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INFORMATION RESOURCE MANAGEMENT PLANNING IN THE OFFICE OF THE UNDER SECRETARY OF DEFENSE (ACQUISITION)

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The management of information resources within the Office of the Under Secretary of Defense (Acquisition) [OUSD(A)] suffers from three principal deficiencies. These deficiencies are

- Inadequate access to corporate data
- Shortcomings in the ability to analyze data
- Inadequate interoperability among information systems.

The OUSD(A) managers and program analysts lack sufficient access to the Five Year Defense Program (FYDP) budget data, defense industrial budget data, and military technology data. In particular, OUSD(A) must analyze FYDP data (submitted by the Military Departments to the DoD Comptroller) to determine the potential impact of FYDP budget allocations on acquisition programs. The OUSD(A) should obtain these data earlier from the Comptroller and provide them in machine-readable form to staff analysts.

Even when data are available, OUSD(A) managers and analysts do not effectively process the data into information needed by decision makers. To do so, analysts need software and methods to apply data to policy issues. Their lack of analytical capability causes extensive expenditures for contractor assistance and inefficient use of the contractor-produced software and analysis.

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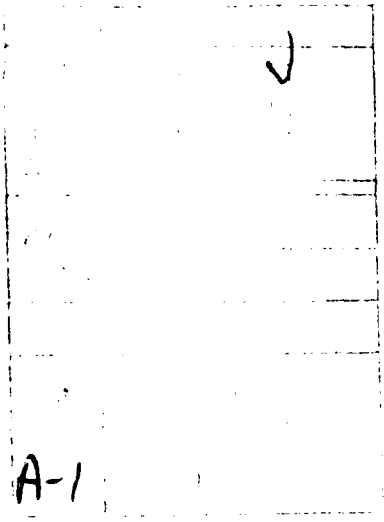
Finally, inadequacies in interoperability among software and hardware hinder efficient information processing. These inadequacies will diminish now that two of the three major contracts that support OUSD(A) are offering compatible hardware and software. Nevertheless, more must be done to ensure available and secure network communications within OUSD(A).

In the report, we recommend several ways to address these deficiencies.



Executive Summary

INFORMATION RESOURCE MANAGEMENT PLANNING IN THE OFFICE OF THE UNDER SECRETARY OF DEFENSE (ACQUISITION)

The management of information resources within the Office of the Under Secretary of Defense (Acquisition) [OUSD(A)] suffers from three principal deficiencies. These deficiencies are

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Even when data are available, OUSD(A) managers and analysts do not effectively process the data into information needed by decision makers. To do so, analysts need software and methods to apply data to policy issues. Their lack of analytical capability causes extensive expenditures for contractor assistance and inefficient use of the contractor-produced software and analysis.

Finally, inadequacies in interoperability among software and hardware hinder efficient information processing. These inadequacies will diminish now that two of the three major contracts that support OUSD(A) are offering compatible hardware and software. Nevertheless, more must be done to ensure available and secure network communications within OUSD(A).

To address these deficiencies, we recommend that the USD(A)

- Obtain earlier release of FYDP data from the Comptroller. The FYDP data should be distributed to staff managers and analysts on appropriate magnetic storage media, and on the Office Automation Secure Information System (OASIS) when feasible.
- Integrate the efforts in OUSD(A) to collect and collate data on technologies critical to military applications.
- Improve his staff's ability to analyze data by more cost-effective allocation of analytical software and more training in analytical methods.
- Prepare a catalogue of software available within OUSD(A) and distribute it for effective use of that software.
- Emphasize end-user training to speed application development.
- Accelerate interoperability among OUSD(A) systems and component organizations by (1) adopting DoD and industry communications standards, (2) selecting software that operates across heterogeneous hardware, and (3) accepting some risk in information security to allow timely information processing.

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SECTION 1

INTRODUCTION

1.1 OBJECTIVE

This Information Resource Management (IRM) Plan

- Describes the process for planning and programming for information resources for the Office of the Under Secretary of Defense (Acquisition) [OUSD(A)]
- Evaluates how effectively information is being managed to support the OUSD(A) mission
- Prescribes IRM goals and objectives aimed at improving the management of information, and strategies for their implementation.

1.2 SCOPE

This plan addresses the management of information as well as information technology (IT) resources such as computer and telecommunications systems. Since information must support the principal business of the USD(A), this plan begins with a description of the USD(A)'s mission functions and management goals. The mission functions, prioritized by the USD(A)'s goals and objectives, determine the data that OUSD(A) needs and the information products it must produce.

Studies sponsored by the OUSD(A) are also an important indicator of their information needs. Studies not only identify the data needs of managers and analysts, they are also an early indicator of subsequent IT requirements. Thus this plan considers OUSD(A) studies and study plans.

1.3 ORGANIZATION AND USE OF THIS PLAN

This plan proceeds from a description of mission functions and management goals; through an evaluation of how well IT supports those mission functions and

management goals; to the IRM goals, objectives, and strategies that can effectively support OUSD(A). This plan presents these key elements as follows:

- *Section 2: Mission and Goals describes* the OUSD(A)'s mission environment. It establishes the linkage between the USD(A)'s mission functions and goals and those of each Principal Staff Assistant in the OUSD(A). This linkage provides the means by which priorities are set for planning and programming information resources in Section 4.

- *Section 3: Analysis of Commitments and Plans* provides an overview of the IRM planning, programming, and budgeting system (PPBS); the current allocation of information resources; and plans for their future allocation. Current resource allocation and plans are evaluated in light of mission functions and management goals. Since this is the first IRM Plan for the USD(A), conclusions form the basis for IRM goals and objectives presented in Section 4.

- *Section 4: The 5-Year Information Resource Management Plan*, stated in terms of IRM goals and objectives, describes the allocation of information resources to effectively support OUSD(A). These goals and objectives, together with their implementation strategy, guide the overall management of OUSD(A) information.

This plan is staffed by the Director, Program Integration (DPI) throughout OUSD(A), in conjunction with the planning and programming portions of the OSD PPBS in the spring of each year. A revised plan, reflecting the information needs for all OUSD(A) components, is presented to the USD(A) in sufficient time to allow him to consider these information needs along with requirements for personnel, administrative, and research and development support. The DPI is responsible for (1) collecting information resource program funding requirements from the Principal Staff Assistants; (2) analyzing and presenting goals, objectives, and strategies; (3) presenting IRM Plan alternative strategies; and (4) producing and distributing the approved plan.

1.4 APPENDICES

Appendices to this plan contain background and procedural information that support appropriate sections of the plan.

- *Appendix A: Information Resource Management Policies and Directives* describes the policies and directives that govern the management of information.

- *Appendix B: Information Resource Management Planning, Programming, and Budgeting* describes the organization, structure, and responsibilities for IRM management in OUSD(A).

- *Appendix C: Functions of the Principal Staff Assistants to the Under Secretary of Defense (Acquisition)* describes the missions and management goals and objectives for each of the OUSD(A) Principal Staff Assistants.

- *Appendix D: Major Data Classes and Automated Information Systems* describes the data classes that support OUSD(A) and the automated information systems (AISs) associated with each class.

- *Appendix E: Information Technology Baseline* describes the present and planned IT resources that support OUSD(A).

- *Appendix F: Information Security* provides an overview of OSD policies and procedures for processing classified information using AISs, and an outline of OUSD(A) security plans that are systematically being implemented.

- *Appendix G: Studies with Information Resource Management Implications* contains OUSD(A)-sponsored studies which may recommend processes, products, or the development of IT systems.

- *Appendix H: Office of the Under Secretary of Defense (Acquisition) Information Projects* describes OUSD(A) projects aligned with OSD IT programs.

SECTION 2

OFFICE OF THE UNDER SECRETARY OF DEFENSE (ACQUISITION) MISSION AND GOALS

2.1 INTRODUCTION

The responsibilities and mission of the USD(A) are enumerated in DoD Directive (DoDD) 5134.1, *Under Secretary of Defense (Acquisition)*, 10 February 1987. In addition, the USD(A), as the Defense Acquisition Executive (DAE), is guided by the policy, principles, and objectives enumerated in DoDD 5000.1, *Major and Non-Major Defense Acquisition Programs*, 1 September 1987, for management of the Defense acquisition system. These formally chartered responsibilities, functions, and policies are carried out within the context of management goals that direct emphasis among competing requirements, responsibilities, functions, and policies.

Mission functions and responsibilities change infrequently, and usually only with organizational change. Policies can change more frequently – usually in conjunction with changes in national military strategies or executive direction. Management goals can change even more often, with the change of senior executives and with other changes in the decision-making environment. Changes in technologies, national security strategies, alliance relationships, and legislative conditions often alter management goals and may require even more frequent changes in the objectives that articulate how and when goals are to be met.

Planning for the many functional areas of an organization such as OUSD(A) needs to be anchored to overall management needs and priorities. IRM planning is in particular need of such a foundation, since information and information technologies support every function carried out within OUSD(A).

The responsibilities, functions, and policies of OUSD(A) are linked to its management goals and objectives. This linkage establishes an "authorization trail" for subsequent IRM goals, objectives, programs, and projects. It is the foundation for IRM planning and programming discussed in Section 3 and provides the rationale for IRM programs and budgets.

The organizational responsibilities and functions for OUSD(A) and its components are extracted from appropriate DoDDs, as are the policies that guide management of the Defense acquisition system. The OUSD(A) senior executives provide management goals and objectives. We interviewed senior executives and read OUSD(A) planning documents to collate the goals and objectives in this initial IRM Plan. The mission functions and management goals and objectives for the OUSD(A) components are described in Appendix C.

