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Strategy Needed for Logistics Information Technology Improvement Efforts

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The Honorable Herbert H. Bateman
Chairman, Subcommittee on Military Readiness
Committee on National Security
House of Representatives

The Honorable John Glenn
Ranking Minority Member
Committee on Governmental Affairs
United States Senate

As requested, as part of our continuing review of the Department of Defense's (DOD) Corporate Information Management (CIM) initiative, this report summarizes our findings on DOD's efforts over the last 4 years to improve its informations systems in the depot maintenance, materiel management, and transportation business areas. Our specific objective was to determine whether selected standard information systems will allow DOD to meet its business objective to dramatically improve the efficiency and effectiveness of its logistics operations.

These standard logistics systems, in which DOD expects to invest more than $7.7 billion over the next few years, are part of the Department's CIM initiative. CIM, begun in October 1989, was initially an attempt to apply best business practices to dramatically improve DOD's business operations. In 1992, DOD estimated that such improvements to its logistics operations could save as much as $28 billion by fiscal year 1997. After some initial process improvement efforts were begun, however, DOD determined in October 1993 that these improvements would take too long to implement and would not produce needed short-term budgetary savings.

Consequently, DOD changed its CIM implementation focus to what it termed a "migration systems" strategy. This strategy was geared toward obtaining more short-term budgetary savings by selecting DOD's best logistics information systems and standardizing them across all the military services and defense agencies. These migration systems were expected to provide budgetary savings by eliminating the cost of developing and maintaining multiple information systems that support the same business functions. By gradually implementing and improving these standard systems, DOD believed it would eventually achieve the dramatic improvements originally expected from CIM.

In 1995, DOD recognized that the migration system deployments for materiel management and depot maintenance were consuming large amounts of money and taking longer than expected, and would not be able to achieve significant benefits. These deployments were scaled back and the strategy of standardizing automated systems across all the services and Defense agencies was abandoned in favor of efforts to achieve interoperability between services' information systems and privatize logistics functions. However, DOD is continuing to deploy some of the system applications at selected sites determined by the services and defense agencies.

Results in Brief

DOD's continued deployment of information systems using a migration strategy for the depot maintenance, materiel management, and transportation business areas will not likely produce the significant improvements originally envisioned. For the most part, these efforts—which were intended to lay the groundwork for future dramatic change by first standardizing information systems and the related processes throughout the Department—are merely increasing the risk that the new systems that are deployed will not be significantly better or less costly to operate than the hundreds of logistics information systems already in place.

DOD itself has acknowledged that its migration systems strategy will not provide necessary dramatic improvements and cost reductions and is now emphasizing alternative ways of improving logistics business operations, such as turning to the private sector to carry out major logistics functions. At the same time, however, it is continuing to deploy information systems selected under the migration strategy that are linked to the very same business functions it wishes to make more efficient and economical through outsourcing and/or privatization.

While we are encouraged that DOD is exploring alternative ways to improve its logistics operations, we are concerned that the current path needlessly risks wasting a substantial amount of the more than $7.7 billion DOD plans to invest in improving automated logistics systems. First, DOD still has not taken the fundamental steps necessary to ensure that the automated systems it continues to deploy will yield a positive return on investment. Second, even as Defense embarks on its new improvement efforts, it has not yet sufficiently tied these new efforts to its overall business objectives through the use of a strategic investment strategy to ensure that the billions of dollars will be wisely spent. Such planning would be in keeping

with best private and government sector practices as well as with new legislation which underscores the importance of strategic information planning for the efficient and effective use of information technology. Without addressing these concerns, Defense's new improvement efforts—like the failed standard migration strategy—will proceed with little chance of achieving the objectives originally envisioned for substantial operational improvements and reduction in costs.

Scope and Methodology

To determine whether DOD's logistics migration efforts will meet its objectives for dramatic improvements in operational efficiency and effectiveness, we reviewed DOD's policies and guidance for enterprise integration, corporate information management, and logistics migration system selection to ensure that information technologies are acquired, managed, and used in the most efficient and effective manner. Our assessment included analyzing DOD and prior GAO studies of the migration system strategy implementation and comparing DOD's logistics information resources management practices to those followed by public and private organizations. We conducted our review from August 1995 through August 1996 in accordance with generally accepted government auditing standards. Details of our scope and methodology are contained in appendix I. The Deputy Under Secretary of Defense for Logistics provided written comments on a draft of this report. These comments are discussed at the end of this report and reprinted in appendix II.

Background

DOD has said that it must either improve effectiveness and efficiency dramatically or face real losses in capability to meet its mission objectives. As characterized by the Under Secretary of Defense for Acquisition and Technology (USD(A&T)), "Every logistics dollar expended on outdated systems, inefficient or excess capability and unneeded inventory is a dollar not available to build, modernize or maintain warfighting capability."

