Audit Report

DEFENSE SECURITY ASSISTANCE MANAGEMENT SYSTEM

Report Number 98-095 March 24, 1998

Office of the Inspector General
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Acronyms

ASD(C^3I)	Assistant Secretary of Defense (Command, Control, Communications, and Intelligence)
DSAA	Defense Security Assistance Agency
DSAMS	Defense Security Assistance Management System
MAIS	Major Automated Information System
MAISRC	Major Automated Information System Review Council

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March 24, 1998

MEMORANDUM FOR ASSISTANT SECRETARY OF DEFENSE (COMMAND, CONTROL, COMMUNICATIONS, AND INTELLIGENCE)
DIRECTOR, DEFENSE SECURITY ASSISTANCE AGENCY

SUBJECT: Audit Report on the Defense Security Assistance Management System (Report No. 98-095)

We are providing this audit report for review and comment. We considered management comments on a draft of this report in preparing the final report.

DoD Directive 7650.3 requires that all recommendations be resolved promptly. Therefore, we request that the Defense Security Assistance Agency provide additional comments on Recommendations 2.a., 2.d., 2.e., 2.f., 2.g., 2.h., and 2.i. in response to the final report by May 26, 1998.

We appreciate the courtesies extended to the audit staff. Questions on the audit should be directed to Ms. Evelyn R. Klemstine, Audit Program Director, at (703) 604-9172 (DSN 664-9172) (eklemstine@dodig.osd.mil). See Appendix D for the report distribution. The audit team members are listed inside the back cover.

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Report No. 98-095 **March 24, 1998**
(Project No. 7LG-0034)

Defense Security Assistance Management System

Executive Summary

Introduction. The Defense Security Assistance Management System (DSAMS) is a worldwide automated information system that will be used for managing the annual $10 billion Foreign Military Sales Program. As envisioned, it will replace 13 automated information systems used by the Military Departments and Defense Security Assistance Agency and will provide standardized and improved security assistance management that will reduce cost and eliminate redundant procedures. The Defense Security Assistance Agency is responsible for developing and operating DSAMS and maintaining the worldwide database required by all levels of management for the security assistance program. In February 1995, the Defense Security Assistance Agency awarded a contract to BDM Enterprise to prepare a conceptual design document for DSAMS. The conceptual design document estimated life-cycle costs for DSAMS to be $58.3 million and estimated completion of the system by May 1999. In August 1995, the Director, Defense Security Assistance Agency, approved the development of DSAMS, based on the conceptual design document. A Program Management Office within the Defense Security Assistance Agency is responsible for the acquisition, development, implementation, and maintenance of DSAMS.

Audit Objectives. The overall audit objective was to determine whether DSAMS will meet user requirements and cost, schedule, and performance parameters. We also reviewed management controls as they related to the audit objective.

Audit Results. The DSAMS was not being managed with controls appropriate to a system of its cost and size. Based on information provided by Defense Security Assistance Agency, the Assistant Secretary of Defense (Command, Control, Communications, and Intelligence) did not classify DSAMS as a major automated information system and there has been no Major Automated Information System Review Council oversight to ensure that essential management control documents were prepared. The Defense Security Assistance Agency had not prepared a mission needs statement, an operational requirements document, a program baseline, an acquisition strategy, an acquisition plan, and a test and evaluation master plan to help manage the cost, schedule, and performance parameters of the system. As a result, the Defense Security Assistance Agency fielded four versions of the case development module that were not fully operational, resulting in program slippages from May 1999 to beyond the Year 2000. In addition, there are no assurances that future DSAMS modules will meet user requirements and cost, schedule, and performance parameters. Further, program slippages have resulted in requiring an additional $2.8 million to make existing systems Year 2000 compliant.

Summary of Recommendations. We recommend that the Assistant Secretary of Defense (Command, Control, Communications, and Intelligence) (ASD[C^3I]) classify the DSAMS as a major automated information system and provide program oversight. We recommend that the Defense Security Assistance Agency submit the life-cycle cost estimate to the ASD(C^3I) for reclassification of DSAMS as a major automated information system and to the Assistant Secretary of Defense (Program Analysis and Evaluation) for validation of the accuracy and completeness of the life-cycle cost estimates; update the life-cycle cost estimates for each milestone review; prepare a mission needs statement, an operational requirements document, a program baseline, an acquisition strategy, an acquisition plan, and a test and evaluation master plan; and establish an integrated product team.

Management Comments. The Office of the ASD(C^3I) did not concur with the recommendation on classifying DSAMS at this time. It stated that it will reconsider its position after reviewing the Institute for Defense Analyses independent cost estimate due in April 1998. In the interim, it will place DSAMS on its list of information technology initiatives subject to review by the DoD Chief Information Officer. The Acting Director, Defense Security Assistance Agency, nonconcurred with submitting the Institute for Defense Analyses final report to the ASD(C^3I) for reclassification of DSAMS because DSAMS development costs were below the dollar threshold required for a Major Automated Information System Review Council review. The Acting Director concurred with all other recommendations. The Office of the Assistant Secretary of the Air Force (Financial Management and Comptroller) also commented and stated that the mission needs should also include requirements to serve the financial management and accounting communities. A discussion of management comments is in Part I and the complete text is in Part III.

Audit Response. The ASD(C^3I) comments were responsive. DoD Regulation 5000.2-R requires DoD Components to report the initial estimated life-cost and notify the ASD(C^3I) when cost growth or a change in acquisition strategy results in reclassifying an acquisition program. Thus, the DSAA should submit the life-cycle cost estimate for DSAMS to the ASD(C^3I). Although the Acting Director concurred, we consider the comments partially responsive and additional comments are required on coordinating the required documentation approvals through the proper channels, and including representatives from the Offices of the ASD(C^3I) and the Assistant Secretary of Defense (Program Analysis and Evaluation) and selected members of the financial management community on the integrated product team. We request that the Defense Security Assistance Agency reconsider its position and provide additional comments in response to the final report by May 26, 1998.

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Part I - Audit Results

Audit Background

The Defense Security Assistance Management System. The Defense Security Assistance Management System (DSAMS) will become the automated information system used worldwide for managing the annual $10 billion Foreign Military Sales Program. As envisioned, DSAMS will use state-of-the-art technology and replace 13 Military Department and Defense Security Assistance Agency (DSAA) security assistance automated information systems (see Appendix B). The development of DSAMS involves the integration of selected features from each of the existing systems[1] and commercial off-the-shelf software. Once implemented, DSAA expects DSAMS to reduce the annual automated data processing operation and maintenance cost of $36.5 million by $23 million for manipulating, processing, and producing foreign military sales information. In addition, DSAMS will eliminate redundant procedures that the Military Departments are using for processing and reporting that information. The Defense Information Systems Network will be the communication link between the server located at the Defense Information Systems Agency megacenter in Oklahoma City and more than 50 user sites in the United States. DSAA is responsible for developing and operating DSAMS and maintaining the worldwide database required by all levels of management for the security assistance program. In August 1995, the Director, DSAA, approved the development of DSAMS using Foreign Military Sales administrative surcharge funds[2] to finance DSAMS. A program management office, established in September 1995, within DSAA is responsible for the acquisition, development, implementation, and maintenance of DSAMS.

Acquisition of DSAMS. The DSAMS will consist of five modules: case development, case implementation, case execution, case reconciliation and closure, and training (see Appendix C). Using an incremental[3] development approach, the acquisition of DSAMS has been segregated into five stages: feasibility, analysis, design, construction, and implementation. In February 1995, the DSAA awarded a contract to BDM Enterprise to prepare a conceptual design document for DSAMS. The conceptual design document estimated life-cycle costs for DSAMS to be $58.3 million

[1]For the purpose of this report, existing systems are the 13 Military Department and DSAA automated information systems that DSAMS will replace.

[2]The administrative surcharge fund is a collection of the 3 percent additive to the cost of Defense articles and services charged to the foreign customer to recoup the costs associated with the administration of the sale.

[3]In an incremental acquisition approach, part of the system is fielded while the remaining parts are being developed in a parallel or subsequent effort.

and estimated completion by May 1999. The development of the case development module began in September 1995. The Military Departments and DSAA are testing the case development module.

Acquisition Management. The Assistant Secretary of Defense (Command, Control, Communications, and Intelligence) (ASD[C^3I]), based on input provided by DSAA, classified DSAMS as a nonmajor automated information system. As a nonmajor automated information system, the Director, DSAA, was designated as the Milestone Decision Authority. The Milestone Decision Authority is the executive authority over developmental, operational, and standardization improvement efforts.

