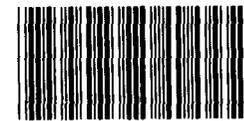


May 1990

DEFENSE ACQUISITION

Perspectives on Key Elements for Effective Management



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

National Security and
International Affairs Division

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May 14, 1990

The Honorable Sam Nunn
Chairman, Committee on Armed Services
United States Senate

Dear Mr. Chairman:

In response to requests from your Committee, we have developed this report which focuses on the key elements necessary to improve the management of the defense acquisition process.

We are sending copies of this report to the Secretaries of Defense, Army, Navy, and Air Force. We will send copies to other interested parties upon request.

This report was prepared under the direction of Paul F. Math, Director of Research, Development, Acquisition, and Procurement Issues, who may be reached on (202) 275-8400 if you or your staff have any questions. Other major contributors to this report are listed in appendix I.

Sincerely yours,

A handwritten signature in cursive script that reads "Frank C. Conahan".

Frank C. Conahan
Assistant Comptroller General

Executive Summary

Purpose

This report focuses on the acquisition process of the Department of Defense (DOD) in the context of key elements that are necessary if DOD is to manage the process effectively. Many of the elements were included in the discussion of DOD's acquisition process during GAO's July 1988 testimony before the Senate Committee on Armed Services. At the Committee hearings, the Chairman asked GAO to consider further the elements needed for an effective acquisition process and report the results of its work to the Committee. This effort was to review DOD's acquisition procedures, discuss the elements necessary for an effective acquisition process with defense experts both within and outside DOD, and take examples from past reports that illustrate the effect when those elements are missing from the process.

Background

DOD spends more than \$100 billion a year on weapon systems—\$375 billion projected for research, development, test, evaluation, and procurement in fiscal years 1989 through 1991. DOD has years of experience in this process; the modern acquisition system dates back to the early 1960s. Yet, despite the length and intensity of its experience, DOD continues to experience problems acquiring weapon systems.

Results in Brief

DOD's acquisition problems have been known for a long time. GAO's reports show that DOD has had to deal with the problems of cost growth, schedule slippage, and performance shortfalls constantly since the 1960s. But the acquisition process is complex and its problems are not easily resolved. Solving them requires addressing elements that are fundamental to an effective acquisition process. These elements relate to leadership, work force, organization, information, and affordability. A major factor is enforcing compliance with internal controls.

GAO's Analysis

DOD is perhaps the largest and most complex organization in the world. The unprecedented peacetime buildup of defense during the past decade, coupled with disclosures of excessive prices paid for defense parts, followed by the procurement scandal and revelations of other fraud, waste, and abuse has magnified the problems with the acquisition process. The public and the Congress have seriously questioned DOD's ability to manage its acquisition programs effectively. Cost growth, extremely long acquisition times, and program stretchouts resulting in inefficient production rates have been common. Many reforms are needed. Now, at the beginning of the 1990s, DOD will likely have to live

with constrained or no growth budgets for some time to come. To maintain an effective defense, within the fiscal constraints of the current budget environment, DOD must address the weaknesses in its acquisition process. As discussed below, DOD must strengthen each of the elements that are fundamental to an effective acquisition process if it is to deal effectively with the many acquisition problems it is now facing.

Leadership

Past efforts at reform have waned without addressing the most difficult issues. The Office of the Secretary of Defense (OSD) needs to take a strong leadership position to break down the cultural barriers that have frustrated past efforts at reform and to encourage the services to work with OSD in a team effort to implement acquisition reform. Strong, sustained support from the Secretary of Defense is necessary if the services are to be convinced to cooperate with OSD to make the acquisition process work.

Work Force

The experts GAO spoke to felt that highly qualified, technically competent people working together is a key factor in an effective and efficient acquisition process. However, the ability to attract and retain highly qualified people, at all levels of the acquisition process, is constrained by problems with the appointment system, restrictions regarding divestiture and post employment, and salary levels.

Organization

Many offices within OSD and the services have a role in developing policies, approving programs, monitoring implementation, and assessing the results of the acquisition process. It is important that these offices work together as a team to solve common problems in these areas. A strong organizational concept that has been used by DOD in the past for this purpose is mirroring. The basis of this concept is that the structure of OSD and the offices of service secretaries should be similar for major functions so that the people responsible for the same functions at the different organizational levels can more easily work together to address common issues before they become major problems.

Information

Information is vitally important to the oversight function and for decision-making. A free flow of information, both up and down the organization, is essential to effective management oversight. Past audits and GAO's discussions with officials disclosed problems with the free flow of information pertaining to major weapon systems acquisition.

The information has not flowed freely, it has been optimistic, and the effectiveness of DOD's major information systems has been mixed. These problems can have significant adverse impacts on the defense acquisition process—decision-making is extremely difficult and oversight is weakened.

Internal Controls

Establishing and maintaining an effective internal control system is an important management responsibility. Good internal controls are essential for properly maintaining government business and ensuring full accountability for the public's resources. DOD has established a detailed internal control system and has many regulations, directives, and instructions that place checks and balances on DOD's acquisition process. GAO and other audit agencies have issued a number of reports that show that DOD needs to strengthen its adherence to the internal controls governing the acquisition and contracting processes.

Affordability

There are concerns about DOD's requirements determination process and the link between DOD's weapon system decision process and its resource allocation process. Prior GAO reports show that DOD's requirements process does not adequately consider fiscal constraints. Not considering those constraints contributes to the problems of unrealistic overall force goals, unaffordable numbers of weapons, and duplication of systems. Testimony from the former Under Secretary of Defense for Acquisition and discussions within the acquisition community show that the link between the Defense Acquisition Board's weapon system decision process and the DOD resource allocation process is not strong. The resource decisions are made annually, while the Defense Acquisition Board makes its decisions at the major milestones that may be years apart. A milestone decision made by the Defense Acquisition Board this year may be invalidated by a funding decision made next year.

Current DOD Efforts to Improve Acquisition

Although the Secretary's July 1989 Defense Management Report and the January 1990 update are not specific on implementing their proposals in many areas, GAO is encouraged by the parallels between the areas addressed in that Secretary's report and the areas GAO believes DOD should focus on to resolve long-standing acquisition problems. However, as discussed in this report, highly publicized initiatives have come and gone without an appreciable sustained impact on the tough management issues affecting DOD's acquisition process. The cultures imbedded in DOD, which often are opposed to change, are difficult to modify. Strong, long-

term leadership by the Secretary and teamwork on the part of the services, combined with timely and objective information and strong compliance with internal controls, are required to overcome these cultural barriers and make real, lasting change to the acquisition process.

Recommendations

The observations GAO makes in this report are based on past reports that contain numerous specific recommendations. This report is intended to present GAO's and defense experts' perspectives on the acquisition process; it is not to repeat recommendations made previously. Therefore, GAO is making no recommendations in this report.

Agency Comments

GAO did not obtain agency comments on this report. However, GAO did discuss the general content of the report with OSD and service officials.

Contents

Letter		1
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Executive Summary		2
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Chapter 1		8
Introduction	Overview of Defense Acquisition	8
	Description of the Offices Responsible for DOD's Acquisition Process	9
	Objective, Scope, and Methodology	10

Chapter 2		12
Strong Leadership Is Needed to Sustain a Team Effort to Resolve DOD's Acquisition Problems	Elements Needed for an Effective Team Approach	12
	Past Attempts at Reform Have Waned	18

Chapter 3		22
Current and Objective Information Should Be More Readily Available	Current and Objective Information Is Not Readily Available	22
	Information Tends to Be Optimistic	23
	Informal Channels Used to Obtain Needed Data	23
	The Future Outlook May Be Improving	24

Chapter 4		25
Compliance With Internal Control Checks and Balances Should Be Strengthened	Internal Control System Requirements	25
	Adherence to Controls Should Be Strengthened	29
	Conclusions	35

Chapter 5		36
Affordability	Requirements	36
	Resource Decisions and Acquisition Decisions Should Be Consistent	40

Conclusions	42
Appendix I Major Contributors to This Report	44

Abbreviations

AMRAAM	Advanced Medium Range Air-to-Air Missile
DAB	Defense Acquisition Board
DOD	Department of Defense
DOT&E	Director of Operational Test and Evaluation
DPRB	Defense Planning and Resources Board
FAR	Federal Acquisition Regulations
GAO	General Accounting Office
OSD	Office of the Secretary of Defense
OT&E	operational test and evaluation
SAR	Selected Acquisition Reports
USD(A)	Under Secretary of Defense for Acquisition

Introduction

The Department of Defense's (DOD) acquisition process has been the subject of discussion and criticism for many years. Over the past 20 years, a number of major studies have been made of the process and have shown that the problems experienced today are similar to those of the past. Our reports on individual weapon systems show that DOD has had to constantly deal with the problems of cost growth, schedule slippage, and performance shortfalls in the acquisition of major weapon systems since the 1960s. A number of attempts, such as the Defense Acquisition Improvement Program (the Carlucci Initiatives) and the President's Blue Ribbon Commission on Defense Management (the Packard Commission), have been made to reform the process, but problems remain.