Logistics Is Big Business

Defense logistics is the acquisition, management, distribution, and maintenance of the DOD materiel inventory used to provide replacement parts and other items for sustaining the readiness of ships, aircraft, tanks, and other weapon systems, as well as supporting military personnel.

Logistics business operations include four major business activities[1] —depot maintenance, distribution, materiel management, and transportation. DOD has reported that it spends over $44 billion annually maintaining, managing, distributing, and transporting a materiel inventory of $70 billion to support about $600 billion in mission assets.

CIM Established to Improve Business Operations

In October 1989, DOD established the CIM initiative to dramatically improve the way DOD conducts business, primarily by adopting best business practices used in the public and private sectors and building the automated information systems to support those improved practices. Originally, CIM focused on administrative areas such as civilian payroll, civilian personnel, and financial operations. DOD quickly broadened the initiative to encompass all DOD business areas, including the major logistics business activities.

In January 1991, the Deputy Secretary of Defense endorsed a CIM implementation plan under which DOD would "reengineer," that is thoroughly study and redesign, its business processes before it standardized its information systems. The Deputy Secretary believed this implementation strategy would emphasize the importance of improving the way DOD did business rather than merely standardizing old, inefficient business processes. In 1992, DOD projected that by focusing on business improvement, it could save as much as $36 billion by fiscal year 1997. DOD expected that improvements to its logistics operations would provide most—$28 billion—of these CIM savings.

By early 1992, DOD had identified a number of process improvement projects. However, later in the year, the Acting DOD Comptroller, concerned that the current CIM implementation approach would not produce the cost savings needed to help offset significant budget reductions, recommended that focus be shifted from reengineering projects to the selection and implementation of standard information systems that could be used departmentwide.

[1]Depot maintenance is the manufacture, overhaul, and repair of large items, such as tanks, ships, and airplanes, as well as small ones, such as communications and electronic components. Distribution is the receipt, storage, issue, and movement of materiel from suppliers to warehouses or from warehouses to users. Materiel management is the determination of what and how many items DOD needs, how to acquire and where to store them, and tracking these items until their issue to users. Transportation is the movement of people and cargo by truck, rail, air, and sea performed by military services, joint organizations, or commercial carriers.

Migration Strategy for Implementing Logistics CIM

In November 1992, the Assistant Secretary of Defense for Production and Logistics—now called the Deputy Under Secretary of Defense for Logistics (DUSD(L))—issued the Logistics CIM Migration Master Plan. This plan established the selection of migration systems as the CIM implementation strategy within the logistics business activities. This "migration systems strategy" called for identifying the best operational logistics information systems and deploying them across all the services and defense agencies. This, DUSD(L) believed, would not only make logistics operations more efficient (areas would mirror the best in DOD) but these standard systems would also eliminate the cost of developing and supporting redundant systems designed to perform the same basic business functions.

The strategy was designed to gradually migrate the military services and defense agencies from their multiple and often redundant information systems by (1) selecting and deploying migration systems—either single information systems or groups of information systems—in each logistics activity departmentwide, (2) improving current business processes and adding new functions to fill voids, and (3) combining the improved and new business processes with the new information systems to form a corporate logistics process. For example, Defense had identified over 200 large and numerous smaller depot maintenance and materiel management logistics systems with the goal of first reducing the number of these separate systems to as few as 32 and then using these systems to migrate toward a single logistics standard information system.

The Migration System Strategy Has Not Worked as Expected

DOD's efforts to standardize and migrate information systems across the logistics areas of depot maintenance, materiel management, and transportation have not achieved expected results. Recently, DOD acknowledged that the deployment of standard information systems will not provide the dramatic improvements and cost reductions envisioned under the CIM initiative and is now emphasizing alternative ways for meeting these objectives. At the same time, however, it is continuing to deploy the information systems selected under the failed migration strategy.

GAO Reviews of DOD's Migration System Efforts

Our reviews of DOD migration system efforts for depot maintenance, materiel management, and transportation operations confirm that, to date, the strategy has failed to produce the dramatic gains in efficiency and effectiveness that DOD anticipated. More specifically:

