
February 1997

Defense Weapon Systems Acquisition





**United States
General Accounting Office
Washington, D.C. 20548**

**Comptroller General
of the United States**

February 1997

The President of the Senate

The Speaker of the House of Representatives

In 1990, the General Accounting Office began a special effort to review and report on the federal program areas its work identified as high risk because of vulnerabilities to waste, fraud, abuse, and mismanagement. This effort, which was supported by the Senate Committee on Governmental Affairs and the House Committee on Government Reform and Oversight, brought a much-needed focus on problems that were costing the government billions of dollars.

In December 1992, GAO issued a series of reports on the fundamental causes of problems in high-risk areas, and in a second series in February 1995, it reported on the status of efforts to improve those areas. This, GAO's third series of reports, provides the current status of designated high-risk areas.

This report discusses our concerns about the Department of Defense's annual expenditure of billions of dollars to acquire new weapon systems. It focuses on continuing weaknesses in the way major weapon system requirements are determined, planned, budgeted, and acquired. The underlying conditions and cultural attitudes that help foster these weaknesses have been addressed in more detail in our report Weapons Acquisition: A Rare Opportunity for Lasting Change (GAO/NSIAD-93-15,

Dec. 1992). This report also focuses on our ongoing evaluations of the Department's efforts to address these long-standing problems.

Copies of this report series are being sent to the President, the congressional leadership, all other Members of the Congress, the Director of the Office of Management and Budget, and the heads of major departments and agencies.

A handwritten signature in black ink, reading "James F. Hinchman". The signature is written in a cursive style with a large initial "J" and a long, sweeping underline.

James F. Hinchman
Acting Comptroller General
of the United States

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Overview

The national defense budget, measured in constant 1997 dollars, declined from a peak of \$415.8 billion in fiscal year 1985 to \$269.9 billion in fiscal year 1996—a reduction of about 35 percent. Even though a large part of the reduction was in funding for the development and procurement of new and improved weapon systems, the Department of Defense (DOD) still spends about \$79 billion annually to research, develop, and acquire weapon systems. While DOD's expenditures have produced many of the world's most capable weapon systems, its weapon system acquisition processes have often proved costly and inefficient, if not wasteful.

The Problem

Despite DOD's past and current efforts to reform the acquisition system, wasteful practices still add billions of dollars to defense acquisition costs. Many new weapon systems cost more and do less than anticipated, and schedules are often delayed. Moreover, the need for some of these costly weapons, particularly since the collapse of the Soviet Union, is questionable. DOD has perpetuated its history of establishing questionable requirements for weapon systems; projecting unrealistic cost, schedule, and performance estimates; and

beginning production before adequate testing has been completed. These problems have been discussed in more detail in our cross-cutting reports entitled Weapons Acquisition: A Rare Opportunity for Lasting Change (GAO/NSIAD-93-15, Dec. 1992) and Weapons Acquisition: Low-Rate Initial Production Used to Buy Weapon Systems Prematurely (GAO/NSIAD-95-18, Nov. 21, 1994) as well as in our reports on individual programs (see Related GAO Products at the end of this report).

Progress

DOD's leadership has emphasized its commitment to reforming its weapon system acquisition processes. DOD's goal is to become the world's smartest buyer, continuously reinventing and improving the acquisition process while taking maximum advantage of emerging technologies that enable business process reengineering. In the area of "what to buy," DOD is focusing its efforts on (1) greater reliance on commercial products and processes and (2) more timely infusion of new technology into new or existing systems. In the area of "how to buy," DOD's efforts have been directed at, among other things, increasing teamwork and cooperation, encouraging risk management rather than risk avoidance, reducing

reporting requirements, and reducing nonvalue-added layers of review and oversight. In addition, the Congress has passed a series of legislative reforms for the system acquisition process.

Outlook for the Future

The ultimate effectiveness of DOD's current initiatives to reduce the costs and improve the outcomes of its acquisition processes cannot yet be fully assessed because they are in various stages of implementation. DOD is pursuing a number of positive initiatives that should, over time, improve the cost-effectiveness of its acquisition processes and is reporting some success in terms of cost savings or avoidance and other benefits. However, it may take several years of continued implementation before tangible results can be documented and sustained.