The DSAMS Program Manager directs the central design activity (including the contractor), chairs the Configuration Control Board, and executes configuration management control of DSAMS and the existing systems. The Program Manager also:

o estimates the life-cycle cost of DSAMS and provides cost information to the Milestone Decision Authority;

o identifies user requirements to determine cost, schedule, and performance parameters; and

o assesses program risks, optimizing system performance and minimizing the cost of ownership.

Audit Objectives

The overall audit objective was to determine whether DSAMS will meet user requirements and cost, schedule, and performance parameters. We also reviewed management controls as they related to the audit objective. See Appendix A for a discussion of the audit scope and methodology, our review of the management control program, and a summary of prior coverage related to the audit objective.

Management of the Defense Security Assistance Management System

The DSAMS is not being managed with controls appropriate to a system of its cost and size. Based on information provided by DSAA, the ASD(C^3I) did not classify DSAMS as a major automated information system (MAIS) and there has been no MAIS Review Council (MAISRC) oversight to ensure that essential management control documents were prepared. DSAA had not prepared a mission needs statement, an operational requirements document, a program baseline, an acquisition strategy, an acquisition plan, and a test and evaluation master plan to help manage the cost, schedule, and performance parameters of the system. DSAMS was not classified as a MAIS because the Program Management Office did not adequately estimate and report life-cycle cost when ASD(C^3I) was categorizing the system, causing the system to be misclassified as a nonmajor automated information system and exempting it from MAISRC review. In addition, the Program Management Office did not have controls in place to establish an integrated product team and to define and manage user requirements. As a result, DSAA fielded four versions of the case development module that were not fully operational, resulting in program slippages from May 1999 to beyond the Year 2000. In addition, there were no assurances that future DSAMS modules will meet user requirements and cost, schedule, and performance parameters. Further, program slippages have resulted in requiring an additional $2.8 million to make existing systems Year 2000 compliant.

Guidance

Defense Federal Acquisition Regulation Supplement, Part 207. The Defense Federal Acquisition Regulation Supplement, part 207, "Acquisition Planning," requires that an acquisition plan be prepared when total costs of all contracts for a program are estimated at $15 million annually or at $30 million throughout the life of the program.

DoD Directive 5000.1. DoD Directive 5000.1, "Defense Acquisitions," March 15, 1996, provides broad policies and principles for all DoD acquisition programs, and establishes a disciplined, yet flexible, management approach for acquiring and managing automated information systems. The Directive establishes responsibilities for DoD Component heads that ensure policies and procedures governing the operation of the Component's acquisition, budgeting, and requirements systems are effectively implemented. The Directive summarizes the primary objective of a Defense acquisition as:

> . . . to acquire quality products that satisfy the needs of the operational user with measurable improvements to mission accomplishment, in a timely

> manner, at a fair and reasonable price. Successful acquisition programs are fundamentally dependent upon competent people, rational priorities, and clearly defined responsibilities. The following policies and principles govern the operation of the defense acquisition system and are divided into three major categories: (1) Translating Operation Needs into Stable, Affordable Programs, (2) Acquiring Quality Products, and (3) Organizing for Efficiency and Effectiveness. These principles shall guide all defense acquisition programs.

DoD Regulation 5000.2-R. DoD Regulation 5000.2-R, "Mandatory Procedures for Major Defense Acquisition Program and Major Automated Information System Acquisition Programs," March 15, 1996, establishes mandatory procedures for MAIS acquisition programs regardless of funding source. It defines a MAIS as an automated information system that is estimated to require program costs in any single year in excess of $30 million, total program costs in excess of $120 million, or total life-cycle costs in excess of $360 million. Those automated information systems not meeting the thresholds are classified as nonmajor automated information system programs.

Automated Information System Oversight. A MAIS acquisition program is subject to oversight by the MAISRC, which is chaired by ASD(C^3I). The Assistant Secretary also serves as the Chief Information Officer and the Milestone Decision Authority for a MAIS. The Chief Information Officer is responsible for monitoring the performance of information technology programs, evaluating the performance of those programs, and advising the head of the agency whether to continue, modify, or terminate a program. For a nonmajor automated information system acquisition, the component head rather than the MAISRC is responsible for management oversight during the development, operational, and standardization improvement efforts.

Automated Information System Requirements. DoD Regulation 5000.2-R describes broad management principles that are applicable to major and nonmajor acquisition programs. It provides procedures and required documentation for translating broadly stated mission needs into a well-defined, carefully structured program to reflect a balance between cost, schedule, and performance. In addition, the operational performance objectives and minimum acceptable requirements are to be documented to include a mission needs statement, an operational requirements document, a program baseline, an acquisition strategy, and a test and evaluation master plan. It requires management to structure the automated information system acquisition to ensure a logical progression through a series of phases designed to reduce risk, ensure affordability, and provide adequate information for decisionmaking that will provide the need in the shortest practical time. To ensure that deployed systems satisfy user requirements, the Secretary of Defense had directed the use of integrated product teams to facilitate the oversight and review of the life-cycle management documentation.

DoD Manual 5000.4-M. DoD Manual 5000.4-M, "Cost Analysis Guidance and Procedures," December 1992, establishes guidance for preparing cost analysis documents to be used as a basis for preparing life-cycle cost estimates. The Manual

defines life-cycle cost as all cost categories from conceptual design to the end of the system's useful life regardless of fund source or management control. The Manual requires that the program office estimate and prepare a cost analysis in support of acquisition milestone reviews.

Designation as a Major Automated Information System

The DSAMS is not being managed with appropriate controls. The ASD(C^3I) did not classify DSAMS as a MAIS. In August 1995, DSAA estimated DSAMS life-cycle cost of $58.3 million. In October 1996, ASD(C^3I) included DSAMS on its MAIS acquisition program list. However, in November 1996, DSAA informed ASD(C^3I) that significant factors prevented the inclusion of DSAMS as a MAIS. Specifically, DSAA stated:

> The DSAMS is not a DoD operational system, having no impact on DoD domestic missions and functions. Funding for the DSAMS is non-appropriated, coming entirely from the Foreign Military Sales (FMS) Administrative Trust Fund. The estimated funding requirement for the development of DSAMS is substantially below the current MAISRC threshold of $120 million, as are the life cycle costs below the current MAISRC threshold of $360 million. Finally, the administrative requirements of documenting a MAISRC process would significantly impact the limited manpower and resources we have currently committed to this project.

In its memorandum to ASD(C^3I), DSAA stated that nonappropriated funding precluded classifying DSAMS as a MAIS acquisition. However, DoD Regulation 5000.2-R does not exempt an acquisition program based on the funding source. In addition, DSAA stated that DSAMS costs were substantially below the threshold of a MAIS. However, when DSAA prepared the cost estimate for DSAMS, the estimated costs were solely for software development of the case development module. Based on the model used by the Assistant Secretary of Defense (Program Analysis and Evaluation), the estimated life-cycle costs for DSAMS is about $500 million. DSAMS ultimately exceeded the life-cycle cost threshold for a MAIS.

Estimating and Reporting Life-Cycle Cost

The DSAMS was not classified as a MAIS because the Program Management Office did not adequately estimate and report life-cycle cost when the system was being categorized by ASD(C^3I), causing the system to be misclassified as a nonmajor, and exempting it from MAISRC review. In August 1995, the Program Management Office estimated life-cycle cost of $58.3 million for DSAMS. In October 1997; however, the Assistant Secretary of Defense (Program Analysis and Evaluation) model estimated life-cycle costs of about $500 million. Life-cycle costs include the cost for acquisition,

implementation, and operation of the system. Identifying and developing adequate life-cycle cost is critical to many facets of program management, including evaluating the system's cost-effectiveness and determining the amount and timing of funding requirements. In addition, life-cycle costs are used as a basis for approval by the Milestone Decision Authority before proceeding to the next acquisition phase. Estimating and reporting accurate costs are necessary for successful system control and development as well as for identifying the Milestone Decision Authority level for approval.

DSAA Estimate of Life-Cycle Costs. The Program Management Office estimated life-cycle cost of $58.3 million for DSAMS based on BDM Enterprise's cost for developing the case development module software. It did not include all critical costs of the system. Specifically, the estimate did not include the acquisition costs of the other four modules. In addition, it did not include program management personnel, operation and maintenance, construction for central design activity, and DSAMS interface with other systems.