- Our review of depot maintenance[2] systems found that even if the migration effort was successfully implemented as envisioned, the planned depot maintenance standard system will not dramatically improve depot maintenance operations in DOD. First, under the CIM initiative, DOD planned to invest more than $1 billion to develop a depot maintenance standard system. However this would achieve less than 2.3 percent in reduced operational costs over a 10-year period. Such incremental improvement is significantly less than the order-of-magnitude improvements DOD has said could be achieved through the reengineering of business processes. Second, by postponing reengineering efforts until after developing the standard system, DOD may make it more difficult to reengineer in the future by increasing the risks of entrenching inefficient and ineffective work processes.
- Our review of DOD's materiel management[3] systems effort showed that the Department itself abandoned the migration strategy for this logistics area after it realized that the original goal for achieving a standard suite of integrated systems would require significantly more time and money than originally anticipated. For example, it would take as long as 2 years and as much as $100 million more than originally estimated to develop and deploy the Stock Control System—an application that would assist in requisition, receipt, and inventory processing. After spending over $700 million to migrate materiel management standard systems, there were no dramatic improvements in materiel management business processes; there were numerous development, scheduling, and contracting problems; and only one application of the Stock Control System had been deployed. That application was delivered basically untested, did not meet user functional requirements, and required much rework, debugging, and testing on the user's part.
- Our review of Defense's transportation[4] migration efforts found that the current migration strategy in the transportation area will not ensure improvements are made that Defense recognizes are critical to the transportation function. A number of studies since 1950 have found that Defense traffic management processes are fragmented and inefficient, reflecting the conflicts and duplication inherent in a traffic management organizational structure consisting of multiple transportation agencies, each with separate service and modal responsibilities. In a 1994 DOD

[2]Defense Management: Selection of Depot Maintenance Standard System Not Based on Sufficient Analyses (GAO/AIMD-95-110, July 13, 1995).

[3]Defense IRM: Critical Risks Facing New Materiel Management Strategy (GAO/AIMD-96-109, September 6, 1996).

[4]Defense Transportation: Migration Systems Selected Without Adequate Analysis (GAO/AIMD-96-81, August 29, 1996).

report, Reengineering the Defense Transportation System: The "Ought To Be" Defense Transportation System of the Year 2010, Defense officials maintained that nothing less than fundamental change would be required to achieve the quantum gains in savings and productivity needed to improve transportation business processes. We recently reported[5] that it will be difficult for Defense to realize the benefits of its current reengineering efforts because these efforts do not concurrently focus on how the transportation organization structure should be redesigned. Moreover, we have also recently reported[6] that even though reengineering efforts for transportation are underway, in making its migration system selections, Defense did not assess the impact that these operational changes would have on its system selections.

DOD Acknowledges Migration Strategy Has Not Worked

DOD's own studies have acknowledged that the implementation of the migration strategy has not worked. In May 1994, for example, DUSD(L) chartered a team with representatives from the services and Defense Logistics Agency to identify ways to improve the business practices of DOD inventory control points. The team, with industry assistance, found[7] that the migration approach to standardizing and upgrading materiel management information systems was not workable and recommended that efforts to develop the Materiel Management Standard System be discontinued. Similarly, the Commission on Roles and Missions of the Armed Forces,[8] in its logistics case studies, concluded that DOD's efforts to standardize its management information systems under its CIM initiative would merely result in more compact, standardized versions of DOD's traditional business operations.

In late 1994, the Assistant Secretary of Defense for Command, Control, Communications, and Intelligence (ASD(C3I)) acknowledged that DOD's logistics migration systems strategy was seriously flawed. The Assistant Secretary said that, as opposed to the private sector which uses a very different approach, "DOD has virtually no chance of making high impact/quantum changes using the current approach." In October 1995, the

[5]Defense Transportation: Streamlining of the U.S. Transportation Command Is Needed (GAO/NSIAD-96-60, February 22, 1996).

[6]GAO/AIMD-96-81, August 29, 1996.

[7]Final Report of the Inventory Control Point Benchmarking Team, April 1995.

[8]The National Defense Authorization Act of 1994, Public Law 103-160, Section 952(a) established the Commission to provide an independent review of the current roles, missions, and functions of the Armed Services; evaluate and report on alternatives; and make recommendations for changes in their current definition and distribution.

Under Secretary of Defense for Acquisition and Technology called for a revision to the standard migration systems strategy.

DOD Is Emphasizing Alternative Ways to Improve Logistics Operations

Currently, for all business areas, DOD is trying alternative ways to achieve its CIM objectives of dramatic business improvement and cost reductions while, at the same time, continuing to deploy migration systems. To improve logistics operations, DOD is now emphasizing systems interoperability—the ability to exchange information between and among business activities—as a critical means for achieving dramatic improvements. To reduce operational costs, DOD is seeking to privatize and outsource certain functions—relying on the private sector to provide services that need not be performed by the Department. These three efforts make up a de facto DOD strategy for improving logistics systems. Each of the current efforts is discussed in more detail below.

Interoperable Systems

In calling for a revision to the migration strategy, the Under Secretary of Defense for Acquisition and Technology, in October 1995, stressed the importance of building interoperable systems and processes by relying on common operating environments[9] and standard data exchange—elements which many migration systems do not have. DOD has directed business area managers to view their areas as part of the bigger DOD enterprise and develop information systems that are interoperable. Accordingly, business activities must be able to readily exchange information in order to provide senior managers with the comprehensive overview they need to make dramatic process improvements.

