

GAO

Report to the Chairman, Subcommittee
on Defense, Committee on
Appropriations, U.S. Senate

September 1992

DEFENSE ADP

Corporate Information Management Must Overcome Major Problems



Information Management and
Technology Division

B-241969

September 14, 1992

The Honorable Daniel K. Inouye
Chairman, Subcommittee on Defense
Committee on Appropriations
United States Senate

Dear Mr. Chairman:

The Department of Defense (DOD), faced with the challenge of maintaining a strong military with fewer resources, began its Corporate Information Management (CIM) initiative to help streamline operations and manage resources more efficiently. This report responds to your request that we assess Defense's progress in implementing CIM. Specifically, CIM is supposed to improve business operations in functional areas including human resources, finance, logistics, medical care, and command and control. Through CIM Defense plans to simplify and improve business processes, centralize responsibility and authority in functional areas, and develop an integrated communications and data processing infrastructure based on departmentwide standards. Appendix I details our objective, scope, and methodology.

Results in Brief

CIM is one of the largest information-management initiatives ever undertaken. Its success in coming to terms with this management challenge is threatened by three interlocking problems—issues that center around whether Defense can change longstanding, fundamental aspects of its culture and whether business processes or technology becomes the driving force in managing Defense information.

First, Defense has not established formal policies or directives addressing how the respective roles of the military services and the Office of the Secretary of Defense (OSD) should change to meet CIM's goals, even though CIM requires that control over business operations be centralized. Second, and related: control over funds for managing functional areas is not shifting, such that while OSD is to be responsible for managing business decisions, control of these funds remains with the services.

Third, in what represents a business-as-usual approach, Defense is focusing on selecting specific technology, without concurrently determining what the goal of its business operations should be and what, if anything, needs to be changed to bring that vision about. The concept of

incremental improvement is not at issue here. Rather, we are saying that for this approach to succeed, incremental business decisions need to be made before technology is selected. To do the latter alone invites risk and creates the illusion of progress, while it may in reality preclude the bulk of CIM's potential \$36-billion savings by locking DOD into existing, perhaps inefficient ways of doing business—ways that, although automated, may not best serve the business goals of tomorrow.

Background

The Deputy Secretary of Defense laid the foundation for CIM in October 1989 by convening an Executive Level Group (ELG) of high-level industry and Defense officials to evaluate Defense business practices and suggest an overall direction for the Department. The ELG noted that Defense viewed information management as merely automating existing business methods in order to cut costs. Little effort was made to improve the methods themselves; therefore, when new technology was applied to old methods the expected benefits did not materialize.

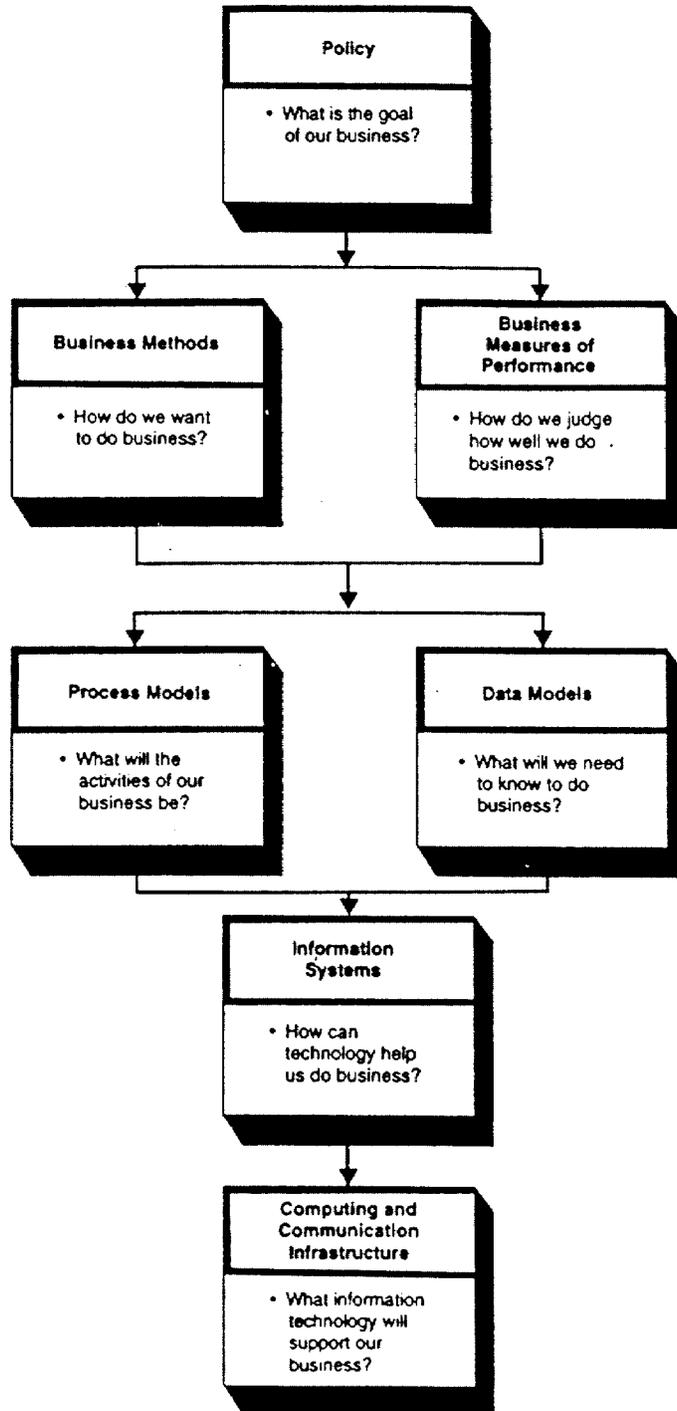
In response, the ELG recommended that the Department adopt a management philosophy that emphasizes continuous improvement of business methods before identifying specific computing and communication technologies. This wider view of information management is incorporated in the ELG's model for CIM.