2.2 MISSION AND RESPONSIBILITIES

DoDD 5134.1 describes the responsibilities of the USD(A). The USD(A) is the Principal Staff Assistant and advisor to the Secretary of Defense for all matters relating to the acquisition system: R&D; production; logistics; command, control, communications, and intelligence (C3I) activities related to acquisition; military construction; and procurement. In addition, this directive describes the USD(A)'s authorities and relationships with other DoD officials.

The specific responsibilities described in Paragraph C of this directive are listed in Table 2-1. The functional areas described in Paragraph D of DoDD 5134.1 are listed in Table 2-2.

2.3 DEFENSE ACQUISITION SYSTEM POLICIES

Whereas DoDD 5134.1 assigns responsibilities and functional areas to the USD(A), DoDD 5000.1 states policies for managing the DoD acquisition system and implementing the Office of Management and Budget (OMB) Circular A-109 (Major System Acquisitions) and Public Law (P.L.) 98-191 (Office of Federal Procurement Policy Act Amendments of 1983). As such, DoDD 5000.1 provides policy guidance to the USD(A), Service acquisition executives, program executive officers, and program managers on how to manage the acquisition system. These policies are aimed at establishing procedures for efficiently acquiring new defense capabilities in response to a mission area deficiency or a technological opportunity. These procedures are specified in greater detail in DoD Instruction (DoDI) 5000.2, *Defense Acquisition Program Procedures*, dated 1 September 1987.

TABLE 2-1

USD(A) RESPONSIBILITIES

1. The USD(A) shall

a. Serve as the DAE with responsibility for supervising the performance of the entire DoD acquisition system in accordance with the policies, provisions, and authorities contained in DoDD 5000.1 and OMB Circular A-109

b. Develop policy for acquisition plans and strategies, validate program acquisition requirements, and develop acquisition program guidance.

c. Set policy for acquisition matters, including contracting, research and development, production, construction, logistics, developmental testing, procurement, and training and career development of acquisition personnel.

d. Set policy for administrative oversight of defense contractors

e. Serve as the DoD Procurement Executive, with responsibilities as prescribed in Executive Order (E.O.) 12352 and 41 United States Code (U.S.C.) 401-419

f. The Inspector General (IG), DoD, shall coordinate audit and oversight of contractor activities with the USD(A) to prevent duplication of effort within the Department and unnecessary duplicative oversight of contractors

g. Serve as the National Armaments Director and Secretary of Defense representative to the Four Power Conference. Develop memoranda of agreements and memoranda of understandings with friendly and allied nations relating to acquisition matters.

h. Chair the Defense Acquisition Board (DAB), assisted by an integrated structure of councils and committees that relate to the acquisition process.

2. For each assigned area, the USD(A) shall

a. Direct planning and special studies to analyze and evaluate the technical, economic, and military worth of programs in the acquisition system.

b. Develop policies, conduct analyses, provide advice, make recommendations, and issue guidance on DoD plans and programs.

c. Develop systems and standards for the administration and management of approved DoD acquisition plans and programs

d. Develop plans, programs, actions, and taskings to ensure adherence to DoD policies and national security objectives; and ensure programs and systems are designed to accommodate cross-Service operational requirements and promote modernization, consistent with the readiness, sustainability, and efficiency of the Armed Forces of the United States and its allies

e. Review and evaluate recommendations on requirements and priorities.

f. Review and evaluate DoD Component plans and programs to ensure adherence to approved policies, standards, and resource planning guidance

g. In conjunction with the DoD Comptroller and Assistant Secretary of Defense (Program Analysis and Evaluation), review proposed resource programs, formulate budget estimates, recommend resource allocations, and monitor the implementation of approved resource programs

h. Fulfill planning, programming, and budgeting activities relating to USD(A) responsibilities.

i. Promote coordination, cooperation, and mutual understanding of all matters related to assigned activities, both inside and outside DoD

j. Serve as primary focal point and principal spokesman for DoD and serve on boards, committees, and other groups pertaining to assigned functional areas; and represent the Secretary of Defense on USD(A) matters outside DoD

k. Develop and maintain information management and reporting systems.

l. Perform such other duties as the Secretary of Defense may prescribe.

TABLE 2-2

USD(A) FUNCTIONAL AREAS

The USD(A) shall carry out the responsibilities described in Table 2-1 for the following functional areas.

1. Acquisition management
2. Basic and applied research, design, and engineering and the development of weapon systems
3. C3I programs, systems, and activities related to acquisition
4. Logistics management to include supply systems, spares program management, items standardization, transportation, energy, warehousing, distribution, and related activities
5. Procurement activities
6. Scientific and technical information
7. Production and manufacturing
8. Industrial base resources and productivity
9. Force modernization
10. Developmental test and evaluation, as defined in DoDD 5000.3, and review and approval of the Test and Evaluation Master Plan
11. Environmental services
12. Assignment and reassignment of research and engineering and acquisition responsibility for programs, systems, and activities
13. Codevelopment, coproduction, logistics support, and research interchange with friendly and allied nations, in coordination with the Under Secretary of Defense (Policy)
14. Installation management
15. Construction, including construction funded by host nations under the NATO Infrastructure program

In addition to its procedural focus, DoDD 5000.1 emphasizes the need to minimize the time it takes to acquire resources to satisfy military needs. It provides for a chain of command from program managers in the Military Services to the DAE, aimed at cutting through the excessive layers of program management and oversight that were created by traditional command and staff structures. DoDD 5000.1 also states the need to integrate affordability considerations early in the program development process.

The implication of these policies for IRM is significant. They highlight the need to collate acquisition program data from the Military Services and make that collated data available to the acquisition executive decision makers. Second, the need to move affordability considerations "upstream" in the requirements process indicates that more players in the PPBS will participate in the acquisition process and that affordability assessments will be made earlier.

The DPI is developing an acquisition executive information system (EIS) for the USD(A), to meet the first need. This EIS, called the Defense Acquisition Executive Summaries (DAES), is responsive to the immediate needs of the USD(A) himself, but is not yet complemented by a comprehensive management information system (MIS) that supports the OUSD(A) managers and staff.

The need to consider weapon systems' costs earlier in the requirements process will require that (1) access to the OUSD(A) MIS will have to be given to those who determine war-fighting requirements, (2) cost-estimating standards will be needed to facilitate communications between the acquisition and requirements communities, and (3) technology investment planning should be more directly linked to war-fighting requirements and weapon system cost considerations. This emerging need to more closely link weapon system acquisition with war-fighting requirements and technology investment planning will be the major challenge to information managers in the foreseeable future.

2.4 GOALS AND OBJECTIVES

2.4.1 Environmental Conditions

The current transition between administrations is the most immediate condition that affects OUSD(A) goals and objectives. The transition team is generating documents that summarize the past administration's goals, objectives, and accomplishments. This IRM Plan reflects those documents and recommends a strategy to manage information resources.

The implicit assumptions behind this IRM Plan are that a new administration will not significantly alter the management goals and objectives described in Section 2.4.2 nor will it significantly alter the current organizational structure.

2.4.2 USD(A) Goals and Objectives

2.4.2.1 USD(A) Goals

The former USD(A), Dr. Costello, established 10 initiatives in 1987 that express the main thrusts of the Packard Commission Report, recent congressional concerns, and his own assessment of acquisition management priorities. We took these initiatives to be the goals for the USD(A). We added an 11th goal to acknowledge

congressional and executive branch concerns with the need to link acquisition programs to national military strategies. These 11 goals are

1. Increase effectiveness of the research, development, procurement, and logistics work force.
2. Improve the quality of systems and processes. In particular, develop new ways of doing business in (1) the acquisition process, (2) manufacturing, and (3) operations and support.
3. Revitalize the industrial base by creating and articulating an overall strategy to achieve and maintain U.S. technological and manufacturing leadership.
4. Reform the regulatory system to facilitate delivery of quality defense items to users at least cost.
5. Improve relations with industry by reducing the adversary relationship between Government and industry and by improving ethical business practices.
6. Improve competition in the sole-source environment with the concept of "could cost."
7. Develop an encompassing strategy for all of our international technology, acquisition, and logistics programs. In logistics fields, we will attempt to promote interoperability and standardization and in acquisition, an appropriate gain for the U.S. industrial base and our international technological leadership.
8. Improve acquisition management by managing weapon systems within commodity classes, instead of managing a system at a time.
9. Increase contract awards to small and small-disadvantaged businesses.
10. Reduce the leadtime for introducing new technology into our weapon systems.
11. Ensure weapon acquisition programs are initiated and managed to optimize support for national military strategy [House bill (H.R.) 8763].

The heads of six principal components assist the USD(A) in carrying out his responsibilities:

- The Director, Defense Research and Engineering (DDR&E) is the Principal Staff Assistant and advisor to the Secretary of Defense and USD(A) for DoD scientific and technical matters, basic and applied research, and the development of weapon systems.

- The Deputy Under Secretary of Defense (Industrial and International Programs) [DUSD(IIP)] is the Principal Staff Assistant and advisor to the Secretary of Defense and the USD(A) for DoD production base matters and for research, development, and production of weapon systems in coordination with other nations.

- The Assistant Secretary of Defense (Command, Control, Communications and Intelligence) [ASD(C3I)] is the Principal Staff Assistant to the Secretary of Defense and the USD(A) on acquisition matters related to DoD telecommunications and C3I resources (including related warning and reconnaissance activities). He also serves as Principal Staff Assistant in carrying out the Secretary of Defense's responsibilities as Executive Agent of the National Communications System (NCS).

- The Assistant Secretary of Defense (Production and Logistics) [ASD(P&L)] is the Principal Staff Assistant and advisor to the USD(A) and the Secretary of Defense for management of DoD procurement, production, logistics, installations, environmental programs, and other related matters.