Privatization and Outsourcing

In May 1995, the Commission on Roles and Missions of the Armed Services reported[10] that more than 250,000 of DOD's employees engage in commercial-type activities. To significantly reduce the costs of Defense operations, the Commission recommended that DOD rely primarily on the private sector for services that need not be performed by the government and reengineer those retained by the Department. Specifically addressing depot maintenance and materiel management activities, the Commission concluded that private contractors could provide essentially all of the services now conducted in government maintenance and inventory facilities more efficiently and effectively.

[9]A common operating environment is a profile of products selected for an organization or project in conformance with the standards defined in the organization's or project's technical architecture.

[10]Directions for Defense, Report of the Commission on Roles and Missions of the Armed Forces, May 24, 1995.

Consistent with the Commission's recommendations, the Deputy Secretary of Defense announced, in late 1995, that DOD would review opportunities to privatize a whole array of functions that, while important, do not directly contribute to the warfighter in the field. It has been reported that DOD spends about $125 billion each year performing commercial-type support functions, including those of depot maintenance, materiel management, and transportation. It has also been reported that, by privatizing only half of these support functions, DOD could save as much as of 20 percent, or $12 billion annually. We have, however, reported that under current conditions of excess depot capacity and limited private sector competition, these savings may not be realized.[11]

To achieve these savings, DOD established nine working groups, including one for depot maintenance and one for materiel management. According to materiel and distribution management working group officials, all business activities are actively being considered for privatization, including those the logistics migration systems are to support. They emphasized, however, that their reviews would not be complete until mid-1996 and resulting privatization actions would likely take a year or longer to accomplish at initial sites. They also stated that it could take longer than 5 years to fully implement any overall privatization strategy.

Migration System Deployment

Although DOD has acknowledged that its migration systems strategy has failed, it continues to deploy migration systems. Over the next several years, DOD plans to spend more than $7.7 billion to deploy these systems in addition to the $1.2 billion it reported having already spent. Table 1 identifies the costs to date and those expected to accrue that DOD reported in its fiscal year 1996-1997 biennial budget exhibits. We did not independently verify DOD's budget estimates.

[11]Defense Depot Maintenance: Commission on Roles and Mission's Privatization Assumptions Are Questionable (GAO/NSIAD-96-161, July 13, 1996).

Table 1: Logistics Migration Information Systems and DOD Budget Estimates for Fiscal Years 1996 and 1997

Dollars[a] in millions

Logistics activity	Migration systems applications	Costs to date	Costs to complete	Life cycle costs	Completion date
Depot maintenance	8[b]	$190.3	$2,616.9	$2,807.2	Late 1998
Materiel management	9[c]	437.8	3,967.6	4,405.4	None estimated
Defense transportation	23	587.0	1,122.7	1,709.7	1999
Totals	**40**	**$1,215.1**	**$7,707.2**	**$8,922.3**	

[a]All costs in then year dollars (inflated dollars).

[b]The number of depot maintenance migration systems has declined from nine to eight because one system became a major component of another system.

[c]Materiel management migration systems declined from 24 to 10 applications through combining two or more systems into one. In March 1995, one of the 10 was terminated.

We asked DOD logistics officials why they continued deployment of the logistics migration systems. They told us that the costs associated with stopping deployment of these systems and then restarting them would be significant. However, they had not performed an analysis to support this view. Also, officials cautioned that stopping migration system deployments could result in a lengthy delay in providing these systems to the services and Defense agencies. However, they acknowledged that immediate assessments are needed to ensure that the Defense investments in these systems were justified.

Concerns About DOD's Current Logistics Improvement Efforts

We encourage DOD to explore alternative ways for improving logistics operations. However, we have two major concerns with its current efforts to develop systems interoperability, privatize commercial-type logistics activities, and deploy migration systems. First, Defense still has not completed the analyses required to determine that its logistics system deployment effort will yield a positive return on investment. Without this decision-making tool, Defense has no assurance that any efforts it makes to improve logistics systems will support its operational improvement and cost reduction objectives. Second, Defense has not yet sufficiently tied its improvement efforts to its overall business objectives through the use of strategic planning—a necessary step to ensure that the billions of dollars being invested in logistics improvement efforts will result in significant improvements in operations. Had it strategically planned for its system

migration efforts, it may well have avoided costly strategy failures. We are currently reviewing DOD's progress in its implementation of its overall logistics strategic plan.

Fundamental Cost-Benefit Analyses Necessary to Ensure Success of System Efforts

In continuing to deploy migration systems without addressing the fundamental problems associated with its selection and deployment of migration systems to date, DOD risks wasting a substantial amount of the additional $7.7 billion it plans to spend over the next few years. In developing systems for depot maintenance, materiel management, and transportation, Defense did not adequately ensure that the hundreds of millions of dollars it spent on development efforts would be cost-effective and beneficial.

