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Report to Congressional Committees

October 2007

BUSINESS SYSTEMS MODERNIZATION

Department of the Navy Needs to Establish Management Structure and Fully Define Policies and Procedures for Institutionally Managing Investments

GAO-08-53

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Highlights

Highlights of GAO-08-53, a report to congressional committees

Why GAO Did This Study

In 1995, GAO first designated the Department of Defense's (DOD) business systems modernization program as "high-risk," and continues to do so today. In 2004, Congress passed legislation reflecting prior GAO recommendations that DOD adopt a corporate approach to information technology (IT) business systems investment management, including tiered accountability for business systems at the department and component levels. To support GAO's legislative mandate to review DOD's efforts, GAO assessed whether the investment management approach of one of DOD's components—the Department of the Navy—is consistent with leading investment management best practices. In doing so, GAO applied its IT Investment Management (ITIM) framework and associated methodology, focusing on the stages related to the investment management provisions of the Clinger-Cohen Act of 1996.

What GAO Recommends

GAO recommends that the Department of the Navy establish the management structures and fully define project and portfolio management policies and procedures discussed in GAO's ITIM framework. In comments on a draft of this report, DOD stated that the Department of the Navy was developing policies that should address the investment and portfolio management deficiencies GAO identified.

To view the full product, including the scope and methodology, click on GAO-08-53. For more information, contact Valerie Melvin at (202) 512-6304 or melvinv@gao.gov.

What GAO Found

The Department of the Navy has yet to establish the management structures needed to effectively manage its business systems investments or to fully develop many of the related policies and procedures outlined in GAO's ITIM framework (see table below). The department has implemented two of the nine key practices that call for project-level management structures, policies, and procedures, and none of the five practices that call for portfolio-level policies and procedures. Specifically, it has developed procedures for identifying and collecting information about its business systems to support investment selection and control, and assigned responsibility for ensuring that the information collected during project identification meets the needs of the investment management process. However, the department has not established the management structures needed to support effective investment oversight. It also has not fully documented business system investment policies and procedures for directing Investment Review Board operations, selecting new investments, reselecting ongoing investments, integrating the investment funding and investment selection processes, and developing and maintaining complete business system investment portfolio(s).

Department officials stated that they are aware of the lack of an Investment Review Board and the absence of documented policies and procedures in certain areas of project and portfolio-level management, and are currently working on new guidance to address these areas. According to these officials, the new policies and procedures are expected to be approved by March 2008. However, until the department assigns responsibility for overseeing project-level management and portfolio management to a departmentwide review board and fully defines policies and procedures for both individual projects and portfolios of projects, it risks selecting and controlling these business system investments in a way that is inconsistent, incomplete, and ad hoc, which in turn reduces the chances that these investments will meet mission needs in the most effective manner.

Status of the Department's Project- and Portfolio-Level Management Capabilities

Stage 2: Building the investment foundation	Key practices executed	Stage 3: Developing a complete investment portfolio	Key practices executed
Instituting the investment board	0/2	Defining the portfolio criteria	0/2
Meeting business needs	0/1	Creating the portfolio	0/1
Selecting an investment	0/3	Evaluating the portfolio	0/1
Providing investment oversight	0/1	Conducting post implementation reviews	0/1
Capturing investment information	2/2		
Overall	**2/9**		**0/5**

Source: GAO.

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Abbreviations

CIO	chief information officer
DAS	Defense Acquisition System
DOD	Department of Defense
IT	information technology
ITIM	Information Technology Investment Management
JCIDS	Joint Capabilities Integration and Development System
OMB	Office of Management and Budget
PPBE	Planning, Programming, Budgeting, and Execution

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GAO
Accountability * Integrity * Reliability

United States Government Accountability Office
Washington, DC 20548

October 31, 2007

Congressional Committees:

For decades, the Department of Defense (DOD) has been challenged in modernizing its timeworn business systems.[1] In 1995, we designated DOD's business systems modernization program as high risk, and we continue to designate it as such today.[2] Our research on public and private sector organizations shows that an essential ingredient to a successful systems modernization program is having an effective institutional approach to managing information technology (IT) investments.

In May 2001, we recommended that DOD establish a corporate approach to investment control and decision making.[3] Between 2001 and 2005, we reported that DOD's business systems modernization program was still not being effectively managed,[4] and we made additional investment-related recommendations. Congress subsequently included provisions in the Ronald W. Reagan National Defense Authorization Act for Fiscal Year 2005[5] that reflected our recommendations, including those for establishing and implementing effective business system investment management structures and processes.

[1]Business systems are information systems that include financial and nonfinancial systems and support DOD's business operations, such as civilian personnel, finance, health, logistics, military personnel, procurement, and transportation.

[2]GAO, *High-Risk Series: An Update*, GAO-07-310 (Washington, D.C.: January 2007).

[3]GAO, *Information Technology: Architecture Needed to Guide Modernization of DOD's Financial Operations*, GAO-01-525 (Washington, D.C.: May 17, 2001).

[4]See, for example, GAO, *DOD Business Systems Modernization: Long-standing Weaknesses in Enterprise Architecture Development Need to Be Addressed*, GAO-05-702 (Washington, D.C.: July 22, 2005); *DOD Business Systems Modernization: Billions Being Invested without Adequate Oversight*, GAO-05-381 (Washington, D.C.: Apr. 29, 2005); *DOD Business Systems Modernization: Limited Progress in Development of Business Enterprise Architecture and Oversight of Information Technology Investments*, GAO-04-731R (Washington, D.C.: May 17, 2004); *DOD Business Systems Modernization: Important Progress Made to Develop Business Enterprise Architecture, but Much Work Remains*, GAO-03-1018 (Washington, D.C.: Sept. 19, 2003); and GAO-01-525.

[5]Ronald W. Reagan National Defense Authorization Act for Fiscal Year 2005, Pub. L. No. 108-375, § 332, 118 Stat. 1811, 1851-1856 (Oct. 28, 2004) (codified in part at 10 U.S.C. §2222).

Between 2005 and 2007,[6] we reported that DOD had made important progress in establishing and implementing these structures and processes; however, much remained to be accomplished. Most recently,[7] we reported that, according to DOD officials, investment management practices are performed at the component level, and policies and procedures established for overseeing components' execution of these practices are sufficient. However, DOD had not fully defined many of the related policies and procedures outlined in GAO's IT Investment Management framework.

The Fiscal Year 2005 National Defense Authorization Act directs DOD to, among other things, establish and implement effective IT business system investment management structures and processes. As agreed with your offices and to support the legislative mandate that GAO assess DOD's actions to comply with this requirement, the objective of our review was to determine whether the investment management approach of the Department of the Navy is consistent with leading investment management best practices. To accomplish our objective, we analyzed documents and interviewed agency officials to determine whether the department has developed the structures, policies, and procedures associated with executing those key practices in our IT Investment Management (ITIM) framework[8] that assist departments and agencies in complying with the investment management provisions of the Clinger-Cohen Act of 1996.[9]

[6]GAO, *Business Systems Modernization: DOD Needs to Fully Define Policies and Procedures for Institutionally Managing Investments*, GAO-07-538 (Washington, D.C.: May 11, 2007); *Defense Business Transformation: A Comprehensive Plan, Integrated Efforts, and Sustained Leadership Are Needed to Assure Success*, GAO-07-229T (Washington, D.C.: Nov. 16, 2006); *Business Systems Modernization: DOD Continues to Improve Institutional Approach, but Further Steps Needed*, GAO-06-658 (Washington, D.C.: May 15, 2006); and *DOD Business Systems Modernization: Important Progress Made in Establishing Foundational Architecture Products and Investment Management Practices, but Much Work Remains*, GAO-06-219 (Washington, D.C.: Nov. 23, 2005).

[7]GAO-07-538.

[8]We rated the key practices as "executed" on the basis of whether the agency demonstrated (by providing evidence of performance) that it had met all of the criteria of the key practice. A key practice was rated as "not executed" when we found insufficient evidence of any elements of a practice being fully performed or when we determined that there were significant weaknesses in the department's execution of the key practice.

[9]GAO, *Information Technology Investment Management: A Framework for Assessing and Improving Process Maturity*, GAO-04-394G (Washington, D.C.: March 2004).

We performed our work at Department of the Navy offices in Arlington, Virginia, from February 2007 through September 2007 in accordance with generally accepted government auditing standards. Details on our objective, scope, and methodology are contained in appendix I.

Results in Brief

The Department of the Navy has not yet established the management structures needed to effectively manage its business system investments nor has it fully developed many of the related policies and procedures that our ITIM framework outlines. The department has implemented two of the nine key practices that call for project-level management structures, policies, and procedures, and none of the five practices that call for portfolio-level policies and procedures. Specifically, regarding project-level investments, the department has (1) developed procedures for identifying and collecting information about its business systems to support investment selection and control and (2) assigned responsibility for ensuring that the information collected during project identification meets the needs of the investment management process.

However, the department has not established the necessary management structures needed to support effective investment oversight and has not fully developed business system investment policies and procedures related to seven key project-level management practices. For example, it has not created an Investment Review Board, composed of senior executives from across the agency, to govern business system investments. In addition, policies and procedures do not (1) fully explain the department's IT investment management process (by which it selects, controls, and evaluates IT investments); (2) define how ongoing IT investments are periodically reviewed and verified with respect to the department's business needs; (3) specify how the full range of cost, schedule, and performance data accessible to the department is to be used in making selection decisions; (4) specify processes for identifying, evaluating, and prioritizing reselection of ongoing IT investments; (5) describe how funding decisions are integrated with the process of selecting an investment; and (6) specify the processes for decision making during project oversight and describe a process for how corrective actions should be taken when the project deviates or varies from the project management plan. Further, regarding portfolio management, the department does not have documented policies and procedures for (1) defining the portfolio criteria, (2) creating the portfolio, (3) evaluating the portfolio, and (4) conducting post-implementation reviews of business systems. In addition, the department has not assigned responsibility for managing the portfolio criteria. As discussed in our ITIM guidance,

adequately documenting both the policies and associated procedures that govern how an organization manages its IT projects and investment portfolios is important because doing so provides the basis for having rigor, discipline, and repeatability in how investments are selected and controlled across the entire organization.