Figure 1 shows the ELG model for implementing CIM. The model shows the top-down approach recommended by the ELG for the Department to follow in reengineering business processes. According to the model, Defense's policies must change before business methods can be simplified and standardized across the Department. Business methods are comprised of predetermined processes and internal controls for providing services or products, and their effectiveness is determined by performance measurements. Before business methods can be changed, they must be documented by modeling both the current processes and data utilized by specific business methods. New process and data models are then used to document proposed changes to the business methods. In order for reengineering to succeed, business methods must be continuously reexamined and process and data models frequently updated.

According to the model, the last step Defense managers should take is developing and acquiring a data processing and communications infrastructure that supports the department's reengineered business processes. Information systems are to be designed only after business

processes are documented and simplified. Buying technology before changing business processes may waste time and money by automating old and inefficient business methods.

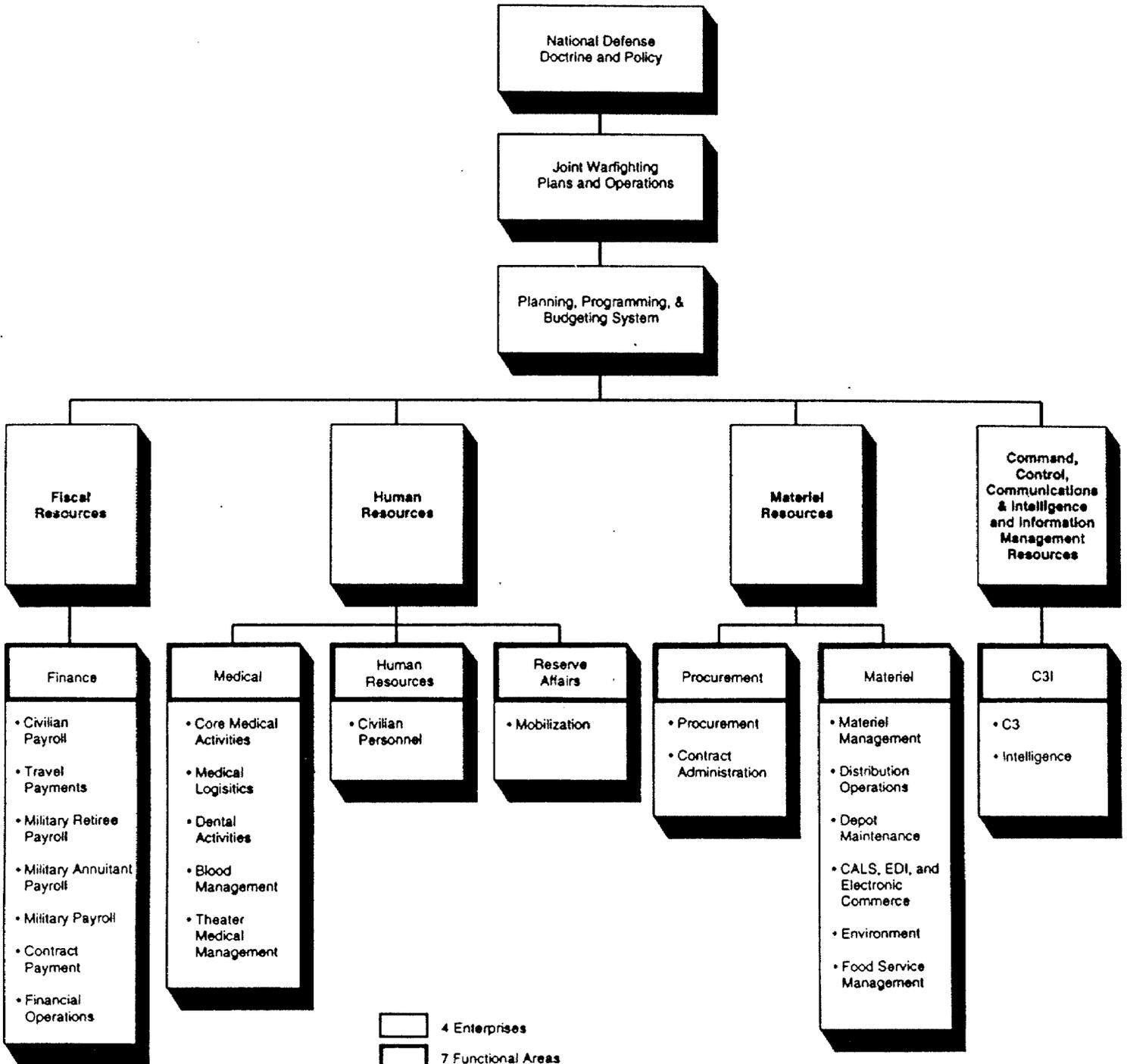
Figure 1: ELG Model



The Deputy Secretary of Defense endorsed the ELG model and in January 1991 approved a CIM implementation plan developed by the Office of the Assistant Secretary of Defense for Command, Control, Communications, and Intelligence (C3I). The CIM implementation plan provides a framework for the department to follow in implementing the ELG's recommendations. This framework, known as the DOD Enterprise Model (see fig. 2), shows how the department should manage itself—along functional lines—in order to centrally manage its resources in support of its warfighting mission.¹

¹Through March 1992 DOD implemented CIM in seven functional areas; ultimately it plans to expand the scope of CIM to all of its functional areas.

Figure 2: DOD Enterprise Model



Note: 24 businesses are identified under functional areas through March 1992.