Defense requires[12] that decisions to develop and deploy information systems be based on convincing, well-supported estimates of project costs, benefits, and risks. These directives establish a disciplined process for selecting the best projects based on comparisons of competing alternatives. Defense's principal means for making these comparisons is a functional economic analysis. For each alternative, a functional economic analysis identifies resource, schedule, and other critical project characteristics and presents estimates of the costs, benefits, and risks. Once an alternative is chosen, the analysis becomes the basis for project approval. Any significant change in expected project costs, benefits, or risks requires reevaluation of the selected alternative.

In our reviews of DOD's efforts to implement the migration system strategy across its depot maintenance, materiel management, and transportation business activities, we found that DOD routinely selected and is deploying migration systems without (1) sufficiently analyzing their costs and benefits and (2) considering possible better commercial alternatives, such as reengineering, privatization, and outsourcing of business functions. Only recently has DOD began to consider such options.

The following are the results of our previous reviews on DOD's cost, benefit, and risk analyses.

[12]Defense Directive 5000.1, Defense Acquisition, March 15, 1996, and Defense Regulation 5000.2, Mandatory Procedures for Major Defense Acquisition Programs and Major Automated Information System Acquisition Programs, March 15, 1996, and draft Defense Manual 8020.1-M, Functional Process Improvement (Functional Management Process for Implementing the Information Management Program of the Department of Defense).

- Our review of depot maintenance[13] migration found that Defense selected the Depot Maintenance Standard System without analyzing the systems' full development and deployment costs. Instead, it relied on a functional economic analysis of a previously proposed project—the Depot Maintenance Resource Planning system. This analysis understated Depot Maintenance Standard System project costs by at least $140 million by including costs for only some components, and it understated costs for the components it did include.
- Had Defense followed its own regulations and calculated investment returns on its transportation migration selections,[14] it would have found—based on data available when the migration systems were selected—that two of the selected systems would lose money. The Air Loading Module (ALM) would lose $0.67 out of every dollar invested and the Cargo Movement Operations System (CMOS) would lose $0.04 out of every dollar invested. DOD's analyses also did not include all costs associated with its evaluation of in-house systems. At least $18 million in costs were excluded—$16 million for an analysis of candidate migration systems and $2 million for maintaining migration system hardware.[15] We also found that had DOD included these costs in its systems selection analyses, it would have found that the overall return on investment would have decreased.
- Our review of materiel migration system[16] efforts showed that a complete economic analysis was never made for the migration strategy until July of 1995—nearly 3 years after the strategy began. Further, when Defense dramatically changed the course of materiel management systems development—abandoning the concept of developing a standard system and instead moving to incremental and individual deployments—it again did not set out to first assess risks, costs, and benefits before proceeding with such a change in strategy.

Our reviews also found that major changes to operations or potentially better business practices were not assessed during the system selection process. Without a comparison of alternatives, DOD has no assurance that it has selected the most efficient and effective solution. For example, Defense selected a migration system to support its transportation of personal property and plans to spend $63 million over the next 5 years to

[13]GAO/AIMD-95-110, July 13, 1995.

[14]GAO/AIMD-96-81, August 29, 1996.

[15]All costs representing the understated investment have been discounted according to Department of Defense Instruction (DODI) 7041.3.

[16]GAO/AIMD-96-109, September 6, 1996.

implement it. Recently, however, DOD began actively seeking to privatize major components of this function. As a result, further spending on the migration system may be questionable since the system may no longer be needed. Similarly, DOD is deploying migration systems to support its materiel management operations without sufficient assessment of recent DOD initiatives focusing on privatizing materiel management operations or consolidating inventory control points. As a result, Defense may end up spending millions of dollars on systems for functions that it no longer performs or on inventory control points that are later consolidated.

Our previous reports made a number of recommendations to help ensure that DOD selected the systems that offered the most effective solutions at least cost. These recommendations included preparing documentation that described system efforts and validated that they were the best alternatives for improving their respective business areas. Although DOD partially agreed with some of our recommendations, it essentially has continued to deploy systems without adequate economic analysis and full comparisons of available alternatives needed to ensure that it is making the best investment of its resources.

Nevertheless, DOD is required to manage its information technology as investments. The Clinger-Cohen Act of 1996[17] was passed to stop government spending on systems projects that were found to be far exceeding their expected costs and yielding questionable benefits to mission improvements. Specifically, under the Clinger-Cohen Act, DOD is required to design and implement a process for selecting IT investments using such criteria as risk-adjusted return-on-investment and specific criteria for comparing and prioritizing alternative information system projects. If implemented properly, this process should provide a means for senior management to obtain timely information regarding progress in terms of costs, capability of the system to meet performance requirements, timeliness, and quality.

Strategic Planning Necessary to Achieve Improvements

Many of the problems we found in our past reviews of logistics systems efforts may well have been prevented had Defense employed strategic information planning before embarking on its CIM improvement efforts. Studies of private sector organizations show that strategic information planning is fundamental for achieving any significant level of performance improvement. Through the Clinger-Cohen Act, the Government

[17]This act was formerly known as the Information Technology Management Reform Act of 1996. Division E of Public Law 104-106, February 10, 1996.