While these initiatives are commendable, DOD continues to (1) generate and support acquisitions of new weapon systems that will not satisfy the most critical weapon requirements at minimal cost and (2) commit more procurement funds to programs than can reasonably be expected to be available in future defense budgets. The fundamental reforms needed to correct these problems have not yet been formulated, much less

instituted, by DOD and the Congress. However, the likelihood of continuing fiscal constraints and reduced national security threats should provide additional incentives for real progress in changing the structure and dominant culture of DOD's system acquisition processes.

Background

In our previous high-risk reports, we reported that, while DOD continues to produce many of the world's most technologically advanced and capable weapon systems, the processes through which weapon requirements are determined and systems are acquired have often proved costly and inefficient, if not wasteful. DOD frequently has experienced cost overruns, schedule delays, and performance shortfalls in its weapon acquisition programs. Too often, we found that DOD

- acquired systems that were not the most cost-effective solution for mission needs;
- developed unrealistic cost, schedule, and performance estimates that led to program instability and cost increases;
- developed and supported programs that could not be executed as planned with available funds;
- established program acquisition strategies that were unreasonable or risky at best; and
- committed too much money before a program proved to be suitable for production and fielding.

We reported that the underlying cause of these persistent and fundamental problems was a prevailing culture dependent on continually generating and supporting the

acquisition of new weapons. Inherent in this culture are powerful incentives and interests that influence and motivate the behaviors of participants in the process—including components of DOD, the Congress, and industry. It is not unusual for these interests to override the need to satisfy the most critical weapon requirements at minimal cost.

We reported that cultural changes were needed to (1) control interservice competition and self-interest that have led to the acquisition of unnecessary, overlapping, or duplicative capabilities; (2) discourage the overselling of programs through optimistic cost, schedule, and performance estimates and the use of high-risk acquisition strategies; and (3) limit the incorporation of immature technologies into new weapons to reduce the risk of technological failures.

Our earlier high-risk reports noted that a number of acquisition reforms either had been or were being implemented in response to (1) studies like those done by the Packard Commission and other blue ribbon panels, (2) the diminished Soviet threat, and (3) budget reductions. Nevertheless, our reports have noted that parochial interests and incentives were delaying or preventing

the timely rationalization of defense weapon system requirements and acquisitions in the post-Soviet threat era. Many weapon systems were being developed and produced, despite the fact that the Soviet threat upon which they were justified had diminished. We also noted that defense cutbacks would require DOD to rely more on commercial products and practices to reduce costs and ensure an adequate defense industrial capability.

Weapon Systems Acquisition Problems Persist

Although DOD has begun many acquisition reform initiatives since our previous high-risk reports (see subsequent discussion), pervasive problems persist regarding (1) questionable requirements and solutions that are not the most cost-effective available; (2) unrealistic cost, schedule, and performance estimates; (3) questionable program affordability; and (4) the use of high-risk acquisition strategies.

Questionable Requirements and Solutions That Are Not the Most Cost-Effective Available

DOD acquisition policies require analyses of missions, mission needs, costs, and weapon system alternatives to ensure that cost-effective solutions are matched to valid needs before substantial resources are committed to a particular program. An important objective is to minimize overlap and duplication among weapon systems that perform the same or similar missions. This objective is of particular concern when more than one service participates in similar mission areas. We have found that while the services conduct considerable analyses in justifying major acquisitions, these analyses can be narrowly focused, without full consideration of alternative solutions, including the joint acquisition of systems with the other services.

In addition, because DOD does not routinely develop information on joint mission needs and aggregate capabilities, it has little assurance that decisions to buy, modify, or retire systems are sound. Based on our reviews of air power mission areas, for example, some planned modernization programs will add only marginally to already formidable capabilities, while the need for others has been lessened by the changed security environment. For some programs, there are viable, less costly alternatives.