The enterprise model represents a fundamental cultural shift in the way the Department manages itself. In the past each military department and Defense agency managed business functions, such as payroll and medical care. Under CIM, however, these responsibilities are assigned to the senior functional official at the OSD level. These senior officials evaluate their business processes, reengineer these processes, and then identify the information systems needed to support the processes. However, the services and Defense agencies will continue to be responsible for executing these business processes using departmentwide standard information systems.

The January 1991 CIM implementation plan also tasked the Assistant Secretary of Defense (C3I)—the Department's senior information management official—with meeting the following objectives:

- prepare a new information management policy that enforces CIM principles;
- develop internal controls, in cooperation with the DOD Comptroller, that ensure that funds are obligated in support of the new information management policy; and
- oversee the transfer of resources from the military departments to the Defense Information Systems Agency (DISA) in order to support a standard implementation of CIM.²

Slow Progress Toward Reengineering Business Processes Hinders CIM Implementation

We support the principles of the ELG model and believe that business process reengineering is essential to the success of CIM. The majority of estimated savings are anticipated to come from simplifying and standardizing business processes; however, although nearly 3 years have passed since CIM was initiated, Defense has only recently begun evaluating its business processes to determine how they should be reengineered. Progress has been slow because Defense has not

- issued formal information management policies and procedures needed to institutionalize CIM,
- established effective funding controls to implement CIM objectives, or
- followed the ELG model's requirement that business processes be reengineered before information systems are selected.

The slow pace of CIM's implementation makes it unlikely that the Department can meet its goal of saving \$36 billion by 1997.

²The Defense Communications Agency was renamed DISA in September 1991.