Performance and Results Act[18] (GPRA), and the Paperwork Reduction Act[19] (PRA), the Congress has underscored the importance of strategic planning for the efficient and effective use of information technology. The Clinger-Cohen Act also requires that the investment process for information technology be integrated with processes for making budget, financial, and program management decisions. For Defense, such planning would establish a direct link between its business objectives and information technology use. In turn, this would have helped Defense focus on meeting the objective of dramatic improvement in operations rather than incremental change.

Private industry and our studies of public and private organizations have identified that cohesive plans resulting from strategic information management—managing information and information technology to maximize improvements in business performance—are crucial for developing information systems that support substantial business improvement. For example, in early 1993, the International Business Machines (IBM) Consulting Group[20] reported on its extensive case study of 17 exemplary companies chosen from an initial list of 200 companies in a wide range of industries.

The IBM study found that the best companies had well-structured and well-explained information management plans that closely integrated with their business planning processes. Also, these plans aligned the use of information technology with business objectives to improve performance and deal effectively with changes in the business environment. The study also found that these companies did not invest in an information system until they clearly understood how and to what extent the proposed information system would enhance their business environment.

Our studies[21] of how leading private and public organizations have applied information technology to improve their performance have also found that organizations achieving substantially higher levels of performance had a disciplined, outcome-oriented, and integrated strategic information management process. For example, one organization that lacked a business vision—a definition of how the organization would work in the

[18]Public Law 103-62, August 3, 1993.

[19]Public Law 104-13, May 22, 1995.

[20]An American Express/IBM Consortium Benchmarks Information Technology, Planning Review, January/February 1993.

[21]Strategic Information Planning: Framework for Designing and Developing System Architectures (GAO/IMTEC-92-51, June 1992) and Executive Guide: Improving Mission Performance Through Strategic Information Management and Technology (GAO/AIMD-94-115, May 1994).

future—and an integrated strategic information management process, spent the majority of its resources maintaining existing, aging information systems. By integrating its planning, budgeting, and evaluation processes, the organization was able to shift about a third of its information systems personnel to reengineering projects. These new improvements in turn increased productivity and the quality of customer service.

With GPRA, the Congress has recently underscored the importance of strategic planning by clarifying and expanding the requirement for a strategic information resources management plan first called for under the Paperwork Reduction Act of 1980. GPRA requires that agencies submit to the Office of Management and Budget, by September 1997, a strategic plan for their activities, including a comprehensive mission statement as well as goals and objectives for the agency's functions and operations. The Clinger-Cohen Act supports the GPRA requirement of establishing goals for improving the efficiency and effectiveness of agency operations by improving the delivery of services to the public through more effective use of information technology.

In late 1995, DOD proposed a new policy requiring the development of a DOD-wide strategic information resources management plan, with supplements for each DOD component, that would integrate the use of its information technology resources with its budgeting processes. While we support DOD's efforts to establish a strategic information resources management planning process, the new policy, as proposed, does not require the DOD-wide plan and component supplements to be anchored in the Department's business strategies. Without a direct link between its business objectives and information technology use, we believe that DOD risks developing a strategic information resources management (IRM) planning process that will become merely a reactive exercise to immediate priorities that are not adequately weighed against those of the future.

We discussed our concern about DOD's current efforts to make dramatic logistics improvements without a cohesive strategic information plan with the DUSD(L) and the Assistant Deputy Under Secretary of Defense for Logistics Business Systems and Technology. They stated that they had begun developing a strategic IRM plan that integrates business and systems strategies. This plan, they said, is needed to move from the migration systems strategy to a new business-oriented strategy and they agreed that migration systems that do not fit under this new strategy should be halted.

Conclusion

DOD has acknowledged that its logistics migration strategy for improving its automated logistics information systems is flawed and has embarked on other efforts to develop interoperable systems and privatize commercial-type functions where it can save money. However, as it embarks on these other efforts, Defense is still not addressing the critical weaknesses associated with its previous strategy. By not doing so, it will continue to encounter unmanaged risks, low-value information technology projects, and too little emphasis on redesigning outmoded work processes. In essence, the new strategy will be just as risky as the previous strategy until Defense adopts the key ingredients needed to ensure successful information technology investments: (1) conducting thorough economic and risks analyses so that senior managers can begin examining trade-offs among competing proposals and prioritizing projects based on risk and return and (2) developing a strategic IRM plan defining how information technology activities will help accomplish agency missions. By adopting the framework for strategic planning mandated by the Government Performance and Results Act and managing its information technology projects as investments as called for in the Clinger-Cohen Act, DOD can begin delivering, at an acceptable cost, high-value information technology solutions for logistics operations.

