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DEFENSE ACQUISITIONS

Where Should Reform Aim Next?

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GAO Highlights

Highlights of [GAO-14-145T](#), a testimony before Committee on Armed Services, House of Representatives.

Why GAO Did This Study

DOD's acquisition of major weapon systems has been on GAO's high risk list since 1990. Over the past 50 years, Congress and DOD have continually explored ways to improve acquisition outcomes, including reforms that have championed sound management practices, such as realistic cost estimating, prototyping, and systems engineering. Too often, GAO reports on the same kinds of problems today that it did over 20 years ago.

The topic of today's hearing is: "25 Years of Acquisition Reform: Where Do We Go From Here?" To that end, this testimony discusses (1) the performance of DOD's major defense acquisition program portfolio; (2) the management policies and processes currently in place to guide those acquisitions; (3) the incentives to deviate from otherwise sound acquisition practices; and (4) suggestions to temper these incentives. This statement draws from GAO's extensive body of work on DOD's acquisition of weapon systems.

View [GAO-14-145T](#). For more information, contact Paul Francis at (202) 512-4841 or francisp@gao.gov.

October 29, 2013

DEFENSE ACQUISITIONS

Where Should Reform Aim Next?

What GAO Found

The Department of Defense (DOD) must get better outcomes from its weapon system investments, which in recent years have totaled around \$1.5 trillion or more. Recently, there have been some improvements, owing in part to reforms. For example, cost growth declined between 2011 and 2012 and a number of programs also improved their buying power by finding efficiencies in development or production and requirements changes. Still, cost and schedule growth remain significant; 39 percent of fiscal 2012 programs have had unit cost growth of 25 percent or more.

DOD's acquisition policy provides a methodological framework for developers to gather knowledge that confirms that their technologies are mature, their designs stable, and their production processes are in control. The Weapon Systems Acquisition Reform Act of 2009 and DOD's recent "Better Buying Power" initiatives introduced significant changes that, when fully implemented, should further strengthen practices that can lead to successful acquisitions. GAO has also made numerous recommendations to improve the acquisition process, based on its extensive work in the area. While recent reforms have benefited individual programs, it is premature to say there is a trend or a corner has been turned. The reforms still face implementation challenges and have not yet been institutionalized within the services.

Reforms that focus on the methodological procedures of the acquisition process are only partial remedies because they do not address incentives to deviate from sound practices. Weapons acquisition is a complicated enterprise, complete with unintended incentives that encourage moving programs forward by delaying testing and employing other problematic practices. These incentives stem from several factors. For example, the different participants in the acquisition process impose conflicting demands on weapon programs so that their purpose transcends just filling voids in military capability. Also, the budget process forces funding decisions to be made well in advance of program decisions, which encourages undue optimism about program risks and costs. Finally, DOD program managers' short tenures and limitations in experience and training can foster a short-term focus and put them at a disadvantage with their industry counterparts.

Drawing on its extensive body of work in weapon systems acquisition, GAO sees several areas of focus regarding where to go from here:

- at the start of new programs, using funding decisions to reinforce desirable principles such as well-informed acquisition strategies;
- identifying significant risks up front and resourcing them;
- exploring ways to align budget decisions and program decisions more closely; and
- attracting, training, and retaining acquisition staff and managers so that they are both empowered and accountable for program outcomes.

These areas are not intended to be all-encompassing, but rather, practical places to start the hard work of realigning incentives with desired results.

Chairman McKeon, Ranking Member Smith, and Members of the Committee:

I am pleased to be here today to discuss weapon systems acquisition and where reform should focus next. Weapon systems acquisition has been on GAO's high risk list since 1990.¹ Over the past 50 years, Congress and the Department of Defense (DOD) have explored ways to improve acquisition outcomes, including recent actions like the Weapon Systems Acquisition Reform Act and the department's own "Better Buying Power" initiatives. These and other reforms have championed sound management practices, such as realistic cost estimating, prototyping, and systems engineering. DOD's declining budgets and the impact of sequestration have lent additional impetus to reduce the costs of weapons. While some progress has been made on this front, too often we report on the same kinds of problems today that we did over 20 years ago. The cost growth of DOD's 2012 portfolio of weapon systems about \$411 billion and schedule delays average more than 2 years. To get better results the focus should not be on adding to or discarding acquisition policies, but on the incentives that work against them.