Assistant Secretary of Defense (Program Analysis and Evaluation) Estimate of Life-Cycle Costs. An Assistant Secretary of Defense (Program Analysis and Evaluation) model estimated life-cycle costs of $500 million, based on estimated source lines of code[4] totaling 2.5 million provided by DSAA. DoD Directive 5000.1 requires the Office of the Assistant Secretary of Defense (Program Analysis and Evaluation) to determine the accuracy and completeness of life-cycle cost estimates for automated information systems. The Office of the Assistant Secretary of Defense (Program Analysis and Evaluation) uses the System Evaluation and Estimation of Resources - Software Estimation model to validate DoD Component life-cycle cost estimates and to evaluate vendor proposals for DoD automated information system contracts. The model considers industry averages, previous DoD system acquisitions, and total source lines of code to estimate software development and maintenance cost. The most significant advantage of using source lines of code to estimate total life-cycle costs is that those codes are directly related to the software to be built. The model estimated life-cycle cost of $500 million, thereby exceeding the $360 million life-cycle cost threshold for a MAIS.

Program Documentation

There has been no review at the Office of the Secretary of Defense level to ensure that essential management control documents were prepared. Specifically, DSAA did not prepare a mission needs statement, an operational requirements document, a program

[4]Source lines of code are statements that provide control, logic, and mathematical instructions to the computer. Each statement is counted to obtain the total source lines of code.

baseline, an acquisition strategy, an acquisition plan, and a test and evaluation master plan to help manage the cost, schedule, and performance parameters of the system. Although DSAMS was not classified as a MAIS, DoD Directive 5000.1 and DoD Regulation 5000.2-R require similar program documentation for the acquisition of major and nonmajor automated information systems. To properly manage the acquisition of any automated information system, documentation is necessary to ensure a logical progression through a series of phases designed to reduce risk, ensure affordability, and provide adequate information for decisionmaking. As of November 14, 1997, the Program Management Office had not prepared the required documentation, even though system development was in milestone II phase 2[5] of the acquisition process.

Defining and Managing User Requirements

The DSAA did not prepare the necessary program documentation for DSAMS because controls were not in place to define and manage user requirements. Controls are comprehensive strategies that provide reasonable assurance that programs and administrative and operating functions are efficiently and effectively carried out in accordance with applicable law and management policy. User requirements of an automated information system program affect cost, schedule, and performance of the system development. Sufficiently defined and managed requirements are essential to the success of an automated information system acquisition.

Defining Requirements. Controls for defining user requirements, which determine the minimum operational capability of the system, were not in place. Defining user requirements is the process of translating broadly stated mission needs into a set of operational requirements from which cost, schedule, and performance parameters are derived. DoD Regulation 5000.2-R describes how those parameters should be presented and documented in a mission needs statement and an operational requirements document. A mission needs statement identifies the needs of users, describes the deficiencies in the existing systems, and identifies potential alternatives. An operational requirements document contains system cost, schedule, and performance parameters based on the requirements established in the mission needs statement.

Mission Needs Statement and Operational Requirements Document. The Program Management Office had not prepared a mission needs statement and an operational requirements document, specifying DSAMS operational requirements. Without a mission needs statement and an operational requirements document, the

[5]Milestone II phase 2 of the acquisition process is the development phase in which the overall software design is coded and tested to ensure user requirements are satisfied.

Program Manager could not determine whether operational performance requirements were effectively satisfied by all users of the system and whether cost, schedule, and performance parameters for DSAMS were met or exceeded. During the development of DSAMS, the Military Department requirements were not standardized for the case development module, which resulted in the development of additional versions of the module to satisfy user needs. In addition, DSAA and officials from the Defense Finance and Accounting Service did not adequately coordinate DSAMS financial reporting requirements relating to billing the foreign military sales customers for delivered Defense articles and services.

Conceptual Design Document. As an alternative to the mission needs statement and operational requirements document, the Program Management Office had BDM Enterprise prepare a conceptual design document. However, the document did not fully satisfy the requirements of DoD Regulation 5000.2-R because it did not present the users needs, all significant deficiencies in the existing systems, and alternatives to develop a new system. In addition, the conceptual design document did not present the cost, schedule, and performance parameters for DSAMS as a total system and presented only the parameters for the case development module.

Managing Requirements. Controls for managing user requirements were not in place to establish an integrated product team and to effectively assess the impact of requirements on system cost, schedule, and performance parameters. DoD Regulation 5000.2-R requires the use of integrated product teams to perform oversight and review of the automated information system acquisition and preparation of a program baseline, an acquisition strategy, and a test and evaluation master plan. The Defense Federal Acquisition Regulation Supplement requires that an acquisition plan be prepared and used as a tool for managing and controlling the acquisition process.

Integrated Product Teams. The DSAA had not established an integrated product team to provide oversight and review as DSAMS proceeds through its acquisition life-cycle. Integrated product teams are an integral part of the Defense acquisition oversight and review process. An integrated product team helps build successful and balanced programs, identify and resolve issues, and make sound and timely recommendations to facilitate decisionmaking. The goal of the team is to resolve as many issues and concerns at the lowest level possible, and to expeditiously escalate issues that need resolution at a higher level, bringing only the highest level issues to the Milestone Decision Authority for decision. The integrated product teams consist of qualified team members from the appropriate functional disciplines, who are empowered to make commitments for the organizations or functional areas that they represent.

The DSAMS integrated product team should have comprised, at a minimum, representatives from ASD(C^3I), the Defense Finance and Accounting Service, the Assistant Secretary of Defense (Program Analysis and Evaluation), and the Military Departments. The ASD(C^3I) is responsible for overseeing all DoD information

technology investments, including MAIS acquisition programs. The Defense Finance and Accounting Service is responsible for accounting, billing, and financial management reporting for the security assistance program. The Assistant Secretary of Defense (Program Analysis and Evaluation) provides guidance as well as reviews the results of the analysis of alternative studies for acquisition programs, and determines whether the cost and benefit analyses are accurate and complete. The Military Departments execute the security assistance programs.

Program Baseline. The Program Management Office did not establish a program baseline for DSAMS to identify cost, schedule, and performance parameters. DoD Regulation 5000.2-R requires the program office to develop a program baseline at program initiation, at each subsequent major milestone, and following a program restructuring or deviation. The program baseline is used as a management technique to manage and control cost growth and schedule slippages. Although the conceptual design document presented the cost, schedule, and performance parameters for the case development module, it did not present those parameters for DSAMS as a total system. Without a program baseline, the Program Manager could not identify and report significant deviations from planned cost, schedule, and performance parameters.

Acquisition Strategy. The Program Management Office did not develop an acquisition strategy to minimize the time and cost to satisfy user requirements, identify the system's life cycle costs and resource requirements, and manage risk for the system development. The acquisition strategy was not prepared for the total system. An acquisition strategy is the overall plan that a Program Manager follows throughout the acquisition process. It also serves as the contract between the Program Manager and subordinate or supporting organizations and specifies what is needed and expected from those organizations during the acquisition process. Without an acquisition strategy, the Program Manager cannot control all elements of the DSAMS acquisition process, including the plans to verify that user requirements were satisfied. As an alternative to the acquisition strategy, DSAA had BDM Enterprise prepare a software development plan for the case development module; however, the plan did not include the remaining four modules of the system. In addition, the software development plan did not identify the system's life cycle and what resources will be used.

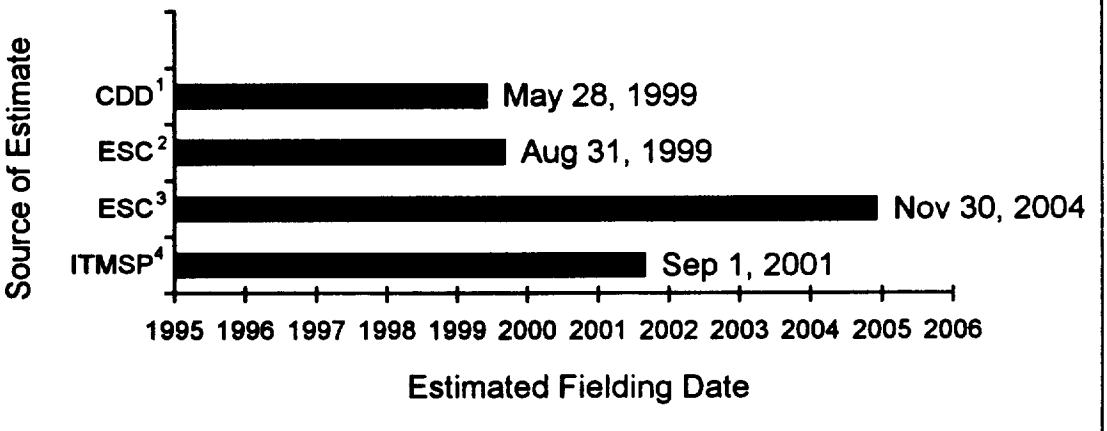
Acquisition Plan. The Program Management Office had not developed an acquisition plan to identify program risks and solutions to those risks. At a minimum, the contract amount of $58.3 million for the case development module exceeded the $30 million criteria established in the Defense Federal Acquisition Regulation Supplement for preparing an acquisition plan. The Program Management Office considered the conceptual design document as the acquisition plan; however, that document did not identify the risk associated with cost, schedule, and performance parameters as well as solutions to those risks so that program goals could be met. According to DSAA officials, conversion of the data from the existing systems to DSAMS was far more complex than originally thought. Without an acquisition plan,

the Program Management Office could not adequately identify and assess program requirements to reduce schedule slippages and additional costs to the program.