Recommendations

To ensure that DOD optimizes its use of information technology to achieve its logistics CIM goals of dramatic business process improvement and operational cost reduction, we recommend that the Secretary of Defense:

- Direct that immediate cost-benefit analyses of each logistics migration system be undertaken and halt deployment of those that (1) cannot be shown to have significant return-on-investment, (2) will not facilitate ongoing efforts to privatize logistics business functions, or (3) do not support efforts to achieve interoperability between and among business activities.
- Expedite development of a strategic information resources management plan that anchors DOD's use of logistics information resources to its highest priority business objectives. The plan should conform with requirements established by the Government Performance and Results Act of 1993, the Paperwork Reduction Act of 1995, and the Clinger-Cohen Act of 1996.

Agency Comments

The Department of Defense provided written comments on a draft of this report. These comments are summarized below and reprinted in appendix II. The Deputy Under Secretary of Defense for Logistics generally agreed

with our findings and conclusions. Defense also agreed with our recommendation that the Department develop a strategic information resources management plan for logistics and is currently developing such a plan.

Defense disagreed with our recommendation to conduct cost-benefit analyses of current logistics development activities to ensure that those systems now being deployed will provide significant returns on investment. It contended that the strategic information resources plan being developed for the logistics area will create an environment that effectively controls the development and modernization of information systems. As part of this plan, Defense stated that overall DOD business objectives, mission requirements, and economic efficiency will be considered in making decisions to halt, proceed, or change the direction of the development/deployment process.

We support DOD's stated efforts to establish a more effective investment process for logistics information systems. However, we believe that as it develops its strategic plan, Defense should conduct cost-benefit analyses for its ongoing development efforts. As noted in our report, Defense still plans to spend more than $7.7 billion in the next few years developing and deploying migration systems. If it does not take steps to determine whether this significant investment is worthwhile, it will continue to risk wasting it as has been the case in the past.

In the past, had cost-benefit analyses been correctly done for transportation, Defense would have found that some of its migration investments would have produced negative returns. Had a cost-benefit analysis been correctly done for depot maintenance, Defense would have found benefits to be far less than the dramatic improvements originally envisioned. Had Defense conducted cost-benefit analyses before it embarked on its materiel management efforts, it would have likely concluded that it should abandon the concept of developing standard systems before spending hundreds of millions of dollars on the effort. For the future, if Defense does not follow our recommendation to conduct cost-benefit analyses of its current projects, it will miss out on opportunities to identify more projects showing little promise for return and to redirect its investment to development efforts that more effectively support military missions.

We are sending copies of this report to the Chairmen and Ranking Minority Members of the Senate and House Committees on Appropriations, Senate Committee on Armed Services, the House Committee on Government Reform and Oversight, and the House Committee on National Security; the Chairman of the Senate Committee on Governmental Affairs; the Ranking Minority Member of the Subcommittee on Military Readiness of the House Committee on National Security; the Secretaries of Defense, Army, Navy, and Air Force; the Commandant Marine Corps; the Director of the Defense Logistics Agency; the Deputy Under Secretary of Defense for Logistics; and the Director of the Office of Management and Budget. Copies will be made available to others on request.

If you have any questions about this report, please call me at (202) 512-6240, or Carl M. Urie, Assistant Director, at (202) 512-6231. Major contributors to this report are listed in appendix III.

Jack L. Brock, Jr.
Director, Defense Information
and Financial Management Systems

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Abbreviations

ALM	Air Loading Module
ASD(C3I)	Assistant Secretary of Defense for Command, Control, Communication, and Intelligence
CIM	Corporate Information Management
CMOS	Cargo Movement Operations System
DOD	Department of Defense
DUSD(L)	Deputy Under Secretary of Defense for Logistics
GPRA	Government Performance and Results Act
IBM	International Business Machines
IRM	information resources management
PRA	Paperwork Reduction Act
USD(A&T)	Undersecretary of Defense for Acquisition and Technology

Objectives, Scope, and Methodology

To determine whether DOD's efforts to standardize its logistics migration systems will allow Defense to meet its business objectives of dramatically improving the efficiency and effectiveness of its logistics operations, we identified problems DOD has had implementing information systems selected under its migration strategy by analyzing prior GAO reports on DOD's CIM efforts related to logistics business activities. Also, other ongoing GAO reviews provided the results of cost and benefit analyses, risk assessments, and interviews with program and technical officials responsible for implementing migration systems in the materiel management and transportation business areas.

We evaluated the strategies, policies, and memoranda establishing DOD's Enterprise Model, CIM initiative, and logistics migration information systems strategy to determine whether DOD's migration systems strategy is consistent with DOD's corporate business vision for balancing investments across the Department and optimizing its operational effectiveness. Also, we reviewed the findings of studies conducted by the Commission of Roles and Missions of the Armed Services and DOD for achieving dramatic increases in operational efficiency. To identify private and public organizations that have successfully managed information technology use to obtain superior business performance, we researched technical and business databases, reviewed literature by technology vendors, and reviewed prior GAO work and compared the private sector approach to DOD's strategy in using information technology.