Defense Has Not Established Formal Policies That Change Functional and Technical Roles

According to the ELG, the management of information begins with policy, which frames business methods and performance measurements. As such, the ELG placed policy at the top of its model, making it the first step in implementing CIM. However, Defense still lacks an overall information management policy that demonstrates how the roles of the military departments and OSD will change to meet CIM goals. While Defense has issued interim guidance and memoranda and has begun initiatives to consolidate management of certain functional areas, it has yet to formalize information management policy in Defense directives that support CIM objectives. This lack of an information management policy contributes to the delay in centralizing authority along functional lines and in consolidating technical responsibilities and resources at DISA.

Under CIM, senior functional managers within OSD are to improve business processes and select information systems that support these improved processes. For example, the Assistant Secretary of Defense (Production and Logistics) is responsible for departmentwide logistics matters and, as such, should be given responsibility for overseeing the reengineering of logistics processes and approving new information systems that automate these processes.³ This cultural change—as reflected in the enterprise model—requires a shift in responsibility and authority from the military components and Defense agencies to OSD. This change should centralize policy-setting and management of functional areas at the OSD level and leave responsibility for executing these new standard policies to the services and Defense agencies.

So far only the medical area has formalized CIM policies by centralizing authority in OSD. In April 1991 the Assistant Secretary of Defense (Health Affairs) was designated the senior official responsible for all Defense health and medical resources. As such this official has the authority to set priorities and allocate resources for achieving Defense-wide objectives. In our view, without giving other senior OSD officials the same central authority as the Assistant Secretary of Defense (Health Affairs), it is unlikely the officials will be able to effectively implement CIM in their functional areas.

Further, because Defense lacks an overall information management policy, its control over technical issues remains fragmented. In order to support a standard implementation of CIM, Defense planned to change DISA's role from focusing just on telecommunications to all information technology

³The Under Secretary of Defense (Acquisition) is the senior OSD official for all matters relating to the DOD Acquisition System including logistics; the Assistant Secretary of Defense (Production and Logistics) is his principal advisor for managing production and logistics.

services. To accomplish this goal, resources were to be transferred from the military departments to DISA, which established a center in March 1991 to provide centralized technical support for CIM.⁴ However, according to a December 1991 Defense management report, resources have yet to be centralized at DISA and "...the Services and Defense agencies continue with duplicate staffs working on the development, implementation, and enforcement of architectures and standards for computers, databases, and networks. Separate efforts exist on software design, data processing, and telecommunication integration." Currently, this duplication is preventing the development of Defense-wide standards.

At issue is how much authority and oversight responsibility DISA should have in developing and implementing departmentwide technical standards. Traditionally, the services and Defense agencies have independently developed their own systems, which, according to the ELG, has caused "stove pipe" or nonintegrated systems within the department. To correct this problem, the Director of Defense Information recommended that DISA be given overall responsibility for technical integration management across Defense. Additionally, the Joint Chiefs Director for C3I recommended that DISA be responsible for all Defense technical standards in order to promote departmentwide C3I interoperability. However, without a formal policy, DISA's expanded role under CIM, from telecommunications to all information technology services, remains unclear.

Defense Has Not Established Effective Funding Controls to Implement CIM

One of the guiding principles the ELG identified in its report was that information be managed through centralized control and decentralized execution. To implement this principle the Deputy Secretary of Defense tasked the Assistant Secretary of Defense (C3I) to work with the Comptroller in developing funding procedures that support CIM objectives. Specifically, the procedures should follow the ELG and the enterprise models by ensuring that funds (1) are not obligated to automate business processes before the processes are reengineered, and (2) have been approved by the appropriate OSD senior functional official. However, these procedures have yet to be established for CIM's two main funding sources: appropriated funds—primarily operations and maintenance—as well as

⁴This support includes managing Defense-wide data standards, standard software engineering practices, and automated data processing equipment acquisition processes.

other procurement; and the Defense Business Operations Fund (DBOF), which was established in October 1991.⁶

Most information technology resources acquired through appropriated funds are budgeted independently by the military services. Defense has no standard way to identify and account for these resources. To correct this situation, C3I officials proposed creating program elements for all information technology resources.⁶ This would allow senior OSD functional officials better control over how information technology costs are budgeted and would provide a basis for better oversight over how the military services obligate these funds in support of CIM. However, C3I officials said that the Comptroller has not yet made a decision regarding these proposed program elements because the military services did not agree to the change. As a result, Defense still has not established procedures controlling the use of appropriated funds to implement CIM.