- The Director, Program Integration (DPI) is responsible for ensuring that the efforts and activities of the USD(A) organization are integrated and directed toward accomplishing the responsibilities of the USD(A) as set forth in DoDD 5134.1.

- The Assistant to the Secretary of Defense (Atomic Energy) [ATSD(AE)], as the Principal Staff Assistant for DoD atomic energy matters, is responsible to the Secretary of Defense, through the USD(A), for matters associated with nuclear, chemical, and biological matters related to safety, security, and survivability.

The principal components of OUSD(A) are shown in Figure 2-1. Responsibilities, functions, and management goals and objectives for these OUSD(A) components are contained in Appendix C. The ASD(P&L) has published goals, subgoals, and objectives in the *Draft Production and Logistics Strategic Plan*, February 1989. These are summarized in Appendix C.

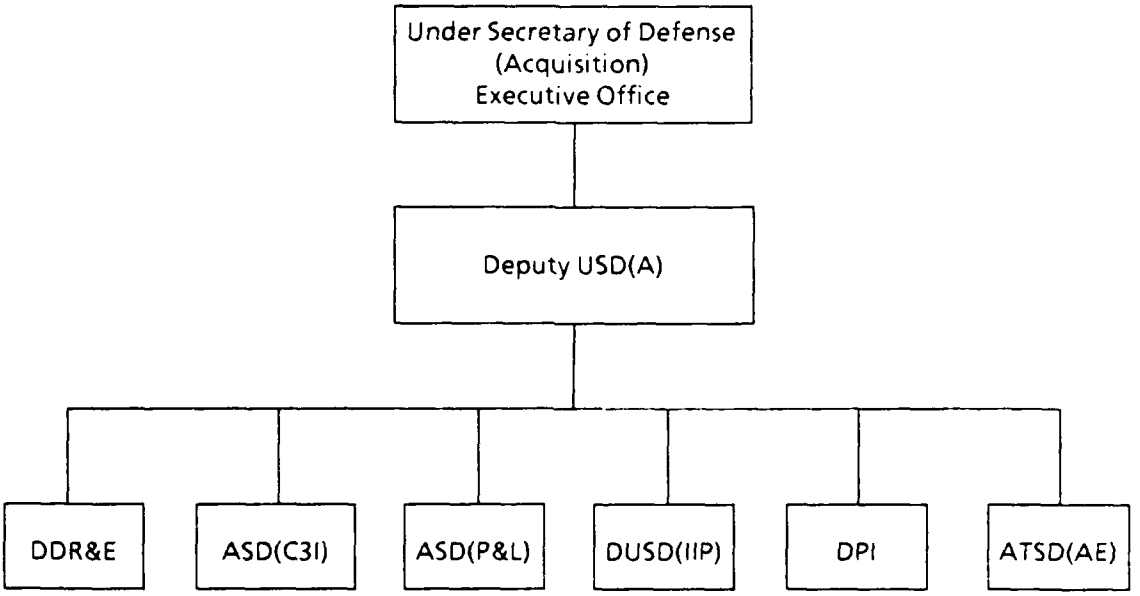

FIG. 2-1. PRINCIPAL COMPONENTS OF OUSD(A)

2.5 IMPACT OF GOALS

Management goals and objectives establish priorities for performing mission functions and influence how resources are allocated to support functional responsibilities. Figure 2-2 portrays the general relationship between mission and management goals, and how management goals provide direction to IT projects.

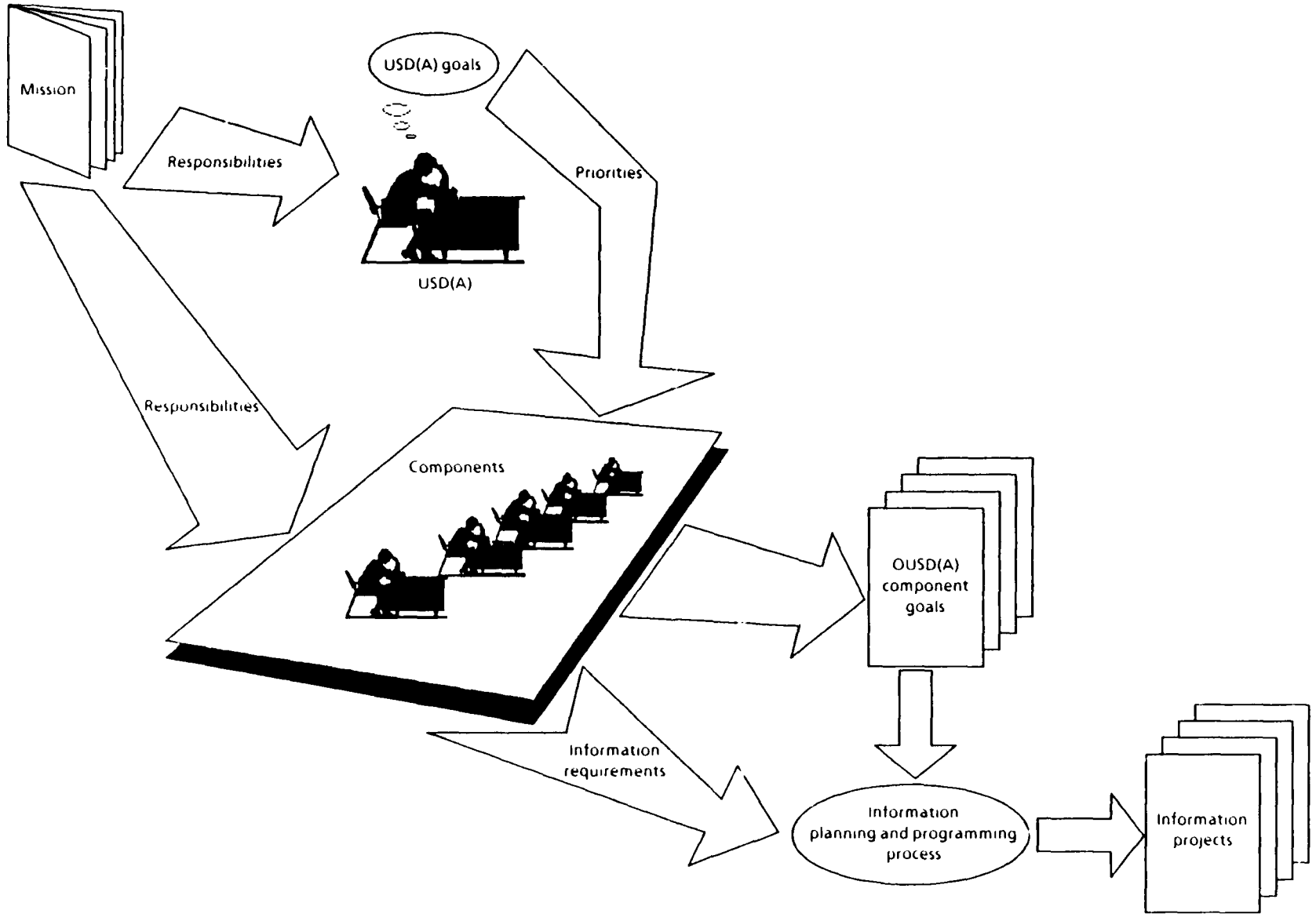

FIG. 2-2. INFORMATION SYSTEM PLANNING LINKAGE

SECTION 3

ANALYSIS OF COMMITMENTS AND PLANS

3.1 INTRODUCTION

OUSD(A) can be most effective in applying its information resources if it links data requirements and supporting technology to OUSD(A) functions prioritized by mission goals and objectives (as shown in Figure 2-2), and if it plans for the management of both data and technology. This section of the report discusses how well current information management supports OUSD(A) mission functions and goals. It describes the classes of data that OUSD(A) needs and the systems that support these information needs. Other existing and programmed technology resources are also highlighted, along with IT projects and estimated resource requirements for the Program Objective Memorandum (POM) period. We also discuss the OUSD(A) IRM planning and programming process. The last part of this section summarizes the discussion and becomes the basis for the IRM goals and objectives in Section 4.

3.2 DATA SUPPORT

The OUSD(A) needs these major classes of data:

- Program budget data mainly from the Five Year Defense Plan (FYDP)
- Acquisition program management data used to oversee major DoD acquisition programs
- Political-military data including net assessments and international agreements
- Resource management data used to manage technology investment, industrial productivity, logistics, and other resources over which the USD(A) has functional oversight
- Staff management data associated with day-to-day operations.

3.3 INFORMATION TECHNOLOGY

Several large IT projects support major data-intensive applications.[1] Two provide office automation (OA) and local area network (LAN) services to OUSD(A) offices. Numerous personal computer (PC)-based information systems also support OUSD(A) information needs. OUSD(A) data classes and their supporting IT are described in Appendix D.

The Acquisition Management Information System (AMIS), managed by the Office of the Director, Program Integration (ODPI), is the most important application program in OUSD(A) because it contains data needed by the most users. The AMIS provides access to and analysis of the data most relevant to OUSD(A). Data are loaded to the AMIS from the FYDP [its research, development, test, and evaluation (RDT&E) annex and its procurement annex] and the DAES.

Because of security restrictions imposed on the data and lack of access to the data in users' work areas, the initial implementation of AMIS did not satisfy OUSD(A) data needs. Users created PC-based applications to analyze budget data. Plans are to provide protected access to AMIS through the OUSD(A) Office Automation Secure Information System (OASIS).