Focusing on DOD's new efforts to develop interoperable information systems emphasized in the enterprise model and to privatize and outsource commercial-type activities as recommended by the Commission on Roles and Missions, we compared DOD's actions and plans for implementing depot maintenance, materiel management, and transportation migration systems with its business vision. Also, we compared the business activities DOD is considering privatizing with those the migration systems are to support. We compared the "best practices" of private and public organizations with DOD's logistics migration strategy to identify actions that could increase the probability of achieving logistics business objectives and maximizing the return on technology investments.

We interviewed senior Defense officials responsible for managing the CIM initiative, implementing the logistics migration strategy, and developing privatization plans. We also met with program and functional officials, including DOD managers responsible for deploying the depot maintenance and materiel management migration systems. Our work was performed

from August 1995 through August 1996 in accordance with generally accepted government auditing standards. We performed our work primarily at the offices of the Deputy Under Secretary of Defense for Logistics in Washington, D.C.; the Joint Logistics Systems Center, Wright-Patterson Air Force Base, Ohio; and the Automated Systems Demonstration, Warner Robins Air Logistics Center, Georgia.

Comments From the Department of Defense

ACQUISITION AND TECHNOLOGY

OFFICE OF THE UNDER SECRETARY OF DEFENSE

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23 OCT 1996

Mr. Gene L. Dodaro
Assistant Comptroller General
Accounting and Information
Management Division
U.S. General Accounting Office
Washington, D.C. 20548

Dear Mr. Dodaro:

This is the Department of Defense response to the General Accounting Office (GAO) Draft Report, "DEFENSE IRM: Strategy Needed to Align Logistics Improvement Efforts with Business Objectives," dated September 3, 1996 (GAO/AIMD-96-128), OSD Case 1219.

As the draft report itself states, it is essentially a summary of previous GAO "...reviews of DoD's efforts to improve depot maintenance, materiel management, and transportation business activities...[which seeks]...to determine whether selected standard information systems will allow DoD to meet its business objectives to dramatically improve the efficiency and effectiveness of its logistics operations." (p. 1/GAO draft report) The draft report concludes with the same recommendations made by the GAO in previous reports (e.g., GAO/AIMD-96-109, DEFENSE IRM: Critical Risks Facing New Materiel Management Strategy), specifically: 1) Do a cost benefit analysis of all logistics systems development/deployment activities and stop actions on those without significant returns on investment, and 2) Develop a Strategic Information Resources Plan based on the highest DoD business objectives.

The Department's position on the recommendation to do a cost benefit analysis of all logistics development activities remains as stated in responses to previous reports; at this juncture it would be counterproductive since other actions are currently in process which will have the same results but will not interrupt the continuation of activities known to be cost effective and required by the Services. The Department has previously stated to the GAO that the need for a strategic plan is necessary and, in fact, the draft Logistics Business Systems Corporate Strategy is currently in staffing with the Services and the Defense Logistics Agency. All actions being taken within the context of the emerging new strategy are being done with the cognizance of the MAISRC group and the DoD Component logistics managers. Overall department business objectives, mission requirements, and economic efficiency are all considered by the joint service groups (e.g., the Logistics Information Board) in making decisions to halt, proceed, or change direction in each element of the development/deployment process. Actions determined to be undesirable from either a department business goal, economic, or mission perspective

are being stopped; other actions, determined collectively to be necessary are being continued.

The future process of controlling development and modernization is summarized in the following excerpt from the draft LBS corporate strategy:

> "The modernization of existing core systems, development of new capabilities and eventual migration to the DII COE will be evolutionary. It is expected that the Services and DLA will each provide an over arching statement of mission need, business case analysis, and migration plan for each major logistics business process area to be improved, e.g. Maintenance. The Mission Needs Statement (MNS) will articulate the non-system specific operational requirements. The business case analysis will recommend a strategy for meeting the operational requirements and should discuss alternatives considered. The migration plan will provide the strategy and milestones for achieving DII COE compliance. Detailed requirements for modernization or new capabilities will be developed and submitted incrementally within the context of the MNS and migration plan. Each increment will have a corresponding Operational Requirements Document that articulates performance requirements for the proposed increment. Each major increment should be tied to milestones in the migration plan. The following principles should be used to guide the development of incremental requirements.
>
> - Use of Commercial Off-the-Shelf and Government Off-the-Shelf (COTS/GOTS) solutions are preferred.
> - Use Industry and International Standards when practical.
> - Use DII COE design principles."

The Department shares the GAO concern about the need for cost effectiveness in all actions relating to the modernization of logistics business systems. The diminished economic base, significant variations in mission, and continually evolving technical capabilities, require that the Department consider a variety factors as well as the specific economic efficiency of individual actions in determining what actions to pursue as the modernization process proceeds.

For Roger B. Willis
John F. Phillips
Deputy Under Secretary
of Defense (Logistics)

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