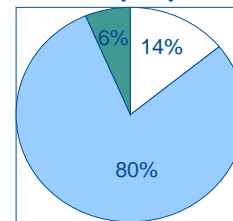
- Both offices are relying heavily on contractors

Systems Engineering
142 People



□ Government ■ Contractors

Developmental Test and Evaluation
63 people

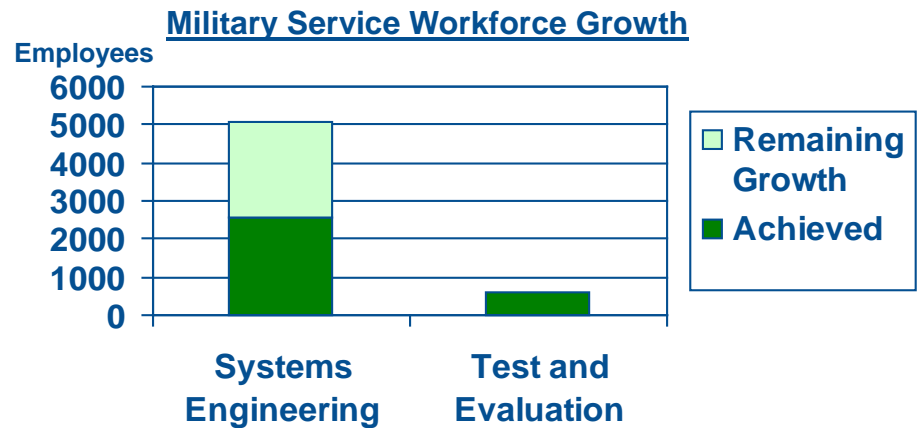


□ Government ■ Contractors ■ Detailees

- Developmental testing office cannot provide full coverage to its portfolio of 250 acquisition programs
- Developmental testing office may not have enough influence

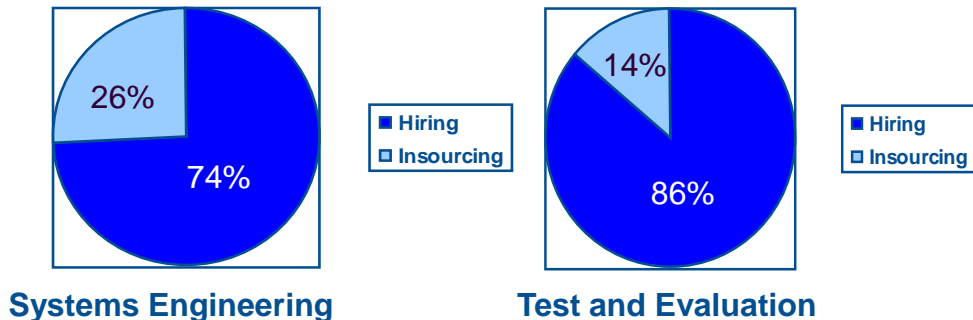
Objective 2: Resource Challenges

- The military services made significant progress towards increasing their acquisition-coded workforce
 - Systems engineering has achieved half of growth goal
 - Test and evaluation has exceeded growth goal



- Most of the increases have come through new hires

Army and Navy Workforce Hiring and Insourcing Data

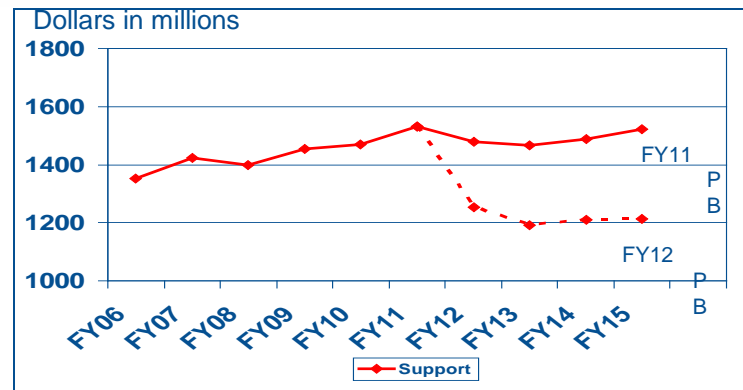


Resource Challenges

- Based on the FY 12 President's Budget, the services plan to hire fewer systems engineers and more test and evaluation people than originally planned
 - Systems Engineering career field growth would be 10% instead of 14%
 - Test and Evaluation career field growth would be 6% instead of 4%
- Achieving additional growth will be difficult because of debt ceiling agreement and a clarification of DOD's insourcing policy
- Test ranges are having difficulty recruiting, hiring, training and retaining people

Resource Challenges

- FY12 President's Budget includes cuts of nearly \$1.2 billion (17 percent) to developmental test range budgets through FY 15



- Services do not know impact on weapons acquisition programs
- Services lack metrics that would help determine where to take cuts or make other funding decisions

Recommendations

- Assess the resources and influence needed by the developmental testing office
- Develop metrics to aid in making personnel and funding decisions
- Determine impact of budget cuts and insourcing clarification on total workforce and the services' ability to meet program offices' systems engineering and test and evaluation needs

Questions?

For additional information, please see **GAO-11-806**

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