We continue to uncover examples of questionable mission needs and of systems that are not the most cost-effective solution to a mission need. For example:

- The operational deficiencies in the F/A-18C/D aircraft cited by DOD to justify buying the F/A-18E/F either have not materialized as projected or can be corrected with nonstructural changes to the C/D. Furthermore, the E/F's operational capabilities will be only marginally improved over the C/D model but will cost an additional \$17 billion. Continuing to procure and upgrade the F/A-18C/D in the interim would be more cost-effective.
- Although the Navy plans to remanufacture 72 of the AV-8B day attack model aircraft

and convert them to aircraft with night attack and radar capabilities, procuring new AV-8B radar attack aircraft would be more cost-effective.

- The Navy continues to develop and plans to produce a \$249 million upgrade to the propulsion system of the MK-48 torpedo. However, the need for the upgrade is questionable because it is based on faulty assumptions regarding the launching submarine's reduced vulnerability to enemy attack.
- The Joint Tactical Unmanned Aerial Vehicle Projects Office continued to proceed with the acquisition of the \$340 million Hunter shipboard variant, even though all Navy fleet commanders stated that they did not want the system on Navy ships. Until the program was terminated by DOD, the Navy was at risk of investing in a system that would not be used.
- The Army and the Navy continue to pursue combat identification systems—at a cost of more than \$4 billion—based on different technologies without fully considering how and at what cost these systems would be integrated.
- After more than 4 years of advanced development, some Navy officials questioned whether the intercooled recuperated gas turbine engine would

provide a viable and timely return on the investment of over \$400 million needed to develop it. However, the Navy continues to develop the engine as a preplanned product improvement for its destroyers.

- The Longbow Hellfire missile procurement plan is inadequate because about 3,200 unrequired missiles are to be procured for \$540 million to \$750 million. Also, a significant number of missiles will be procured and lose up to one-half of their shelf-life before Longbow Apache aircraft are available.
- The Army overstated expected benefits and understated technical risks associated with major systems included in its helicopter modernization strategy. Some users were concerned that the strategy could result in an inappropriate mix and quantity of helicopters and therefore adversely affect their operational effectiveness. Also, DOD and Army studies did not fully consider alternatives that could accomplish many of the planned roles and missions of the strategy's centerpiece—the Comanche.

**Unrealistic Cost,
Schedule, and
Performance
Estimates**

In our 1992 high-risk report, we noted that the desire of program sponsors to keep cost estimates as low as possible and to present attractive milestone schedules had

encouraged the use of unreasonable assumptions about the pace and magnitude of the technical effort, material costs, production rates, savings from competition, and other factors. We noted that in DOD's culture, the success of participants' careers is more dependent on moving programs through the process than on achieving better program outcomes. Accordingly, overselling a program works in the sense that programs are started, funded, and eventually fielded. The fact that a given program costs more than estimated, takes longer to field, and does not perform as promised is secondary to fielding a "new and improved" system.

We continue to find examples where program projections appear to be overly optimistic and risks excessive in light of the current budget and security environment:

- The Joint Air-to-Surface Standoff Missile Program contains significant schedule and cost risks. The plan is to develop and initially deploy the Air Force's most capable precision-guided munition in 5 years for no more than \$700,000 per missile. However, the plan does not appear to allow enough time to develop and test the complex technology needed and to integrate the missile into the appropriate aircraft.

- DOD's recurring flyaway cost estimate of \$44 million per unit (in fiscal year 1996 dollars) for the F/A-18E/F is understated. This estimate is based on buying a total of 1,000 aircraft and producing 72 aircraft per year. However, both quantities are overstated because the Marines no longer plan to buy the F/A-18E/F, and the Congress has questioned the affordability of producing 72 aircraft per year. We have calculated that by reducing the number of aircraft to be procured and the annual production rate to more realistic goals, the E/F unit recurring flyaway costs would more likely be \$53 million (in fiscal year 1996 dollars).

Also, in our 1995 high-risk report, we stated that the quality and credibility of cost information available to decisionmakers remain a problem. DOD has acknowledged, and our financial statement audit work has consistently confirmed, significant problems in the comprehensiveness and accuracy of DOD's reported cost information. Most recently, in March 1996, we reported that the Navy's financial reports excluded billions of dollars invested in building aircraft and missiles and modernizing weapon systems. We also found that the Navy's reported costs for ships under construction did not include

all relevant costs, such as those for outfitting and post delivery.