Test and Evaluation Master Plan. The Program Management Office had not developed a test and evaluation master plan for DSAMS to establish the criteria for testing the system to verify that user requirements are met. As an alternative to the test and evaluation master plan, DSAA had BDM Enterprise prepare the software test description and software test plan for the case development module. However, the alternative documents addressed the actual detailed test and evaluation plan for the case development module and did not address the overall test and evaluation for DSAMS. During the Air Force testing of the case development module software, over 300 deficiencies were identified, including mistitled field labels; extremely slow system speed; and overlapping text on document printouts.

Cost, Schedule, and Performance Risk

Versions of the Case Development Module. The DSAA fielded four versions of the case development module that were not fully operational, resulting in program slippages from May 1999 to beyond the Year 2000. From November 1996 through October 1997, the Program Management Office was required to make changes to the functionality of the case development module because the module did not meet user requirements. Four versions of the module have been developed to meet user requirements. The first version provided line item totals and rounded dollar values up. The second version validated the source of supply and provided military articles and services list descriptions. The third version provided amendment and modification calculations. The fourth version included a field for national stock numbers. The implementation of the case development module slipped more than a year; and DSAMS, as a total system, has slipped more than 2 years with no agreement as to the actual fielding of DSAMS. The following figure shows slippages in the estimated completion date of DSAMS as stated in various source documents.



[1]The Conceptual Design Document (CDD) approved by the milestone decision authority in August 1995.
[2]Minutes of the December 1995 Executive Steering Committee (ESC) meeting.
[3]Minutes of the March 1996 ESC meeting.
[4]The Information Technology Management Strategic Plan (ITMSP) dated June 1997.

DSAMS Estimated Completion Dates

As illustrated in the figure above, estimates for the completion of DSAMS were inconsistent. Without controls in place to define and manage user requirements, there was no effective mechanism to monitor DSAMS cost, schedule, and performance parameters; thus, there were no assurances that future DSAMS modules would meet user requirements and cost, schedule, and performance parameters.

Year 2000 Compliance. Because the fielding of DSAMS has slipped, DSAMS will not be fully operational by the Year 2000 and existing systems will need to become Year 2000 compliant. In the Year 2000, automated information systems that are not Year 2000 compliant will have to be adjusted for the way dates are recorded and computed. For the past several decades, systems typically used two digits to represent the year, such as "97" representing 1997, in order to conserve on electronic data storage and to reduce operating costs. With the two-digit format, however, the Year 2000 is indistinguishable from 1900. The calculation of dates is further complicated because the Year 2000 is a leap year, being divisible by both 100 and 400, while the year 1900 is not. As a result of the ambiguity, system and application programs that use dates to calculate, compare, or sort could generate incorrect results when working with years after 1999.

In April 1997, ASD(C^3I) issued the "DoD Year 2000 Management Plan." According to the management plan, DoD Components are responsible for renovating existing systems to fix the Year 2000 deficiency by December 1998. Although, a memorandum of agreement was not prepared between DSAA and the Military Departments, DSAA

agreed in October 1996 to provide funds to fix the existing systems Year 2000 deficiencies because of delays in fielding DSAMS. DSAA estimates that $2.8 million will be required to make existing systems Year 2000 compliant. DSAA has provided the Military Departments the necessary funds and the Military Departments are in the process of fixing the Year 2000 deficiencies.

Management Initiative

The Program Management Office has taken action to obtain an adequate life-cycle cost estimate for DSAMS. In August 1997, the Program Management Office awarded a contract to the Institute for Defense Analysis to perform a complete cost analysis, including a life-cycle cost estimate of the total DSAMS. The analysis will be available in April 1998.

Conclusion

Effective controls over the acquisition of DSAMS are critical to the program's success. The long-term success of DSAMS is contingent on identifying life-cycle costs, defining overall mission needs and requirements; developing an acquisition strategy to verify that user requirements are met; identifying measurable means to monitor and evaluate costs, schedules, and performance; and developing a test and evaluation strategy to verify that user requirements are met. The life-cycle costs for DSAMS exceeded the $360 million limit as calculated by the Assistant Secretary of Defense (Program Analysis and Evaluation). Therefore, DSAMS should be classified as a MAIS, which will result in increased oversight and controls on program management necessary to reduce the risks associated with the systems development. Until those issues are clearly resolved, DSAMS may fail to meet its ultimate objective of being the only DSAA automated information system for managing the DoD security assistance program.

Management Comments on the Finding and Audit Response

Defense Security Assistance Agency Comments. The DSAA disagreed with the finding that DSAMS was not being managed with appropriate controls. DSAA stated that the estimated $500 million life-cycle cost for DSAMS was significantly overstated. The life-cycle cost calculations were based on an inaccurate total of 2.5 million lines of code provided by DSAA. DSAA stated that a more accurate estimate of total lines of code could be determined by adding together all the systems of a single Military Department that cover the full range of FMS functionality in DSAMS. Using that methodology, DSAMS would contain about 1 line of code for every 1.5 lines of legacy code or 1 million lines of codes for the total Navy FMS systems. Based on an Institute

for Defense Analyses preliminary report, the estimated development cost of DSAMS will be about $100 million. Regarding scheduling and testing, DSAA stated that only one version of the case development module was fielded into production; and that the statement, "during Air Force testing of the case development module software, over 300 deficiencies were identified," was misleading. It stated that the deficiencies found were either legitimate bugs, which were subsequently corrected, or changes to the design based on new user requirements not previously identified. Finally, DSAA stated that the estimated completion date for DSAMS shown in the Estimated Fielding Date table in the report should be year 2001, not year 2004, because the 2004 date was the projected end of the system life cycle.

Audit Response. Life-cycle costs are the total cost for an automated information system over its full life. It includes the cost of requirements analyses, design, development, acquisition and lease, operations, support, and disposal. It encompasses contract and in-house costs, all cost categories, and all related appropriations. The $100 million estimated by the Institute for Defense Analyses is for developmental costs and did not include other elements of life-cycle cost. DSAA stated that 1 million lines of codes was a more accurate estimate using the total lines of code for Navy FMS systems rather than the 2.5 million lines of code previously provided. Based on our review of the total lines of code for each of the Military Departments, the Air Force FMS systems have the most lines of code while the Navy systems have the least lines of code. Using the same process and ratios DSAA used in calculating the Navy FMS systems, the Air Force systems, adjusted for Defense Finance and Accounting Service functionality and inflated by 100K to cover unknowns, is approximately 2 million lines of code. Consequently, the $100 million cost data are incomplete, thus the $500 million estimated life-cycle cost for DSAMS may not be significantly overstated. However, until a complete life-cycle cost estimate is validated, we cannot determine whether DSAMS meets the MAISRC dollar threshold requirements.

We disagree with the DSAA assessment that deficiencies in the four versions of the case development module were based on new requirements. The enhancements and deficiencies found were critical functions in processing FMS to accomplish the same efficiency as the legacy system that was omitted during the planning process. As stated in the report, the four versions were developed to meet user requirements. Some of those deficiencies may have been identified had a mission needs statement and operational requirements document been prepared and approved prior to system development.

During the audit field work, the DSAMS Program Management Office was unable to provide us an estimated completion date for DSAMS. In addition, DSAA stated that it could not estimate an overall completion date until after the implementation of the case development module. As an alternative, the December 1995 minutes for the fifth Executive Steering Committee meeting showed an estimated completion date for DSAMS of August 31, 1999, while the March 1996 minutes for the sixth Executive

Steering Committee meeting showed an estimated completion date of November 30, 2004. The Executive Steering Committee meeting minutes do not support the year 2004 as the projected end of the system life cycle. In addition, the conceptual design document for DSAMS showed a useful life of 10 years, not 3 years.