Further, control over funds allocated to business activities under DBOF has also not been centralized. Before fiscal year 1992, these different activities obligated funds through the receipt of individual customer orders. Beginning in fiscal year 1992, customer orders must be authorized against official operating budgets issued to the military services and Defense agencies. Therefore, except for the OSD Comptroller's office, which reviews CIM projects funded through DBOF for budgeting purposes, senior OSD functional officials in areas such as logistics lack funding authority for achieving CIM savings through DBOF activities.

Defense Is Not Following the ELG's Model for Implementing CIM

Defense has not implemented CIM top-down in accordance with the ELG model. Although Defense currently has numerous business process improvement projects underway, it has concentrated its efforts on selecting existing information systems called "migration systems" before business processes are reengineered. The objective of this strategy is to standardize existing business processes on fewer computer systems throughout Defense in order to gain some early technical savings before changing existing business processes.

Through December 1990 CIM was under the Comptroller's direction and its focus was on saving money by reducing the number of information

⁶DBOF consolidates industrial and stock funds operated by the military services and includes functional activities implementing CIM such as the Defense Finance and Accounting Service (DFAS) and the Joint Logistics Systems Center.

⁷Program elements are the basic building blocks of the Defense budget and are used to aggregate the cost of the resources of a mission or activity.

systems. Yet, it has made little progress in saving money by terminating systems. For instance, Defense began forming functional groups in December 1989 to examine specific business areas. The groups used selection criteria, established by the Comptroller in June 1990, to nominate existing systems that the services and Defense agencies could transition to, without reengineering existing business processes.

In effect, using this criteria allows migration systems to be selected before business processes are changed, data accuracy problems are addressed, and technical issues involved in deploying them are analyzed. Defense has already designated 27 migration systems through the CIM initiative before it has analyzed the business processes these systems will support. As a result, it has not determined the cost/benefits and technical risks associated with the selection of these systems or completed detailed implementation plans that identify the performance measurements and short-term tasks that can be used to evaluate the implementation of these systems. In doing so, Defense is increasing the risk of not achieving its CIM savings target because it may be wasting money modifying and implementing systems to support old and inefficient business processes.

Further, since Defense is still completing the analysis supporting the selection of these migration systems we were unable to determine how Defense plans to correct problems in existing business processes that we identified in our reviews of the Army's and Air Force's financial management operations. For example, we found that the Army's and Air Force's financial management operations contained inefficient or ineffective business processes resulting in a large number of data errors because existing policies and procedures were not being followed. (See list of Related GAO Products on the last page of this report.)

If Defense plans to implement the ELG model by selecting migration systems, it is critical that the analysis supporting the system's selection also identify the short-term tasks Defense will use to correct any data inaccuracies in the existing systems. These tasks should be identified before these data are transferred to migration systems; otherwise, the migration systems will have the same problems as the existing systems and will continue to contain unreliable financial information.

As we previously reported, Defense has already experienced problems in selecting information systems without fully evaluating, through the reengineering process recommended by the ELG, the cost and technical

aspects of the system.⁷ The Department initiated development of the Defense Distribution System (DDS) in April 1990 without knowing whether its potential benefits exceeded its costs or whether it was the best alternative for automating supply depot operations. DDS required extensive systems development, costing over \$20 million, yet the Department subsequently dropped DDS as a candidate for standardizing depot supply systems and selected a new candidate system, again without doing the requisite business, technical, or cost/benefit analyses.

Conclusions

CIM is based on the relatively simple premise that business process improvement should precede the development and acquisition of automated systems. The ELG recognized this concept and made it the linchpin of its model—which Defense accepted as its criteria for implementing CIM. However, the Department deviated from this model and made technology the central focus of its implementation efforts. As a result, the Department is nearly 3 years into this effort, and it has yet to demonstrate any discernible progress toward its goal of saving \$36 billion.

The CIM initiative has great promise, not only for Defense, but for other federal agencies and the nation as well. By improving business operations with less resources Defense can potentially improve its warfighting capabilities while shifting scarce resources to other national needs. However, CIM requires that authority and responsibility for managing information resources be centralized rather than separately managed by the military departments. This is a major cultural change that Defense is finding difficult to implement. Therefore, we believe it is critical for the Secretary of Defense to take an active role in establishing a new management policy and adequate funding controls that allow the ELG and enterprise models to be institutionalized. Otherwise, Defense is giving the appearance of progress by selecting systems before it has reengineered business processes and completed the requisite business, technical, or cost/benefit analyses to show how these systems will contribute toward CIM goals.