Department officials stated that they are aware of the lack of an Investment Review Board and the absence of documented policies and procedures in certain areas of project-level and portfolio-level management; officials also stated that they are currently working on guidance to address these weaknesses. For example, these officials stated that they are drafting new portfolio-level policies and procedures and are developing guidance that is intended to assign IT management roles and responsibilities to new or existing boards. The new policies, procedures, and guidance are expected to be approved by March 2008. Until the department assigns responsibility for overseeing project-level management and portfolio-level management to a departmentwide review board and fully defines policies and procedures for both individual projects and portfolios of projects, it risks not being able to select and control these business system investments in a way that is consistent and complete, which in turn reduces the chances that these investments will meet mission needs in the most effective manner.

To strengthen its business system management capability, we are recommending that the Department of the Navy establish a departmentwide Investment Review Board and fully define the policies and procedures associated with project-level and portfolio-level investment management as discussed in our guidance for IT investment management.[10]

In written comments on a draft of this report, signed by the Deputy Under Secretary of Defense (Business Transformation) and reprinted in appendix II, the department partially concurred with the report's recommendations. It stated that the Department of the Navy was developing policies that should address the investment and portfolio management deficiencies we identified. However, DOD also stated that, based on the Department of the Navy's pending instruction, it is the department's position that a Secretary of Defense directive on the matter will not be required. Our recommendations did not state that DOD should develop a directive;

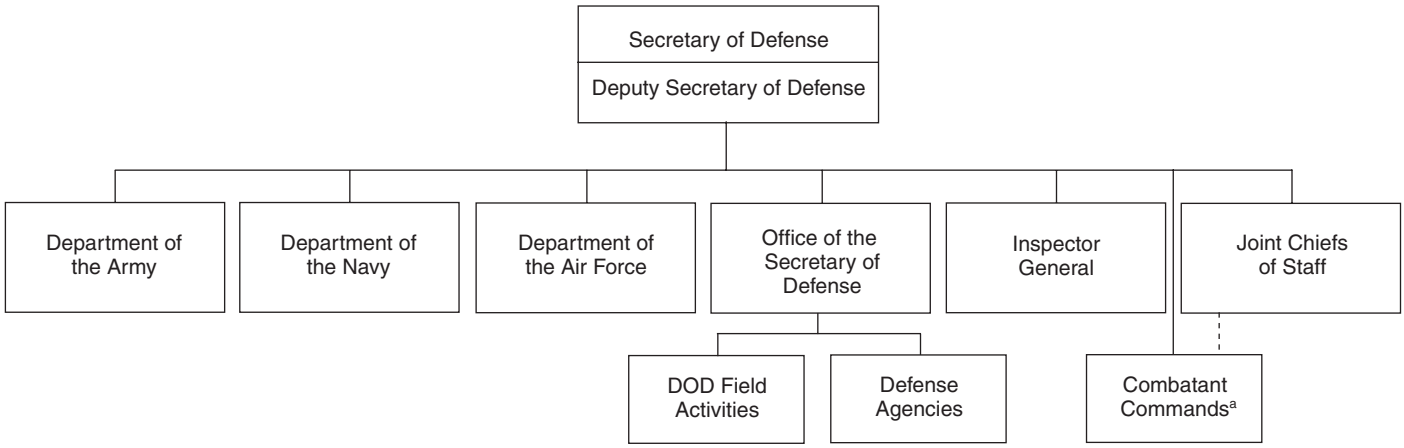
[10]GAO-04-394G.

rather, we emphasized the need for the Department of the Navy to develop policies and procedures.

Background

DOD is a massive and complex organization. To illustrate, it reported that its fiscal year 2006 operations involved approximately $1.4 trillion in assets and $2.0 trillion in liabilities, more than 2.9 million military and civilian personnel, and $581 billion in net cost of operations. Organizationally, DOD includes the Office of the Secretary of Defense, the Chairman of the Joint Chiefs of Staff, the military departments, numerous defense agencies and field activities, and various unified combatant commands that are responsible for either specific geographic regions or specific functions. Figure 1 provides a simplified depiction of DOD's organizational structure.

Figure 1: Simplified DOD Organizational Structure



Source: GAO, based on DOD documentation.

[a]The Chairman of the Joint Chiefs of Staff serves as the spokesman for the commanders of the combatant commands, particularly for the administrative requirements of their commands.

In support of its military operations, DOD performs an assortment of interrelated and interdependent business functions, including logistics management, procurement, health care management, and financial management. As we have previously reported,[11] the systems environment that supports these business functions is overly complex and error prone, and is characterized by (1) little standardization across DOD, (2) multiple

[11]GAO-06-658.

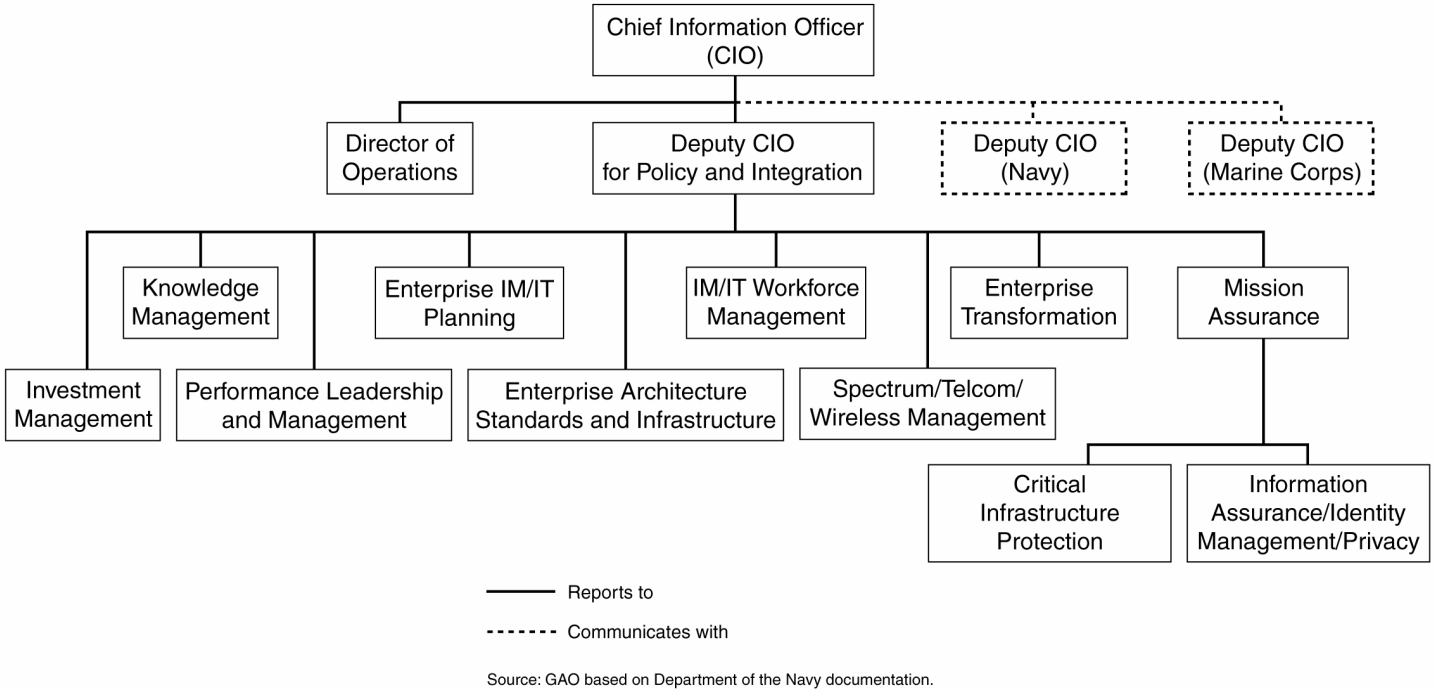
systems performing the same tasks, (3) the same data stored in multiple systems, and (4) the need for data to be entered manually into multiple systems.

Department of the Navy's Mission, Organizational Structure, and Use of IT

The Department of the Navy is a major component of DOD, consisting of two uniformed services: the Navy and the Marine Corps. The department's mission is to maintain, train, and equip combat-ready naval forces capable of winning wars, deterring aggression, and maintaining freedom of the seas. To support this mission, the department performs a variety of interrelated and interdependent business functions, such as logistics and financial management, relying extensively on IT to carry out its operations. In fiscal year 2006, the department's budget for IT was $4.3 billion, of which $3.9 billion (90.3 percent) was allocated to operations and maintenance of existing systems and $424 million (9.7 percent) was allocated to systems in development and modernization. The department was appropriated about $4.2 billion in fiscal year 2007 and requested about $4 billion in fiscal year 2008 to operate, maintain, and modernize business systems and associated infrastructures.

The Chief Information Officer (CIO) for the department is accountable for all IT business system investments for both the Navy and Marine Corps. The CIO's office is organized to align and integrate information management and IT programs across the two services and focus departmentwide efforts in support of warfighter priorities. The CIO is supported by Deputy CIOs for the Navy and Marine Corps and a Deputy CIO for Policy and Integration, who directs the operations of the CIO functional teams. The functional teams are led by team leaders who are subject matter experts in their areas of responsibility and are responsible for implementing the goals and objectives outlined in the department's information management and IT strategic plan, which includes, among other things, ensuring that investments are effectively selected, resourced, and acquired. Figure 2 outlines the department CIO organizational structure.