Recommendations, Management Comments, and Audit Response

1. We recommend that the Assistant Secretary of Defense (Command, Control, Communications, and Intelligence) classify the Defense Security Assistance Management System (DSAMS) as a major automated information system and provide program oversight.

ASD(C^3I) Comments. The Office of the ASD(C^3I) did not concur at this time with the recommendation and stated that it will reconsider its position after a review of the Institute for Defense Analyses independent cost estimate, which is due in April 1998. In the interim, the Office of the ASD(C^3I) will place DSAMS on its list of information technology initiatives subject to review by the DoD Chief Information Officer.

Audit Response. We consider the proposed actions responsive.

2. We recommend that the Director, Defense Security Assistance Agency:

a. Submit the life-cycle cost estimate prepared by the Institute for Defense Analysis to the Assistant Secretary of Defense (Command, Control, Communications, and Intelligence) for reclassification of DSAMS as a major automated information system.

b. Submit the life-cycle cost estimate prepared by the Institute for Defense Analysis to the Assistant Secretary of Defense (Program Analysis and Evaluation) for validation of the accuracy and completeness of the life-cycle cost estimates.

c. Update the life-cycle cost estimate for each milestone review so that DSAMS can be evaluated for its cost-effectiveness.

d. Prepare a mission needs statement for DSAMS to identify users needs, describe the deficiencies in the existing systems, and identify potential alternatives.

e. Prepare an operational requirements document for DSAMS to establish system cost, schedule, and performance parameters based on the user requirements.

f. Establish an integrated product team to provide oversight and review as DSAMS proceeds through its acquisition life cycle. The integrated product team should include, at a minimum, representatives from the Office of the Assistant

Secretary of Defense (Command, Control, Communications, and Intelligence), the Defense Finance and Accounting Service, the Office of the Assistant Secretary of Defense (Program Analysis and Evaluation), and the Military Departments.

g. Establish a program baseline for DSAMS to manage and control cost growth and schedule slippages.

h. Prepare an overall acquisition strategy for DSAMS to manage user requirements and identify the system's life cycle and the resources to be used.

i. Prepare an acquisition plan for DSAMS to identify the risk associated with cost, schedule, and performance parameters as well as solutions to those risks so that program goals can be met.

j. Prepare a test and evaluation master plan for DSAMS to establish the criteria for testing the system to verify that user requirements are met.

DSAA Comments. The Acting Director, DSAA, nonconcurred with Recommendation 2.a., stating that DSAMS costs are under the MAISRC threshold; and that in its November 19, 1996, memorandum, the ASD(C^3I) agreed that DSAMS was below the MAISRC threshold. However, DSAA will submit the Institute for Defense Analyses final report to ASD(C^3I) for reclassification of DSAMS, should that cost estimate meet the MAISRC threshold.

DSAA concurred with all other recommendations as follows.

- The Institute for Defense Analyses final report is due in April 1998 and costs will be tracked and evaluated regularly.

- DSAA has prepared a mission needs statement, operational requirements document, program baseline, acquisition strategy, and acquisition plan.

- The Software Test Description and Software Test Plan were prepared for the case development module following the standards of MIL-STD-498. Further, the test

and evaluation master plans future modules are case implementation, September 30, 1998; training, November 30, 1998; and case execution and case closure, September 30, 1999.

- The Executive Steering Committee serves as the overarching integrated product team. That committee is composed of representatives from all appropriate disciplines and is supported by a variety of other teams, including conceptual design, general design, and standardization working groups.

Audit Response. We consider the DSAA comments on Recommendation 2.a. to be nonresponsive, because DSAA will submit the life-cycle cost estimate for DSAMS only when the costs meet the Major Automated Information System Review Council dollar threshold requirements. We acknowledge that ASD(C^3I) already agreed that DSAMS was not a MAISRC system based on estimated life-cycle cost of $58.3 million reported at that time. However, the $58.3 million estimated costs were solely for software development. In addition, the Institute for Defense Analyses preliminary cost estimate of $100 million is also for development cost of DSAMS. Both estimated costs are incomplete because DSAA had not included other elements of life-cycle cost. DoD Regulation 5000.2-R requires DoD Components to report the initial estimated life-cycle cost and notify the ASD(C^3I) when cost growth or a change in acquisition strategy results in reclassifying an acquisition program. Therefore, we request that DSAA submit the life-cycle cost estimate prepared by the Institute for Defense Analysis to the ASD(C^3I) for review as well as any change in cost growth and acquisition strategy.

Although DSAA prepared the mission needs statement, operational requirements document, program baseline, acquisition strategy, and acquisition plan, it did not meet the intent of Recommendations 2.d., 2.e., 2.g., 2.h., and 2.i. because the documents had not been coordinated and approved through the proper channels. Therefore, we request that DSAA provide completion dates for those documents in response to the final report.

Although DSAA concurred with Recommendation 2.f., its response did not meet the intent of the recommendation. We agree that the Executive Steering Committee serves as the overarching integrated product team; however, it does not include representatives from the Offices of the ASD(C^3I), and the Assistant Secretary of Defense (Program Analysis and Evaluation) and selected members of the financial management community. The integrated product team should include representatives from all appropriate functional disciplines working together to build a successful and balanced program, identify and resolve issues, and make sound and timely recommendations to facilitate decisionmaking. The Air Force in its comments also agreed that it is critical that the integrated product team include members from the financial management community. We request that DSAA reconsider including representatives from those offices on the committee.

Air Force Comments. The Air Force was not required to do so, but responded to the draft finding and recommendations. The Air Force stated that the mission needs should also include requirements to serve the financial management and accounting communities and that financial management and accounting requirements should also be established as performance parameters. In addition, it stated that the integrated product team should include Defense Finance and Accounting Service and selected members of the financial management community to provide oversight and review as DSAMS proceeds through its acquisition life cycle.

Part II - Additional Information

Appendix A. Audit Process

Scope and Methodology

We reviewed the program management controls in place to ensure that DSAMS will meet user requirements. Specifically, we reviewed DSAA life-cycle cost estimates to ensure that they included all DoD standard cost elements. In addition, we reviewed DSAMS program documentation covering the period from February 1995 through October 1997 to ensure compliance with DoD Directive 5000.1 and DoD Regulation 5000.2-R. Further, we reviewed the process DSAA used to manage and oversee the acquisition and development of DSAMS. In addition, we interviewed individuals and evaluated procedures for milestone review and approval for meeting cost, schedule, and performance parameters. Finally, we evaluated DSAA efforts for making the existing systems Year 2000 compliant.

Use of Computer-Processed Data. We did not use computer-processed data nor statistical sampling to perform this audit.

Use of Technical Assistance. Our Technical Assessment Division assisted us in evaluating technical documentation. In addition, the Assistant Secretary of Defense (Program Analysis and Evaluation) assisted us in estimating life-cycle cost for DSAMS using the System Evaluation and Estimation of Resources - Software Estimation model. Although we did not perform a formal reliability assessment of the model, our Technical Assessment Division did not find errors that would preclude the use of the model estimate to meet the audit objectives or that would change the conclusions in the report. Further, our Technical Assessment Division agreed the model estimate was a conservative estimate.

Audit Type, Dates, and Standards. We performed this program audit from June through October 1997 in accordance with auditing standards that the Comptroller General of the United States issued, as implemented by the Inspector General, DoD. Accordingly, we included tests of management controls considered necessary.

Contacts During the Audit. We visited or contacted individuals and organizations within the DoD and BDM Enterprise. Further details are available upon request.

Management Control Program Review

DoD Directive 5010.38, "Management Control Program," August 26, 1996, requires DoD organizations to implement a comprehensive system of management controls that provides reasonable assurance that programs are operating as intended and to evaluate the adequacy of the controls.

Scope of Review of Management Control Program. We reviewed the adequacy of DSAA management controls over DSAMS acquisition and development process. Specifically, we evaluated the implementation of DoD policies and procedures governing the acquisition and development of DSAMS. We reviewed management's self-evaluation applicable to those management controls.