Recommendations

Defense needs to redirect its implementation of CIM so it can improve its existing systems in the short term while laying the foundation for business process improvements in the long term. By taking these actions, Defense

⁷Defense ADP: Lessons Learned From Development of Defense Distribution System (GAO/IMTEC-92-25, Mar. 20, 1992).

can begin to achieve some of the estimated \$36 billion in savings related to CIM. To do so, we recommend that the Secretary of Defense:

- Develop a management policy that clearly delineates how the roles and responsibilities of OSD senior functional officials, the services, and Defense agencies should change to implement CIM. This policy should require business processes to be reengineered before new information systems are developed or implemented.
- Establish controls for appropriated funds and DBOF that enable senior functional officials to implement this management policy.
- Complete an implementation strategy for migration systems and elements of the ELG model, and withhold funds for any new information system development efforts, including the implementation of migration systems, until justified by technical and cost/benefit analyses.
- Report to the Congress by March 31, 1993, the justification for selecting these migration systems, including cost/benefits, technical risks, performance measurements, and milestones that can be used to evaluate the implementation of these systems.

Agency Comments and GAO Response

As requested, we did not obtain written agency comments on a draft of this report. However, we discussed its contents with Defense officials, including the Assistant Secretary of Defense (C3I) and the Director of Defense Information, and incorporated their comments where appropriate. Defense officials generally disagreed with our conclusions and recommendations.

Defense officials questioned our use of the ELG model as a basis for measuring CIM progress and emphasized the complex and sensitive nature of cultural changes necessary within Defense as a major obstacle in implementing CIM. They commented that the ELG model is an advisory document laying out goals and principles for CIM. They do not believe, however, that the ELG model should be used as criteria to measure CIM progress. A summary of Defense's position on the three major CIM problem areas discussed in this report and our response follows.

Defense officials stated that while formal policy changes to institutionalize CIM, such as information management policies and procedures, have not yet been implemented, such policies are currently being formulated. They noted that in the meantime, Defense has issued interim guidance and memoranda supporting CIM principles, which were established by the ELG. For instance, Defense has formalized its commitment to the (1) use of

functional economic analysis to support funding decisions, and (2) need for a single, common software engineering environment for the development of automated information systems. Defense officials responsible for implementing CIM believe that these types of policy statements have paved the way for future formal policy changes.

We acknowledge Defense's efforts in issuing interim policy guidance, but do not believe that this guidance is sufficient to direct information management decisions and to support CIM objectives, roles, and responsibilities. Policy guidance not formalized in official DOD policies and directives is subject to change or cancellation under new leadership. However, formal policies and directives can only be changed through a management process that establishes consensus among the military components on the proposed change. Defense officials agreed that CIM principles need to be formalized in DOD directives. As such, formal management policies and directives supporting CIM objectives would signify a long-term commitment to information management, convey consensus on information management goals, and encourage departmentwide compliance with CIM principles.

Defense officials also disagree with our position that additional funding controls are necessary to manage CIM resources. In their view the DBOF provides sufficient visibility, under the management of the DOD Comptroller, to centrally manage CIM resources.

We agree that the DOD Comptroller's management of DBOF is a centralized control. However, we believe that in order to achieve effective CIM funding controls, these controls must be linked to senior OSD functional officials responsible for achieving CIM savings and not just to the DOD Comptroller. This will better ensure that departmentwide emphasis is placed on simplifying and improving business processes, rather than on continuing duplicate systems developments, and support CIM's basic premise of centralized management through functional leadership.

Defense also disagrees with our conclusion that CIM savings may be compromised by concentrating on the selection of standard automated systems before business processes are reengineered. Defense officials told us that even though Defense has endorsed the ELG model, they believe that strict compliance to the model is impractical. According to these officials, following the ELG model as doctrine would be a "grand design" approach requiring Defense to determine all potential savings associated with new business processes before implementing new systems. As a result, Defense

has chosen to designate standard CIM systems before business process reengineering is completed.