Today, I will (1) provide summary cost and schedule information on DOD's portfolio of major weapon systems; (2) describe the policies and processes in place to guide those acquisitions; (3) discuss incentives to deviate from otherwise sound acquisition practices; and (4) suggest ways to temper these incentives. This statement draws from our extensive body of work on DOD's acquisition of weapon systems and the numerous recommendations we have made both on individual weapons and systemic improvements to the acquisition process. The work on which this testimony is based was conducted in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

¹GAO, *High Risk Series: An Update*, [GAO-13-283](#) (Washington, D.C.: February 2013).

Trends in DOD's Portfolio of Major Acquisitions

There can be little doubt that we can—and must—get better outcomes from our weapon system investments. As seen in table 1, the value of these investments in recent years has been on the order of \$1.5 trillion or more, making them a significant part of the federal discretionary budget.

Table 1: Analysis of DOD Major Defense Acquisition Program Portfolios

Fiscal year 2014 dollars			
	Fiscal year		
	2008	2011	2012
Portfolio size			
Number of programs	95	95	85
Total planned commitments	\$1.6 trillion	\$1.7 trillion	\$1.5 trillion
Commitments outstanding	\$898 billion	\$813 billion	\$744 billion
Portfolio indicators			
Change in development costs from first full estimate	42 percent	54 percent	49 percent
Change in total acquisition cost from first full estimate	25 percent	40 percent	38 percent
Estimated total acquisition cost growth	\$323 billion	\$465 billion	\$411 billion
Share of programs with 25 percent or greater increase in program acquisition unit cost since first full estimate	42 percent	41 percent	39 percent
Average delay in initial operating capability	22 months	23 months	27 months

Source: GAO analysis of DOD data.

Note: The Ballistic Missile Defense System is excluded from the analysis of both portfolio size and portfolio indicators as it does not have comparable cost and schedule data. Other programs were also excluded from the analysis of indicators when comparable data did not exist.

Large programs have an outsized impact on the aggregate portfolio. For example, Joint Strike Fighter costs have now consumed nearly a quarter of the entire portfolio. Yet, as indicated in table 1, 39 percent of programs have had unit cost growth of 25 percent or more. Recently, we have seen some modest improvements. For example, cost growth has declined between 2011 and 2012.² We have also observed that a number of programs have improved their buying power by finding efficiencies in

²GAO, *Defense Acquisitions: Assessments of Selected Weapon Programs*, [GAO-13-294SP](#) (Washington, D.C.: Mar. 28, 2013).

development or production, and requirements changes. On the other hand, cost and schedule growth remain significant when measured against programs' first full estimates. The performance of some very large programs are no longer reflected in the latest data as they are no longer acquisition programs. For example, the Future Combat Systems program was canceled in 2009 after an investment of about \$18 billion and the F-22 Raptor program has completed aircraft procurement. In addition, the Ballistic Missile Defense System are not included in any of the analysis as those investments have proceeded without a baseline of original estimates, so the many difficulties experienced in the roughly \$130 billion program are not quantifiable.

The enormity of the investment in acquisitions of weapon systems and its role in making U.S. fighting forces capable, warrant continued attention and reform. The potential for savings and for better serving the warfighter argue against complacency.

One Side of the Acquisition Process: Stated Policy

When one thinks of the weapon systems acquisition process, the image that comes to mind is that of the methodological procedure depicted on paper and in flow charts. DOD's acquisition policy takes the perspective that the goal of acquisition is to obtain quality products that satisfy user needs at a fair and reasonable price.³ The sequence of events that comprise the process defined in policy reflects principles from disciplines such as systems engineering, as well as lessons learned, and past reforms. The body of work we have done on benchmarking best practices has also been reflected in acquisition policy.⁴ Recent, significant changes to the policy include those introduced by the Weapon Systems Acquisition Reform Act of 2009 and the department's own "Better Buying Power" initiatives which, when fully implemented, should further strengthen

³Department of Defense Directive 5000.01, *The Defense Acquisition System* (Nov. 20, 2007).