The unprecedented peacetime buildup of defense during the past decade, coupled with disclosures of excessive prices paid for defense parts, followed by the procurement scandal and revelations of other fraud, waste, and abuse has magnified the problems with the acquisition process. The public and the Congress have seriously questioned DOD's ability to effectively manage its acquisition programs. Cost growth, extremely long acquisition times, and program stretchouts resulting in inefficient production rates have been common. Many reforms are needed.

Now, at the beginning of the 1990s, DOD will likely have to live with constrained or no growth budgets for some time to come. To maintain an effective defense, within the fiscal constraints of the current budget environment, DOD must address the weaknesses in its acquisition process. We have testified that certain elements were necessary for DOD to manage its acquisition system effectively. The Chairman of the Senate Committee on Armed Services asked us to evaluate these elements and report our findings to the Committee.

Overview of Defense Acquisition

The acquisition mission of DOD is to contract for and oversee the development and production of weapon systems, other equipment items, and services required to accomplish approved military goals and objectives. Weapon systems, the major products of the defense industry, generally refer to such technically complex items as aircraft, missiles, ships, and tanks.

The acquisition of a weapon system may be considered a three-stage process—development, including planning, research, testing, and evaluation; production, including quality control and manufacturing; and support, including acquiring replenishment spares and other equipment and

equipment modifications. DOD describes the acquisition process as proceeding through a series of management decision points—milestone decisions—as a system proceeds from a specific requirement to concept exploration, demonstration and validation, full-scale development, production, and finally, deployment and support. The milestones described in DOD Instruction 5000.2 are

- milestone 0 (program initiation/mission-need decision),
- milestone I (concept demonstration/validation decision),
- milestone II (full-scale development decision),
- milestone III (full-rate production decision),
- milestone IV (logistics readiness and support review), and
- milestone V (major upgrade or system replacement decision).

The forum for issues related to milestone decisions is the Defense Acquisition Board (DAB). The DAB, which is assisted in its work by 10 committees, is used by DOD components to resolve issues, provide and obtain guidance, and make recommendations to the Secretary of Defense through the Defense Acquisition Executive (currently the Under Secretary of Defense for Acquisition (USD(A))) on matters pertaining to the acquisition process. The DAB makes recommendations to the Defense Acquisition Executive on milestone decisions for major programs where such decisions are reserved for approval by the Secretary of Defense.

The Defense Resources Board¹ is associated with the overall Planning, Programming, and Budgeting System. The objective of the system is to provide the operational commanders in chief the best mix of forces, equipment, and support attainable within fiscal constraints. DOD uses this system to develop its annual budget and to examine and analyze prior decisions from the viewpoint of the current environment.

Description of the Offices Responsible for DOD's Acquisition Process

The DOD acquisition process involves various DOD offices, such as the Office of the Secretary of Defense (OSD), the service headquarters, major command headquarters, major subordinate commands, individual laboratories, and other supporting activities, as well as tens of thousands of prime contractors and hundreds of thousands of suppliers and subcontractors. The DOD offices that are primarily responsible for the acquisition process are the USD(A), the Under Secretary of the Army, the

¹The Defense Resources Board was replaced by the Defense Planning and Resources Board (DPRB) as part of the actions taken in conjunction with the Defense Management Review.

Assistant Secretary of the Air Force for Acquisition, and the Under Secretary of the Navy assisted by the Assistant Secretary of the Navy for Shipbuilding and Logistics and the Assistant Secretary of the Navy for Research, Engineering, and Systems. The Director of Operational Test and Evaluation (DOT&E) also plays an important role in acquisitions as a check on the readiness of the weapon system to proceed to the full-rate production phase of the process.

The Office of the USD(A) has 11 groups reporting to it. The USD(A)'s assistants in overseeing the acquisition function include the Assistant Secretary of Defense for Production and Logistics, the Assistant Secretary of Defense for Command, Control, Communications and Intelligence, and the Director of Defense Research and Engineering.

Objective, Scope, and Methodology

Our primary objective was to evaluate DOD's acquisition process in the context of the elements necessary to manage the acquisition process effectively. We were to obtain the perspectives of experts with high level DOD experience to determine if they believed these elements were important, if they believed the elements were in place in DOD, and, if not, what would be necessary to establish them. In addition, we discussed the elements with people involved in the process to determine if the elements were in place and the extent of problems in those areas.

The elements are

- support from the Secretary of Defense so that the OSD organization can properly oversee the acquisition function;
- knowledgeable people working together as a team;
- a functionally mirrored organizational structure, that is, the service headquarter's organizational structure should be the same as OSD's organizational structure so that the people in charge of the same function are of similar rank and position;
- adequate information to allow DOD managers to make informed decisions and ensure effective management oversight;
- an acquisition process and structure that incorporates an effective system of checks, balances, and internal controls;
- a strong requirements determination process that places affordability constraints on new programs from the start; and
- a strong link between the resource decisions of the resources board and the program milestone decisions of the DAB.

Our scope covered the DOD acquisition process for major weapon systems. The process was reviewed from the top official—the USD(A)—to the program office. Our review covered all three services and OSD. We interviewed people in various locations around the country and in the Washington, D.C., area.

We interviewed people who are involved or had been involved in the acquisition process. To obtain the opinions of experts outside DOD, we discussed the acquisition process with the chief executive officers of two major defense contractors, three former Under Secretaries of Defense for Research and Engineering, and former high level acquisition officials from the Army, Navy, and Air Force. To get the opinions of high level officials within DOD, we discussed the process with the USD(A) and the three Service Acquisition Executives.

To evaluate the checks and balances on the acquisition process, we reviewed regulations, instructions, and other guidance that governed the operations of the review groups at the service command levels, the service headquarters' level, and OSD. We then interviewed the participants in the review groups to determine their function and to get their opinions on the acquisition process. The other elements were evaluated by interviewing officials in the three offices that are the primary assistants to the USD(A), officials from the Office of Operational Test and Evaluation, officials holding corresponding positions in the service headquarters, the services' Program Executive Officers, and officials from the services' program offices.

To get specific examples showing the problems that occur in the acquisition process, we reviewed our reports, the reports of other audit organizations, congressional reports, and other publications from various groups such as the Center for Strategic and International Studies, the Packard Commission, and the Volcker Commission.

Our work was performed between August 1988 and December 1989 in accordance with generally accepted government auditing standards.

Strong Leadership Is Needed to Sustain a Team Effort to Resolve DOD's Acquisition Problems

The problems in DOD's acquisition process for major weapon systems are not new. In our opinion, strong DOD leadership is needed to sustain the long-term effort needed to solve these problems. OSD needs to take a strong leadership position to break down DOD's cultural barriers and to encourage the services to work with OSD in a team effort to implement acquisition reform.

Elements Needed for an Effective Team Approach

There are three elements necessary for establishing an effective team approach for solving DOD's acquisition problems. These elements are support from the Secretary of Defense, knowledgeable people, and a mirrored organization.

Support From the Secretary of Defense

The need for leadership from the Secretary and for strong support for OSD by the Secretary has been recognized for a long time. In 1976¹ we reported that managing DOD's billion-dollar programs requires strong central policy direction and executive control by the Secretary. Key decisions should be subject to close scrutiny to preclude loss of control by OSD.

The experts we spoke with said that OSD needs strong support from the Secretary so that the services will work with OSD to address issues. Some said the service acquisition hierarchy can employ delaying tactics so that policies they disagree with are not implemented during the OSD political appointee's term in office. We were told that the Carlucci Initiatives were weakened by this waiting game.

Support from the Secretary is critical to an effective acquisition process. The Secretary needs to support strong and aggressive oversight of acquisition policies and programs by the OSD staff. Support from the Secretary is necessary to convince the services to work with OSD as a team to address issues before they become problems.

Secretary's Support Helps Programs Succeed

We have issued a number of reports that identified the Secretary's support as the key factor in the success or failure of a program. DOD's response to the over pricing of spare parts in the early 1980s is an example showing the benefits of clear, strong support for reform efforts. At the direction of the then Secretary of Defense, each service and the Defense Logistics Agency initiated programs to address the

¹Highlights of a Report on Staffing and Organization of Top-Management Headquarters in the Department of Defense (GAO/FPCD-76-35A, Apr. 26, 1976).

problem. In 1983, he called for refunds, debarring or suspending contractors, and use of alternative sources—even from other countries—to eliminate over pricing. He ordered the Inspector General to intensify audit activity, required the Deputy Secretary of Defense to monitor ongoing progress, and named a Deputy Assistant Secretary for Spares Program Management to develop, among other tasks, a strategy for a continuing focus on spare parts reform.

We reported² on these initiatives in 1987, and although we found problems, evidence showed that the initiatives were being implemented and the situation was improving. We credited part of the success to the attention given to the problem by top DOD officials, including the Secretary.