Adequacy of Management Controls. We identified material management control weaknesses for DSAA as defined by DoD Directive 5010.38. The DSAA management controls for DSAMS acquisition were not in place to adequately estimate and report life-cycle cost, to establish an integrated product team, and to define and manage user requirements to ensure that necessary program documentation was prepared. All recommendations in this report, if implemented, will provide adequate controls for defining and managing user requirements to develop adequate cost estimates and to prepare necessary program documentation. A copy of the report will be provided to the senior official responsible for management controls in DSAA.

Adequacy of Management's Self-Evaluation. The DSAA officials did not identify the DSAMS acquisition and development as an assessable unit and, therefore, did not identify or report the material management control weaknesses identified by the audit.

Summary of Prior Coverage

No prior audit coverage on the acquisition management of DSAMS was performed within the last 5 years. However, the Inspector General, DoD, issued a draft report related to integrated product teams discussed in this report.

Inspector General, DoD, Report No. 98-057, "The Defense Finance and Accounting Service Acquisition Program for the Electronic Document Management Program," January 27, 1998, was requested by the Director of the Defense Finance and Accounting Service to review the implementation of the program and input during the acquisition process. The Defense Finance and Accounting Service developed the required life-cycle documentation and has positioned Increment 1, Vendor Pay, of the program to obtain a milestone III deployment decision. The integrated product teams identified cost, funding, and testing concerns that needed to be resolved before a deployment decision could be recommended. The Program

Management Office provided a cost reconciliation document, funding information, and a schedule for testing. The report made no recommendation because management took responsive action to suggestions made during the review of milestone III documentation.

Appendix B. Existing Security Assistance Systems

The DSAMS will replace the following 13 Military Department and DSAA automated information systems.

Army:

Army Security Assistance Training Management System
Centralized Integrated System for International Logistics
Security Assistance, Automation, Army
Security Assistance Case Tracking System

Navy:

Management Information System for International Logistics
Navy Security Assistance Data System
Student Training and Tracking Information System

Air Force:

Case Management Control System
Security Assistance Management Information System
Training Control System

DSAA:

Foreign Military Sales Data Base
Foreign Military Sales Credit System
Military Assistance Program/Foreign Military Financing Program and Delivery

Originally, DSAMS was to replace the Defense Integrated Financial System of the Defense Finance and Accounting Service. However, the Defense Finance and Accounting Service did not agree to use DSAMS for financial reporting and was therefore removed from the list.

Appendix C. Modules Within the Defense Security Assistance Management System

Module	DSAMS Expected Function
Case development	The case development module will be used to prepare new foreign military sales cases* and to make modifications and amendments to existing cases.
Case implementation	The case implementation module will be used to process customer acceptance of foreign military sales cases and to issue case management directions to the Military Departments responsible for managing the case.
Case execution	The case execution module covers all of the processes from the preparation of requisitions through the reporting of delivered items or services. This module is the most complex and largest module of DSAMS.
Case reconciliation and closure	The case reconciliation and closure module covers the actions necessary to close a case once it is logistically and financially complete. Those actions include reconciling logistics and financial records, resolving discrepancies, and closing the case.
Training	The training module includes all processes for training from customer request through case closure.

*A case is a foreign military sales contractual agreement between the United States and an eligible foreign country or international organization, documented by a letter of offer and acceptance.

Appendix D. Report Distribution

Office of the Secretary of Defense

Under Secretary of Defense for Acquisition and Technology
  Director, Defense Logistics Studies Information Exchange
Under Secretary of Defense (Comptroller)
  Deputy Chief Financial Officer
  Deputy Comptroller (Program/Budget)
Assistant Secretary of Defense (Command, Control, Communications and Intelligence)
Assistant Secretary of Defense (Program Analysis and Evaluation)
Assistant Secretary of Defense (Public Affairs)

Department of the Army

Auditor General, Department of the Army

Department of the Navy

Assistant Secretary of the Navy (Financial Management and Comptroller)
Auditor General, Department of the Navy

Department of the Air Force

Assistant Secretary of the Air Force (Financial Management and Comptroller)
Auditor General, Department of the Air Force

Other Defense Organizations

Director, Defense Contract Audit Agency
Director, Defense Finance and Accounting Service
Director, Defense Information System Agency
Director, Defense Logistic Agency
Director, Defense Security Assistance Agency
Director, National Security Agency
  Inspector General, National Security Agency
Inspector General, Defense Intelligence Agency

Non-Defense Federal Organizations and Individuals

Office of Management and Budget
General Accounting Office
  National Security and International Affairs Division
    Technical Information Center

Chairman and ranking minority member of each of the following congressional committees and subcommittees:

Senate Committee on Appropriations
Senate Subcommittee on Defense, Committee on Appropriations
Senate Committee on Armed Services
Senate Committee on Governmental Affairs
House Committee on Appropriations
House Subcommittee on National Security, Committee on Appropriations
House Committee on Government Reform and Oversight
House Subcommittee on Government Management, Information, Technology, Committee on Government Reform and Oversight
House Subcommittee on National Security, International Affairs, and Criminal Justice, Committee on Government Reform and Oversight
House Committee on National Security

Part III - Management Comments

Office of the Assistant Secretary of Defense (Command, Control, Communications, and Intelligence) Comments

OFFICE OF THE ASSISTANT SECRETARY OF DEFENSE
6000 DEFENSE PENTAGON
WASHINGTON, D.C. 20301-6000

18 FEB 1998

COMMAND, CONTROL, COMMUNICATION AND INTELLIGENCE

MEMORANDUM FOR DIRECTOR, READINESS AND LOGISTICS SUPPORT DIRECTORATE, OIG

SUBJECT: Audit Report on the Defense Security Assistance Management System Project No. 72G-0034

We have reviewed the draft report of the Inspector General Readiness and Logistics Support Directorate on the Defense Security Assistance Management System.

We do not concur at this time with the request to classify DSAMS as a Major Automation Information System. We will reconsider this position after we review the results of IDA's independent analysis, which is due to be published in April 1998. In the interim we will place DSAMS on our list of information technology initiatives subject to review by the DoD Chief Information Officer.

Please contact my action officer Ms. Angela Bruce, at 703-695-0906 or bruceа@osd.pentagon.mil to discuss the issues.

for Anthony M. Valletta
Deputy Assistant Secretary of Defense
(C3I Acquisition)

Defense Security Assistance Agency Comments

DEFENSE SECURITY ASSISTANCE AGENCY

WASHINGTON, DC 20301-2800

09 FEB 1998

In reply refer to:
I-59001/97

MEMORANDUM FOR INSPECTOR GENERAL, DEPARTMENT OF DEFENSE

SUBJECT: Audit Report on the Defense Security Assistance Management System (Project No. 7LG-0034)

Reference the Department of Defense Inspector General's memorandum dated December 16, 1997, regarding the above subject. DSAA has addressed each of the audit's recommendations for corrective action.

DSAA cannot concur with the conclusion being drawn by the draft audit report, that the Defense Security Assistance Management System (DSAMS) is not being managed with appropriate controls. The audit's recommendations fall into two areas: (1) that DSAMS will cost $500M over its life-cycle ($250M development) and thus should be re-classified as a major automated information system; and (2) that substantial pieces of management control documents were never prepared for DSAMS, and thus need to be prepared.

Our overall response to each is: (1) that the estimated development cost of DSAMS, based on preliminary analysis performed by the Institute for Defense Analyses (IDA), in advance of their final report due in April 1998, is approximately $100M, and (2) that appropriate management controls were in place although some supporting documentation may not have followed conventional format guidelines. Attachment 1 contains our detailed responses to the ten specific recommendations in the draft report. This is not to suggest that the DSAMS project was without problems, but despite early missteps that many systems development projects experience, the first phase of DSAMS has been successfully implemented in production and is already meeting the needs of our user community. In fact, by the end of calendar 1998, we estimate we can begin to shut down two and most of another of the 13 legacy systems DSAMS was designed to replace.

The DSAMS effort is not without complexity and risk, but the Security Assistance community has collectively agreed that this is the best road for the long term. As our resources are directly dependent on the level of Foreign Military Sales (FMS), and as those sales are projected to decline in the outyears, the investment made now in a modern, standardized tool for all the Military Departments (MILDEPs) and other Defense Agencies will help soften the impact without diminishing customer support.

Before the DSAMS effort started, DSAA provided funding of approximately $40M a year to run the legacy systems. By taking strategic cost reduction actions such as collocating the largest legacy systems into a single Defense Megacenter, we have so far

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been able to keep the legacy systems operational and to fund DSAMS development within the $40M window. Important to note is that if there were no DSAMS effort, the MILDEP legacy systems would need to be independently resystemized. The *collective* costs of those independent efforts would far exceed a centralized effort like DSAMS and the Security Assistance community would still be faced with many of the current system problems (e.g., lack of standardization, frequent reconciliation, redundant data, and customer frustration).