⁴GAO, *Best Practices: DOD Can Achieve Better Outcomes by Standardizing the Way Manufacturing Risks Are Managed*, [GAO-10-439](#) (Washington, D.C.: Apr. 22, 2010); *Best Practices: Capturing Design and Manufacturing Knowledge Early Improves Acquisition Outcomes*, [GAO-02-701](#) (Washington, D.C.: July 15, 2002); *Best Practices: Better Matching of Needs and Resources Will Lead to Better Weapon System Outcomes*, [GAO-01-288](#) (Washington, D.C.: Mar. 8, 2001); and *Best Practices: Better Management of Technology Development Can Improve Weapon System Outcomes*, [GAO/NSIAD-99-162](#) (Washington, D.C.: July 30, 1999).

practices that can lead to successful acquisitions.⁵ The policy provides a framework for developers of new weapons to gather knowledge that confirms that their technologies are mature, their designs are stable, and their production processes are in control.⁶ These steps are intended to ensure that a program will deliver the capabilities required utilizing the resources—cost, schedule, technology, and personnel—available. Successful product developers ensure a high level of knowledge is achieved at key junctures in development. We characterize these junctures as knowledge points. While there can be differences of opinion over some of the specifics of the process, I do not believe there is much debate about the soundness of the basic steps. It is a clear picture of “what to do.”

Table 2 summarizes these steps and best practices, organized around three key knowledge points in a weapon system acquisition.

⁵Pub. L. No. 111-23 as amended, Office of the Under Secretary of Defense, Acquisition, Technology and Logistics Memorandum: “Better Buying Power: Mandate for Restoring Affordability and Productivity in Defense Spending” (June 28, 2010). Office of the Under Secretary of Defense, Acquisition, Technology and Logistics Memorandum: “Better Buying Power 2.0: Continuing the Pursuit for Greater Efficiency and Productivity in Defense Spending” (Nov. 13, 2012).

⁶Department of Defense Instruction 5000.02, *Operation of the Defense Acquisition System* (Dec. 8, 2008).

Table 2: Best Practices for Knowledge-based Acquisitions

Knowledge Point 1: Start of product development activities (Milestone B)

Demonstrate technologies sufficiently to ensure they are mature and work as intended
Ensure that requirements are informed by a preliminary system design
Establish cost and schedule estimates based on the preliminary design and other system engineering tools (such as prototyping)
Constrain development to 5 years or so in anticipation of future upgrades
Conduct independent assessment of risks and cost
Develop a suitable contract strategy
Fully fund the planned development work
Hold major milestone decision review to begin product development

Knowledge Point 2: Critical design review midway through product development

Complete 90 percent of engineering design drawing packages to ensure design is stable
Demonstrate with system integration prototype that design performs as intended
Identify critical manufacturing processes and key system characteristics
Establish targets and growth plan for product reliability
Conduct independent cost estimate
Conduct system critical design review to ensure design meets requirements

Knowledge Point 3: Initiation of production for delivery to customer (Milestone C)

Demonstrate critical manufacturing processes on a pilot production line
Build and test production-representative prototypes to demonstrate product in operational environment and to achieve reliability goal
Collect data on critical manufacturing processes and demonstrate that they are in statistical control to ensure quality
Conduct independent cost estimate
Conduct major milestone decision review to begin production

Source: GAO.

Our work over the last year shows that, to the extent reforms like the Weapon Systems Acquisition Reform Act and DOD's Better Buying Power initiatives are being implemented, they are having a positive effect on individual programs. For example, several programs we have reviewed are:

- making early trade-offs among cost, schedule, and technical performance requirements;
- developing more realistic cost and schedule estimates;
- increasing the amount of testing during development; and

-
- placing greater emphasis on reliability.

These improvements do not yet signify a trend or suggest that a corner has been turned. The reforms themselves still face implementation challenges such as staffing and clarity of guidance and will doubtless need refining as experience is gained. We have made a number of recommendations on how DOD can improve implementation of the Weapon Systems Acquisition Reform Act.⁷

To a large extent, the improvements we have seen tend to result from external pressure exerted by higher level offices within DOD on individual programs. In other words, the reforms have not yet been institutionalized within the services. We still see employment of other practices—that are not prescribed in policy—such as concurrent testing and production, optimistic assumptions, and delayed testing. These are the same kinds of practices that perpetuate the unsatisfactory results that have persisted in acquisitions through the decades, such as significant cost growth and schedule delays. They share a common dynamic: moving forward with programs before the knowledge needed to make decisions is sufficient.

