What Will It Take to Get Better Program Outcomes?


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Weapon System Investment Levels

FY 2000 Portfolio
- $790 B
- 75 programs

FY 2005 Portfolio
- $1.5 T
- 91 programs

FY 2007 Portfolio
- $1.6 T
- 95 programs

Source: GAO analysis of DOD data.
Decline in Cost and Schedule Outcomes

Source: GAO analysis of DOD data.
# Cost and Schedule Overruns in Five Programs

<table>
<thead>
<tr>
<th>Program</th>
<th>Total Cost (billions of $)</th>
<th>Total Quantities</th>
<th>Increase in Unit Cost</th>
<th>Initial Delivery of Capability</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Planned</td>
<td>Latest</td>
<td>Planned</td>
<td>Latest</td>
</tr>
<tr>
<td>JSF</td>
<td>203.0</td>
<td>240.0</td>
<td>2,866</td>
<td>2,458</td>
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<tr>
<td>FCS</td>
<td>88.3</td>
<td>128.5</td>
<td>15</td>
<td>15</td>
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<td>SBIRS High</td>
<td>4.4</td>
<td>10.5</td>
<td>5</td>
<td>3</td>
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<tr>
<td>EFV</td>
<td>8.7</td>
<td>13.5</td>
<td>1,025</td>
<td>593</td>
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<tr>
<td>H-1 Upgrades</td>
<td>3.4</td>
<td>8.3</td>
<td>284</td>
<td>284</td>
</tr>
</tbody>
</table>

Source: GAO analysis of DOD data
Consequences of Poor Outcomes

Cost Growth

- Reduces DOD’s buying power
- Means less funding for other priorities
- DOD must request more funding to cover cost overruns, make trade-offs with existing programs, delay the start of new programs, or take funds from other accounts

Schedule Delays

- Critical capabilities not provided to warfighter when needed
- DOD must operate costly legacy systems longer than expected, find alternatives to fill capability gaps, or go without a capability
**Knowledge Point 1:** At milestone B, a match is achieved between the user’s needs and the developer’s resources. Technology maturity is demonstrated and preliminary design is achieved.

**Knowledge Point 2:** At critical design review, the product design demonstrates its ability to meet user needs and is stable. Prototype demonstration that design will meet requirements.

**Knowledge Point 3:** At milestone C, it is demonstrated that the product can be produced within cost, schedule, and quality targets. Full-up, integrated product tested in relevant environment.
Immature Technologies Ripple Through the Development Cycle

Percent of Programs

- Less than 20% of programs have mature technologies at start
- Most programs do not have mature technologies at CDR
- Many programs still maturing technologies into production
- Cost growth for programs with immature technologies was 44% higher
- Only 10 percent of programs had completed PDR at start
Programs Proceed Through CDR without Design Stability

Goal is 90% drawings releasable at CDR

3/4 of programs do not meet this standard at CDR

At milestone C, over 1/3 of programs still did not meet this standard

Source: GAO analysis of DOD data.
R&D Cost Growth Experience

Percentage of RDT&E cost increase over development estimate

- Critical design review: 19.7%
- Total increase: 28.3%
- Percentage of product development completed

Total increase 28.3%
Other Observations on Current Practices

• Fewer than half of programs plan to test fully-integrated, production-representative prototypes before Milestone C (including JSF and FCS)

• During FY 2007, DOT&E reports that 50% of programs failed operational suitability; reliability is on a downward trend

• GAO has recently reported that during FY 2008, missile defense assets were produced and fielded before being flight tested

• Programs, like JSF, are using cost-reimbursable contracts in production.
New Reforms

2008 DOD 5000 Policy
• Reinvigorated Milestone A and technology development phase
• Configuration Steering Boards established to control requirements creep
• Stronger emphasis on systems engineering
• Preliminary Design Review before Milestone B
• Formal post-CDR assessment
• Stronger pre-milestone C requirements (DT&E, M&S, production-representative prototypes, pilot line production)

2009 Weapon System Acquisition Reform Act (proposed)
• Identify and fill gaps in systems engineering capabilities
• Create Director of Developmental Test and Evaluation
• DDR&E review and assessment of critical technology maturities
• Create Director of Independent Cost Assessment
• Cut across requirements, budgeting, and acquisition stovepipes to make needed tradeoffs.
• PDR before Milestone B
The process is not broken: it’s in equilibrium

Good people are not put in a position to succeed
Prognosis for Change

• Weapon system issues have been consistent for 30 years
• They are primarily not due to mistakes, lack of expertise, or unforeseeable events
• Consider the process as being in equilibrium versus broken:
  o The acquisition process may be producing what the participants collectively want or are willing to settle for.
  o It is a rational process that involves good people. It works—this is how programs get money and survive.
• Our principles are revealed by what we do and what we do with money; if unexecutable programs continue to win funds, then our principles remain something other than what is stated in policy.
• Process reforms, funding cuts, and cancellations aren’t enough to change the culture or equilibrium: programs with executable strategies (technology, design, test, & cost) must win the budget battles.
• For this to happen, we need a significant emotional event; I hope that a new administration and new opportunities may constitute that event.