Figure 2: Department of the Navy CIO Organizational Structure



Source: GAO based on Department of the Navy documentation.

IT Investment Management Is Critical to Achieving Successful Systems Modernization

A corporate approach to IT investment management is characteristic of successful public and private organizations. Recognizing this, Congress enacted the Clinger-Cohen Act of 1996,[12] which requires the Office of Management and Budget (OMB) to establish processes to analyze, track, and evaluate the risks and results of major capital investments in IT systems made by executive agencies.[13] In response to the Clinger-Cohen Act and other statutes, OMB has developed policy and issued guidance for the planning, budgeting, acquisition, and management of federal capital

[12]The Clinger-Cohen Act of 1996, 40 U.S.C. §§ 11101-11704. This act expanded the responsibilities of OMB and the agencies that had been set under the Paperwork Reduction Act with regard to IT management. See 44 U.S.C. 3504(a)(1)(B)(vi) (OMB); and 44 U.S.C. 3506(h)(5) (agencies).

[13]We have made recommendations to improve OMB's process for monitoring high-risk IT investments; see GAO, *Information Technology: OMB Can Make More Effective Use of Its Investment Reviews*, GAO-05-276 (Washington, D.C.: Apr. 15, 2005).

assets.[14] We have also issued guidance in this area[15] that defines institutional structures, such as Investment Review Boards; processes for developing information on investments (such as costs and benefits); and practices to inform management decisions (such as whether a given investment is aligned with an enterprise architecture).

IT Investment Management: A Brief Description

IT investment management is a process for linking IT investment decisions to an organization's strategic objectives and business plans. Consistent with this, the federal approach to IT investment management focuses on selecting, controlling, and evaluating investments in a manner that minimizes risks while maximizing the return on investment.[16]

- During the selection phase, the organization (1) identifies and analyzes each project's risks and returns before committing significant funds to any project and (2) selects those IT projects that will best support its mission needs.
- During the control phase, the organization ensures that projects, as they develop and investment expenditures continue, meet mission needs at the expected levels of cost and risk. If the project is not meeting expectations or if problems arise, steps are quickly taken to address the deficiencies.

[14]This policy is set forth and guidance is provided in OMB Circular A-11 (Nov. 2, 2005) (section 300) and in OMB's *Capital Programming Guide*, which directs agencies to develop, implement, and use a capital programming process to build their capital asset portfolios.

[15]See, for example, GAO-04-394G; GAO, *Information Technology: A Framework for Assessing and Improving Enterprise Architecture Management (Version 1.1)*, GAO-03-584G (Washington, D.C.: April 2003); and *Assessing Risks and Returns: A Guide for Evaluating Federal Agencies' IT Investment Decision-making*, GAO/AIMD-10.1.13 (Washington, D.C.: February 1997).

[16]GAO-04-394G; GAO/AIMD-10.1.13; GAO, *Executive Guide: Improving Mission Performance Through Strategic Information Management and Technology*, GAO/AIMD-94-115 (Washington, D.C.: May 1994); and Office of Management and Budget, *Evaluating Information Technology Investments*, *A Practical Guide* (Washington, D.C.: November 1995).

- During the evaluation phase, expected results are compared with actual results after a project has been fully implemented. This comparison is done to (1) assess the project's impact on mission performance, (2) identify any changes or modifications to the project that may be needed, and (3) revise the investment management process based on lessons learned.

Overview of GAO's ITIM Maturity Framework

Our ITIM framework consists of five progressive stages of maturity for any given agency relative to selecting, controlling, and evaluating its investment management capabilities.[17] (See fig. 3 for the five ITIM stages of maturity.) This framework is grounded in our research of IT investment management practices of leading private and public sector organizations. The framework can be used to assess the maturity of an agency's investment management processes and as a tool for organizational improvement. The overriding purpose of the framework is to encourage investment processes that increase business value and mission performance, reduce risk, and increase accountability and transparency in the decision process. We have used the framework in several of our evaluations,[18] and a number of agencies have adopted it.

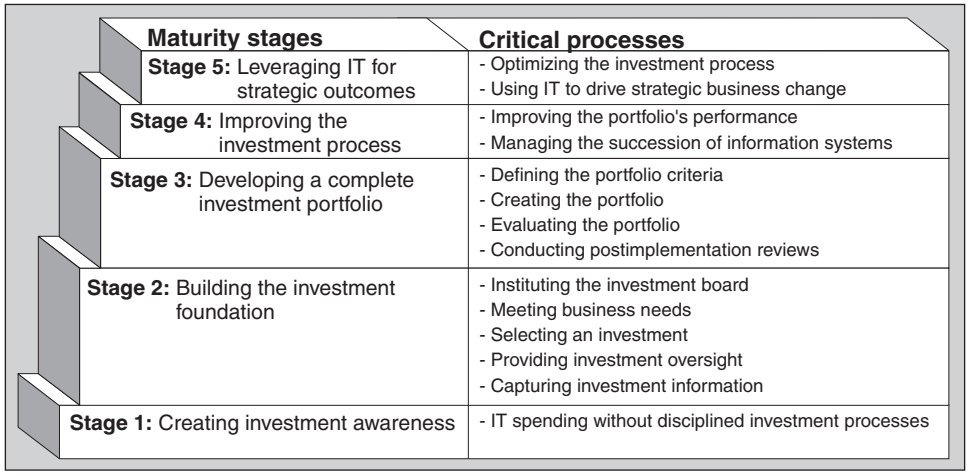
ITIM's five maturity stages represent steps toward achieving stable and mature processes for managing IT investments. Each stage builds on the lower stages; the successful attainment of each stage leads to improvement in the organization's ability to manage its investments. With the exception of the first stage, each maturity stage is composed of "critical processes" that must be implemented and institutionalized in order for the organization to achieve that stage. These critical processes

[17]GAO-04-394G.

[18]GAO, *Information Technology: Centers for Medicare and Medicaid Services Needs to Establish Critical Investment Management Capabilities*, GAO-06-12 (Washington, D.C.: Oct. 28, 2005); *Information Technology: HHS Has Several Investment Management Capabilities in Place, but Needs to Address Key Weaknesses*, GAO-06-11 (Washington, D.C.: Oct. 28, 2005); *Information Technology: FAA Has Many Investment Management Capabilities in Place, but More Oversight of Operational Systems Is Needed*, GAO-04-822 (Washington, D.C.: Aug. 20, 2004); *Bureau of Land Management: Plan Needed to Sustain Progress in Establishing IT Investment Management Capabilities*, GAO-03-1025 (Washington, D.C.: Sept. 12, 2003); *Information Technology: Departmental Leadership Crucial to Success of Investment Reforms at Interior*, GAO-03-1028 (Washington, D.C.: Sept. 12, 2003); *United States Postal Service: Opportunities to Strengthen IT Investment Management Capabilities*, GAO-03-3 (Washington, D.C.: Oct. 15, 2002); and *Information Technology: DLA Needs to Strengthen Its Investment Management Capability*, GAO-02-314 (Washington, D.C.: Mar. 15, 2002).

are further broken down into key practices that describe the types of activities that an organization should be performing to successfully implement each critical process. It is not unusual for an organization to be performing key practices from more than one maturity stage at the same time. However, our research has shown that agency efforts to improve investment management capabilities should focus on implementing all lower stage practices before addressing the higher stage practices.

Figure 3: The Five ITIM Stages of Maturity with Critical Processes



Source: GAO.

In the ITIM framework, Stage 2 critical processes lay the foundation for sound IT investment management by helping the agency to attain successful, predictable, and repeatable investment management processes at the project level. Specifically, Stage 2 encompasses building a sound investment management foundation by establishing basic capabilities for selecting new IT projects. This stage also involves developing the capability to control projects so that they finish predictably within established cost and schedule expectations and developing the capability to identify potential exposures to risk and put in place strategies to mitigate that risk. Further, it involves evaluating completed projects to ensure they meet business needs and collecting lessons learned to improve the IT investment management process. The basic management processes established in Stage 2 lay the foundation for more mature management capabilities in Stage 3, which represents a major step forward in maturity, in which the agency moves from project-centric processes to a portfolio approach, evaluating potential investments by how well they support the agency's missions, strategies, and goals.

Stage 3 requires that an organization continually assess both proposed and ongoing projects as parts of a complete investment portfolio—an integrated and competing set of investment options. It focuses on establishing a consistent, well-defined perspective on the IT investment portfolio and maintaining mature, integrated selection (and reselection), control, and post-implementation evaluation processes. This portfolio perspective allows decision makers to consider the interaction among investments and the contributions to organizational mission goals and strategies that could be made by alternative portfolio selections, rather than focusing exclusively on the balance between the costs and benefits of individual investments. Organizations that have implemented Stages 2 and 3 practices have capabilities in place that assist in establishing selection; control; and evaluation structures, policies, procedures, and practices that are required by the investment management provisions of the Clinger-Cohen Act.[19]

Stages 4 and 5 require the use of evaluation techniques to continuously improve both the investment portfolio and the investment processes in order to better achieve strategic outcomes. At Stage 4, an organization has the capacity to conduct IT succession activities and, therefore, can plan and implement the deselection of obsolete, high-risk, or low-value IT investments. An organization with Stage 5 maturity conducts proactive monitoring for breakthrough information technologies that will enable it to change and improve its business performance.