We have reported that most programs still proceed through the critical design review without having a stable design, even though we have made a number of recommendations on the importance of this review and how to prepare for it.⁸ Also, programs proceed with operational testing before they are ready. Other programs are significantly at odds with the acquisition process. Among these I would number Ballistic Missile Defense System, Future Combat Systems (since canceled), Littoral Combat Ship, and airships. We recently reported on the Unmanned Carrier-Launched Airborne Surveillance and Strike program which proposes to complete the main acquisition steps of design, development, testing, manufacturing, and initial fielding before it formally enters the acquisition process.⁹

⁷GAO, *Weapons Acquisition Reform: Reform Act Is Helping DOD Acquisition Programs Reduce Risk, but Implementation Challenges Remain*, [GAO-13-103](#) (Washington, D.C.: Dec. 14, 2012).

⁸ [GAO-02-701](#)

⁹GAO, *Defense Acquisitions: Navy Strategy for Unmanned Carrier-Based Aircraft System Defers Key Oversight Mechanisms*, [GAO-13-833](#) (Washington, D.C.: Sep. 26, 2013).

The fact that programs adopt practices that run counter to what policy and reform call for is evidence of the other pressures and incentives that significantly influence program practices and outcomes. I will turn to these next.

Another Side of Acquisition: Incentives

An oft-cited quote of David Packard, former Deputy Secretary of Defense, is: “We all know what needs to be done. The question is why aren’t we doing it?” To that point, reforms have been aimed mainly at the “what” versus the “why.” They have championed sound management practices, such as realistic estimating, thorough testing, and accurate reporting. Today, these practices are well known. We need to consider that they mainly address the mechanisms of weapon acquisitions. Seen this way, the practices prescribed in policy are only partial remedies. The acquisition of weapons is much more complex than policy describes and involves very basic and strongly reinforced incentives to field weapons. Accordingly, rival practices, not normally viewed as good management techniques, comprise an effective stratagem for fielding a weapon because they reduce the risk that the program will be interrupted or called into question.

I will now discuss several factors that illustrate the pressures that create incentives to deviate from sound acquisition management practices.

Several Factors Create Incentives to Deviate from Sound Acquisition Practices

Conflicting Demands

The process of acquiring new weapons is (1) shaped by its different participants and (2) far more complex than the seemingly straightforward purchase of equipment to defeat an enemy threat. Collectively, as participants’ needs are translated into actions on weapon programs, the purpose of such programs transcends efficiently filling voids in military capability. Weapons have become integral to policy decisions, definitions of roles and functions, justifications of budget levels and shares, service reputations, influence of oversight organizations, defense spending in localities, the industrial base, and individual careers. Thus, the reasons “why” a weapon acquisition program is started are manifold and acquisitions do not merely provide technical solutions.

While individual participants see their needs as rational and aligned with the national interest, collectively, these needs create incentives for pushing programs and encouraging undue optimism, parochialism, and other compromises of good judgment. Under these circumstances, persistent performance problems, cost growth, schedule slippage, and difficulties with production and field support cannot all be attributed to errors, lack of expertise, or unforeseeable events. Rather, a level of these problems is embedded as the undesirable, but apparently acceptable, consequence of the process. These problems persist not because they are overlooked or under-regulated, but because they enable more programs to survive and thus more needs to be met. The problems are not the fault of any single participant; they are the collective responsibility of all participants. Thus, the various pressures that accompany the reasons why a program is started can also affect and compromise the practices employed in its acquisition.

Funding Dynamics

I would like to highlight three characteristics about program funding that create incentives in decision making that can run counter to sound acquisition practices. First, there is an important difference between what investments in new products represent for a private firm and for DOD. In a private firm, a decision to invest in a new product, like a new car design, represents an expense. Company funds must be expended that will not provide a revenue return until the product is developed, produced, and sold. In DOD, new products, in the form of budget line items, can represent revenue. An agency may be able to justify a larger budget if it can win approval for more programs. Thus, weapon system programs can be viewed both as expenditures and revenue generators.

Second, budgets to support major program commitments must be approved well ahead of when the information needed to support the decision to commit is available. Take, for example, a decision to start a new program scheduled for August 2016. Funding for that decision would have to be included in the fiscal year 2016 budget. This budget would be submitted to Congress in February 2015—18 months before the program decision review is actually held. DOD would have committed to the funding before the budget request went to Congress. It is likely that the requirements, technologies, and cost estimates for the new program—essential to successful execution—may not be very solid at the time of funding approval. Once the hard-fought budget debates put money on the table for a program, it is very hard to take it away later, when the actual program decision point is reached.