While the Secretary's support does not guarantee complete success, we have reported on the difficulty some managers experienced because they lacked clear support. For example, interoperability among command, control, and communication systems of the services has been a long-standing objective. Our report³ on DOD's efforts to achieve interoperability states that one of the major causes of these problems has been the absence of an effective central enforcement authority and that the Secretary had not exercised the authority to perform that function.

Knowledgeable People

The cost and complexity of weapon systems and the effect of acquisition on DOD's budget and the defense industry require knowledgeable people in the acquisition process. Professionalizing and retaining the acquisition work force are critical. In our opinion, DOD needs knowledgeable people at the political appointment level and throughout the acquisition work force. The experts interviewed supported the idea that highly qualified, technically competent people working together is a key factor in an effective and efficient acquisition process. Qualified personnel are particularly important at the program management level because of the technological complexity of the weapon system development programs they oversee and the effect of acquisition on DOD's resources and on the

²Procurement: Spare Parts Initiatives Air Force Implementation (GAO/NSIAD-87-28, Feb. 13, 1987), Procurement: Defense Logistics Agency Implementation of the Spare Parts Initiatives (GAO/NSIAD-87-143, June 1, 1987), Procurement: Army Implementation of the Spare Parts Initiatives (GAO/NSIAD-87-148, June 8, 1987), and Procurement: Navy Implementation of the Spare Parts Initiatives (GAO/NSIAD-87-149, June 1, 1987).

³Interoperability: DOD's Efforts to Achieve Interoperability Among C3 Systems (GAO/NSIAD-87-124, Apr. 27, 1987).

Studies Conclude That the
Political Appointment System
Needs Improvement

defense industry. However, the ability to attract and retain highly qualified people at all levels of the acquisition process is constrained by problems with the appointment system, restrictions regarding divestiture and post employment, and salary levels.

The presidential appointment system has been criticized and found to need improvement. During 1984 and 1985, the National Academy of Public Administration evaluated the appointment system and reported⁴ that the system did not work as well as it should or could and that its adequacy in meeting the executive staffing needs of the agencies and departments of the federal government was seriously in doubt. Its report stated that recruiters for recent presidents often had to go to their second and third choices before they could find someone willing to accept an appointment. The Academy made 23 recommendations concerning selection and recruitment, financial disclosure and conflict of interest, confirmation, orientation, working environment, and the number of positions.

Other studies, such as the Packard Commission, have evaluated personnel issues associated with the acquisition process and agreed with the Academy. The Packard Commission⁵ noted that significant improvements in the appointment system should be made to improve DOD's ability to attract and retain highly qualified people for the acquisition process. The National Commission on the Public Service (the Volcker Commission)⁶ recommended that the White House Office of Presidential Personnel develop qualification statements for all positions and make appointments based on those merits.

Restrictions Affecting Political
Appointment

Divestiture of personal holdings to satisfy conflict of interest laws is considered a sound and necessary practice. However, recognizing the tax liability on the capital gains resulting from that divestiture can place a large financial burden on an appointee. The Academy recommended postponement of capital gains liabilities as one way to address this problem.

⁴Leadership in Jeopardy: The Fraying of the Presidential Appointments System, National Academy of Public Administration, November 1985.

⁵A Quest for Excellence - Final Report to the President, by the President's Blue Ribbon Commission on Defense Management, June 1986.

⁶Leadership for America - Rebuilding the Public Service, the Report of the National Commission on the Public Service, 1989.

Post-government employment restrictions are considered necessary but were often mentioned as a problem for potential appointees. Ever expanding limitations on post-government employment are believed to be a real deterrent to attracting highly qualified individuals to government service.

Compensation Is a Major Problem for DOD Appointees and Career Service

Salary differentials between the public and private sectors are considered a problem for both appointees and civil service people. According to the OSD Goldwater-Nichols study,⁷ the government executive compensation structure is substantially below that of private industry, particularly for presidential appointees, and the problem is becoming more severe. According to the OSD study team, many top level OSD executives must accept substantial financial sacrifices in order to enter and remain in government service. The study points out that the average tenure for an appointee is 24 months and recommends a longevity bonus system that would reward long-term service.

It was also generally felt that the civil service pay rates are not comparable to industry, which makes it difficult for DOD to compete for and retain employees. The Volcker Commission report points out that DOD is losing its top procurement specialists to contractors who can pay much more. For example, in the contracting area there is a concern that DOD is losing its good contract negotiators to industry. We were told that sharp contract negotiators, with 3 to 5 years experience, can double their salaries by going to industry. The recent salary increase for high level government officials may alleviate this problem to some degree, but the raise will not resolve problems at the lower grade levels.

Improving Key Acquisition Work Force Personnel

Our work has shown a need to better prepare key acquisition personnel such as program managers and contracting officers. Our 1986 report⁸ on strengthening the capabilities of acquisition personnel points out three weaknesses in the career preparation of these people. First, recently appointed program managers lacked substantial program office and other diversified acquisition experience, as well as specialized training—stressed by a tri-service panel of top program managers. Second, existing military service career programs had various limitations (e.g., programs did not identify the types of acquisition experience desired or

⁷Management Study of the Office of the Secretary of Defense, Deputy Assistant Secretary of Defense (Administration) Directorate for Organizational and Management Planning, October 1987.

⁸DOD Acquisition: Strengthening Capabilities of Key Personnel in Systems Acquisition (GAO/NSIAD-86-45, May 12, 1986).

permit enough time to obtain and use acquisition experience) and civilians were given few opportunities to be program managers. Third, little emphasis was placed on providing contracting officers with specialized experience. We made a number of recommendations addressing these weaknesses, and DOD concurred with or generally agreed with most of them.

Other studies confirmed the need to strengthen the capability of program managers and contracting officers. The Packard Commission observed that DOD's acquisition work force was undertrained, underpaid, and inexperienced when compared to their private industry counterparts. In 1988, the Center for Strategic and International Studies reported that it was urgent that measures to advance the professionalism of uniformed and civilian personnel working in the acquisition system—such as modification of conflict of interest laws and divestiture rules, specialized career paths for military personnel weighing careers in program management, and reversal of the downward pressure on salaries for civil servants—be implemented.

Mirrored Organization

OSD and the services have many offices that have a role in developing policies, approving programs, monitoring implementation, and assessing the results of the acquisition process. It is important that these offices work together as a team to solve common problems in these areas. An organizational concept that DOD has used in the past for this purpose is mirroring. The basis of this concept is that the structure of the OSD and offices of service secretaries should be similar for major functions so that the people responsible for the same functions at the different organizational levels can more easily work together to address common issues before they become major problems.

Our concern is that the changes DOD made to its mirrored organization have contributed to its acquisition control problems. When the Comptroller General testified before the Senate Committee on Armed Services, he stated that the military departments, in organizing differently, had given up a very strong organizational structure—one that is mirrored. The Comptroller General's opinion of mirroring is supported, for the higher levels of the acquisition process, by the Packard Commission, which saw the benefits of functional mirroring and recommended that the role of the services' Acquisition Executives mirror that of the Defense Acquisition Executive.

The experts we spoke with had mixed opinions on this point. Some believed that the mirroring concept would be beneficial. It had worked in the past, providing "functional stovepipes" that carried the functional area down through the organization and, if reestablished, could provide one focal point in each service for information, policy decisions, and financial data pertaining to a functional area. Others believed the key point was knowing their counterpart in the other organizations, rather than the structure of the organizations.

**Mirrored Acquisition
Organization Proposed but Not
Implemented**

The Packard Commission, and subsequent legislation and implementing directives, proposed a streamlined organization for weapon systems acquisition management. The Commission recommended a new Under Secretary who would have full-time responsibility for managing the defense acquisition system. The Commission also recommended that each service establish a comparable senior position that would work under the policy guidance of the new Under Secretary for Acquisition. The role of the service's Acquisition Executive would mirror that of the Defense Acquisition Executive.

The Goldwater-Nichols DOD Reorganization Act of 1986 complemented the Commission's recommendations and required the services to reorganize their headquarters acquisition management structures. In our report⁹ on the military departments' response to the act, we pointed out each service organized its acquisition functions differently. The different approaches reflect varying interpretations of what an acquisition activity is and different attitudes toward the role of career civilians. The Army integrated the functions and staff from the former secretariat and Army staff acquisition organizations into a new office headed by the Under Secretary of the Army. The Air Force assigned certain acquisition functions to the assistant secretary for readiness support rather than the secretariat acquisition organization, which we concluded in our June 1989 report did not comply with the requirements of the act to create a single office or entity within the secretariat. We also concluded that the Navy's reorganized structure did not consolidate acquisition authority into one office or entity because it assigned acquisition responsibilities to the under secretary and the two assistant secretaries. In our view, the act does not authorize more than one office in the civilian secretariat to participate in the acquisition function.

⁹ Acquisition Reform: Military Departments' Response to the Reorganization Act (GAO/NSIAD-89-70, June 1, 1989).

Indications of Progress in These Areas

The Secretary's report to the President and our discussions with DOD officials indicate that efforts are underway to address the areas of a mirrored organization structure and improving teamwork.