DOD and Department of the Navy Approach for Identifying, Funding, and Acquiring System Investments

DOD's major system investments (i.e., weapons and business systems) are governed by three management systems that focus on defining needs, budgeting for, and acquiring investments to support the mission—the Joint Capabilities Integration and Development System (JCIDS); the Planning, Programming, Budgeting, and Execution (PPBE) system; and the Defense Acquisition System (DAS). In addition, DOD's business systems are subject to a fourth management system, which, for purposes of this report, we refer to as the Business Investment Management System. For each of these systems, DOD relies on its components to execute the underlying policies and procedures. According to DOD, the four management systems, collectively, are the means by which DOD—and its components—selects, controls, and evaluates its business systems investments.

[19]The Clinger-Cohen Act of 1996, 40 U.S.C. §§ 11311-11313.

Joint Capabilities Integration and Development System

JCIDS is a needs-driven, capabilities-based approach to identify mission needs and meet future joint forces challenges. It is intended to identify future capabilities for DOD; address capability gaps and mission needs recognized by the Joint Chiefs of Staff or derived from strategic guidance, such as the National Security Strategy Report[20] or Quadrennial Defense Review;[21] and identify alternative solutions by considering a range of doctrine, organization, training, materiel, leadership and education, personnel, and facilities solutions. According to DOD, the Joint Chiefs of Staff—through the Joint Requirements Oversight Council—has primary responsibility for defining and implementing JCIDS. All JCIDS documents are submitted to the Joint Chiefs of Staff, which determines whether the proposed system has joint implications or is component-unique. If it is designated as joint interest, then the Joint Requirements Oversight Council is responsible for approving and validating the documents. If it is not designated as having joint interests, the sponsoring component is responsible for validation and approval.

Planning, Programming, Budgeting, and Execution System

PPBE is a calendar-driven approach that is composed of four phases that occur over a moving 2-year cycle. The four phases—planning, programming, budgeting, and executing—define how budgets for each component and DOD as a whole are created, vetted, and executed. As recently reported,[22] the components start programming and budgeting for addressing a JCIDS-identified capability gap or mission need several years before actual product development begins and before the Office of the Secretary of Defense formally reviews the components' programming and budgeting proposals (i.e., Program Objective Memorandums). Once reviewed and approved, the financial details in the Program Objective Memorandums become part of the President's budget request to Congress. During budget execution, components may submit program change

[20]The *National Security Strategy Report* required by 50 U.S.C. 404a is a comprehensive report on the national security strategy of the United States submitted by the President to Congress.

[21]See 10 U.S.C. 118. The Quadrennial Defense Review is a comprehensive examination of the national defense strategy, force structure, force modernization plans, infrastructure, budget plan, and other elements of the defense program and policies of the United States with a view toward determining and expressing the defense strategy of the United States and establishing a defense program for the next 20 years.

[22]GAO, *Best Practices*: *An Integrated Portfolio Management Approach to Weapon System Investments Could Improve DOD's Acquisition Outcomes*, GAO-07-388 (Washington, D.C.: Mar. 30, 2007).

proposals or budget change proposals, or both (e.g., program cost increases or schedule delays). According to DOD, the Under Secretary of Defense (Policy), the Director for Program Analysis and Evaluation,[23] and the Under Secretary of Defense (Comptroller) have primary responsibility for defining and implementing the PPBE system.

Defense Acquisition System

DAS[24] is a framework-based approach that is intended to translate mission needs and requirements into stable, affordable, and well-managed acquisition programs, and it consists of five key program life-cycle phases. These five phases are as follows:

Concept Refinement: Intended to refine the initial JCIDS-validated system solution (concept) and create a strategy for acquiring the investment solution. A decision is made at the end of this phase (Milestone A decision) regarding whether to move to the next phase (Technology Development).

Technology Development: Intended to determine the appropriate set of technologies to be integrated into the investment solution by iteratively assessing the viability of various technologies while simultaneously refining user requirements. Once the technology has been demonstrated in a relevant environment, a decision is made (Milestone B decision) regarding whether to move to the next phase (System Development and Demonstration).

System Development and Demonstration: Intended to develop a system or a system increment and demonstrate through developer testing that the system or system increment can function in its target environment. A decision is made at the end of this phase (Milestone C decision) regarding whether to move to the next phase (Production and Deployment).

Production and Deployment: Intended to achieve an operational capability that satisfies the mission needs, as verified through independent

[23]The Director for Program Analysis and Evaluation is the principal staff assistant who conducts independent analysis for, and provides independent advice on, all DOD program and evaluation matters to the Secretary and Deputy Secretary of Defense.

[24]As described in DOD Directive 5000.1, May 12, 2003, and DOD Instruction 5000.2, May 12, 2003.

operational test and evaluation, and ensures that the system is implemented at all applicable locations.

Operations and Support: Intended to operationally sustain the system in the most effective manner over its life cycle.

A key principle of DAS is that investments are assigned a category, where programs of increasing dollar value and management interest are subject to more stringent oversight. For example, Major Defense Acquisition Programs[25] and Major Automated Information Systems[26] are large, expensive programs subject to the most extensive statutory and regulatory reporting requirements and, unless delegated, are reviewed by acquisition boards at the DOD level. Smaller and less risky acquisitions are generally reviewed at the component executive or lower levels. Another key principle is that DAS requires acquisition management under the direction of a milestone decision authority.[27] The Milestone Decision Authority—with support from the Program Manager and advisory boards, such as the

[25]A Major Defense Acquisition Program is an acquisition program that is estimated by the Under Secretary of Defense for Acquisition, Technology, and Logistics to require an eventual total expenditure for research, development, and test and evaluation of more than $365 million (fiscal year 2000 constant dollars) or, for procurement, of more than $2 billion (fiscal year 2000 constant dollars).

[26]A Major Automated Information System is a program or initiative that is so designated by the Assistant Secretary of Defense (Networks and Information Integration)/Chief Information Officer or that is estimated to require program costs in any single year in excess of $32 million (fiscal year 2000 constant dollars), total program costs in excess of $126 million (fiscal year 2000 constant dollars), or total life-cycle costs in excess of $378 million (fiscal year 2000 constant dollars).

[27]According to DOD, the milestone decision authority is the designated individual who has overall responsibility for an investment. This person has the authority to approve an investment's progression in the acquisition process and is responsible for reporting cost, schedule, and performance results. For example, the milestone decision authority for a Major Defense Acquisition Program when not delegated to the component level, is the Under Secretary of Defense for Acquisition, Technology, and Logistics, and the milestone decision authority for a Major Automated Information System is the Assistant Secretary of Defense (Networks and Information Integration)/Chief Information Officer or a designee.

Defense Acquisition Board[28] and the IT Acquisition Board[29]—determines the project's baseline cost, schedule, and performance commitments. The Under Secretary of Defense for Acquisition, Technology, and Logistics has primary responsibility for defining and implementing DAS.

DOD relies on its components to execute these investment management policies and procedures. To implement DOD's JCIDS process, the Department of the Navy has developed service-level processes—the Naval Capabilities Development Process and the Marine Corps Expeditionary Force Development System—to support the requirements generation process of JCIDS. To implement the PPBE process, department officials stated that they use their budget guidance manual. Finally, to implement the DAS process, the department has developed guidance that outlines a systematic acquisition framework that mirrors the framework defined by DOD and includes the same three event-based milestones and associated five program life-cycle phases.

Business Investment Management System

The Business Investment Management System is a calendar-driven approach that is described in terms of governance entities, tiered accountability, and certification reviews and approvals. This system was initiated in 2005, when DOD reassigned responsibility for providing executive leadership for the direction, oversight, and execution of its business systems modernization efforts to several entities. These entities and their responsibilities include the following:

- The Defense Business Systems Management Committee serves as the highest-ranking governance body for business systems modernization activities.
- The Principal Staff Assistants serve as the certification authorities for business system modernizations in their respective core business missions.

[28]The Defense Acquisition Board—chaired by the Under Secretary of Defense for Acquisition, Technology, and Logistics—conducts reviews for major defense acquisition programs at major program milestones and documents the decisions resulting from the review in an Acquisition Decision Memorandum.

[29]The IT Acquisition Board—chaired by the Assistant Secretary of Defense (Networks and Information Integration)/Chief Information Officer—conducts reviews for Major Automated Information System at major program milestones and documents the decision(s) resulting from the review in an Acquisition Decision Memorandum.