3.3.1 Configuration Management

OUSD(A) data needs are driving a rapid expansion of the IT needed to provide the data. Appendix E lists the major technologies that support OUSD(A) information requirements. The IT baseline includes many stand-alone workstations and many workstations linked through classified or unclassified wide or local area networks to a variety of computing resources. These computing resources include the mainframe and minicomputer resources of the Air Force's Seventh Communications Group (7CG) and resources outside the Pentagon, as well as OUSD(A) computers. A recent evaluation by Centech, Inc., calls for increased computing capacity, better software, and both increasing and upgrading individual workstations.

The OUSD(A) is attempting to cope with the challenges of managing a large, fast-changing IT base that supports applications which have existed for several years along with many new systems. The fast growth of systems, frequent moves, and

[1] A major data-intensive application is one which requires medium- or large-scale computing resources to support storage and manipulation of a large database or related databases.

reorganizations which cause relocation of equipment and systems from different manufacturers contribute to the difficulty in knowing how much of what kind of equipment is in the OUSD(A) inventory. An inventory is being conducted this year with data entered into an automated catalog system. This project is expected to correct what has been a significant problem for OUSD(A).

3.3.2 Standards

Standards in OUSD(A) have been a challenge because IT has evolved in response to the individual's needs. Different equipment and different application programs access and manipulate data from multiple sources. Data processing personnel spend many hours converting data from one system so the data can be recognized by another. In particular, there have been incompatibilities between the Secure Office Automation Local Area Network (SOA/LAN) which runs proprietary Xerox Network Standards protocol, the Honeywell MULTICS which contains the FYDP data, and the Office Automation Computer System (OACS) unclassified LAN.

OUSD(A) recognizes the need for conventions for exchanging and displaying both graphic and text data. Recent contracts specify the following standards that make up OUSD(A) IT architecture:

- The OASIS and the Headquarters Systems Replacement Program (HSRP) contracts specify Transmission Control Protocol/Internet Protocol (TCP/IP) transmission protocols for interface with the Defense Data Network (DDN), as well as File Transfer Protocol (FTP) and Simple Mail Transfer Protocol (SMTP). The OACS already uses these protocols.

- Both contracts require that mail data conform to the required format for Advanced Research Projects Agency (ARPA) internet text messages.

- The OASIS and OACS will connect with the existing Xerox network in accordance with the Institute of Electrical and Electronic Engineers (IEEE) 802.3, *Carrier Sense Multiple Access with Collision Detection (CSMA/CD) Access Method and Physical Layer Specifications*. Gateways and dial-up lines will link OUSD(A) users to hardware that does not use the standard protocols.

Data formats and standards are followed within systems but not well between systems. The Office of the Director, Program Integration, Information Systems [ODPI(IS)] has commenced an effort to establish or enforce data standards within OUSD(A).

The OASIS will replace the SOA/LAN Xerox hardware during the next 3 years. The major challenge for OUSD(A) configuration managers is to establish a top-down architecture to guide the implementation of the OASIS and the OACS LANs. This issue is being addressed in OUSD(A) and relies upon the common Ethernet network media supporting common TCP/IP protocols discussed in the preceding section.

3.4 INFORMATION SECURITY

Advances in technology have created opportunities and a strong user demand for sharing information. This makes information security a difficult task. OUSD(A) has these potentially conflicting requirements for managing information:

- To ease access to data for users who need to see and manipulate the data to perform their duties, but to limit access to sensitive and classified data to those with appropriate clearance and need to know.
- To protect classified information from compromise by ensuring hardware, software, and telecommunications conform to National Computer Security Information Management (NACSIM) 5100 standards for automatic data processing systems which process classified information. Expensive TEMPEST equipment should be restricted to systems handling special compartmented information material and, where risk analysis indicates, the need for additional protection.
- To maintain security, the physical separation of dissimilar classified applications must be enforced until endorsed multilevel operating environments are available, even though this inhibits interoperability between OASIS and OACS.

OUSD(A) is dealing with these conflicting requirements by appointing a security officer for each office suite, examining the requirements and risks in each individual suite, and developing a separate security plan for each area. Appendix F contains an overview of OSD security policy and procedures and an outline for an OUSD(A) information security plan. Each office suite where classified information is processed prepares a similar plan which is then submitted to the Directorate for Personnel and Security, Washington Headquarters Service for approval. The functional manager of each office suite is responsible for protecting classified information processed in that area.

3.5 ACQUISITION OF AUTOMATED INFORMATION SYSTEM RESOURCES

Over the next 5 years OUSD(A) will procure most IT from one of two large OSD-wide contracts. The OASIS and the OACS contracts provide not only hardware, software, and networking but requirements analysis, training, maintenance, and other support services. OUSD(A) also receives technical support from 7CG, Federally Funded Research and Development Centers (FFRDCs), and contractors. Sources of new IT requirements are studies that recommend IT products or processes. Presently, coordination of studies across all OUSD(A) components is inadequate. Appendix G contains brief descriptions of present studies which may recommend IT products or the development of IT systems.

3.6 RESOURCE ALLOCATION

This section provides a view of how OUSD(A) plans to apply resources to support IT needs. OUSD(A) spent over $17 million on IT in FY88 and plans to spend more than $15 million in 1989 – $8.9 million for operation and maintenance (including $3.5 million for OSD-wide Xerox maintenance), $3.5 million for procurement, and $3.1 million for studies with IT-related products.

In OUSD(A), funds are requested for specific projects. OUSD(A) activities submit IT requirements to the ODPI(IS), where all OUSD(A) needs are consolidated before being sent to the Deputy Comptroller [IRM, Directorate of Systems and Services (DSS)]. The DSS allocates a lump sum to ODPI for OUSD(A). Lump sums for the fiscal year are further allocated to ODPI, Office of the Assistant Secretary of Defense[2] (C3I), and OASD(P&L) to support their budgeted IT requirements.

This year, ODPI developed an automated spreadsheet to track their IT expenditures. For the first time, ODPI can relate expenditures to the projects for which the funds were budgeted. The tracking system is so successful that it is being expanded to support tracking of OASD(C3I) and OASD(P&L) projects.

OUSD(A) IT projects are also aligned with aggregate programs which reflect the major areas of IT activity in OSD. These IT projects are further described in Appendix H.

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[2]OASD

3.7 INFORMATION RESOURCE MANAGEMENT PLANNING AND PROGRAMMING

3.7.1 The IRM Process

The IRM process for managing information resources within OUSD(A) is in transition from decentralized management by autonomous components to centrally coordinated management at two levels. At the OUSD(A) level, the DPI has been assigned greater responsibility for integrating the planning and programming for information support of all OUSD(A) components. At the OSD level, the DSS has assumed greater responsibility for coordinating the allocation of information system resources to all OSD components.

Appendix A contains policies which govern IRM in DoD. Appendix B contains a recommended IRM planning process suitable for implementation in OUSD(A).

3.7.2 IRM Support for Management Goals

With the exception of the DAES and the management control facility (MCF), which is an executive decision support center, most information resources within OUSD(A) have been allocated to meet the requirements of mid-level managers, individual analysts, and support staff. Because of the USD(A)'s interest in reviewing the status of selected weapon systems, the DAES has been designed to directly support the USD(A). The allocation of the preponderance of resources to meet the requirements of mid-level managers and individual staff has resulted in a collection of individual systems that have not been designed to share data or support a variety of applications. The lack of overall compatibility considerations within OUSD(A) has been matched by the lack of any disciplining system of resource allocation at the OSD level. Hence, resources are only loosely allocated in accordance with the strategic needs of the organization.

The IRM focus needed to support management goals can be described in terms of shortfalls in three areas: (1) data shortfalls, (2) analytical shortfalls, and (3) IT shortfalls. The following discussion summarizes these shortfalls as described by senior managers while articulating their goals and objectives.

The data shortfall is by far the most serious. This shortfall is not principally an absence of data, but rather lack of its availability in the right form at the right place and time. In other words, this shortfall is a deficiency in data collation and

distribution. The most flagrant example is the unavailability of FYDP data to OUSD(A) managers and analysts when they need them – despite their availability to managers and analysts in the Office of the Comptroller. Up-to-date FYDP data are not accessible in machine-readable form from professional workstations for analysis, nor can they be used in word processors to facilitate production of the documents associated with the program budget process. OUSD(A) action officers and middle managers must rely upon labor-intensive paper and pencil processing of these data during the most time-sensitive parts of the programming and budgeting process. Another significant problem is that data are often not available in the level of detail needed by action officers who must track activities that cut across programs.

Shortfalls in analytical capabilities rank next to data shortfalls as serious obstacles to accomplishment of goals and objectives. Many of the goals and objectives require sophisticated analysis of data – some aspects of which have only recently become possible with new information technologies. For the most part, however, the analytic shortfalls consist of gaps in the training and education of the OUSD(A) staff. The staff has been trained in the technical aspects of the weapon systems they evaluate, or on the procedural aspects of procurement, logistics, or cost accounting. They are not usually proficient in the techniques of systems analysis, nor are they capable of fully utilizing the power of the information technologies available to them. Most of the objectives require some use of quantitative tools such as spreadsheets, statistics, or decision support models which, although generally available, are beyond the experience of some staff analysts and managers. These analysts and managers do not have a decision support systems analyst to develop the analysis tools they require and to show them how to use these tools. The USD(A) rightfully targets lack of work force effectiveness in his Goal 1 to improve the quality of the acquisition process.

As just indicated, the OUSD(A) staff is the most critical information resource of all. Not only is the competence of each individual staff member important, but so is the way that the staff is organized and assigned to tasks. The need for the staff to be directed toward goals and objectives that cut across traditional organizational boundaries, and the need to prevent data availability problems that sometimes arise because of organization territorial concerns, indicate that task groups should be organized using the matrix method. This is especially true of staff who plan for and manage information resources.