The current Secretary's report recognizes that the military departments have taken different approaches to implementing the Commission's concept and have had varying degrees of success. The report states that none has fully met the Commission's purposes and that a review of their efforts to date indicates a need for revising their acquisition organizations. According to the report, a single civilian official, at the assistant secretary level within each military department, will be designated the Service Acquisition Executive. The acquisition executive will have full-time responsibility for all service acquisition functions and will manage all major acquisition programs through Program Executive Officers. Each of these officers will devote full-time attention to management of assigned programs and related technical support resources and will be relieved of other responsibilities. This would establish a mirrored acquisition management structure in the services.

The previous USD(A) encouraged a team approach to problem solving. This USD(A) told us that he believed in consensus building and that all the players should be involved as a team to provide the best solutions to program management problems. The USD(A) established regular weekly meetings of the three Service Acquisition Executives to discuss acquisition issues. These executives told us they considered the weekly meetings very helpful in fostering teamwork and believed the meetings provided an opportunity to discuss acquisition issues from the individual services that may affect all of DOD. Issues discussed included the use of best-and-final offers, advocacy in program management, and the authority of the DAB.

Past Attempts at Reform Have Waned

DOD's past attempts at reform were met with initial enthusiasm, but, once the enthusiasm waned, the reform efforts lost their momentum. Two examples of reform efforts that have waned are the Defense Acquisition Improvement Program and the President's Blue Ribbon Commission on Defense Management Reforms. In our opinion, the easier issues are addressed first—during the time of the initial enthusiasm. When the reform efforts wane, the more difficult issues are left undone. Strong OSD leadership, support, and teamwork are needed to sustain these reform efforts and resolve the difficult issues.

**Defense Acquisition
Improvement Program
(Carlucci Initiatives)**

The Defense Acquisition Improvement Program was instituted in 1981. It consisted of 32 initiatives to address long-standing problems with major weapon systems acquisition, including significant cost overruns and schedule slippages. Although DOD took a number of actions to implement the initiatives, the results were not as great as what was expected. Our September 1986 report¹⁰ stated that most program managers in both government and private industry reported that the improvement program had made little or no difference in the acquisition process. Our July 1986 report¹¹ concluded that the initial sense of commitment to the improvement program had dissipated. A strong DOD commitment was particularly crucial to achieving results because the problems addressed were long-standing and not amenable to ready solutions. We found that DOD had not carried through with its action plans on most of the initiatives and was not monitoring actions to ensure that results were achieved.

In October 1988, the Deputy Secretary of Defense wrote us a letter describing the actions DOD had taken to implement the initiatives. The letter stated DOD's belief that implementation efforts had been substantial and the positive effects of these efforts in such areas as program stability, multiyear procurements, and realistic budgeting had been significant.

However, we believe that other factors contributed to the program stability DOD achieved during the 1980s. That stability resulted, in part, because the doubling of DOD's budget provided the environment for more realistic cost estimates and allowed reserves for unexpected contingencies. However, those realistic estimates and stable programs were temporary. We testified¹² on May 10, 1989, that the planned budget requirements in the Five-Year Defense Plan for 1986-1990 exceeded the funds budgeted for those years by \$555 billion. We pointed out that DOD's fiscal years 1988 and 1990 5-year spending plans were reduced by \$311 billion. This was achieved, in part, by terminating, reducing, delaying, and stretching out weapons procurements. We also testified that the budget figures in the Five-Year Defense Plan faced further reductions of about \$150 billion if the projected funding growth, inflation, and other

¹⁰Acquisition: DOD's Acquisition Improvement Program—Program Managers' Views (GAO/NSIAD-86-193FS, Sept. 30, 1986).

¹¹Acquisition: DOD's Defense Acquisition Improvement Program: A Status Report (GAO/NSIAD-86-148, July 23, 1986).

¹²Status of Defense Forces and Five-Year Defense Planning and Funding Implications (GAO/T-NSIAD-89-29, May 10, 1989).

assumptions were not realized. Such reductions would cause DOD to again face the tough decision of reducing the number of weapons programs or allowing program stretchouts, causing instability to once again become a major issue.

The President's Blue Ribbon Commission on Defense Management (Packard Commission) Reforms

Problems similar to those in DOD's approach to the Carlucci Initiatives are also seen in the approach DOD is taking to the Packard Commission recommendations. DOD has made administrative changes to the acquisition process—such as establishing the Service Acquisition Executives and Program Executive Officers—but these changes may not be substantive.

For example, one of the Packard Commission's major recommendations was to reduce the number of administrative layers by streamlining the acquisition system. In our report¹³ on this recommendation, we point out that the Commission recommended that each military service establish a three-tier acquisition management system consisting of the Service Acquisition Executive, the Program Executive Officers, and program managers. When they established their three-tier acquisition systems, the services created an acquisition reporting chain in addition to the existing command chain. Some of the officials in the new acquisition chain lacked the authority and control of resources needed to make and implement the full range of acquisition management decisions. Control of these resources remained with the existing command chains. We believe that none of the services' approaches are fully consistent with the intent of the Commission's streamlining recommendation nor do they fully achieve the Commission's streamlining objective.

Former High Level DOD Acquisition Officials Not Satisfied With DOD's Efforts to Reform the Acquisition Process

On September 22, 1987, the first USD(A) stated before the House Committee on Armed Services that he did not believe that anyone in OSD or the services disagreed with the objectives of the Packard Commission's recommendations; however, he believed there was disagreement on how to interpret and carry the recommendations out, especially if they impinged on the existing order. He further stated that many in OSD and the services preferred to adopt a business as usual approach with no change or with only modest adjustments to the present proven method of doing business. He felt this resulted in resistance to changing the organizations or the functions being performed as acquisition activities.

¹³Acquisition Reform: DOD's Efforts to Streamline Its Acquisition System and Reduce Personnel (GAO/NSIAD-90-21, Nov. 1, 1989).

Chapter 2
Strong Leadership Is Needed to Sustain a
Team Effort to Resolve DOD's
Acquisition Problems

He also said he had expected disagreements and some resistance to change but not to the degree that was experienced.

A former Under Secretary of Defense for Research and Engineering testified at the same hearings and also expressed concern over the lack of substantive change. He stated that the whole series of recommendations that had been made in the acquisition reform area, in his judgment, had been followed in form but not in substance, and as a result, no discernable improvement had occurred in defense acquisition.

Current and Objective Information Should Be More Readily Available

Information is vitally important to the oversight function and for decision-making. A free flow of information, both up and down the organization, is essential to ensure that management oversight is effective and that a system of controls is in place and working. It is linked closely to the specific internal control standard regarding documentation that requires written evidence of all pertinent aspects of all significant events of an agency and that the documentation be available, as well as easily accessible, for examination.

Past audits and our discussions with officials disclosed problems with the free flow of information pertaining to major weapon systems acquisition. The information has not flowed freely, it has tended to be optimistic, and the effectiveness of DOD's major information systems has been mixed. These problems can have significant adverse effects on the defense acquisition process—decision-making is extremely difficult and oversight is weakened.

Current and Objective Information Is Not Readily Available

Experts told us the information flow between OSD and the services was not adequate. They said that it was not unusual for career military and civilian officials within the acquisition process to give limited support to the USD(A) and that those officials used their knowledge of the process to create blocks in information channels. They cited the first USD(A)'s attempt to establish an information base and the successful resistance of the services to this information system as an example of this problem.

OSD staff told us that the services did not always respond to requests for detailed information or for more consideration of other program alternatives. Some OSD officials were concerned that the information they got on developmental testing was filtered and inadequate for meaningful assessments. On the other hand, the service acquisition staffs believe that OSD's requests for detailed information or "raw" test data showed that OSD was getting involved with day-to-day management matters. The service staffs told us that OSD did not have the resources or the capability to handle all the information available to the program manager.

Staff in the program offices we spoke to were opposed to an on-line, real-time information system, such as the one proposed by the first USD(A). They said they are willing to provide OSD with the necessary information, but they believe allowing OSD such access through a real-time system would result in micromanagement and would raise more questions than it would answer. OSD staff said the services did not refuse

information requests outright. They said the services delayed the information by playing a waiting game or by demanding that OSD be very specific in what it asked for. This was confirmed by the experts we interviewed. The service representatives we spoke to indicated that OSD should be specific in its requests.

We believe OSD is, by the nature of its oversight function, entitled to whatever information it requests. However, to address the concerns of the services, the OSD staff and the services should work together to develop systemic information that would allow effective oversight but would minimize the reporting burden on all concerned.

Information Tends to Be Optimistic

The experts interviewed and our past reports indicate that program managers and contractors tend to be optimistic in their reporting and do not promptly disclose problems. We have issued a number of reports on the Advanced Medium Range Air-to-Air Missile (AMRAAM), which highlight this situation. This program's missed milestones and cost increases were related to understated estimates of risks, schedule, and costs by both the Air Force and contractors. We noted in one report¹ that a former AMRAAM program manager stated that the contractor gave a positive picture of the missile's development status, which was conveyed up the chain of command. It was not until a number of months later that the program manager learned that the positive picture was inaccurate. We were told that this was due to the difficulty of obtaining current and accurate information from the contractor.