In a memorandum dated November 19, 1996, ASD(C3I) deleted DSAMS from the list of major automated information systems because its development costs were projected to be below $120M. Preliminary analysis by IDA supports that cost projection, and we expect the final results in April 1998.

As the attachments indicate, DSAA believes adequate management controls exist for providing reasonable assurance that DSAMS is operating as intended. The successful implementation of the first module has served as a proof of concept, and we are confident the experience gained will ensure DSAMS proceeds on a sound footing.

H. Diehl McKalip
Acting Director

Copy to:
ASD(C3I)

Attachments:
1 – DSAA Responses to DoD IG Recommendations for Corrective Actions
2 – Mission Needs Statement (MNS)
3 – Operational Requirements Document (ORD)
4 – Acquisition Program Baseline
5 – Acquisition Strategy
6 – Acquisition Plan

Attachments 2 through 6 not included

Defense Security Assistance Agency (DSAA) Responses to DoD Inspector General's Draft Audit 7LG-0034 Recommendations for Corrective Action

Prior to addressing each specific recommendation for corrective action, key background information and analyis will now be presented.

Cost

- A significant inaccuracy repeated in at least five parts of the audit report is that the original estimate of $58.3M was the ***life-cycle*** cost for the ***first module only***. In fact, the original estimate of $58.3M was the estimated ***software development*** cost for ***all modules***. A cost table in the Conceptual Design Document with "life cycle" in the title but with details related to the phases of the software development life-cycle may have confused the auditors. Recommend making those corrections in the final report.

- The estimated $500M life-cycle cost for DSAMS is significantly overstated. The report states that ASD(PA&E) used the SEER software estimation model. The IG informed DSAA that the only inputs to this model were: (1) lines of code (provided by DSAA), and (2) a 10-year life cycle; otherwise, all default parameters were assumed.

- The life-cycle calculations were based on a 2.5M lines of code size estimate followed by a 10-year life-cycle. These inputs will lead to a $500M estimate if one assumes a nominal $100 per line of code development cost ($250M for development) and a nominal 10% operations and support (O&S, or maintenance) cost per year for 10 years ($250 for O&S).

- This analysis is inaccurate for several reasons. First, the lines of code were inflated. We provided the 2.5M figure, but that estimate was based solely on legacy systems, and we did not allow credit for reusable application code, non-recurring reference and infrastructure code, automatic code generation, higher level languages, and code being eliminated by DFAS.

  Although it is difficult to measure all the legacy systems in a consistent, meaningful way, a more accurate estimate can be determined by adding together all the systems of a single MILDEP that cover the full range of FMS functionality in DSAMS. For example, if lines of legacy code for all the Navy FMS systems (NSADS, MISIL, STATIS) are added together, then adjusted (up and down) for DFAS functionality, and then inflated by 100K to cover unknowns, the answer is approximately 1.5M lines of code. Further, based on actual experience with the Case Development Module, DSAMS contains approximately 1 line of code for every 1.5 lines of legacy code, which would result in the projected total lines of code in DSAMS as 1M vice 2.5M.

- Second, a more accurate costing can be done using lines of code developed and actual costs expended so far and extrapolating to subsequent modules. The final report from IDA will incorporate this analysis, but the preliminary analysis so far indicates a development cost of approximately $100M.

- Third, if the cost analysis in the draft report is accepted, it could be crosschecked for rough accuracy against what has actually been developed and spent to date. The preliminary analysis shows considerable variance, and a firm comparison will be possible after the results of the final IDA report are received.

- Several events in early FY1997 caused DSAA itself to question the projected cost of DSAMS. For example, the functional transfer of MILDEP personnel to staff the Defense Security Assistance Development Center (DSADC) occurred one year later than planned, and it became obvious that costs would be higher than originally projected. These events led to the decision to retain IDA for an independent assessment of projected costs.

Schedule

- The report incorrectly claims that "DSAA fielded four versions of the case development module that were not fully operational, resulting in program slippages from May 1999 to beyond the year 2000". Only *one* version of the CDM has been fielded into production. The report is referring to the first version in March 1997 where it became evident during user testing that additional functionality was required in order for the users to accomplish the case development mission with the same efficiency as the legacy systems. Because of proper management controls to ensure software is not released into production if it does not meet user needs, DSAA re-evaluated the schedule accordingly. At this point it was clear that the original 1999 DSAMS completion date was too optimistic.

  After the application was subsequently modified and tested by users in September 1997, both the Navy and the Army agreed to go with that version into initial operational capability (IOC). Primarily because of problems converting legacy data, the CDM IOC release was re-scheduled but is now in production. Important to note is that during this period, the application itself was satisfactory to the users, and the time was used to incorporate enhancements identified as important by the users and to make performance enhancements to the application and communications.

- The Estimated Fielding Date table in the report shows 4 dates based on 4 different source documents. The third date shown, 30 Nov 2004, is much higher than the others and gives the appearance of wild swings in the DSAMS schedule. In fact, the source document cited shows the fielding of the last module to be estimated for **31 Aug 1999**, consistent with the previous estimate; the 2004 date was the projected end of the system life cycle. The auditors may have been confused by the source document. Recommend making this change to the table in the final report.

- The claim that DSAMS slippages resulted in additional legacy systems costs due to Year 2000 compliance is highly misleading. Completing DSAMS prior to the Year 2000 to avoid problems with legacy systems not being compliant was never a fundamental objective of DSAMS; rather, it was another potential benefit. If there was no DSAMS, Year 2000 costs could not be avoided, so their discussion in this report serves no purpose. All Security Assistance legacy systems are following the DoD Y2K Management Plan.

- In early FY1997 DSAA realized that the original schedule of 1999 was too optimistic. Since that time, September 2001 has been used as the estimated date for the final module to be initially deployed. The schedule will be re-evaluated after the IDA report.

Testing

- The statement that "during Air Force testing of the case development module software, over 300 deficiencies were identified" is misleading. Of the total number of problems reported by the Air Force during testing of the application, approximately 25% eventually resulted in no action, since they were due to such problems as incorrect use of the system, duplicates, or temporary communications or configuration issues. Approximately half the problem reports were legitimate bugs, all of which were subsequently corrected. The final 25% of the problem reports were requests for changes to the design of the software based on new user requirements not previously identified. Many enhancements identified by the users as important have since been incorporated. The rest have been documented and will be incorporated in subsequent releases.

Benefits

Consideration should be given to the benefits of DSAMS which will also reduce costs. Three recent examples:

- *Changing one system instead of multiple ones.* When changes to policies and procedures are made, those changes only need to be made to one system. For example, in December 1997 some of the legal wording in the Letter of Offer and Acceptance (the primary document between the U.S. Government and a foreign government for providing material and services) changed. DSAMS produces this document, and the change was quickly made in a single system rather than in each MILDEP system. A further advantage is that the potential for *inconsistent* changes among multiple systems is eliminated.

- *Eliminating outdated business processes.* Gathering the MILDEPs, DLA, DFAS and DSAA together to attempt to standardize and re-engineer security assistance business practices is fundamental to meeting the challenges of outyear reductions in the FMS Administrative Trust Fund. At these forums outdated policies and procedures are challenged and sometimes changed or eliminated. A recent example involves Cooperative Logistics Supply Support Arrangements (CLSSAs), a type of FMS case that each MILDEP executes quite differently. In negotiating ways to standardize, a recommendation from the group (comprising representatives of all MILDEPs, DLA, DFAS and DSAA) was to eliminate CLSSAs entirely, as they have outlived their usefulness. If approval to eliminate is granted, the scope of DSAMS will be reduced accordingly.

- *Business process re-engineering.* The Navy is already taking advantage of the availability of DSAMS to re-engineer the case development process. For the first time they are able to de-centralize the production of Letters of Offer and Acceptance which will ultimately result in improved customer service and reduced costs.

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Other Corrections Needed in the Draft Audit Report (not otherwise discussed)

Revised

1. Page 2, 1st paragraph, 2nd line from end: The program management office was established in September 1995, using 8 people detailed from each MILDEP and DFAS (2 each), and not in April 1997 as the report indicates.

Revised

2. Page 13, last paragraph, last line: As indicated to the IG on December 10, 1997, before the draft report was forwarded, the IDA cost analysis will not be available in January 1998. IDA expects to complete its final report to DSAA in April 1998.