Third, to the extent a program wins funding, the principles and practices it embodies are thus endorsed. So, if a program is funded despite having an unrealistic schedule or requirements, that decision reinforces those characteristics, not sound acquisition processes. Pressure to make exceptions for programs that do not measure up are rationalized in a number of ways: an urgent threat needs to be met; a production capability needs to be preserved; despite shortfalls, the new system is more capable than the one it is replacing; or the new system's problems will be fixed in the future. It is the funding approvals that ultimately define acquisition policy.

Industry Relationship

DOD has a unique relationship with the defense industry that differs from the commercial marketplace. The combination of a single buyer (DOD), a few very large prime contractors in each segment of the industry, and a limited number of weapon programs constitutes a structure for doing business that is altogether different from a classic free market. For instance, there is less competition, more regulation, and once a contract is awarded, the contractor has considerable power.¹⁰ Moreover, in the defense marketplace, the firm and the customer have jointly developed the product and, as we have reported previously, the closer the product comes to production the more the customer becomes invested and the less likely they are to walk away from that investment.¹¹ While a defense firm and a military customer may share some of the same goals, important goals are different. Defense firms are accountable to their shareholders and can also build constituencies outside the direct business relationship between them and their customers. This relationship does not fit easily into a contract.

J. Ronald Fox, author of *Defense Acquisition Reform 1960-2009: An Elusive Goal*, sums up the situation as follows. "Many defense acquisition problems are rooted in the mistaken belief that the defense industry and the government-industry relationship in defense acquisition fit naturally into the free enterprise model. Most Americans believe that the defense industry, as a part of private industry, is equipped to handle any kind of development or production program. They also by and large distrust

¹⁰Barry D. Watts and Todd Harrison, *Sustaining Critical Sectors of the Defense Industrial Base* (Washington, D.C.: Center for Strategic and Budgetary Assessments, 2011).

¹¹GAO, *Best Practices: Successful Application to Weapon Acquisitions Requires Changes in DOD's Environment*, [GAO/NSIAD-98-56](#) (Washington, D.C.: Feb. 24, 1998).

government 'interference' in private enterprise. Government and industry defense managers often go to great lengths to preserve the myth that large defense programs are developed and produced through the free enterprise system." But neither the defense industry nor defense programs are governed by the free market; "major defense acquisition programs rarely offer incentives resembling those of the commercial marketplace."¹²

The Right People

Dr. Fox also points out that in private industry, the program manager concept works well because the managers have genuine decision-making authority, years of training and experience, and understand the roles and tactics within government and industry. In contrast, Dr. Fox concludes that DOD program managers lack the training, experience, and stature of their private sector counterparts, and are influenced by others in their service, DOD, and Congress.¹³ In 2006, we reported that program managers indicated to us that the acquisition process does not enable them to succeed because it does not empower them to make decisions on whether the program is ready to proceed forward or even to make relatively small trade-offs between resources and requirements as unexpected problems are encountered. Program managers said that they are also not able to shift personnel resources to respond to changes affecting the program.¹⁴

We have also reported on the lack of continuity in the tenure of key acquisition leaders across the time frames of individual programs. A major acquisition can have multiple program managers during product development. Other key positions throughout the acquisition chain of command also turn over frequently. For example, DOD acquisition executives do not necessarily stay in their positions long enough to develop the needed long-term perspective or to effectively change traditional incentives. Moreover, their decisions can be overruled through the cooperative actions of other acquisition participants. The effectiveness of reforms to the acquisition process depends in large measure on a cadre of good people who may be inadequately prepared

¹²J. Ronald Fox, *Defense Acquisition Reform, 1960-2009: An Elusive Goal* (Washington, D.C.: U.S. Army Center of Military History, 2011).

¹³Fox, *Defense Acquisition Reform*.

¹⁴GAO, *Best Practices: Better Support of Program Managers Needed to Improve Outcomes*, [GAO-06-110](#) (Washington, D.C.: Nov. 30, 2005).

for their position or forced into the near-term perspective of their tenures. In this environment, the effectiveness of management can rise and fall on the strength of individuals; accountability for long-term results is, at best, elusive.

Where Do We Go from Here?

In my more than 30 years in the area, I do not know of a time or era when weapon system programs did not exhibit the same symptoms that they do today. Similarly, I do not subscribe to the view that the acquisition process is too rigid and cumbersome. Clearly, this could be the case if every acquisition followed the same process and strategy without exception. But they do not. We repeatedly report on programs approved to modify policy and follow their own process. DOD refers to this as tailoring, and we see plenty of it.