Some of the outside experts we interviewed believe that program managers tend to be optimistic in their reporting. They feel that program managers are program advocates—their job is to make sure their programs are successful and it is not in their best interest to surface problems.

Informal Channels Used to Obtain Needed Data

The limitations of the formal information reporting systems have caused people to develop informal reporting channels in which they rely on their personal relationships to get the data they need. Officials told us that this is the best method of obtaining raw data. Program office officials also acknowledged the existence of informal channels of communication, particularly on the part of contractors. They said that

¹Missile Procurement: AMRAAM Cost Growth and Schedule Delays (GAO/NSIAD-87-78, Mar. 10, 1987).

contractors frequently knew of decisions made in Washington before the program offices did.

Although informal channels may have some value, they should not be a substitute for formal systems. The information may be timed to put the provider in the best light, and there is no assurance that the information is accurate. Informal channels generally do not provide a documented record of the basis and justification for public decisions, which is necessary if those decisions need to be reviewed or evaluated.

The Future Outlook May Be Improving

A former USD(A) told us that the information received had improved. When this USD(A) first assumed the position, the services' program summaries were optimistic and few, if any, problems were reported. Later, however, the USD(A) believed the services began to report more realistic program status and to emphasize early reporting of problems. One way the USD(A) and the Service Acquisition Executives tried to reduce over-optimism was to take program advocacy out of the system. They worked to make it clear to program managers that they should be managers, not advocates, of the programs.

DOD's information problems, however, may not be totally resolved. Apparently, information is still not forthcoming from the services. For example, the Secretary of Defense has expressed concern about not being able to get precise cost data on the B2 bomber program, which has been criticized for its high cost. If the B2 program is severely curtailed because of cost, it could become even more difficult to get realistic estimates from program managers, and the tendency to be optimistic in program reporting or to withhold information may be reinforced. We believe accurate reporting will continue to be a problem for OSD, particularly in a time of tighter funding constraints when the services' resources are threatened by budget cuts.

Compliance With Internal Control Checks and Balances Should Be Strengthened

Establishing and maintaining an effective internal control system is an important management responsibility. Good internal controls are essential for properly handling government business and ensuring full accountability for the public's resources. DOD has established a detailed internal control system and many regulations, directives, and instructions place checks and balances on DOD's acquisition system. We found, however, that DOD has a problem ensuring compliance with its internal control system.

Internal Control System Requirements

An effective internal control system consists of the checks, balances, and review groups established to ensure that program objectives are achieved. It also includes the willingness of an organization to comply with those controls. That willingness to comply should be encouraged or imposed by management, but it is this factor that is missing at DOD.

The ultimate responsibility for good internal controls rests with management. In our "Standards for Internal Controls in the Federal Government," we point out that internal controls are an integral part of each system that management uses to regulate and guide its operations. In this sense, internal controls are management controls. The House Committee on Government Operations also pointed out in an August 1984 report (House Report 98-937) that the terms "internal controls" and "management controls" are synonymous. Internal controls are inherent in the management function.

We have established standards for internal controls, two of which pertain to management's commitment to a control system. Specific Standard No. 5 addresses supervision and states "qualified and continuous supervision is to be provided to ensure that internal control objectives are achieved." General Standard No. 2 addresses supportive attitude and states "managers and employees are to maintain and demonstrate a positive and supportive attitude toward internal controls at all times."

Our prior reports, however, show that DOD management, at various levels, has not been committed to internal controls. This report contains a number of examples showing DOD's decisions not to comply with or implement management controls. We believe that used properly, these controls alert managers to problems in time to correct them at an early stage. But when the controls become merely paperwork exercises and when managers fail to insist upon their proper use and implementation, their usefulness is severely diminished.

In examining internal controls in the acquisition process, we looked at

- the controls over the defense acquisition process as a whole and
- the controls over contracting activities within the acquisition process.

Overall Acquisition Process Controls

With regard to the overall process, DOD Directive 5000.1 and DOD Instruction 5000.2 are the primary documents that establish an internal control system for the defense acquisition process. These documents define the acquisition process and the managerial policies and procedures that support and enable it to operate. For example, they define the role of the people that control or manage the process, from the USD(A) to the program manager. They also define procedures for weapon systems management through the acquisition process, from program initiation, through production, and on to system upgrade or replacement. As programs move through the acquisition process, they are subject to numerous studies, analyses, and reviews that are intended to eliminate or minimize risks and to ensure they are technically sound, cost effective, and produced on schedule.

Other directives define independent review activities. DOD Directive 5000.3, for example, establishes policy and guidance for testing and evaluating weapon systems, provides guidance for preparing and submitting a Test and Evaluation Master Plan and test reports, and outlines the responsibilities of the Director of Operational Test and Evaluation (OT&E). OT&E is a major independent control mechanism and an essential part of the acquisition process. Test and evaluation results are especially critical for the milestone III decision. Before a program can advance beyond low-rate initial production, the DOT&E must report to the Congress and the Secretary of Defense that the OT&E performed on the weapon system was adequate and that the results confirmed that the items were effective.

Service Regulations Complement Overall Controls

Each of the services structures its acquisition process based on the guidance in DOD directives and instructions. The service and its subordinate organizations issue regulations and instructions that amplify DOD procedures to implement the internal acquisition procedures essential to their operations. The Navy acquisition process shows how the defense acquisition process works and demonstrates how extensive the review process is. While we use the Navy for our illustration, we found that the Army and the Air Force have similar reviews.

The Navy separates its acquisition programs into four acquisition categories, which determines the level of the program review authority and the review procedures. The reviews occur at key acquisition milestone decision points. Within the Navy, major systems usually go through the following primary acquisition review forums.

- The Acquisition Review Board reviews take place at the command level, the Naval Air Systems Command, for example. Programs are comprehensively appraised to ensure that they are technically, financially, logistically, and administratively sound, and a determination that the program is executable is made before programs pass to the next review level.
- The Program Decision Meetings take place at different organizational levels depending upon the acquisition category of the program. For example, Acquisition Category IIS programs are those where the meetings take place at the Secretary of the Navy level. At the meeting, program progress is reviewed and consideration is given to proceeding to the next acquisition event or phase.
- The DAB is the highest review forum and takes place at the OSD level. The program is examined, and issues regarding the program are identified and discussed. The recommendations of the DAB are presented to the Secretary of Defense by the Defense Acquisition Executive.

DOD Instruction 5000.2 requires the services to prepare certain documents for each acquisition milestone review. The following are some of these documents:

- A Mission Need Statement that describes the need for a new major weapon system. The document is used to support a service's initial request for funds.
- A Decision Coordinating Paper that summarizes the results of the concept demonstration and validation phase. The paper identifies program alternatives and establishes program cost, schedule, and operational effectiveness thresholds.
- A Cost and Operational Effectiveness Analysis that is used for the first two milestone phases. The report assesses program operational and cost effectiveness against mission areas.
- A System Concept Paper that summarizes the results of the concept exploration and definition phase and that describes the acquisition strategy. The paper includes the thresholds and goals to be met for the next milestone review.
- An Acquisition Plan that addresses all the technical, business management, and other significant considerations that will control a program.

- A Test and Evaluation Master Plan that defines objectives, critical issues, system characteristics, responsibilities, resources, and schedules for test and evaluation.

Defense Contracting Controls

In addition to the overall acquisition process controls, controls over the contracting process are included in the Federal Acquisition Regulations (FAR). The FAR provides uniform policies and procedures that govern the procurement and contracting operations of all federal agencies. The DOD FAR Supplement implements and supplements the FAR for DOD contracting. This supplement is, in turn, augmented by service regulations.

The services conduct reviews to assure that the required controls are implemented effectively. The Navy, for example, reviews program acquisition plans, justification and approvals for sole-source procurements, pre- and post-negotiation business clearances, and procurement management. Business clearance reviews are a check to ensure (1) a proposed contract action conforms to good business practices and to Navy acquisition policies and (2) the established price is fair and reasonable and justified by written evidence. The Office of the Assistant Secretary of the Navy (Shipbuilding and Logistics) is responsible for conducting business clearances for all programs that exceed the business clearance authority threshold of the Navy's systems commands. About every 3 years, procurement management review teams from the Contracts and Business Management Directorate of the Office of the Assistant Secretary of the Navy (Shipbuilding and Logistics) evaluate designated contracting activities for compliance with regulations, efficiency, and effectiveness. The Army and the Air Force have similar reviews.

In addition, numerous audit groups review the procurement and contracting activities of the services. The service audit agencies and offices of Inspector General review the efficiency and effectiveness of the contracting activities. The Defense Contract Audit Agency audits defense contracts, and it provides accounting and financial advice on proposed and existing contracts and subcontracts to DOD procurement and contract administration personnel. The results of these audits are used to negotiate contract prices and to administer and settle contracts.