Figure 3-1 portrays how matrix management could be used to direct the two dimensions of OUSD(A) management functions. The left column of the figure shows five aggregate USD(A) goals. The columns in the boxed area aggregate the 15 OUSD(A) functional areas into five major functional categories. Organization boundaries have traditionally been defined in terms of functional responsibilities, represented here by the five vertical functional category columns. Traditionally, the management goals shown along the left side of the matrix have been omitted. A goal-oriented task force approach to management would use appropriate resources from the organizational components under the leadership of one of the organization elements. Thus, OUSD(A) components would broaden their roles to participate in organizational goal achievement activities.

Since the focus of managerial activity would become goal-oriented, rather than function-oriented, personnel evaluations could become the powerful tools they were intended to be. The negotiation of performance objectives and standards between supervisors and subordinates could be tied to a consistent set of management goals and objectives. Thus the most valuable information resource, the OUSD(A) staff member, would be evaluated against how well he or she supports the goals and objectives that drive the entire organization.

IT (hardware, software, and communications) is, with a few exceptions, being adequately addressed. The most serious shortfall concerns data communications within and among OUSD(A) components. The specific aspects of the communication problem are compatibility among different systems, and communications security. The other major shortfall in IT is the proprietary nature of the current Xerox system. The OASIS contract is remedying that shortfall. In general, IT is not a major obstacle to meeting management goals and objectives at the current rate of funding, but does need to be managed aggressively to continue to improve interoperability among different IT systems.

USD(A) goals

1. Improve the acquisition process supporting national military strategy and the CINCs' war-fighting requirements.
2. Reduce the leadtime for introducing new technology into our weapon systems.
3. Develop an encompassing strategy for all international technology, acquisition, and logistics programs to integrate this support into the overall acquisition process.
4. Revitalize the industrial base with a strategy to achieve and maintain U.S. and allied technological and manufacturing leadership.
5. Improve the quality of the acquisition process, from the effectiveness of the work force to the support for fielded systems.

OUSD(A) mission function areas

National strategy making	Technology discovery	Technology innovation	System acquisition	Fielded system support
DPI	DDR&E	DDR&E	DPI	P&L, AE
DDR&E	DDR&E	DDR&E	DDR&E	P&L, AE
IIP	DDR&E	DDR&E	IIP	IIP
IIP	DDR&E	DDR&E	P&L	P&L
P&L	DDR&E	DDR&E	P&L	P&L

Note: CINCs = Commanders-in-Chief of the Unified and Specified Commands.

FIG. 3-1. OUSD(A) MANAGEMENT MATRIX

Responsibilities for Achieving Goals

SECTION 4

THE 5-YEAR INFORMATION RESOURCE MANAGEMENT PLAN

4.1 PURPOSE AND SCOPE

4.1.1 Purpose

This IRM Plan establishes overall goals and objectives for managing OUSD(A) information resources during the period FY89 – FY95. These goals and objectives are aimed at solving the deficiencies noted in Section 3. Implementation should occur in two phases. Phase 1 will provide more timely access to FYDP data, implement the transition to the OASIS architecture, and establish interoperability among OUSD(A) information systems through the period of FY89 – FY91. Phase 2 should establish a standardized systems architecture for FY92 – FY95 that truly integrates information processing throughout OUSD(A), facilitating information interchange with other parts of OSD, the Joint Staff (JS), the Military Departments, and other sources.

4.1.2 Scope

With this IRM Plan, the USD(A) establishes his overall IRM goals and objectives, issues 5-year IT budget guidelines, and sets the direction for supporting OUSD(A) mission functions through FY95. These IRM goals and objectives reflect management goals and objectives described in Section 2 and Appendix C. This plan describes the planning and programming of Phase 1 activities in some detail; it presents only general guidelines for Phase 2.

4.2 IRM GOALS AND OBJECTIVES

- *Goal 1*: Accelerate the integration of program and budget data processing into data analysis and document preparation.
  - *Objective 1.1:* Provide program budget data from the Military Department POM, Budget Estimate Submission (BES), and the President's Budget FYDP data submissions to OUSD(A) staff offices on workstation-readable storage media in a timely manner. Allow the OUSD(A) staff to selectively access and analyze this program element (PE) data at least

2 weeks before their inputs to the appropriate FYDP activity are due, by the end of FY89.

- *Objective 1.2:* Provide program budget data from the POM, BES, and President's Budget FYDP databases to OUSD(A) staff offices in a medium that will allow OUSD(A) staff to transfer selected data elements into the LAN processing environment, by the end of FY90.

- *Objective 1.3:* Enable Program Budget Decision (PBD) papers to be prepared and coordinated in a secure LAN processing environment compatible with OUSD(A) workstation software, by the end of FY90.

- *Goal 2:* Improve access to corporate and functional oversight data through OASIS implementation, standard protocol gateways, and other secure channels that share resources among OSD components.

  - *Objective 2.1:* Develop, by 30 September 1989, an integrated OUSD(A) OASIS network strategy and schedule for secure interconnectivity among

    - Workstations within office suites
    - Workstation clusters or LANs within each principal component
    - AMIS and selected principal component secure workstations
    - Other data-intensive major AISs and the component workstations.

  - *Objective 2.2:* Develop secure communication standards and gateway guidelines for providing access to non-OUSD(A) databases and networks, by the end of FY90.

  - *Objective 2.3:* Automate distribution of the Automatic Digital Network (AUTODIN) messages between the Pentagon Consolidated Telecommunications Center System (PCTCS) and OUSD(A) offices, by the end of FY90.

  - *Objective 2.4:* Develop an OUSD(A) corporate data archive using a document storage and retrieval system linked to the OASIS.

- *Goal 3*: Improve data management by central coordination of the collection, collation, storage, and distribution of corporate data needed by more than one OUSD(A) component.

  - *Objective 3.1:* In cooperation with the Office of the Assistant Secretary of Defense (Program Analysis and Evaluation) [OASD(PA&E)], the Office of the Under Secretary of Defense (Policy) [OUSD(P)], and the Office of the Comptroller, recommend modifications to current PPBS data and its flow that will improve OSD's capability to integrate the weapon acquisition process with strategic planning – such as by linking the impact of

the *Defense Planning Guidance* (DPG) and National Security Review (NSR)-12 objectives, PBDs, and Defense Acquisition Board (DAB) program decisions upon each other, by the end of FY90.

- *Objective 3.2:* Identify data elements that are commonly needed by the AMIS, the DPG, and other war-fighting requirements documents (or forums such as the Joint Requirements Oversight Council), and the Technology Base Investment Strategy; and develop a process for managing this core set of corporate data.

- *Objective 3.3:* Identify corporate data baseline, by the end of FY89.

- *Objective 3.4:* Prepare an Acquisition System Data Management Plan that assigns responsibilities for coordinated management of corporate data and provides guidelines for management of other data, by 31 March 1990. Include in this plan the role of the Defense Technical Information Center (DTIC), the Defense Technology Security Administration (DTSA), and ODDR&E's Office of Technology Assessment in managing technology information in support of OUSD(A)'s needs.

- *Objective 3.5:* Define data elements used in the DAES and other management reporting systems to be consistent with the FYDP, Selected Acquisition Report (SAR), PBDs, and DAB reports, by the end of FY89.

- *Objective 3.6:* Obtain access to the Atomic Energy Commission (AEC)'s warhead acquisition schedule data to better coordinate overall management of strategic weapons acquisition, by 30 June 1990.

- *Goal 4:* Ensure AIS security.

  - *Objective 4.1:* Ensure information systems comply with DoD standards for secure communications.

  - *Objective 4.2:* Establish security plans for each OUSD(A) office suite.

  - *Objective 4.3:* Implement a strategic plan for LAN security using network encryption technology and trusted network software, minimum of C2 level, by FY92.

- *Goal 5:* Promote the balanced use of new information technologies in order to lower costs and improve the effectiveness of information processing throughout the acquisition process.

  - *Objective 5.1:* Train at least one technology proponent in each directorate in the use of software available to enhance information processing in the office. This training program should allocate at least 80 hours of appropriate training each year to each directorate.

- *Objective 5.2:* Coordinate with the 7CG Commander to use the 7CG Information Center facilities for identifying and testing new technologies, especially those integrating OUSD(A) AIS resources with 7CG support systems (e.g., HSRP).

- *Objective 5.3:* Establish standards for evaluating the cost-effectiveness of applying information technologies, to be included as an appendix to the next IRM Plan.

- *Goal 6:* Satisfy requirements for data management and computational resources that exceed the capability of individual workstations, with maximum feasible use of large-scale resources already available in OSD, JS, and nearby DoD agencies. Provide appropriate levels of access to such resources within OUSD(A).

  - *Objective 6.1:* Identify and evaluate sophisticated data modeling and analysis capabilities developed by the Office of the Comptroller; OASD(PA&E); the OSD Office of Net Assessment; and the JS Force Structure, Resource, and Assessment Directorate (J-8), by the end of FY89. Distribute information about these capabilities to all OUSD(A) offices and to the Office of the Comptroller (IRM).

  - *Objective 6.2:* Identify requirements for data modeling and analysis that need large-scale resources. Establish arrangements to use appropriate data modeling and analysis capabilities of other organizations before allocating resources to develop similar capabilities within OUSD(A), by the end of FY90.

  - *Objective 6.3:* In coordination with OUSD(P) and the Defense Intelligence Agency (DIA), ensure information systems that have been designed to support technology transfer and assessment activities are available to support OUSD(A) industrial base and coalition warfare program needs, by the end of FY90. Specifically, consideration should be given to making OUSD(P)'s Foreign Disclosure and Technical Information Service (FORDTIS), DIA's SOCRATES, and DTSA's HITRAC-90 accessible to appropriate ODUSD(IP) and ODDR&E offices.