**Questionable
Program
Affordability**

We reported in 1992 that DOD's Future Years Defense Program (FYDP) could not be executed with available funds. We concluded that DOD's tendency to overestimate the funding that would be available in the future, coupled with the tendency to underestimate program costs, had resulted in the advent of more programs than could be executed as planned. When DOD finally faced funding reality, it often reduced, delayed, and/or stretched out programs—substantially increasing the cost of each system. In addition to the higher unit costs caused by program stretchouts, another downside to the affordability issue is DOD's potential inability to address valid requirements when available resources are consumed on questionable priorities. For example, the Army chose to use most of its available resources to procure Comanche helicopters and upgrade Apache helicopters and deferred or canceled the funding of other Army helicopter modernization programs, such as medical evacuation and cargo helicopters, that the Army believes are important to the performance of its aviation missions.

Again, in our 1995 high-risk report, we noted that the imbalance between resources and programs in DOD's 1995-99 FYDP could exceed \$150 billion. The spending plan contained billions of dollars in understated costs and overstated savings and reductions, such as (1) less costs and more savings than expected from base closures, (2) less costs than expected for environmental remediation and peacekeeping operations, (3) more savings than expected from the Defense Management Report Initiatives, (4) understated cost growth in weapon system acquisitions, and (5) understated inflation estimates. In addition, DOD used undistributed future adjustments that amounted to unspecified overprogramming.

We continue to find numerous problems with DOD's budgeting and spending practices for weapon system acquisitions. For example:

- In analyzing the infrastructure-related program elements of the FYDP, we found no significant net infrastructure savings to DOD between fiscal year 1996 and 2001. Nonetheless, DOD is pursuing a number of major system acquisition programs on the assumption that such savings will materialize.

- In June 1996, we testified that DOD's ambitious aircraft modernization program did not appear to be affordable, given reasonable expectations of available funding. We pointed out that the proposed level of aircraft investments was more consistent with the former Cold War era than with the current security environment.

High-Risk Acquisition Strategies

We reported in 1992 and 1995 that high-risk acquisition strategies were being based on the need to meet the threat and to reduce acquisition costs. We noted that one common characteristic of high-risk strategies is the acquisition of weapons based on optimistic assumptions about the maturity and availability of enabling technologies. We recommended that research and technology efforts be disassociated from weapon programs until they reach the demonstration and validation phase (now called the program definition and risk-reduction phase).

We also reported in 1992 and 1995 on the high-risk practice of beginning production of a weapon system before development, testing, and evaluation are complete. When a highly concurrent strategy is used, critical decisions are made without adequate

information about a weapon's demonstrated operational effectiveness, reliability, logistic supportability, and readiness for production. Also, rushing into production before critical tests have been successfully completed has resulted in the purchase of systems that do not perform as intended. These premature purchases have resulted in lower-than-expected availability for operations and have quite often led to expensive modifications. In late 1994, we reported that DOD's policy to begin low-rate initial production of weapons without doing any operational testing and evaluation had resulted in the procurement of substantial quantities of unsatisfactory weapons. These weapons required costly modifications, and in some cases, substandard systems were deployed to combat forces. We noted that in today's national security environment, proceeding with low-rate production without demonstrating that the system will work as intended should rarely be necessary. Nevertheless, DOD still begins production of many major and nonmajor weapons without first ensuring that the systems will meet critical performance requirements, as indicated in the following examples:

- The F-22 aircraft program involves considerable technical risk because it

embodies important technological advances that are critical to its operational success. Nevertheless, DOD plans to begin producing the F-22 well before beginning initial operational testing and to commit to the production of 80 aircraft at a cost of over \$12 billion before initial operational testing is complete.

- Under the Army's restructured Comanche program, production decisions will be made before operational testing starts, thereby continuing the high degree of risk associated with concurrent development and production. However, the extension of the development phase and the acquisition of six additional aircraft under the restructured program provide the Army with the opportunity to conduct operational testing before committing funds to any production.
- The Army's strategy to accelerate production of the Joint Stars Ground Stations unnecessarily risks millions of dollars on an unproven system. Because earlier versions of the ground station have performed poorly in developmental tests and have not completed an operational test, we believe that buying more systems than are needed for operational testing significantly raises the risk of procuring a costly and ineffective system.