Officials Believe the Number of Controls Is Adequate

DOD acquisition officials we interviewed indicated that an adequate number of controls were in place over both the overall acquisition process and the contracting process. Some of the officials also believe that the numerous controls may adversely affect the acquisition process by

increasing the time it takes to award contracts. One procurement manager stated that it is extremely difficult to keep up with all the controls, especially when the laws and regulations are frequently modified. The procurement manager noted that his contracting officers must comply with over 240 laws and regulations.

The Army's Communications and Electronics Command has reduced the burden of dealing with the large number of procurement laws and regulations by establishing the position of solicitation ombudsman. The ombudsman, among other duties, evaluates individual procurement actions to determine if the Army should waive certain procurement requirements when such action will clearly save the government time and money.

Adherence to Controls Should Be Strengthened

We and other audit agencies have issued a number of reports that demonstrate DOD's need to strengthen its adherence to the internal controls governing the acquisition and contracting processes. The following sections are examples, taken from those reports, that show that DOD did not always comply with the checks and balances in its internal control system.

Required Analyses Not Done

One of the primary considerations at milestone V (the major upgrade or system replacement decision) is the potential need for modifications and upgrades to meet changes in the threat through increased system capabilities. The significant decision is whether the deficiencies are so critical that major modifications, retirement, or a new start are warranted.

Our report¹ on the A-7 aircraft upgrade program—the A-7 PLUS—stated that the Air Force had not identified the specific operational requirements the upgrade had to meet, even though the Air Force had already contracted for two prototypes to study the engineering feasibility of changes. The contract for the prototypes required performance capabilities that, in effect, were no better than those of the existing A-7. The criterion that the contractor had to meet was that the upgrade would not degrade the existing A-7's performance. The Air Force had not evaluated the aircraft's mission effectiveness or interdiction requirements. The Air Force explained that it had not done so because (1) it did not have the operational requirements when the decision was made,

¹Close Air Support: Upgraded A-7 Aircraft's Mission Effectiveness and Total Cost Unknown (GAO/NSIAD-88-210, Sept. 2, 1988).

(2) it did not have the resources for an evaluation, and (3) it believed the evaluation was not needed because the upgrade would probably meet most requirements. We recommended that the Secretary of the Air Force evaluate the A-7 PLUS' mission effectiveness against the latest scenarios and related mission requirements. We pointed out that the results of the evaluations could be used to assess the aircraft's cost effectiveness in performing the close air support and battlefield air interdiction missions, as required by Public Law 100-180. DOD concurred and stated that the Air Force would perform the evaluation.

DOD Instruction 5000.2 states that program alternative trade-offs, including trade-offs of the need for new development programs versus buying or adapting existing systems, should be primary considerations in the milestone I decision (concept demonstration/validation). Our report² on the Air Force's C-27 tactical airlift proposal pointed out that program alternative trade-offs had not been adequately considered when planning for a new airlift system. Our analysis showed that the transfer of additional C-130s and helicopters to the U.S. Southern Command and some reduction of the Military Airlift Command's peacetime restriction on the use of C-130s could have substituted for a new airlift system. On February 18, 1988, the Secretary of Defense announced that the C-27 program had been terminated because mission requirements could be satisfied through the use of existing resources.

Current and Complete Information Not Provided

A 1987 Air Force Audit Agency report³ stated that information needed to support milestone decisions was not current and complete for eight of nine systems reviewed; yet, these systems were approved for the next acquisition phase. Specifically, on three systems, testing was not performed or not completed sufficiently before the systems were permitted to proceed to the next acquisition milestone phase. Two of these systems (Aerial Gunnery Target Sets and Multiple Receivers) later experienced problems after entering production. In addition, on eight systems, the program management plans, the integrated logistics support plans, or the Test and Evaluation Master Plans were either not prepared or not updated to reflect program changes. On one system, the cost estimate was not updated to reflect actual program plans.

²Tactical Airlift: Observations Concerning the Air Force's C-27 Proposal (GAO/NSIAD-88-124, Apr. 29, 1988).

³DOD-Wide Audit, In-Process Reviews for Non-Major Systems (AFAA Project 6066412, Apr. 17, 1987).

A July 1987 report⁴ by the DOD Inspector General summarized the Inspector General's findings regarding the effectiveness of the Defense Systems Acquisition Review Council (now the DAB). That report stated that "the recommendations contained in our three prior summary reports remain valid and unaccomplished." Those reports summarized the Inspector General's findings on specific weapon system reviews by the Review Council and included such recommendations as

- enforce the DOD 5000 series instructions for timely submission of complete and accurate review council program documentation,
- ensure that the services are adequately funding approved programs,
- require the services to provide written justifications for implementing accelerated acquisition strategies, and
- direct the services to implement the provisions and intent of DOD Directive 5000.1 and DOD Instruction 5000.2 for fully documenting the justification for major system new start.

The July 1987 report was discussed in the September 28, 1988, testimony of the Inspector General before the Senate Committee on Armed Services. The Inspector General said that:

"Although improvements have been made, our reviews indicate that certain problems persist.... We are finding a continued need for more rigorous enforcement of existing acquisition policy and better implementation of the specific audit recommendations made previously to improve the effectiveness of the decision making process."

Cost Effectiveness Not Evaluated

DOD Instruction 5000.2 requires that cost and operational effectiveness analyses be provided to the DAB in support of milestones I and II. In our June 1988 report⁵ on the acquisition of the Army's Line-of-Sight Forward Heavy Air Defense System, we reported that in 1986 the Army had initiated a cost and operational effectiveness analysis for the entire Forward Area Air Defense System, of which the line-of-sight system is a part, but had not completed the analysis. According to the study team leader, the study focused on examining requirements rather than conducting a true cost and operational effectiveness analysis because reliable cost data for the forward area system elements were not available, preventing a cost-effectiveness comparison with alternative systems.

⁴Summary Report on the Audit of the Effectiveness of the Defense Systems Acquisition Review Council (DSARC) Process—FY 1986 (DOD/Inspector General Report No. 87-193, July 17, 1987).

⁵Weapon Systems: Acquisition of the Army's Line-of-Sight Forward Heavy Air Defense System (GAO/NSIAD-88-198, June 30, 1988).

Our report⁶ on the Army's Command and Control System Common Hardware and Software acquisition program noted that the Army had not made a full cost and operational effectiveness analysis. The Army stated that making this analysis would delay the acquisition and that a full analysis was not required because it believed the regulation only applied to major systems acquisitions and that this program was not a major system acquisition. However, the USD(A) designated that this was, in fact, a major system acquisition and that applicable major system acquisition guidance would be applied to it. We concluded that the required cost and operational effectiveness analysis should be done for such major acquisitions and that the potential size and risks of this program warranted such an analysis.

OT&E Shortcomings

DOD testing groups sometimes fail to examine programs adequately, point out deficiencies, or conduct testing in a timely manner. In 1985, we reported⁷ that because significant portions of planned OT&E were only partially completed on the five systems we reviewed, those systems began production without having adequately demonstrated whether performance requirements were met in a representative operational environment. For example, at the time production began on the F/A-18 aircraft, it had not undergone critical aspects of planned OT&E that were called for in the program schedule because of the system's immature development at that time. We pointed out that expensive retrofits were required on F/A-18 production models to correct problems identified during operational testing, which was performed after the production decision was made. We also found that operational test results omitted from or misrepresented in Congressional Data Sheets created misleading impressions of a weapon system's demonstrated performance capabilities.

Several years later, we reported⁸ that each of the official reports to the Congress from DOT&E that we reviewed contained incomplete or inaccurate statements. In addition, the majority of DOT&E's favorable overall assessments of testing adequacy, system effectiveness, and suitability were not supported by the evidence. The omissions, inaccuracies, and

⁶Battlefield Automation: Better Justification and Testing Needed for Common Computer Acquisition (GAO/IMTEC-88-12, Dec. 31, 1987).

⁷Production of Some Major Weapon Systems Began With Only Limited Operational Test and Evaluation Results (GAO/NSIAD-85-68, June 19, 1985).

⁸Weapons Testing: Quality of DOD Operational Testing and Reporting (GAO/PEMD-88-32BR, July 26, 1988).

overall assessments consistently resulted in a more favorable presentation to the Congress of test adequacy and system performance than warranted by the facts. We concluded that for major, conventional systems that reached the full production milestone by the end of fiscal year 1987, DOT&E's dissemination of information to the Congress had not provided the complete and accurate picture of weapon system performance that the Congress needed to make weapon funding decisions.

Our more recent work shows that OT&E is not always done on a timely basis. Our May 1989 report⁹ states that the Navy usually did not conduct OT&E before decisions were made to begin full-scale development or low-rate initial production of weapon systems as generally called for by DOD policy. For that report we reviewed 19 Navy systems to determine whether OT&E was conducted in support of early acquisition decisions. This included 10 full-scale development decisions and 10 low-rate production decisions. OT&E was not conducted before any of the 10 full-scale development decisions and was conducted before only 3 of the 10 low-rate initial production decisions. For three of the systems that had not been operationally tested, the Navy's OT&E force prepared operational assessments to support initial production decisions. Two of these assessments were so limited that the OT&E force could not project the systems' potential effectiveness or suitability.