4.3 LONG-TERM IRM STRATEGY

4.3.1 Recommendations to Meet Goals and Objectives

The realization of each objective in Section 4.2 requires specific implementing actions. Table 4-1 summarizes the findings and the recommendations for achieving each objective.

TABLE 4-1

RECOMMENDATIONS TO MEET GOALS AND OBJECTIVES

Goal 1: Accelerate the integration of program and budget data processing into data analysis and document preparation.		
Objectives	**Findings**	**5-year plan recommendations**
Objective 1.1: Provide program budget data from the Military Department POM, BES, and the President's Budget FYDP data submissions to OUSD(A) staff offices on workstation-readable storage media in a timely manner. Allow the OUSD(A) staff to selectively access and analyze this PE data at least 2 weeks before their inputs to the appropriate FYDP activity are due, by the end of FY89.	OUSD(A) action officers and middle managers do not receive Military Department POM, BES, and PB FYDP data in a timely manner.	Prepare a plan and implementing strategy for making Military Department program and FYDP data available to the OUSD(A) staff in a manner that will allow them to make timely and useful analysis of the data
Objective 1.2: Provide program budget data from the POM, BES, and President's Budget FYDP databases to OUSD(A) staff offices in a medium that will allow OUSD(A) staff to transfer selected data elements into the LAN processing environment, by the end of FY90.	Professional and clerical workstations within some office suites are incompatible. The AMIS does not provide data in machine-readable form to staff workstations.	Provide compatible hardware and software for workstations within each office suite. Use the OASIS to provide AMIS data to office suites where action officers and managers need to manipulate such data.

Note: AI = Administrative Instruction; AIM = Acquisition Information Management; CINCs = Commanders-in-Chief of the Unified and Specified Commands; DBMS = database management system; DCA = Defense Communications Agency; DTIC-SPO = DTIC Special Projects Office; GOSIP = Government Open Systems Interconnection Profile; IMC = information management center, OSI = Open System Interconnection.

TABLE 4-1

RECOMMENDATIONS TO MEET GOALS AND OBJECTIVES (Continued)

Goal 1 (continued): **Accelerate the integration of program and budget data processing into data analysis and document preparation.**		
Objectives	**Findings**	**5-year plan recommendations**
Objective 1.3: Enable PBD papers to be prepared and coordinated in a secure LAN processing environment compatible with OUSD(A) workstation software, by the end of FY90.	PBD papers are now coordinated in hard-copy format.	Ensure all action officers with a need to coordinate PBD papers have access to the OASIS. Establish procedures for coordinating PBD papers in electronic form.

Note: AI = Administrative Instruction; AIM = Acquisition Information Management; CINCs = Commanders-in-Chief of the Unified and Specified Commands; DBMS = database management system; DCA = Defense Communications Agency; DTIC-SPO = DTIC Special Projects Office; GOSIP = Government Open Systems Interconnection Profile; IMC = information management center; OSI = Open System Interconnection.

TABLE 4-1

RECOMMENDATIONS TO MEET GOALS AND OBJECTIVES (Continued)

Goal 2:
Improve access to corporate and functional oversight data through OASIS implementation, standard protocol gateways, and other secure channels that share resources among OSD components.

Objectives	Findings	5-year plan recommendations
Objective 2.1: Develop, by 30 September 1989, an integrated OUSD(A) OASIS network strategy and schedule for secure interconnectivity among • **Workstations within office suites** • **Workstation clusters or LANs within each principal component** • **AMIS and selected principal component secure workstations** • **Other data-intensive major AISs and the component workstations.**	An OUSD(A) network strategy should be based on a clear identification of interoperability requirements. The current effort to identify interoperability requirements and to link the OASIS to the OACS LAN within OUSD(A) is a useful vehicle for identifying these requirements, examining alternative network strategies, and proposing a schedule of implementation. Current LAN standards are being established within OUSD by adoption of TCP/IP protocols to standard IEEE 802.3 Ethernet LANs.	OUSD(A) focus near-term planning efforts on development and implementation of a network strategy based on OASIS technology. The strategy should include a design for a primary network system that will enable interconnection of IMC document storage and retrieval systems, PCTCS and message servers, VAX host computer, DBMS server, DDN server, and the DTIC-SPO, and provide access to the resources of the 7CG, the JS Information Services Center, and the DTIC-SPO. The primary network should also provide connectivity to Military Department networks for acquisition management (such as the Army's AIM) and other external networks and databases of interest to OUSD(A) users. The network strategy should identify minimum standards for not only the lower OSI layers, but also for the Presentation and Application Layers, so that OA development can take place within an integrated environment. These upper layers should implement DoD-approved standards (i.e., GOSIP, X400 mail, etc.).

Note: AI = Administrative Instruction; AIM = Acquisition Information Management; CINCs = Commanders-in-Chief of the Unified and Specified Commands; DBMS = database management system; DCA = Defense Communications Agency; DTIC-SPO = DTIC Special Projects Office; GOSIP = Government Open Systems Interconnection Profile, IMC = information management center, OSI = Open System Interconnection.

TABLE 4-1

RECOMMENDATIONS TO MEET GOALS AND OBJECTIVES (Continued)

Goal 2 (continued): **Improve access to corporate and functional oversight data through OASIS implementation, standard protocol gateways, and other secure channels that share resources among OSD components.**		
Objectives	**Findings**	**5-year plan recommendations**
Objective 2.2: Develop secure communication standards and gateway guidelines for providing access to non-OUSD(A) databases and networks, by the end of FY90.	DCA is coordinating an effort to develop standards of interoperability and wide area networks, but standards will probably not be fully implemented for about 5 years. Military Services and agencies are developing their own gateway systems that offer access in the near term to databases and networks of particular interest. This trend may proliferate unique gateway architectures that could create obstacles for eventual conversion to more standardized methods of access. Further, the commercial sector provides access to a multitude of nonsecure databases and manages a number of Government databases for Federal clients. Insofar as this trend is not subject to security, standardization or coordination, user agencies will have even greater incentive to proliferate unique gateways, also exacerbating eventual conversion problems.	OUSD(A) should ensure all new AISs adhere to established DoD standards. OUSD(A) should also identify external links needed to securely access databases in which it is interested. In conjunction with the Office of the Deputy Comptroller, (IRM/DSS), OUSD(A) should coordinate OSD's communication needs with DCA and NSA standardization efforts and near-term development of gateway systems.

Note: AI = Administrative Instruction; AIM = Acquisition Information Management; CINCs = Commanders-in-Chief of the Unified and Specified Commands; DBMS = database management system; DCA = Defense Communications Agency; DTIC-SPO = DTIC Special Projects Office; GOSIP = Government Open Systems Interconnection Profile; IMC = information management center; OSI = Open System Interconnection

TABLE 4-1

RECOMMENDATIONS TO MEET GOALS AND OBJECTIVES (Continued)

Goal 2 (continued): **Improve access to corporate and functional oversight data through OASIS implementation, standard protocol gateways, and other secure channels that share resources among OSD components.**		
Objectives	**Findings**	**5-year plan recommendations**
Objective 2.3: Automate distribution of AUTODIN messages between the PCTCS and OUSD(A) offices, by the end of FY90.	Plans are under way, under the OASIS system, to electronically transmit AUTODIN messages that arrive at the PCTCS to the OSD Directorates to whom they are addressed. Users of the OASIS will interface with the OUSD(A) IMC to access their messages from workstations converted to the LAN	OUSD(A) should pursue this current initiative.
Objective 2.4: Develop an OUSD(A) corporate data archive using a document storage and retrieval system linked to the OASIS.	Plans are under way to establish a corporate data archive in the OUSD(A) IMC using a document storage and retrieval system accessible through the OASIS.	Pursue the present initiative. Also provide document storage and retrieval systems on the local community LANs where the volume of documents warrants automated archival support.

Note: AI = Administrative Instruction; AIM = Acquisition Information Management; CINCs = Commanders-in-Chief of the Unified and Specified Commands; DBMS = database management system; DCA = Defense Communications Agency; DTIC-SPO = DTIC Special Projects Office; GOSIP = Government Open Systems Interconnection Profile, IMC = information management center, OSI = Open System Interconnection

TABLE 4-1

RECOMMENDATIONS TO MEET GOALS AND OBJECTIVES (Continued)

Goal 3: Improve data management by central coordination of the collection, collation, storage, and distribution of corporate data needed by more than one OUSD(A) component.		
Objectives	**Findings**	**5-year plan recommendations**
Objective 3.1: In cooperation with OASD(PA&E), OUSD(P), and the Office of the Comptroller, recommend modifications to current PPBS data and its flow that will improve OSD's capability to integrate the weapon acquisition process with strategic planning – such as by linking the impact of the DPG and NSR-12 objectives, PBDs, and DAB program decisions upon each other, by the end of FY90.	Some OUSD(A) action officers consider acquisition, programming, and strategic planning as separate processes. The links from strategic planning to system acquisition are obscure.	OUSD(A) should study how to link the CINCs' Integrated Priority List to the POM process as an initial step in establishing the link between planning and programming in the PPBS.
Objective 3.2: Identify data elements that are commonly needed by the AMIS, the DPG, and other war-fighting requirements documents (or forums such as the Joint Requirements Oversight Council), and the Technology Base Investment Strategy; and develop a process for managing this core set of corporate data.	Many of the individual systems that have been created to support individual office mission functions use similar data sets. Because these data sets are obtained from a variety of sources and/or are manipulated to reflect different office views, senior managers can obtain different answers to the same question.	OUSD(A) should prepare a Corporate Data Management Plan to establish a consistent baseline of data that are commonly used by different offices.