- Despite numerous performance problems that surfaced in developmental tests of the ALR-67(V)3 radar warning receiver, the adverse consequences from the premature procurement of earlier versions of the ALR-67, and the production of sufficient test articles for all operational testing, the Navy plans to begin low-rate production before determining the system's operational effectiveness and suitability through completion of operational testing.
- The Army plans to commit funds for producing 40 early prototype interceptors of the Theater High Altitude Area Defense System well before testing provides assurance of the system's capabilities, even though the program has already experienced significant cost, schedule, and technical performance problems. Also, the Army does not need these interceptors for testing but has plans for deploying them as needed.
- The Joint Tactical Unmanned Aerial Vehicle Project Office plans to start low-rate production of the Maneuver System before its performance is demonstrated in operational testing. In addition, the units to be produced are not intended for operational testing, one of the key rationales for starting initial production.
- The Air Force continued to buy the ALQ-135 Band 3 jammer despite its deficient

performance, resulting in the premature deployment of systems with limited capability to protect the F-15. Although developmental tests showed the Band 3 to have serious performance flaws, the Air Force procured most of the total program quantity without demonstrating acceptable operational performance.

Acquisition Reform Initiatives

The reduced Soviet threat and declining defense budgets have created both an opportunity and a challenge for DOD to reform its weapon system acquisition processes. In our 1992 high-risk report, the need for and the nature of acquisition reforms centered on improving weapon requirements determination and acquisition organizations and processes. In our 1995 report, we state that while these reforms remain critical, the impact of reduced defense procurement on the defense industry, together with the budget-driven need to reduce procurement costs, elevated the importance of reform efforts designed to broaden DOD's industrial base by increasing reliance on commercial products and processes. The Secretary of Defense stated that, to meet the new national security challenges, DOD must

- maintain its technological superiority and a strong national industrial base by relying more on commercial state-of-the-art products and technology, assisting companies in the conversion from defense-unique to dual-use production, aiding in the transfer of military technology to the commercial sector, and preserving defense-unique core capabilities and

- reduce acquisition costs (including overhead costs) through the adoption of business processes characteristic of world-class buyers.

DOD continues to implement a variety of acquisition reform initiatives and is reporting some success in terms of cost savings or avoidance and other benefits. We are now evaluating the status of several of these initiatives. However, it is too soon to fully assess the extent to which these changes are reducing costs and improving outcomes of current defense acquisition programs.

**Ongoing
Acquisition
Reform Initiatives**

DOD's goal is to become the world's smartest buyer, continuously reinventing and improving its acquisition processes while taking maximum advantage of emerging technologies that enable business process reengineering. Two of the areas that DOD is emphasizing are the requirements determination and resource allocation processes—"what to buy"—and the acquisition process—"how to buy."

In terms of "what to buy," DOD's efforts have focused on (1) greater reliance on commercial products and processes and

(2) more timely infusion of new technology into new or existing systems. For example:

- On June 29, 1994, the Secretary of Defense signed a directive entitled “Specifications and Standards—A New Way of Doing Business.” As a result, (1) requirements in solicitations are being described in performance terms; (2) if military or federal specifications or standards are necessary, waivers must first be obtained; and (3) solicitations for new acquisitions that cite military or federal specifications or standards typically also contain language encouraging offerors to propose alternatives. DOD has made significant progress in disposing of the huge inventory of military specifications and standards through cancellation, consolidation, conversion to a guidance handbook, or replacement with a performance specification or nongovernment standard.
- The use of cooperative agreements and other transactions appears to provide some opportunities to remove barriers between the defense and civilian industrial bases, in particular by attracting firms that traditionally did not perform research for DOD.
- The Advanced Concept Technology Demonstration Program emphasizes the

ability to reduce operational risk early in the acquisition process, to compress the acquisition cycle time, and to stimulate innovation. This program allows technologists and operational users to work together as a team to assess the usefulness of mature technologies. It also gives experienced military commanders an opportunity to develop the operational concepts that address current and future military needs prior to major acquisition decisions and large dollar commitments.