Contracting Regulations Not Followed

We have reported on DOD's lack of adherence to important contracting regulations or to internal controls over the contracting process. In one report,¹⁰ we noted that a substantial number of unpriced contracts had not been definitized within the usual 180-day limit prescribed by DOD procurement regulations. We reported that DOD's use of these contracts reached its highest level ever in September 1985, with contracts valued at about \$28 billion. Many of the contracts remained undefinitized for long periods of time. Among the contracts sampled in our study, 45 percent of the value of unpriced contracts had not been definitized a year or more after the contracts had been placed. We pointed out that delays in pricing contracts place the government in an unfavorable negotiating position, shift cost risk from the contractor to the government, and reduce contractor incentive to control cost.

⁹Navy Weapons Testing: Defense Policy on Early Operational Testing (GAO/NSIAD-89-98, May 8, 1989).

¹⁰Contract Pricing: DOD's Use of Unpriced Contracts (GAO/NSIAD-87-91, Apr. 30, 1987).

In our report¹¹ on selected federal agencies' compliance with the Competition in Contracting Act, we reported on the results of a review of seven procuring activities (five in DOD, one in the National Aeronautics and Space Administration, and one in the Department of Energy). Our review showed that the agencies' procedures often provided less assurance than the act intended with regard to allowing, whenever appropriate, competition from all sources capable of meeting the government's needs. Also, compliance problems relating to written justifications for other than full and open competition were widespread and needed to be corrected.

Defective Pricing

A number of our reports on defective pricing stated that defense contractors, on the contracts reviewed, did not comply with the Truth in Negotiations Act, Public Law 87-653, as amended. For example, in our report,¹² we state that:

"The target price for contract modification P00003 was overstated by \$1,008,854, including overhead and profit, because [the contractor] did not disclose accurate, complete, and current material pricing information for seven material items."

The 29 defective pricing reports we issued over the past 3 years all illustrate this compliance problem. The total dollar amount of the defective pricing we reported exceeds \$51 million.

The House Committee on Government Operations also studied defective pricing and concluded in its October 1988 report¹³ that:

"Overpriced noncompetitive contracts are substantial and wide spread, producing millions of dollars in windfall profits to contractors at the American taxpayers' expense. These excess profits result chiefly from contractors' noncompliance with the Truth in Negotiations Act and deficient cost estimating systems. Existing laws and regulations are adequate to deal with these problems, but the Secretary of Defense needs to be more aggressive in ensuring compliance and recovering unwarranted gains when noncompliance is identified."

¹¹Procurement: Better Compliance With the Competition in Contracting Act Is Needed (GAO/NSIAD-87-145, Aug. 26, 1987).

¹²Contract Pricing: GBU-15 Bomb Components Overpricing (GAO/NSIAD-89-10, Nov. 2, 1988).

¹³Continuing Violations of the Truth in Negotiations Act and Estimating System Deficiencies Result in Excess Contractor Profits —the Sixtieth Report by the Committee on Government Operations (House Report 100-1026, Oct. 3, 1988).

Independent Cost Estimates Need Improvement

Another area showing the lack of compliance with controls is independent cost estimating, an important check on the cost of weapon systems. The Inspector General issued a report¹⁴ in 1989 that stated the services' independent cost estimates, for seven weapon systems sampled, omitted over \$13.3 billion of system life-cycle costs. The services' buying commands estimated the total life-cycle costs of the systems to be \$70 billion. The Inspector General found that portions of independent cost estimates included costs derived from the program office estimate and that organizational influence affected two independent cost estimates. It also found that independent cost estimates were not comprehensive and did not comply with the DOD definition of life-cycle costs.

Conclusions

The acquisition system has many checks and balances in place. So many, in fact, that some people felt that complying with all the administrative requirements slowed down acquisition and wasted money. However, DOD must strike a balance between a rigorous set of checks and balances and the safety they provide, in terms of guaranteeing appropriate expenditure of the public's funds, and the costs of compliance, in terms of delaying a program. We believe that in the public arena one should err on the side of safety. To ensure that the government is satisfying the requirements of its position of public trust, compliance with a strong and complete set of checks and balances is necessary.

¹⁴Report on the Audit of Independent Cost Estimating for Major Systems (DOD/Inspector General Report No. 89-055, Feb. 24, 1989).

Affordability

Two of the elements in an effective acquisition process relate to affordability. They address DOD's requirements process and the lack of a strong link between the DAB weapon system decision process and the DRB (now the DPRB) resource allocation process.

Requirements

The experts we spoke with believed two aspects of DOD's acquisition requirements process needed improvement. The first concerns assessing the need for a new weapon system to fill a gap or deficiency in the Nation's capabilities (the front-end requirement). The second addresses establishing the performance specifications of a weapon system. The experts were concerned that there are too many requirements for the funds available and performance specifications are too demanding and costly.

DOD's Defense Management Review included changes to the requirements approval process. The Joint Requirements and Oversight Council, chaired by the Vice Chairman of the Joint Chiefs of Staff and comprised of the Vice Chiefs of Staff of the services, is to review all new weapons program starts. The Council reviews the validity of mission needs identified by the services, indicates a joint priority for meeting those needs, and forwards an approved mission need statement to the USD(A).

Assessing the Need for New Requirements

We spoke to experts who believe DOD is trying to buy more weapon systems than it can afford. Our past reports show that DOD's requirements process does not adequately consider fiscal constraints in setting force goals, determining numbers of weapons to buy, and acquiring new systems. This leads to unrealistic overall force goals, unaffordable weapons procurements, and duplicative weapon systems.

Unrealistic Force Goals

The Air Force's 40-wing tactical aircraft plan provides an illustration of the problem with unrealistic overall force goals. In 1987 we reported¹ that the Air Force's plan to modernize and expand its tactical fighter force from 36 wings to 40 wings may not be affordable. The plan was premised on continued real growth in defense spending. We pointed out that budget trends and projections indicated that such continued increases were not likely, that the tactical Air Force's share of the Air Force budget was not likely to increase, and that the tactical aircraft programs would be competing with higher priority programs, such as

¹Aircraft Procurement: Status and Cost of Air Force Fighter Procurement (GAO/NSIAD-87-121, Apr. 14, 1987).

the C-17 cargo plane and the Advanced Technology Bomber. The Air Force acknowledged the affordability concerns and decided to delay further expansion.

Unaffordable Numbers of Weapons

Some programs establish quantities of weapons that may not be affordable within the budgeted funds. This problem is shown by the Army's LHX helicopter program. In 1986 we reported² that the projected available funding would fall short of LHX requirements in 1997 and during several other peak production years. In 1987 we reported³ that in order to buy 4,500 aircraft and replace the current fleet as quickly as possible, the Army planned to procure as many as 480 LHX aircraft per year. In those peak production years, the Army estimated the LHX program could require up to \$6 billion a year (in escalated dollars). During that same period, many other Army systems would be competing for the limited amount of funds that would be available for programs funded from the Army's procurement appropriation. A preliminary Army analysis showed that assuming no real growth annually in available funds, the procurement account could be short over \$100 billion cumulatively from fiscal years 1987 through 2000. Peak LHX production, as planned, would occur in the late 1990s. With such large funding shortages being projected, it was likely the Army would either cancel or stretch out some other weapon system programs if it was to buy the LHX at the planned rate.

Our 1988 report⁴ showed that the program has experienced the consequences of the Army's lack of consideration of affordability. June 1988 cost and quantity reductions reflected changes the Army made to respond to the DAB's conclusion that the LHX was "no longer a viable program for affordability reasons." The Army significantly scaled the program back, most notably by deleting the utility version of the aircraft and consequently reducing quantities from 4,292 to 2,096. However, affordability is still a problem. Our 1988 report noted that program costs were still likely to increase. We reported that, according to DOD's funding projections through the year 2006, there was not enough procurement money available to produce the LHX at planned

²Weapon Systems: Issues Concerning the Army's Light Helicopter Family Program (GAO/NSIAD-86-121, May 22, 1986).

³Weapons Systems: Status of the Army's Light Helicopter Family Program (GAO/NSIAD-87-117FS, Mar. 13, 1987).

⁴Light Helicopter Program: Risks Facing the Program Raise Doubts About the Army's Acquisition Strategy (GAO/NSIAD-89-72, Dec. 23, 1988).

rates and that the reduced production rates would extend the program schedule, which would result in cost increases.