We agree that full compliance with the ELG model may initially be difficult for Defense to achieve because of the Department's tendency to select technology before determining how these systems support its business processes. However, as the ELG pointed out, business process improvement is a continuous activity and the selection of automated systems must support these improvements. Consequently, to avoid a "grand design" strategy we believe that analysis of business processes must be completed before standard automated systems are selected, developed, or deployed in order to make informed decisions and achieve savings incrementally under a migration approach. Since Defense has not completed its analysis supporting its selection of migration systems, we did not evaluate the selection of these systems. As a result, we did not see the level of analysis necessary to support Defense's strategy of selecting migration systems. Thus, Defense risks selecting systems that do not meet departmentwide functional requirements and wasting money on developing and implementing inappropriate systems. The danger in allowing such risks is evidenced in the Defense Distribution System, where an excess of \$20 million was spent on the development of a standard system that was subsequently shown to be inadequate for departmentwide requirements. We believe that this expense could have been avoided had the Department followed the ELG model more closely and examined departmentwide data and process requirements prior to the development of DDS.

As agreed with your office, unless you publicly announce the contents of this report earlier, we plan no further distribution until 30 days after the date of this letter. We will then send copies to the Chairman, House Committee on Appropriations; the Chairmen, Senate and House Committees on Armed Services; the Secretary of Defense; the Secretary of the Army; the Comptroller of the Navy; the Assistant Secretary of the Air Force (SAF/FMAA); the Commandant of the Marine Corps; the Director of the Defense Logistics Agency; the Director of Office of Management and Budget; and other interested parties. Copies will also be made available upon request.

Our audit work was performed in accordance with generally accepted government auditing standards, between September 1991 and July 1992. This work was performed under the direction of Samuel W. Bowlin, Director, Defense and Security Information Systems, who can be reached at (202) 512-6223. Other major contributors are listed in appendix II.

Sincerely yours,

A handwritten signature in cursive script, appearing to read "Ralph V. Carlone".

Ralph V. Carlone
Assistant Comptroller General

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Abbreviations

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|-------|--|
| AFMD | Accounting and Finance Management Division |
| CIM | Corporate Information Management |
| CSI | Command, Control, Communications, and Intelligence |
| DDS | Defense Distribution System |
| DBOF | Defense Business Operations Fund |
| DISA | Defense Information Systems Agency |
| DFAS | Defense Finance and Accounting Service |
| DOD | Department of Defense |
| ELG | Executive Level Group |
| GAO | General Accounting Office |
| IMTEC | Information Management and Technology Division |
| NSIAD | National Security and International Affairs Division |
| OSD | Office of the Secretary of Defense |

Objective, Scope, and Methodology

The Chairman, Subcommittee on Defense, Senate Committee on Appropriations asked us to determine whether the current CIM implementation plan makes sense. On the basis of this request and discussions with the Chairman's office, we agreed to assess what progress the Department of Defense is making in implementing CIM.

To address our objective, we interviewed senior OSD officials including the Assistant Secretary of Defense (C3I) and the Director of Defense Information. We also interviewed OSD functional officials involved with implementing CIM, including C3I, Production and Logistics, Force Management and Personnel, the Director of Defense Information staff responsible for overseeing CIM, and DISA officials at the Center for Information Management. To further assess progress we reviewed all minutes of the Information Policy Council, the Information Technology Policy Board, and select minutes of functional steering committees including finance, medical, materiel management, and civilian personnel. We also reviewed the ELG's CIM plan; the January 1991 implementation plan; Defense status reports on CIM; various drafts of proposed information management policies; and other Defense memoranda, directives, and reports relevant to CIM.

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Related GAO Products

Financial Management: Immediate Actions Needed to Improve Army Financial Operations and Controls (GAO/AFMD-92-82, Aug. 7, 1992).

Financial Management: Defense Business Operations Fund Implementation Status (GAO/T-AFMD-92-8, Apr. 30, 1992).

Defense Logistics: DOD Initiatives Related to Cutting Costs (GAO/T-NSIAD-92-24, Mar. 26, 1992).

Defense ADP: Lessons Learned From Development of Defense Distribution System (GAO/IMTEC-92-25, Mar. 20, 1992).

Challenges Facing Defense's Corporate Information Management Initiative (GAO/T-IMTEC-91-10, Apr. 23, 1991).

Defense ADP: Corporate Information Management Initiative Faces Significant Challenges (GAO/IMTEC-91-35, Apr. 22, 1991).

Defense ADP: Corporate Information Management Savings Estimates Are Not Supported (GAO/IMTEC-91-18, Feb. 22, 1991).

Financial Audit: Air Force Does Not Effectively Account for Billions of Dollars of Resources (GAO/AFMD-90-23, Feb. 23, 1990).