- To assist the Joint Requirements Oversight Council in advising the Chairman of the Joint Chiefs of Staff on joint war-fighting capabilities, the joint warfare capability assessment process was established in 1994. If key acquisition decisions are thoroughly addressed at such higher organizational levels, competing demands, available resources, and the needs of theater commanders could be more fairly assessed before a specific program is started. However, based on our recent review of DOD's combat air power capabilities and programs, the joint warfare capability assessment process could be improved by conducting more comprehensive assessments of joint requirements and existing capabilities. The broader assessments would help the Secretary of

Defense make the difficult tradeoff decisions across the services that may be required.

In considering “how to buy,” DOD has focused on increasing teamwork and cooperation, encouraging risk management rather than risk avoidance, reducing reporting requirements, and reducing layers of review and oversight that add no value. For example:

- DOD has designated a number of participants for the Defense Acquisition Pilot Program. The participants are given regulatory relief from certain statutes, regulations, and internal DOD acquisition directives. Savings are expected from, among other things, the reduction of intrusive government oversight in contractors’ plants and reduced documentation requirements.
- As a result of the recommendations from an internal DOD team that reviewed the oversight and review process for major systems, the Secretary of Defense directed the use of integrated product teams. The purpose of the teams, which include all the acquisition process stakeholders, is to build more successful acquisition programs by developing executable and affordable program strategies and plans and to identify and resolve problems early. This directive

shows a fundamental shift in practice from conducting after-the-fact oversight to early problem identification and correction by program stakeholders. The use of integrated product teams is accompanied by the elimination of a one-size-fits-all approach to decision documentation.

- In March 1996, DOD issued an update to its regulations governing the acquisition of major weapon systems. Among other things, this update (1) incorporated new laws and policies, including the Federal Acquisition Streamlining Act; (2) separated mandatory policies and procedures from discretionary practices; and (3) reduced the sheer volume and complexity of the regulations.
- In its December 1994 report, The DOD Regulatory Cost Premium: A Quantitative Assessment, the management consulting firm of Coopers and Lybrand identified over 120 regulatory and statutory “cost drivers” that increase the price DOD pays for goods and services. In response to the study, DOD established a working group to track myriad reforms to reduce the cost of managing and overseeing DOD’s contracts. Although DOD expects substantial savings from reforming DOD’s management and oversight requirements, we found that the savings are likely to be significantly less than expected.

- In the past 2 years, DOD has developed policies and procedures that reflect a broader approach to ensuring that products perform the way they are supposed to. The approach is based on teaming with the contractor to control processes while reducing reliance on inspection. We concluded that the results of this approach could be enhanced if DOD implemented some of the advanced quality concepts found in the commercial world.

In addition to DOD's efforts, the Congress has enacted reforms in the Federal Acquisition Streamlining Act of 1994 and the Clinger-Cohen Act of 1996. Some of the reforms involve fostering the development of measurable cost, schedule, and performance goals and incentives for acquisition personnel to reach those goals. Among other things, the legislation requires federal agencies to (1) establish cost, schedule, and performance goals for acquisition programs and annually report on their progress in meeting those goals; (2) establish personnel performance incentives linked to the achievement of the goals; and (3) submit recommendations for legislation to facilitate and enhance the management of acquisition programs and the acquisition workforce based on performance. We recently reported

that DOD had complied with the majority of the requirements in these areas. However, DOD has not yet established a personnel system with enhanced incentives. DOD reports a number of barriers to establishing such a system.

DOD is also striving to reduce costs through an initiative known as “cost as an independent variable.” Under this initiative, once the system performance and target cost are decided (on the basis of cost-performance tradeoffs), the assumption is that the acquisition process will make cost more a constraint and less a variable but that, nonetheless, the needed effectiveness and suitability of the system will be assured. Today, threats are not increasing in capability at as fast a rate as in the past, and the DOD acquisition budget is decreasing in response to this changed national security environment. Therefore, it is more appropriate to make cost a stronger driver in system design. Such an approach is also more consistent with commercial practices in new system developments, where market forces drive the price at which a new system can be offered. DOD expects this initiative to provide quality products that fully meet the warfighter’s needs but allow for substantial reductions in their costs; more stability for

Acquisition Reform Initiatives

each program; shorter program cycle times; and innovative design, manufacturing, support, and contracting approaches.