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In conjunction with the key background information and analysis presented earlier, DSAA responses to each of the DoD Inspector General's recommendations for corrective action are addressed as follows:

Recommendation 2 a: Submit the life-cycle cost estimate prepared by IDA to ASD(C3I) for reclassification of DSAMS as a major automated information system.

Non-concur. This recommendation assumes the $500M life-cycle cost is valid. Although IDA's final report is not due to DSAA until April 1998, the preliminary analysis indicates DSAMS costs are under the MAISRC threshold, and ASD(C3I) already agreed in a 19 November 1996 memorandum that DSAMS is not a MAISRC system, based on cost estimates we provided earlier.

The order of Recommendations 2a and 2b should be reversed. If the final report from IDA is validated to be over the MAISRC threshold, then it would be appropriate to submit the cost estimates to ASD(C3I) for reclassification.

Recommendation 2 b: Submit the life-cycle cost estimate prepared by IDA to ASD(PA&E) for validation and accuracy and completeness of the life-cycle cost estimates.

Concur. IDA's final report is due to DSAA in April 1998.

Recommendation 2 c: Update the life-cycle cost estimate for each milestone review so that DSAMS can be evaluated for its cost-effectiveness.

Concur. After receiving the final report from IDA, DSAA will ensure costs are regularly tracked and evaluated.

Recommendation 2 d: Prepare a mission needs statement for DSAMS to identify users' needs, describe the deficiencies in the existing systems, and identify potential alternatives.

Complete. The requirements of a mission needs statement (MNS) were followed and documented, although no document in the conventional MNS format was previously produced. However, a MNS in the required format is attached.

Attachment deleted

Recommendation 2 e: Prepare an operational requirements document for DSAMS to establish system cost, schedule, and performance parameters based on the user requirements.

Complete. The requirements of an operational requirements document (ORD) were followed and documented, although no document in the conventional ORD format was previously produced. However, an ORD in the required format is attached.

Attachment deleted

Recommendation 2 f: Establish an integrated product team to provide oversight and review as DSAMS proceeds through its acquisition life cycle. The integrated product team should include, at a minimum, representatives from ASD(C3I), DFAS, ASD(PA&E), and the MILDEPs.

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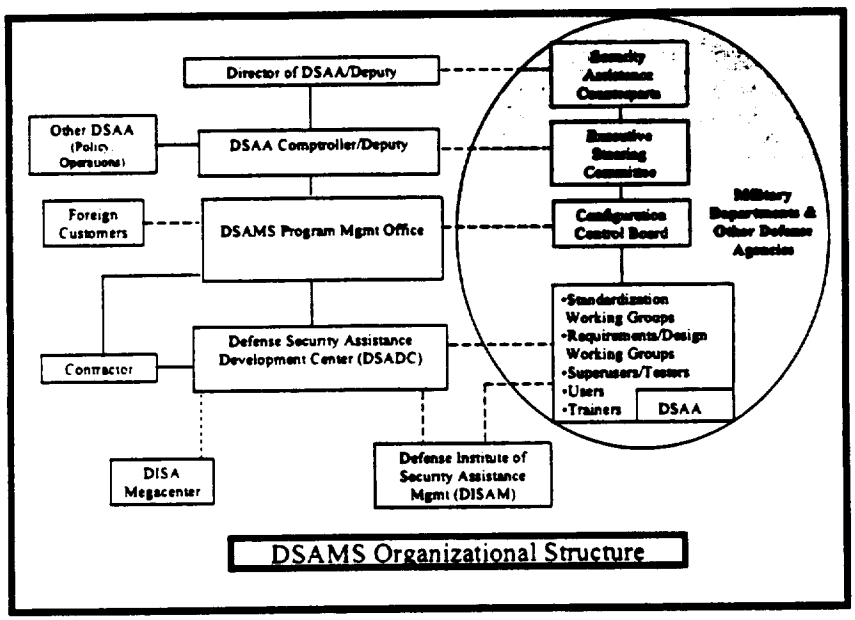
Complete. Although no group is formally labeled an "IPT", the requirements of an integrated product team have been followed throughout the development of DSAMS. DSAMS has enjoyed and depended on the full participation of the MILDEPs, DFAS and DLA in numerous teams. The Executive Steering Committee serves as the overarching integrated product team, which is a multidisciplined team working toward a common goal with both the responsibility and authority for program decisions. The ESC is composed of representatives from all appropriate disciplines working together to build successful and balanced programs, identify and resolve issues, and make sound business decisions.

The ESC is supported by a variety of other teams, including Conceptual Design, General Design, and Standardization Working groups charged with re-engineering the security assistance business processes, such as case development, case implementation, training and case execution. ASD(C3I) was never included in the past because milestone decision authority was delegated to DSAA. The overall DSAMS organization structure is shown below.

See chart on page 37

Developing an automated system that satisfies the security assistance business requirements for all three MILDEPs is challenging. Although the Security Assistance Management Manual (SAMM) gives guidelines for meeting the legal requirements of US foreign military assistance, the MILDEPs all developed *independent* processes and systems for developing, implementing and executing security assistance cases. In order to ensure that the different business processes now in operation within the MILDEPs did not drive the DSAMS software development effort to building redundant capabilities within the software, the PMO established the following process for building the system:

- Business Process Standardization. MILDEP/DFAS/DLA representatives empowered to make changes in their current business processes and procedures meet to review, re-engineer and standardize the US Security Assistance process.



DSAMS Organizational Structure

Final Report Reference

- Requirements Definition
- Software Design/Checkpoints
- User Testing

Recommendation 2 g: Establish a program baseline for DSAMS to manage and control cost growth and schedule slippages.

Attachment deleted

Concur. Because the successful implementation of the Case Development Module is serving as a proof of concept, a baseline for performance and schedule is being established at that point. Cost will be added to the baseline after the final IDA report is submitted to DSAA. The program baseline is attached.

Recommendation 2 h: Prepare an overall acquisition strategy for DSAMS to manage user requirements and identify the system's life cycle and the resources to be used.

Attachment deleted

Complete. The requirements of an acquisition strategy were followed and documented, although no document actually labeled as such was previously produced. However, an Acquisition Strategy in the required format is attached.

Recommendation 2 i: Prepare an acquisition plan for DSAMS to identify the risk associated with cost, schedule, and performance parameters as well as solutions to those risks so that program goals can be met.

Attachment deleted

Complete. The requirements of an acquisition plan were followed and documented, although no document actually labeled as such was previously produced. However, an Acquisition Plan in the required format is attached.

Recommendation 2 j: Prepare a test and evaluation master plan for DSAMS to establish the criteria for testing the system to verify that user requirements are met.

Superseded. A Software Test Description and a Software Test Plan were produced for the Case Development Module. These documents followed the standards of MIL STD 498 and are at a more detailed level than a conventional test and evaluation master plan. We will, however, prepare a test and evaluation master plan (TEMP) for each future module of DSAMS. **TEMP Target Dates:**

Case Implementation:	**30 Sep 98**	**Case Execution:**	**30 Sep 99**
Training:	**30 Nov 98**	**Case Closure:**	**30 Sep 99**

Department of the Air Force Comments

DEPARTMENT OF THE AIR FORCE
WASHINGTON, DC

Office Of The Assistant Secretary

29 January 1998

MEMORANDUM FOR DODIG (ATTN. MARY GEIGER)

FROM: SAF/FMBIS
1130 Air Force Pentagon
Washington, DC 20330-1130

SUBJECT: Draft Audit Report on the Defense Security Assistance Management System (Project No. 7LG-0034)

We have reviewed the draft audit, and concur as follows:

Recommendation 1 - Concur

Recommendation 2 -

a., b., c. - Concur

d. - Concur - The mission needs statement, intended to "...identify users needs...", should include requirements to serve both the Financial Management and Accounting communities.

e. - Concur - Financial Management and Accounting requirements should also be established as performance parameters in the Operational Requirements Document.

f. - Concur - It is critical to have DFAS, and selected members of the Financial Management community on the IPT, to ensure the items above are addressed.

g., h., i., j. - Concur

SAF/FMBIS points of contact are Robert Rosenbaum (614-5340), and Sharon Tucker (695-5979).

DANA J. GILMOUR
Assistant for Security Assistance
Deputy Assistant Secretary, (Budget)
Assistant Secretary of the Air Force
Financial Management & Comptroller

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The Readiness and Logistics Support Directorate, Office of the Assistant Inspector General for Auditing, DoD, produced this report.

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