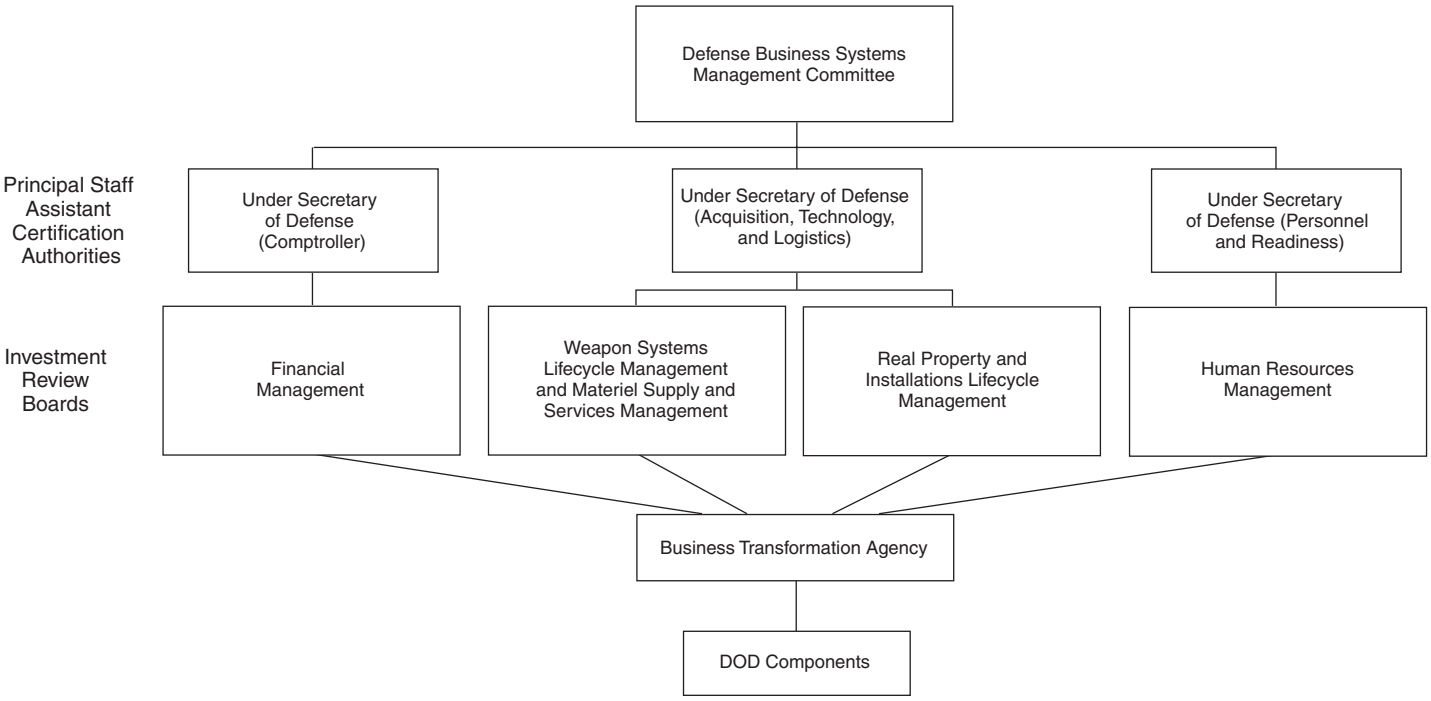
- The Investment Review Boards are chartered by the principal staff assistants and are the review and decision-making bodies for business system investments in their respective areas of responsibility.[30] The boards are also responsible for recommending certification for all business system investments costing more than $1 million.

- The component precertification authority is accountable for the component's business system investments and acts as the component's principal point of contact for communication with the Investment Review Boards. The Department of the Navy has designated its CIO to be the Precertification Authority.

- The Business Transformation Agency is responsible for leading and coordinating business transformation efforts across DOD. The agency is organized into seven directorates, one of which is the Defense Business Systems Acquisition Executive—the component acquisition executive for DOD-wide business systems and initiatives. This directorate is responsible for developing, coordinating, and integrating enterprise-level projects, programs, systems, and initiatives—including managing resources such as fiscal, personnel, and contracts for assigned systems and programs. Figure 4 provides a simplified illustration of the relationships among these entities.

[30]The four Investment Review Boards are (1) financial management, established by the Deputy Under Secretary of Defense for Financial Management; (2) weapon systems life-cycle management and materiel supply and services management; (3) real property and installations life-cycle management, both established by the Under Secretary of Defense (Acquisition, Technology, and Logistics); and (4) human resources management, established by the Under Secretary of Defense for Personnel and Readiness.

Figure 4: Working Relationships among DOD Business Investment Management System Governance Entities



Source: GAO, based on DOD documentation.

According to DOD, in 2005 it also adopted a tiered accountability approach to business transformation. Under this approach, responsibility and accountability for business system investment management is allocated among DOD (i.e., Office of the Secretary of Defense) and the components, based on the amount of development/modernization funding involved and the investment's "tier." DOD is responsible for ensuring that all business systems with a development/modernization investment in excess of $1 million are reviewed by the Investment Review Boards for compliance with the business enterprise architecture, certified by the principal staff assistants, and approved by the Defense Business Systems Management Committee. Components are responsible for certifying development/modernization investments with total costs of $1 million or less. All DOD development and modernization efforts are assigned a tier on the basis of the acquisition category or the size of the financial investment, or both. According to DOD, a system is given a tier designation when it passes through the certification process. Table 1 describes the investment tiers and identifies the associated reviewing and approving entities for DOD and the Department of the Navy.

Table 1: DOD and Department of the Navy Business System Investment Tiers

Tier	Description	Reviewing/Approving entities
Tier 1	Major Automated Information Systems and Major Defense Acquisition Programs.	Certified by Investment Review Boards and Defense Business Systems Management Committee; precertified by Department of the Navy CIO.
Tier 2	Systems exceeding $10 million in total development/modernization costs, but not designated Major Automated Information Systems or Major Defense Acquisition Programs.	Certified by Investment Review Boards and Defense Business Systems Management Committee; precertified by Department of the Navy CIO.
Tier 3	Systems exceeding $1 million and up to $10 million in total development/modernization costs.	Certified by Investment Review Boards and Defense Business Systems Management Committee; precertified by Department of the Navy CIO.
Tier 4	All other business systems (i.e., those systems with development/modernization costs of $1 million or less).	Certified by Department of the Navy CIO.
Non-Tier	Those systems that have no development or modernization costs that are in sustainment or steady state.	Reviewed by Functional Area Managers and Department of the Navy Deputy CIOs for Navy and Marine Corps.

Sources: DOD and Department of the Navy.

DOD's business investment management system includes two types of reviews for business systems: certification and annual reviews. Certification reviews apply to new modernization projects with total costs over $1 million. These reviews focus on program alignment with the business enterprise architecture and must be completed before components obligate funds for programs. The annual reviews apply to all business programs and are intended to determine whether the system development effort is meeting its milestones and addressing its Investment Review Board certification conditions.

Certification reviews and approvals: Tier 1 through 3 business system investments in development and modernization are certified at two levels—components precertify and DOD certifies and approves these system investments. At the component level, program managers prepare, enter, maintain, and update information about their investments in their data repository, such as regulatory compliance reporting, an architectural profile, and requirements for investment certification and annual reviews. The component precertification authority validates that the system information is complete and accessible on the repository, reviews system compliance with the business enterprise architecture and enterprise transition plan, and verifies the economic viability analysis. This

information is then transferred to DOD's IT Portfolio Repository.[31] The precertification authority asserts the status and validity of the investment information by submitting a component precertification letter to the appropriate Investment Review Board for its review.

Annual reviews: Tier 1 through 4 business system investments are annually reviewed at the component and DOD-levels. At the component level, program managers annually review and update information on all tiers of system investments that are identified in their data repository. For Tier 1 through 3 systems that are in development or being modernized, information is updated on cost, milestones, and risk variances and actions or issues related to certification conditions. The precertification authority then verifies and submits the information for these business system investments for the DOD Investment Review Board's review in an annual review assertion letter. The letter addresses system compliance with the DOD business enterprise architecture and the enterprise transition plan and includes investment cost, schedule, and performance information.[32]

At the DOD level, the Investment Review Boards annually review investments for certified Tier 1 through 3 business systems that are in development or modernization. These reviews focus on program compliance with the business enterprise architecture, program cost and performance milestones, and progress in meeting certification conditions. The Investment Review Boards can revoke an investment's certification when the system has significantly failed to achieve performance commitments (i.e., capabilities and costs). When this occurs, the component must address the Investment Review Board's concerns and resubmit the investment for certification.

Department of the Navy Precertification Process

As stated earlier, DOD relies on its components to execute investment management policies and procedures. The Department of the Navy has developed a precertification process for its business systems, which is intended to ensure that new or existing systems that are being modernized

[31]DOD's IT portfolio repository is the authoritative repository for certain information about DOD's business systems, such as system names and the responsible DOD components that are required for the certification, approval, and annual reviews of these business system investments.

[32]In addition, each component precertification authority submits a list of system names to the Investment Review Boards on a semiannual basis, to include Tier 4 systems and systems in operations and maintenance that have been reviewed at the component level.

undergo proper scrutiny prior to being precertified by the department's Precertification Authority. The precertification process is initiated by the Program Manager, who is responsible for completing all data elements required for a specific tier, including entering data and attachments into the department's repository and entering funding information into the DOD budgeting database.

After the precertification package has been completed by the Program Manager, it is to be reviewed by both Functional Area Managers and the Deputy CIOs for the Navy and Marine Corps. The Functional Area Managers' primary responsibilities are to functionally review data for each defense business system for which they are the lead or stakeholder and ensure that IT and business processes are aligned. The primary responsibilities of the Deputy CIOs are to technically review each defense business system within their service and verify that the system's architecture complies with the department's enterprise architecture and the DOD business enterprise architecture. The final task of the Deputy CIO and the Functional Area Managers is to provide a recommendation to the department Precertification Authority as to whether or not the business system should be certified. The reviews of the Deputy CIOs and Functional Area Managers may occur concurrently.

Following the Functional Area Manager and Deputy CIO reviews, a business system is to be sent to the department's CIO for final approval. The CIO is responsible for reviewing Tier 1 through 4 submissions, precertifying Tier 1 through 3 defense business system investments, and certifying Tier 4 investments. The CIO is also responsible for monitoring the activities of the Functional Area Managers and the Deputy CIOs, and for ensuring that functional area manager coordination is effective and sufficient for identifying redundant investments. Once a Tier 1 through 3 investment has been precertified, the CIO is to complete, among other things, a precertification letter and send the certification package to DOD for review by the applicable DOD Investment Review Board and Defense Business Systems Management Committee.

Table 2 lists decision-making personnel involved in the department's investment management process and provides a description of their key responsibilities.