Note: AI = Administrative Instruction; AIM = Acquisition Information Management; CINCs = Commanders-in-Chief of the Unified and Specified Commands; DBMS = database management system, DCA = Defense Communications Agency; DTIC-SPO = DTIC Special Projects Office; GOSIP = Government Open Systems Interconnection Profile, IMC = information management center, OSI = Open System Interconnection

TABLE 4-1

RECOMMENDATIONS TO MEET GOALS AND OBJECTIVES (Continued)

Goal 3 (continued): Improve data management by central coordination of the collection, collation, storage, and distribution of corporate data needed by more than one OUSD(A) component.		
Objectives	**Findings**	**5-year plan recommendations**
Objective 3.3: Identify corporate data baseline, by the end of FY89.	ODPI(IS) is building a corporate data dictionary for acquisition and program budget data useful to ODDR&E and ODPI. After the dictionary is complete, the action officer plans to consider requirements of OASD(C3I) and OASD(P&L), along with others outside of OUSD(A).	ODPI should incorporate ODUSD(IIP), OASD(P&L), and OASD(C3I) data element requirements into the data dictionary in FY89, and expand the project to identify and incorporate into the data dictionary any other data entities and data elements that are of OUSD(A) corporate interest.
Objective 3.4: Prepare an Acquisition System Data Management Plan that assigns responsibilities for coordinated management of corporate data and provides guidelines for management of other data, by 31 March 1990. Include in this plan the role of DTIC, DTSA, and ODDR&E's Office of Technology Assessment in managing technology information in support of OUSD(A)'s needs.	The current ODPI data dictionary effort works because ODPI has responsibility for acquisition data. ODPI(IS) is not specifically responsible for identifying or managing other corporate data.	ODPI should prepare an OUSD(A) Acquisition System Data Management Plan that requires compliance with the data standards established in the dictionary. The plan should also provide guidelines for managing other corporate data.

Note: AI = Administrative Instruction; AIM = Acquisition Information Management; CINCs = Commanders-in-Chief of the Unified and Specified Commands; DBMS = database management system; DCA = Defense Communications Agency; DTIC-SPO = DTIC Special Projects Office, GOSIP = Government Open Systems Interconnection Profile, IMC = information management center; OSI = Open System Interconnection

TABLE 4-1

RECOMMENDATIONS TO MEET GOALS AND OBJECTIVES (Continued)

Goal 3 (continued): Improve data management by central coordination of the collection, collation, storage, and distribution of corporate data needed by more than one OUSD(A) component.		
Objectives	**Findings**	**5-year plan recommendations**
Objective 3.5: Define data elements used in the DAES and other management reporting systems to be consistent with the FYDP, SAR, PBDs, and DAB reports, by the end of FY89.	ODPI has undertaken this task.	ODPI should complete the current data dictionary project on schedule.
Objective 3.6: Obtain access to the AEC's warhead acquisition schedule data to better coordinate overall management of strategic weapon acquisition, by 30 June 1990.	The AEC's warhead acquisition schedule is not always consistent with the acquisition schedule for the weapon system for which the warhead is being procured.	Program managers for weapon systems that are designated to receive nuclear warheads should align their weapon system acquisition schedule with the AEC's schedule so the weapon system and its nuclear warhead can be procured at the same time.

Note: AI = Administrative Instruction; AIM = Acquisition Information Management; CINCs = Commanders-in-Chief of the Unified and Specified Commands; DBMS = database management system, DCA = Defense Communications Agency; DTIC-SPO = DTIC Special Projects Office; GOSIP = Government Open Systems Interconnection Profile; IMC = information management center; OSI = Open System Interconnection

TABLE 4-1

RECOMMENDATIONS TO MEET GOALS AND OBJECTIVES (Continued)

Goal 4: **Ensure AIS security.**		
Objectives	**Findings**	**5-year plan recommendations**
Objective 4.1: Ensure information systems comply with DoD standards for secure communications.	Some AIS security standards established in the AI26 Supplement to DoDD 5200.1-R, *Department of Defense Information Security Program Regulation*, are insufficient to guide the secure development of OUSD(A) information systems. Substantial additional guidance from the Defense Computer Security Center is needed. Technology is changing at a rate that makes it difficult to establish stable security standards for automated systems.	OUSD(A) should remain aware of the need for continued improvement of system security and the need for constant evaluation of the cost-effectiveness of security standards and measures. This is particularly important as ODPI considers how to implement security when AMIS data become available in the OASIS.
Objective 4.2: Establish security plans for each OUSD(A) office suite.	OUSD(A) is establishing security plans for each office suite.	The present initiative should be pursued. The sample security plan in Appendix F to this IRM Plan should be reviewed each time a new security directive is issued, and changed if appropriate. Each office suite security plan should be reviewed annually by the suite security officer and updated as necessary.
Objective 4.3: Implement a strategic plan for LAN security using network encryption technology and trusted network software, minimum of C2 level, by FY92.	OUSD(A) is studying how to provide LAN security by incorporating network encryption technology and trusted network software.	OUSD(A) should prepare a strategic plan for LAN security and procedures for implementing the plan.

Note: AI = Administrative Instruction; AIM = Acquisition Information Management; CINCs = Commanders-in-Chief of the Unified and Specified Commands, DBMS = database management system, DCA = Defense Communications Agency; DTIC-SPO = DTIC Special Projects Office; GOSIP = Government Open Systems Interconnection Profile, IMC = information management center, OSI = Open System Interconnection

TABLE 4-1

RECOMMENDATIONS TO MEET GOALS AND OBJECTIVES (Continued)

Goal 5: Promote the balanced use of new information technologies in order to lower costs and improve the effectiveness of information processing throughout the acquisition process.		
Objectives	**Findings**	**5-year plan recommendations**
Objective 5.1: Train at least one technology proponent in each directorate in the use of software available to enhance information processing in the office. This training program should allocate at least 80 hours of appropriate training each year to each directorate.	7CG resources are used to perform many technical services for equipment procured under the SOA/LAN and OACS contracts. Some office suites have personnel with the technical knowledge necessary to act as system administrators for their office suites. As the volume of equipment in each office suite grows, it becomes increasingly important to disperse information technology within each suite.	Appoint a system administrator for each office suite. Provide the system administrator with the training necessary to manage equipment and disperse technology in the suite.
Objective 5.2: Coordinate with the 7CG Commander to use the 7CG Information Center facilities for identifying and testing new technologies, especially those integrating OUSD(A) AIS resources with 7CG support systems (e.g., HSRP).	The 7CG Information Center identifies and tests new technologies for the Air Staff. Until recently, DTIC-SPO performed similar functions for some OSD staff elements. DTIC-SPO activity has been scaled back, but OSD components still need to know whether certain new technologies will meet their needs, especially those integrating OUSD(A) AIS resources with 7CG support systems.	OUSD(A) request that the Deputy Assistant Secretary of Defense (Management and Administration) amend their Memorandum of Understanding with 7CG to include identifying and testing new information technologies for OSD.

Note: AI = Administrative Instruction; AIM = Acquisition Information Management; CINCs = Commanders-in-Chief of the Unified and Specified Commands; DBMS = database management system; DCA = Defense Communications Agency; DTIC-SPO = DTIC Special Projects Office, GOSIP = Government Open Systems Interconnection Profile, IMC = information management center, OSI = Open System Interconnection

TABLE 4-1

RECOMMENDATIONS TO MEET GOALS AND OBJECTIVES (Continued)

Goal 5 (continued): Promote the balanced use of new information technologies in order to lower costs and improve the effectiveness of information processing throughout the acquisition process.		
Objectives	**Findings**	**5-year plan recommendations**
Objective 5.3: Establish standards for evaluating the cost-effectiveness of applying information technologies, to be included as an appendix to the next IRM Plan.	Many of the major DoD acquisition and logistics AISs are currently being replaced or upgraded by their Service sponsors. As a result, OASD(P&L) sponsors many major AISs being accessed by the DoD Major Automated Information System Review Council (MAISRC). Advantages or disadvantages of implementing or updating an AIS are not always the same as those for implementing or upgrading a weapon system, yet similar cost criteria are applied to both.	OUSD(A) should study whether cost-effectiveness criteria used to review weapon systems are appropriate for judging the cost-effectiveness of establishing or improving IT systems. The study should recommend criteria to be used in evaluating systems OUSD(A) sponsors in the MAISRC.

Note: AI = Administrative Instruction; AIM = Acquisition Information Management; CINCs = Commanders-in-Chief of the Unified and Specified Commands, DBMS = database management system; DCA = Defense Communications Agency; DTIC-SPO = DTIC Special Projects Office; GOSIP = Government Open Systems Interconnection Profile; IMC = information management center; OSI = Open System Interconnection

TABLE 4-1

RECOMMENDATIONS TO MEET GOALS AND OBJECTIVES (Continued)

Goal 6: Satisfy requirements for data management and computational resources that exceed the capability of individual workstations, with maximum feasible use of large-scale resources already available in OSD, JS, and nearby DoD agencies. Provide appropriate levels of access to such resources within OUSD(A).		
Objectives	**Findings**	**5-year plan recommendations**
Objective 6.1: Identify and evaluate sophisticated data modeling and analysis capabilities developed by the Office of the Comptroller, OASD(PA&E), the OSD Office of Net Assessment, and J-8, by the end of FY89. Distribute information about these capabilities to all OUSD(A) offices and to the Office of the Comptroller (IRM).	There is widespread interest in OUSD(A) in improving existing models, and OUSD(A) action officers are aware of some models used by other DoD organizations to support decisions similar to those made in OUSD(A). Many models now in use are old and expensive to run, or inaccurate.	OUSD(A) should identify DoD models in which OUSD(A) action officers are interested and other similar models which might be useful. These models should be evaluated to determine whether they are accurate and cost effective. OUSD(A) should then prepare a resource directory of useful models and of medium- and large-scale computational resources within the Pentagon that could meet both classified and unclassified OUSD(A) requirements for modeling simulation and other computationally intensive applications.
Objective 6.2: Identify requirements for data modeling and analysis that need large-scale resources. Establish arrangements to use appropriate data modeling and analysis capabilities of other organizations before allocating resources to develop similar capabilities within OUSD(A), by the end of FY90.	DoD activities, including OUSD(A), share some models. An example is the Defense Resources Model.	OUSD(A) should establish arrangements to use proven models before new resources are allocated to develop similar capabilities. If OUSD(A) needs a new model, first consider improving an existing model so both OUSD(A) and others could benefit.