Duplication of Systems

The requirements process has not eliminated duplicate system development by the services. This problem is illustrated in our October 1985 report⁵ on proliferation of combat jammers. That report addresses two jammer programs—the Air Force ALQ-131 and the jointly developed Navy/Air Force ALQ-165 (the ASPJ). The cost to procure these programs was expected to exceed \$6 billion. We reported that one common jammer in pod and internal configurations could satisfy interservice needs for tactical fighter aircraft. We pointed out that the Air Force had not taken advantage of the opportunity to reduce proliferation of electronic combat systems as intended by the Congress. Instead of vigorously pursuing use of the jointly developed ASPJ, the Air Force had increased use of its own ALQ-131 and other service unique jammers.

The Secretary Is Taking Steps to Improve the Requirements Process

The Secretary's Defense Management report recognized the need to improve the requirements process and placed increased emphasis on the Joint Requirements Oversight Council review. According to the report, the Council will review all deficiencies that may necessitate the start of a new major weapon system before consideration in the DAB. In addition, the USD(A) will coordinate the funding of Concept Direction Studies, which the USD(A) will authorize at milestone 0. Resources for these studies may come from one or more of the military departments, a central fund controlled by the USD(A), or both. The report adds that particular care will be exercised at milestone I to ensure that concept approval is given to no more new programs than long-term resources available to DOD will support.

These steps are in the right direction, but we believe that affordability of new starts should be explicitly addressed. "Exercising particular care" does not appear strong enough to have a significant effect on DOD's affordability problems. We also believe that if the USD(A) is to have a firm grip on the acquisition process, then the USD(A) should be the one who controls, rather than coordinates, the funding for the Concept Direction Studies that are to be the initial step in a new weapon system acquisition. In addition, the affordability and cost effectiveness of the weapon systems should be explicitly addressed at every decision point.

⁵An Opportunity to Reduce Proliferation and Improve Acquisition Strategy for Electronic Combat Jammers [Unclassified Executive Summary] (GAO/C-NSIAD-86-1, Oct. 8, 1985).

Costly System Performance Specifications

Another aspect of the requirements problem is that cost does not appear to be a consideration when performance specifications for a system are established. The November 1988 report⁶ from the Johns Hopkins Foreign Policy Institute and the Center for Strategic and International Studies pointed out this problem when it stated:

“In many cases, reducing performance requirements by 5 to 10 percent could probably reduce the cost of weapons by 30 to 50 percent, permitting the procurement of much larger numbers of only slightly less capable weapons.”

In addition, when a weapon system is having difficulty meeting its performance goals, DOD tends to spend what is necessary to reach those goals without questioning whether the additional performance is worth the cost. This issue is addressed in a February 1986 report⁷ from RAND, which discussed cost increases, schedule slippages, and performance shortfalls, and which stated:

“These findings support the conventional wisdom that when acquisition problems arise, cost is the constraint most easily relaxed and schedule is next, whereas performance goals are adhered to most closely.”

In our interviews with DOD experts, a former Under Secretary of Defense for Research and Engineering discussed the Air Force tactical fighter, the F-15, as an example of this problem. One of the F-15's performance goals was that the aircraft fly at Mach 2.5. When the F-15 was first delivered it had a top speed of Mach 2.4. We were told that the program manager insisted that the Mach 2.5 speed be achieved and several hundred million dollars were spent to meet that goal and get the additional Mach 0.1 speed. This was a situation where a trade-off analysis would have been beneficial.

⁶ Making Defense Reform Work, a joint project of The Johns Hopkins Foreign Policy Institute and the Center for Strategic and International Studies, November 1988.

⁷ Improving the Military Acquisition Process RAND, R-3373-AF/RC, February 1986.

Resource Decisions and Acquisition Decisions Should Be Consistent

The link between the DAB weapon system decision process and the resource allocation process is not strong. The problem is that resource decisions are made annually, while the DAB makes its decisions at the major milestones, which may be years apart. A milestone decision made by the DAB this year may be invalidated by a funding decision next year.

The DAB makes recommendations to the Secretary of Defense at the milestone decisions for major weapon systems. It considers a weapon system affordable if a service has programmed, or can program, sufficient resources to support the system's projected development, testing, production, fielding, and support requirements. On the other hand, the resources board annually decides what to include in DOD's budget. The resources board is faced with the reality of allocating DOD's limited resources to many programs. The DAB deals in a more theoretical world where it approves each system based on its merits alone.

The key person linking the two boards is the USD(A). The USD(A) is a member of the resources board and the Chairman of the DAB. The USD(A) is the acquisition person who can raise issues regarding the effect of the resource decisions on the longer term decisions of the DAB. The other two common members responsible for providing a link between the two boards are the Assistant Secretary of Defense for Program Analysis and Evaluation and the DOD Comptroller. DOD's acquisition regulations also provide a mechanism for a service head to advise the Defense Acquisition Executive (the USD(A)) if the resources board's decision adversely affects a service's acquisition plan. But in practice, the services' program managers tend to absorb the budget cuts rather than complain, through the chain of command, to the resource board. The major effect of the disconnect is funding instability with the attendant problems of uneconomic production rates, program stretchouts, and cutting important program tasks—such as testing, prototyping, and design and development competition.

The first USD(A) felt very strongly about this problem. In a October 31, 1986, plan for the "Implementation of the Defense Acquisition System Reorganization," the USD(A) stated:

"The Joint Requirements Management Board (JRMB),⁸ under the previous chairmanship of the Under Secretary of Defense for Research and Engineering, sponsored programmatic decisions without true budgetary considerations. The DRB with the

⁸The name of the Joint Requirements Management Board was changed to the DAB.

Director, PA&E [Program Analysis and Evaluation] as executive secretary also sponsored programmatic decisions which in some instances did not harmonize with those decisions already made within the JRMB process. Significant resource decisions are also made during the budget review, led by the DOD Comptroller, which materially modify JRMB decisions. This situation creates the disconnect between the JRMB and PPBS processes. This existing DOD acquisition management process fragments resource and programmatic decision making.”

DOD’s acquisition professionals also discussed this problem during the “Acquisition Leadership ’88” conference held at Fort Belvoir, Virginia, on July 14, 1988. They recommended that:

“Defense Acquisition Board decisions on resources should be treated more like ‘contracts’ and be less prone to Defense Resource Board/Planning, Programing and Budgeting System revisions. Programs, once ‘baselined,’ should be allowed to proceed without disruption.”

Recent DOD Efforts to Address Affordability

The Secretary’s report⁹ to the President recognized the need to improve the link between the resource allocation process and the weapon system acquisition approval process. The report stated that “under the pressures of the annual budget cycle, consideration of broad policies and development of guidance on high-priority objectives all too often have been neglected, and decisions made instead on a short-term, issue-by-issue basis not well-suited to optimizing the use of available defense resources.”

The report includes steps to address this problem by strengthening the USD(A)’s role. For example:

- The USD(A) is made a key participant in all phases of the Planning, Programming, and Budgeting System.
- The USD(A) will serve as a key advisor to the Secretary and the Deputy Secretary on resource decisions affecting acquisition program baselines.
- The Deputy Secretary and the secretaries of the military departments will ensure that the USD(A) and the Service Acquisition Executives are more active participants in the program and budget cycles at both DOD and service levels. These senior acquisition officials are to serve as key advisors on resource decisions affecting the baselines of major acquisition programs and on alternatives that may mitigate the impact of such actions.

⁹Defense Management - Report to the President by the Secretary of Defense, July 1989.

- In conjunction with the DOD Comptroller, the USD(A) or the Principal Deputy will exercise so-called apportionment authority with respect to funding for programs passing through successive milestone reviews in order to ensure demonstrable attainment of minimum required accomplishments established in revised DOD directives and the successful completion of all additional exit criteria levied on programs as a result of previous DAB reviews.
- Replacing the Defense Resources Board with the DPRB to help develop stronger links between national defense policies and the resources allocated to specific programs and forces.

Conclusions

We believe that buying more weapon systems than can be afforded with the available resources is the basis for many of the acquisition problems facing DOD today. This chronic lack of adequate funding causes the services to be very protective of the resources they are allocated. The program managers are in turn very protective of their programs. Any sign of weakness could cause OSD, the service headquarters, or the Congress to take funds from the program. In such an environment it is difficult to expect a program manager or a service to admit to a problem before expending every effort to resolve it "in house." As a result, reporting tends to be optimistic.

The Secretary of Defense has to be able to make the hard decisions regarding the performance of weapon systems. It is difficult to argue that performance should not be at the highest level possible. But to ensure that expenditures for performance are reasonable, the value of marginal increases in performance must be traded off against their cost.

We believe that resolving the disconnect between acquisition decisions and resource decisions is a difficult problem. Solving the problem will require DOD to comply with the acquisition procedures laid out in its 5000 series of directives and instructions—starting with establishing reasonable and affordable requirements. DOD should set priorities on the basis of need and affordability and match its needs with the available financial resources. Once a valid need is identified, an acquisition strategy should be developed that allows the system to be produced at an economic rate—many programs are now acquired at rates far less than the economic production rate. Once the DAB approves the acquisition strategy, the program should be provided with stable funding, and then should be protected, to the extent possible, from disruptions caused by the funding decisions of the resources board.

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