Table 2: Department of the Navy Investment Management Governance Entities and Responsibilities

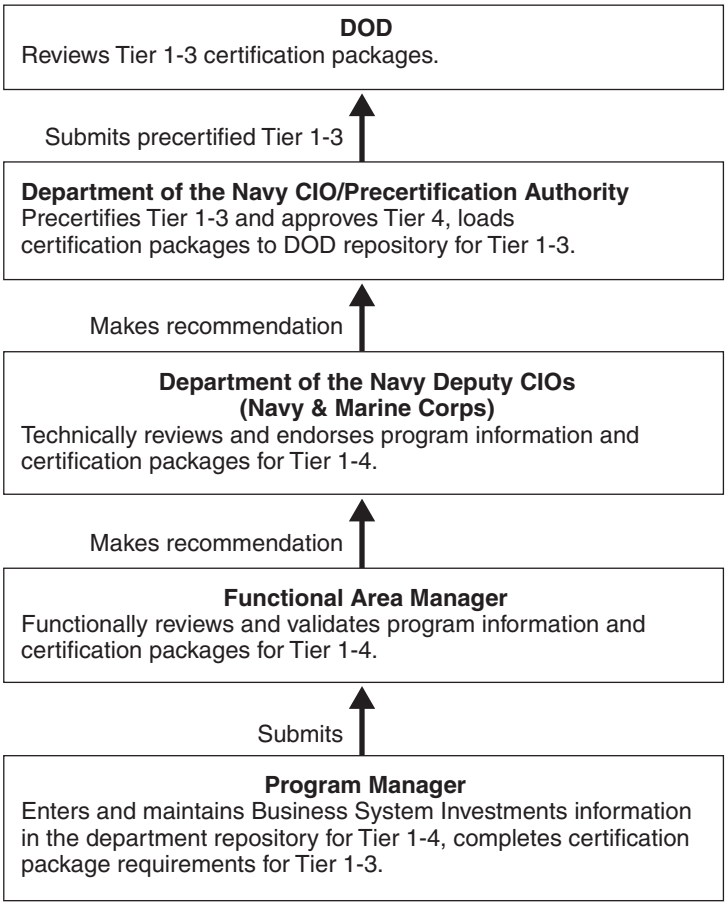
Entity	Roles and responsibilities	Composition
Precertification Authority	• Precertify all Tier 1-3 systems and submit certification packages to DOD Investment Review Board • Certify all Tier 4 systems	Department of the Navy Chief Information Officer
Department of the Navy Deputy CIO–Navy and Marine Corps	• Technically review certification packages • Verify compliance with department and business enterprise architecture • Endorse system information • Recommend to the department CIO whether to approve system	Department of the Navy Deputy CIO for Navy Department of the Navy Deputy CIO for Marine Corps
Functional Area Managers	• Functionally review certification packages • Ensure IT/business process alignment • Validate system information • Recommend to the department CIO whether to approve system	Comprised of 32 Functional Area Managers: 16 Navy, 12 Marine Corps, and 4 Secretariat-level. Functional Area Managers are divided into the five core business mission areas.[a]
Program Manager	• Prepare certification packages for their systems • Enter and maintain system information in department's repository	System owner/manager

Source: GAO analysis of Department of the Navy data.

[a]DOD has five core business mission areas: human resources management, financial management, materiel supply and services management, weapon system life-cycle management, and real property and installations life-cycle management.

Figure 5 shows a simplified overview of the process flow of precertification reviews and approvals for the Department of the Navy.

Figure 5: Department of the Navy Precertification Review and Approval Process



Source: GAO, based on Department of the Navy documentation.

Department of the Navy Has Not Yet Established the Management Structures Needed to Effectively Manage Business System Investments and Has Not Fully Defined Many of the Related Policies and Procedures

Although DOD relies on its components to execute investment management policies and procedures,[33] the Department of the Navy has not yet established the management structures needed to effectively manage its business system investments or fully developed many of the related policies and procedures outlined in our ITIM framework. Relative to its business system investments, the department has implemented two of the nine key practices that call for project-level management structures, policies, and procedures and none of the five key practices that call for portfolio-level policies and procedures. Department officials stated that they are currently working on guidance to address these weaknesses. For example, the officials stated that they are drafting new portfolio-level policies and procedures and are developing guidance that is intended to assign IT management roles and responsibilities to new or existing boards. The new policies and procedures and guidance are expected to be approved by March 2008. According to our ITIM framework, adequately documenting both the policies and the associated procedures that govern how an organization manages IT projects and investment portfolios is important because doing so provides the basis for having rigor, discipline, and repeatability in how investments are selected and controlled across the entire organization.

Until the department establishes the necessary management structure and fully defines policies and procedures for both individual projects and the portfolios of projects, it risks not being able to select and control these business system investments in a consistent and complete manner, which in turn reduces the chances that these investments will meet mission needs in the most effective manner.

Department of the Navy Has Yet to Build a Foundation for Project-Level Investment Management

At ITIM Stage 2, an organization has attained a repeatable and successful IT project-level investment control process and basic selection processes. Through these processes, the organization can identify project expectation gaps early and take the appropriate steps to address them. ITIM Stage 2 critical processes include (1) defining investment board operations, (2) identifying the business needs for each investment, (3) developing a basic process for selecting new proposals and reselecting ongoing investments, (4) developing project-level investment control processes, and (5)

[33]These investment management policies and procedures include precertifying Tier 1 through 3 business system investments by the component. These systems are then reviewed and certified by DOD. Tier 4 systems are certified by the components.

collecting information about existing investments to inform investment management decisions.

Table 3 describes the purpose of each of these Stage 2 critical processes.

Table 3: Stage 2 Critical Processes—Building the Investment Foundation

Critical process	Purpose
Instituting the investment board	To define and establish an appropriate IT investment management structure and the processes for selecting, controlling, and evaluating IT investments.
Meeting business needs	To ensure that IT projects and systems support the organization's business needs and meet user needs.
Selecting an investment	To ensure that a well-defined and disciplined process is used to select new IT proposals and reselect ongoing investments.
Providing investment oversight	To review the progress of IT projects and systems, using predefined criteria and checkpoints, in meeting cost, schedule, risk, and benefit expectations and to take corrective action when these expectations are not being met.
Capturing investment information	To make information available to decision makers to evaluate the impacts and opportunities created by proposed (or continuing) IT investments.

Source: GAO.

Within these five critical processes are nine key practices that call for policies and procedures associated with effective project-level management. The department has fully defined the policies and procedures for two of these nine processes. Specifically, it has policies and procedures for capturing investment information by submitting, updating, and maintaining investment information in its repository and loading information to the DOD repository. Further, the department has assigned its CIO the responsibility of ensuring that information contained in its repository is accurate and complete.

However, the management structures and policies and procedures associated with the remaining seven project-level management practices are missing critical elements needed to effectively carry out essential investment management activities. For example:

- The department has not yet established an Investment Review Board, composed of senior executives from its IT and business units, to define and implement the organization's IT investment governance process. Without an Investment Review Board, the department's ability to ensure that investment decisions are consistent and reflect the needs of the organization is limited.

- The department does not have a documented IT investment management process that completely explains the agency's selection, control, and evaluation of IT investments. Without such an investment management process, the department may not make consistent decisions regarding its IT investments.

- The department's policies and procedures do not explain how ongoing IT investments are periodically reviewed and verified relative to meeting the business needs of its organization and users. Without documenting how officials are to ensure that IT business system investments maintain alignment with the organization's strategic plans and business goals and objectives, the department cannot ensure a consistent selection of investments that best meet its needs and priorities.

- The department's procedures for selecting new investments do not specify how the full range of cost, schedule, and benefit data are used by department officials (CIO, Deputy CIOs, and Functional Area Managers) in making selection decisions. Without documenting how these officials are to consider factors such as cost, schedule, and benefits when making selection decisions, the department cannot ensure that it can consistently and objectively select system investments to best meet its needs and priorities.

- Policies and procedures do not specify how reselection decisions (i.e., annual review decisions) consider investments that are in operations and maintenance. Without policies and procedures, its ability to make informed and consistent reselection and termination decisions is limited.

- Policies and procedures do not specify how funding decisions are integrated into the process of selecting an investment. Without considering its budget constraints and opportunities, the department risks making investment decisions that do not effectively consider the relative merits of various projects and systems when funding limitations exist.

- Policies and procedures for providing oversight into the department's investment management activities do not specify the processes for decision making during project oversight and do not describe how corrective actions should be taken when the project deviates or varies from the project management plan. Without such policies and procedures, the department risks investing in systems that are duplicative, stovepiped, nonintegrated, and unnecessarily costly to manage, maintain, and operate.

Table 4 summarizes our findings relative to the department's execution of the nine key practices for policies and procedures needed to manage IT investments at the project level.

Table 4: Summary of Policies and Procedures for Stage 2 Critical Processes—Building the Investment Foundation

Critical process	Key practice	Rating	Summary of evidence
Instituting the investment board	1. An enterprisewide IT investment board composed of senior executives from IT and business units is responsible for defining and implementing the organization's IT investment governance process.	Not executed	The department has not yet established an IT investment board composed of senior executives from across the department that has responsibility for defining and implementing its IT investment governance process. Department officials stated that they are currently developing guidance that is intended to assign IT management roles and responsibilities to new or existing boards. This new guidance is expected to be completed by March 2008.
	2. The organization has a documented IT investment process directing each investment board's operations.	Not executed	Although the department has developed certain guidance that describes its precertification of defense business systems and the specific roles and responsibilities of individuals involved in the review of these business systems, the department does not have a documented IT investment management process that fully explains its selection, control, and evaluation of IT investments. Also, the department has yet to establish an investment board that oversees its IT investment management process. According to department officials, it is currently developing new guidance that is intended to explain how JCIDS, PPBE, and DAS are used to select, control, and evaluate IT investments; they expect this new guidance to be completed by March 2008.
Meeting business needs	1. The organization has documented policies and procedures for identifying IT projects or systems that support the organization's ongoing and future business needs.	Not executed	The department has defined a process intended to ensure that proposed IT business system investments support its ongoing and future business needs by requiring Tier 1 through 4 systems going through the precertification process to comply with the department's enterprise architecture and the DOD business enterprise architecture. Although department officials stated that Functional Area Managers and Deputy CIOs conduct annual reviews of ongoing IT investments, this process is not currently documented. According to officials, the department intends to revise the Precertification Workflow Guidance to include the annual review of investments in operations and maintenance by March 2008.
Selecting an investment	1. The organization has documented policies and procedures for selecting new IT proposals.	Not executed	The department has not defined a structured method for identifying, evaluating, prioritizing, and selecting new business system investments that addresses all needed aspects of selecting such systems. According to department officials, selection of new business system investments occurs in the JCIDS, PPBE, and DAS processes. However, the department's processes do not specify how cost, schedule, and benefit data are to be used in making selection decisions.