What Needs to Be Done

Success in achieving greater integration of DOD and commercial products and practices, as with the other acquisition reforms, will require DOD to overcome cultural and structural barriers. DOD has the ingredients for making lasting improvements to its weapon system acquisition processes—the need, the opportunity, and the leadership. Nevertheless, it is too soon to tell how successful DOD will be in overcoming cultural and structural barriers. In our opinion, achieving real and lasting change will require DOD’s continued commitment to full and effective implementation of acquisition reform strategies and initiatives, along with congressional support.

While we support DOD’s reengineering of its weapon system acquisition processes, not all of the specific reforms are sufficient. For example, in 1994, we recommended that DOD establish better controls over the start and continuation of low-rate initial production. DOD agreed to consider our specific suggestions when it updated its acquisition regulations. However, in the 1996 update of those regulations, DOD included no controls over low-rate initial production. We believe DOD missed an opportunity to reduce the risk of prematurely starting production. Also, DOD needs to be careful in its zeal to reduce

unnecessary documentation and oversight requirements so that it does not, in effect, eliminate the functions necessary to ensure that acquisition programs are meeting their objectives in a cost-effective manner.

Finally, DOD and the Congress need to take much stronger actions to effectively control the influence of the acquisition culture, particularly as it (1) generates and supports the acquisition of new weapon systems that do not necessarily satisfy the most critical weapon requirements at minimal cost and (2) willingly commits more procurement funds to programs than can reasonably be expected to be available in future defense budgets. Although many recommendations from a variety of sources have addressed these long-standing issues, little or no effective action has yet been taken. Some of the suggestions that should be given serious consideration include

- planning programs and resources on a joint mission basis;
- examining cost and performance tradeoffs among alternatives more rigorously before a particular approach is chosen;
- making the warfighters responsible for participating in the selection of weapon systems based on joint mission needs and

deciding whether or not a program is affordable;

- linking program decisions in a more durable way to DOD's long-term budget;
- maintaining continuous competitive alternatives to solve mission needs throughout the acquisition process;
- aggressively pursuing high-risk (breakthrough) technology before weapon system research and development; and
- conducting programs in an environment of stable funding and management.

These reforms will be difficult to implement, but DOD and the Congress must take aggressive steps to address a culture that has a very strong influence on almost every facet of DOD's weapon system acquisition processes.

Related GAO Products

Acquisition Reform: Implementation of Title V of the Federal Acquisition Streamlining Act of 1994 (GAO/NSIAD-97-22BR, Oct. 31, 1996).

Combat Air Power: Joint Mission Assessments Needed Before Making Program and Budget Decisions (GAO/NSIAD-96-177, Sept. 20, 1996).

Best Practices: Commercial Quality Assurance Practices Offer Improvements for DOD (GAO/NSIAD-96-162, Aug. 26, 1996).

Navy Aviation: F/A-18E/F Will Provide Marginal Operational Improvement at High Cost (GAO/NSIAD-96-98, June 18, 1996).

Acquisition Reform: Efforts to Reduce the Cost to Manage and Oversee DOD Contracts (GAO/NSIAD-96-106, Apr. 18, 1996).

Defense Infrastructure: Budget Estimates for 1996-2001 Offer Little Savings for Modernization (GAO/NSIAD-96-131, Apr. 4, 1996).

Comanche Helicopter: Testing Needs to Be Completed Prior to Production Decisions (GAO/NSIAD-95-112, May 18, 1995).

Related GAO Products

Tactical Aircraft: Concurrency in Development and Production of F-22 Aircraft Should Be Reduced (GAO/NSIAD-95-59, Apr. 19, 1995).

High-Risk Series: Defense Weapon Systems Acquisition (GAO/HR-95-4, Feb. 1995).

Electronic Warfare: Most Air Force ALQ-135 Jammers Procured Without Operational Testing (GAO/NSIAD-95-47, Nov. 22, 1994).

1997 High-Risk Series

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