At this point, we should build on existing reforms—not necessarily by revisiting the process itself but by augmenting it by tackling incentives. To do this, we need to look differently at the familiar outcomes of weapon systems acquisition—such as cost growth, schedule delays, large support burdens, and reduced buying power. Some of these undesirable outcomes are clearly due to honest mistakes and unforeseen obstacles. However, they also occur not because they are inadvertent but because they are encouraged by the incentive structure. I do not think it is sufficient to define the problem as an objective process that is broken. Rather, it is more accurate to view the problem as a sophisticated process whose consistent results are indicative of its being in equilibrium. The rules and policies are clear about what to do, but other incentives force compromises. The persistence of undesirable outcomes such as cost growth and schedule delays suggests that these are consequences that participants in the process have been willing to accept.

Drawing on our extensive body of work in weapon systems acquisition, I have four areas of focus regarding where to go from here. These are not intended to be all-encompassing, but rather, practical places to start the hard work of realigning incentives with desired results.

Reinforce desirable principles at the start of new programs: The principles and practices programs embrace are determined not by policy, but by decisions. These decisions involve more than the program at hand: they send signals on what is acceptable. If programs that do not abide by sound acquisition principles win funding, then seeds of poor outcomes are planted. The highest point of leverage is at the start of a new program. Decision makers must ensure that new programs exhibit desirable principles before they are approved and funded. Programs that

present well-informed acquisition strategies with reasonable and incremental requirements and reasonable assumptions about available funding should be given credit for a good business case. As an example, the Presidential Helicopter, the Armored Multi Purpose Vehicle, the Enhanced Polar System, and the Ground Combat Vehicle are all acquisitions estimated to cost at least a billion dollars, in some cases several billions of dollars, and slated to start in 2014. These could be viewed as a “freshman” class of acquisitions. There is such a class every year, and it would be beneficial for DOD and Congress to assess them as a group to ensure that they embody the right principles and practices.

Identify significant program risks upfront and resource them: Weapon acquisition programs by their nature involve risks, some much more than others. The desired state is not zero risk or elimination of all cost growth. But we can do better than we do now. The primary consequences of risk are often the need for additional time and money. Yet, when significant risks are taken, they are often taken under the guise that they are manageable and that risk mitigation plans are in place. In my experience, such plans do not set aside time and money to account for the risks taken. Yet in today’s climate, it is understandable—any sign of weakness in a program can doom its funding. This needs to change. If programs are to take significant risks, whether they are technical in nature or related to an accelerated schedule, these risks should be declared and the resource consequences acknowledged. Less risky options and potential off-ramps should be presented as alternatives. Decisions can then be made with full information, including decisions to accept the risks identified. If the risks are acknowledged and accepted by DOD and Congress, the program should be supported.

More closely align budget decisions and program decisions: Because budget decisions are often made years ahead of program decisions, they depend on the promises and projections of program sponsors. Contentious budget battles create incentives for sponsors to be optimistic and make it hard to change course as projections fade in the face of information. This is not about bad actors; rather, optimism is a rational response to the way money flows to programs. Aside from these consequences, planning ahead to make sure money is available in the future is a sound practice. I am not sure there is an obvious remedy for this. But I believe ways to have budget decisions follow program decisions should be explored, without sacrificing the discipline of establishing long-term affordability.

Attract, train, and retain acquisition staff and management: Dr. Fox's book does an excellent job of laying out the flaws in the current ways DOD selects, trains, and provides a career path for program managers. I refer you to these, as they are sound criticisms. We must also think about supporting people below the program manager who are also instrumental to program outcomes, including engineers, contracting officers, cost analysts, testers, and logisticians. There have been initiatives to support these people, but they have not been consistent over time. The tenure for acquisition executives is a more challenging prospect in that they arguably are at the top of their profession and already expert. What can be done to keep good people in these jobs longer? I am not sure of the answer, but I believe part of the problem is that the contentious environment of acquisition grinds good people down at all levels. In top commercial firms, a new product development is launched with a strong team, corporate funding support, and a time frame of 5 to 6 years or less. In DOD, new weapon system developments can take twice as long, have turnover in key positions, and every year must contend for funding. This does not necessarily make for an attractive career.

Mr. Chairman, this concludes my statement and I would be happy to answer any questions.

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