Critical process	Key practice	Rating	Summary of evidence
	2. The organization has documented policies and procedures for reselecting ongoing IT investments.	Not executed	The department does not have documented policies and procedures for reselecting ongoing IT investments that specify processes for identifying, evaluating, and prioritizing these investments. According to department officials, the Precertification Workflow Guidance will be revised to include the annual review of IT investments in operations and maintenance by March 2008.
	3. The organization has documented policies and procedures for integrating funding with the process of selecting an investment.	Not executed	The department does not have policies and procedures for integrating funding with the process of selecting an investment. Specifically, it does not specify how funding decisions are integrated with the process of selecting an investment and does not specify how officials use this information in carrying out decisions on system certification and approvals.
Providing investment oversight	1. The organization has documented policies and procedures for management oversight of IT projects and systems.	Not executed	The department does not have well-defined policies and procedures for overseeing the management of IT projects and systems. For example, although it has assigned roles and responsibilities for overseeing business system investments and states that its management oversight is accomplished through the acquisition process, the department has not specified the processes for decision making during project oversight and has not described how corrective actions should be taken when the project deviates or varies from the project management plan.
Capturing investment information	1. The organization has documented policies and procedures for identifying and collecting information about IT projects and systems to support the investment management process.	Executed	The department's Precertification Workflow Guidance and repository guidance describe the procedures for submitting, updating, and maintaining information in the department repository and for loading this information into the DOD repository.
	2. An official is assigned responsibility for ensuring that the information collected during project and systems identification meets the needs of the investment management process.	Executed	The department has assigned responsibility to the CIO for ensuring that the information collected during project and systems identification meets the needs of the investment management process. Specifically, the CIO is responsible for ensuring that investment information contained in the department repository and the DOD repository is accurate and complete.

Source: GAO.

According to department officials, they are aware of the absence of documented policies and procedures in certain areas of project-level management, and plan to issue new policies and procedures addressing these areas by March 2008. However, until the department has documented IT investment management policies and procedures that include fully defined Stage 2 activities, specify the linkages between the various related processes, and describe how investments are to be governed in the operations and maintenance phase, it risks not being able to carry out investment management activities in a consistent and disciplined manner. Moreover, the department risks selecting investments that will not effectively meet its mission needs.

Department of the Navy Has Not Yet Defined the Policies and Procedures Associated with Effective Portfolio-Level Management

At Stage 3, an organization has defined the critical processes for managing its investment as a portfolio or set of portfolios.[34] Portfolio management is a conscious, continuous, and proactive approach to allocating limited resources among competing initiatives in light of the investments' relative benefits. Taking an agencywide perspective enables an organization to consider its investments comprehensively, so that collectively the investments optimally address the organization's missions, strategic goals, and objectives. Managing IT investments as portfolios also allows an organization to determine its priorities and make decisions about which projects to fund based on analyses of the relative organizational value and risks of all projects, including projects that are proposed, under development, and in operation. Although investments may initially be organized into subordinate portfolios—based on, for example, business lines or life-cycle stages—and managed by subordinate Investment Review Boards, they should ultimately be aggregated into enterprise-level portfolios.

According to ITIM, Stage 3 involves four critical processes (1) defining the portfolio criteria; (2) creating the portfolio; (3) evaluating (i.e., overseeing) the portfolio; and (4) conducting post-implementation reviews. Within these critical processes are five key practices that call for policies and procedures to ensure effective portfolio management. Table 5 summarizes the purpose of each of these critical processes.

[34]Investment portfolios are integrated agencywide collections of investments that are assessed and managed collectively on the basis of common criteria.

Table 5: Stage 3 Critical Processes—Developing a Complete Investment Portfolio

Critical process	Purpose
Defining the portfolio criteria	To ensure that the organization develops and maintains IT portfolio selection criteria that support its mission, organizational strategies, and business priorities.
Creating the portfolio	To ensure that IT investments are analyzed according to the organization's portfolio selection criteria and to ensure that an optimal IT investment portfolio with manageable risks and returns is selected and funded.
Evaluating the portfolio	To review the performance of the organization's investment portfolios at agreed-upon intervals and to adjust the allocation of resources among investments as necessary.
Conducting post-implementation reviews	To compare the results of recently implemented investments with the expectations that were set for them and to develop a set of lessons learned from these reviews.

Source: GAO.

The department has not fully defined the policies and procedures needed to effectively execute the five portfolio management practices. Specifically, it does not have policies and procedures for defining the portfolio criteria or assigning responsibility for managing the portfolio criteria. In addition, the department does not have policies and procedures for creating and evaluating the portfolio. Further, it does not have component-level policies and procedures for conducting post-implementation reviews.

Table 6 summarizes the rating for each critical process required to manage IT investments as a portfolio and summarizes the evidence that supports these ratings.

Table 6: Summary of Policies and Procedures for Stage 3 Critical Processes—Developing a Complete Investment Portfolio

Critical process	Key practice	Rating	Summary of evidence
Defining the portfolio criteria	1. The organization has documented policies and procedures for creating and modifying IT portfolio selection criteria.	Not executed	While the department is currently developing new guidance for IT portfolio management, it has not completed and issued policies and procedures for creating and modifying the portfolio selection criteria.
	2. Responsibility is assigned to an individual or group for managing the development and modification of the IT portfolio selection criteria.	Not executed	While the department is currently developing new guidance for IT portfolio management, which is intended to assign responsibility to an individual or group for managing the development and modification of portfolio selection criteria, the guidance has not been finalized and approved. According to department officials, the guidance is expected to be completed by March 2008.
Creating the portfolio	1. The organization has documented policies and procedures for analyzing, selecting, and maintaining the investment portfolios.	Not executed	While the department is currently developing new guidance for IT portfolio management, which is intended to include a description of its analysis, selection, control, and evaluation processes, the guidance has not been finalized and approved. According to department officials, the guidance is expected to be completed by March 2008.
Evaluating the portfolio	1. The organization has documented policies and procedures for reviewing, evaluating, and improving the performance of its portfolios.	Not executed	While the department is currently developing new guidance for IT portfolio management, it does not have documented policies and procedures for reviewing, evaluating, and improving the performance of its portfolios. According to department officials, the guidance is expected to be completed by March 2008.
Conducting post-implementation reviews	1. The organization has documented policies and procedures for conducting post-implementation reviews.	Not executed	While DOD and the department require post-implementation reviews for Tier 1 systems as part of DAS, there are no documented policies or procedures for conducting such reviews for systems in the remaining tiers.

Source: GAO.

Department officials agreed that portfolio management is primarily a component responsibility and are aware that they are required to develop and implement a portfolio management capability. Currently, they are developing policy and associated procedures that are intended to address these areas and plan to complete them by March 2008. In the absence of policies and procedures for managing business system investment portfolios, the department is at risk of not consistently selecting the mix of investments that best supports the mission needs and not being able to ensure that investment-related lessons learned are shared and applied departmentwide.

Conclusions

Given the importance of business systems modernization to the Department of the Navy's mission, performance, and outcomes, it is vital for the department to adopt and employ an effective institutional approach

to managing business system investments. However, although department officials acknowledged shortcomings and the importance of addressing them, the department has not yet established the management structures needed to effectively manage its business system investments. The department is also missing other important elements, such as specific policies and procedures that are needed for project-level and portfolio-level investment management. In the absence of these essential elements, the department lacks an institutional capability to ensure that it is investing in business systems that best support its strategic needs and that ongoing projects meet cost, schedule, and performance expectations. Until the department develops this capability, it will be impaired in its ability to optimize business mission area performance and accountability.

Recommendations for Executive Action

To strengthen the Department of the Navy's business system investment management capability and address the weaknesses discussed in this report, we recommend that the Secretary of Defense direct the Secretary of the Navy to ensure that well-defined and disciplined business system investment management policies and procedures are developed and issued. At a minimum, this should include instituting project-and portfolio-level policies and procedures that address seven key practices:

- Establishing an enterprisewide IT Investment Review Board composed of senior executives from IT and business units, including assigning the investment board responsibility, authority, and accountability for programs throughout the investment life cycle.
- Documenting an investment management process that includes how it is coordinated with JCIDS, PPBE, DAS, and the precertification process.
- Ensuring that systems in operations and maintenance are aligned with ongoing and future business needs.
- Selecting new investments, including specifying how cost, schedule, and benefit data are to be used in making decisions and specifying the criteria and steps for prioritizing and selecting these investments.
- Documenting an annual review process that includes the reselection of ongoing IT investments.
- Integrating funding with the process of selecting an investment, including specifying how department officials are using funding information in carrying out decisions.

- Overseeing IT projects and systems, including specifying the processes for the investment boards' operations and decision making during project oversight.

These well-defined and disciplined business system investment management policies and procedures should also include portfolio-level management policies and procedures that address the following five areas:

- Creating and modifying IT portfolio selection criteria for business system investments.
- Defining the roles and responsibilities for managing the development and modification of the IT portfolio selection criteria.
- Analyzing, selecting, and maintaining business system investment portfolios.
- Reviewing, evaluating, and improving the performance of its portfolios by using project indicators, such as cost, schedule, and risk.
- Conducting post-implementation reviews for all investment tiers and specifying how conclusions, lessons learned, and recommended management actions are to be shared with executives and others.

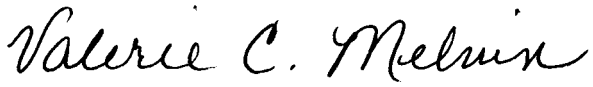
Agency Comments and Our Evaluation

In written comments on a draft of this report, signed by the Deputy Under Secretary of Defense (Business Transformation) and reprinted in appendix II, DOD partially concurred with our recommendations. It stated that the Department of the Navy has drafted Instruction 8115.02, Information Technology Portfolio Management Implementation, which when finalized, will address our recommendations. According to DOD, the instruction is scheduled to be signed in March 2008. DOD added that it would provide assistance, where appropriate, to the Navy to ensure alignment with enterprise-level portfolio management policies and procedures as they are matured. However, DOD also stated that, based on this pending document from the Department of the Navy, it is the department's position that a Secretary of Defense directive on the matter will not be required. Our recommendations did not state that DOD should develop a directive; rather, we emphasized the need for the Department of the Navy to develop policies and procedures.

We are sending copies of this report to interested congressional committees; the Director, Office of Management and Budget; the Secretary of Defense; the Deputy Secretary of Defense; the Secretary of the Navy; the Department of the Navy Chief Information Officer; the Commandant of Marine Corps; and the Under Secretary of Defense for Acquisition, Technology, and Logistics. Copies of this report will be made available to other interested parties on request. This report will also be made available at no charge on our Web site at http://www.gao.gov.

Should you or your staffs have any questions on matters discussed in this report, please contact me at (202) 512-6304 or melvinv@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. GAO staff who made major contributions to this report are listed in appendix III.

Valerie C. Melvin



Director, Human Capital and Management
Information Systems Issues

List of Committees

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The Honorable John McCain
Ranking Member
Committee on Armed Services
United States Senate

The Honorable Daniel Inouye
Chairman
The Honorable Ted Stevens
Ranking Member
Subcommittee on Defense
Committee on Appropriations
United States Senate

The Honorable Ike Skelton
Chairman
The Honorable Duncan Hunter
Ranking Member
Committee on Armed Services
House of Representatives

The Honorable John P. Murtha
Chairman
The Honorable C.W. Bill Young
Ranking Member
Subcommittee on Defense
Committee on Appropriations
House of Representatives

Appendix I: Objective, Scope, and Methodology

Our objective was to determine whether the investment management approach of the Department of the Navy (a major Department of Defense (DOD) component) is consistent with leading investment management best practices. Our analysis was based on the best practices contained in GAO's Information Technology Investment Management (ITIM) framework and the framework's associated evaluation methodology, and focused on the department's establishment of policies and procedures for business system investments needed to assist organizations in complying with the Clinger-Cohen Act of 1996 (Stages 2 and 3).

To address our objective, we asked the department to complete a self-assessment of its investment management process and provide the supporting documentation. We then reviewed the results of the department's self-assessment of Stages 2 and 3 organizational commitment practices—those practices related to structures, policies, and procedures—and compared them against our ITIM framework. We focused on Stages 2 and 3 because these stages represent the processes needed to meet the standards of the Clinger-Cohen Act, and they establish the foundation for effective acquisition management. We also validated and updated the results of the self-assessment through document reviews and interviews with officials, such as the Director of the Investment Management Team and other staff in the department Chief Information Officer's office. In doing so, we reviewed written policies, procedures, and guidance and other documentation providing evidence of executed practices, including the Department of the Navy's Business Information Technology System Precertification Workflow Guidance, Secretary of Navy Instruction 5000.2C, and the Budget Guidance Manual.

We compared the evidence collected from our document reviews and interviews with the key practices in ITIM. We rated the key practices as "executed" on the basis of whether the agency demonstrated (by providing evidence of performance) that it had met all of the criteria of the key practice. A key practice was rated as "not executed" when we did not find sufficient evidence of all elements of a practice being fully performed or when we determined that there were significant weaknesses in the department's execution of the key practice. In addition, we provided the agency the opportunity to produce evidence for the key practices rated as "not executed."

We conducted our work at Department of the Navy offices in Arlington, Virginia, from February 2007 through September 2007 in accordance with generally accepted government auditing standards.

Appendix II: Comments from the Department of Defense

ACQUISITION, TECHNOLOGY AND LOGISTICS

OFFICE OF THE UNDER SECRETARY OF DEFENSE
3000 DEFENSE PENTAGON
WASHINGTON, DC 20301-3000

OCT 18 2007

Ms. Valerie C. Melvin
Director, Human Capital and Management Information Systems Issues
U.S. Government Accountability Office
441 G Street, N.W.
Washington, DC 20548

Dear Ms. Melvin:

This is the Department of Defense (DoD) response to the GAO Draft Report, GAO-08-53, "BUSINESS SYSTEMS MODERNIZATION: Department of the Navy Needs to Establish Management Structure and Fully Define Policies and Procedures for Institutionally Managing Investments," dated September 17, 2007 (GAO Code 310638).

The Department partially concurs with the GAO's recommendations. The Department of the Navy has been proactively seeking opportunities to improve upon its existing investment management processes for its business systems, as evidenced by its decision in 2006 to draft the *Secretary of the Navy Instruction 8115.02, Information Technology Portfolio Management Implementation.* The instruction is scheduled to be signed by March 15, 2008 and when finalized, it will address the GAO's recommendations. In accordance with the Department's system of multi-layered accountability, it is DoD's position that a Secretary of Defense directive, in addition to the Secretary of the Navy's pending document, is not required. However, where appropriate, DoD will provide assistance and support to the Navy to ensure alignment with enterprise-level portfolio management policies and procedures as they are matured.

DoD appreciates GAO's recommendations, and strongly values our relationship. Information technology investment management continues to be a top priority throughout the entire DoD, and we remain committed to establishing the appropriate management structures and project and portfolio-level processes and procedures that will provide leadership the ability to make sound investment decisions. As the Department continues to move forward, we welcome the GAO's insight and participation in our on-going business transformation efforts.

Paul A. Brinkley
Deputy Under Secretary of Defense
(Business Transformation)

GAO DRAFT REPORT DATED SEPTEMBER 17, 2007
GAO-08-53 (GAO CODE 310638)

"BUSINESS SYSTEMS MODERNIZATION: DEPARTMENT OF THE NAVY NEEDS TO ESTABLISH MANAGEMENT STRUCTURE AND FULLY DEFINE POLICIES AND PROCEDURES FOR INSTITUTIONALLY MANAGING INVESTMENTS"

DEPARTMENT OF DEFENSE COMMENTS TO THE GAO RECOMMENDATION

RECOMMENDATION 1: The GAO recommended that the Secretary of Defense direct the Secretary of the Navy to ensure that well-defined and disciplined business system investment management policies and procedures are developed and issued. At a minimum, these should include instituting project-and portfolio-level policies and procedures that address:

- Establishing an enterprisewide Information Technology (IT) Investment Review Board composed of senior executives from IT and business units, including assigning the investment board responsibility, authority, and accountability for programs throughout the investment life cycle.
- Documenting an investment management process that includes how it is coordinated with Joint Capabilities Integration and Development System, Planning, Programming, Budgeting and Execution, Defense Acquisition System, and the pre-certification process.
- Ensuring that systems in operations and maintenance are aligned with ongoing and future business needs.
- Selecting new investments, including specifying how cost, schedule, and benefit data are to be used in making decisions and specifying the criteria and steps for prioritizing and selecting these investments.
- Documenting an annual review process that includes the reselection of ongoing IT investments.
- Integrating funding with the process of selecting an investment, including specifying how department officials are using funding information in carrying out decisions.
- Overseeing IT projects and systems, including specifying the processes for investment boards' operations and decision making during project oversight.

(p. 36/GAO Draft Report)

RECOMMENDATION 2: The GAO recommended that the Secretary of Defense direct the Secretary of the Navy to ensure that the above well-defined and disciplined business system investment management policies and procedures also include portfolio-level management policies and procedures that address:

Attachment

- Creating and modifying IT portfolio selection criteria for business system investments.
- Defining roles and responsibilities for managing the development and modification of the IT portfolio selection criteria.
- Analyzing, selecting, and maintaining business system investment portfolios.
- Reviewing, evaluating, and improving the performance of its portfolio(s) by using project indicators, such as cost, schedule, and risk.
- Conduct post-implementation reviews for all investment tiers and specifying how conclusions, lessons learned, and recommended management actions are to be shared with executives and others.

(p. 36/GAO Draft Report)

DOD RESPONSE (RECOMMENDATIONS 1 AND 2): Partially Concur. The Department of Navy (DON) has recognized the need for a single policy document or suite of documents to define its information technology portfolio management roles and responsibilities and information system investment practices. As such, DON initiated action in 2006 to draft the *Secretary of the Navy Instruction 8115.02, Information Technology Portfolio Management Implementation.* The draft instruction, now undergoing internal review and comment, should be signed by March 15, 2008. Based on this pending document from the DON and under the tiered accountability concept, it is DoD's position that a Secretary of Defense directive on the matter will not be required.

Attachment

Appendix III: GAO Contact and Staff Acknowledgments

GAO Contact

Valerie C. Melvin, (202) 512-6304 or melvinv@gao.gov

Staff Acknowledgments

In addition to the contact person named above, key contributors to this report were Tonia Johnson, Assistant Director; Jacqueline Bauer; Elena Epps; Nancy Glover; and Jeanne Sung.

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