Note: AI = Administrative Instruction; AIM = Acquisition Information Management; CINCs = Commanders-in-Chief of the Unified and Specified Commands; DBMS = database management system; DCA = Defense Communications Agency; DTIC-SPO = DTIC Special Projects Office; GOSIP = Government Open Systems Interconnection Profile; IMC = information management center; OSI = Open System Interconnection

TABLE 4-1

RECOMMENDATIONS TO MEET GOALS AND OBJECTIVES (Continued)

Goal 6 (continued): **Satisfy requirements for data management and computational resources that exceed the capability of individual workstations, with maximum feasible use of large-scale resources already available in OSD, JS, and nearby DoD agencies. Provide appropriate levels of access to such resources within OUSD(A).**		
Objectives	**Findings**	**5-year plan recommendations**
Objective 6.3: In coordination with OUSD(P) and DIA, ensure information systems that have been designed to support technology transfer and assessment activities are available to support OUSD(A) industrial base and coalition warfare program needs, by the end of FY90. Specifically, consideration should be given to making OUSD(P)'s FORDTIS, DIA's SOCRATES, and DTSA's HITRAC-90 accessible to appropriate ODUSD(IIP) and ODDR&E offices.	Several information systems within DoD and in other Federal agencies, such as the Department of Commerce, support technology transfer activities. Each system contains data that should be shared with other Government agencies. Information processing resources are not coordinated among DoD agencies with similar functions.	OUSD(A) should coordinate with OUSD(P) and DIA to create a study group to look at technology transfer information systems and recommend alternatives to improve control of and support for technology transfer.

Note: AI = Administrative Instruction; AIM = Acquisition Information Management; CINCs = Commanders-in-Chief of the Unified and Specified Commands; DBMS = database management system; DCA = Defense Communications Agency; DTIC-SPO = DTIC Special Projects Office; GOSIP = Government Open Systems Interconnection Profile; IMC = information management center; OSI = Open System Interconnection

4.3.2 Target Architecture

Figure 4-1 shows an OUSD(A) target architecture for FY97. By FY92, the OASIS will permit electronic exchange of documents and data among OUSD(A) components at the workstation level. By FY93, the currently installed microcomputer-based inventory will have reached the end of its fully productive life and will have to be replaced. In FY93 – FY97, OUSD(A) will have an opportunity to acquire new technology through technology refreshment provisions of the OASIS contract that will support information processing until at least the year 2000. However, workstations and systems procured between now and then will be a part of the future architecture. For this reason, OUSD(A) is implementing in all new procurements the DoD data and communications standards set for its future architecture. In addition, all new AISs that process program budget or acquisition data should adhere to the data standards now being developed by ODPI(IS). A transition plan for each major AIS should be written to bring the AIS into compliance with DoD standards by FY96 or, if the cost of standards compliance is too high, to require implementation of DoD standards in the system which replaces it.

The major components of the target OUSD(A) architecture are

- *Network management centers.* Network management centers (NMCs) in ODPI will support local area networking, database, and communication needs for both classified and unclassified processing for all of OUSD(A). Advances in technology will allow multilevel security across the OUSD(A) network.

- *Information management centers.* Information management centers (IMCs) which support ODDR&E, OASD(P&L), and OASD(C3I) will integrate, collate, disseminate to multiple receivers, and archive information (hard-copy photos, AUTODIN messages, etc.). IMCs will be a part of the OUSD(A) LAN.

- *System management centers.* Each office suite will be a system management center. A system administrator within each suite will coordinate IT support for that suite, manage internal networking, and ensure security implementation.

- *Workstations.* Workstations will integrate analytical analysis, word processing, decision support, and data access within a hypertext environment. Most medium-scale processing capabilities will also have migrated to these workstations by the early 1990s.

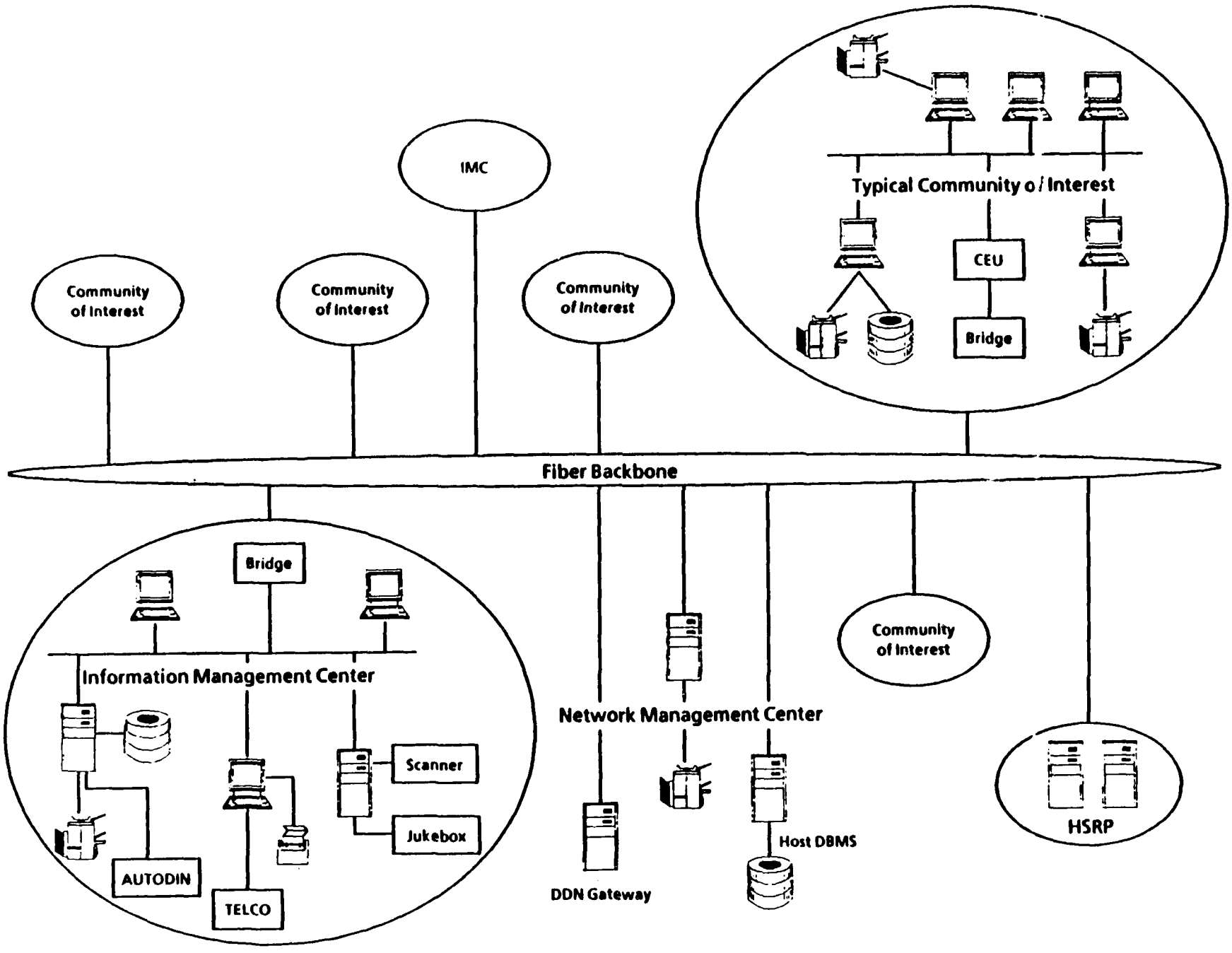


FIG. 4-1. OASIS ARCHITECTURE

- *Large-scale processing facilities.* 7CG computers will be the principal external data processing facility supporting OUSD(A). Some major OUSD(A) AISs and models will be supported. The primary large-scale processing facility supporting OUSD(A) will be the remote computer facility (RCF) which will expand to support processing of all FYDP-related data for all of OUSD(A) using distributed database processing technology.

- *Mass storage and retrieval devices.* DSS will manage some database machines and optical storage devices that support multiple OSD principal staff offices. The RCF; OUSD(A) NMC; and some OASD(P&L) offices with large processing requirements, storage requirements, or both, will have their own devices.

- *The management control facility.* The management control facility (MCF) will be the executive decision support center for all of OUSD(A). Briefings shown in the MCF will be prepared both in the RCF and on managerial workstations in appropriate system management centers.

- OSD *wide-area, broadband communications backbone.* A broadband backbone will be capable of handling all forms of information. Gateways will still be used to link users to other networks and outside systems, but common adoption of Open System Interconnection (OSI) standards will allow OUSD(A) access without any need for specialized gateways. This communications backbone will be managed by DSS. The JS will provide OSD components with distributed message processing and secure voice transmission. The 7CG or the Defense Communications Agency (DCA) will continue to be responsible for operation and maintenance and will retain operational responsibility for large-scale processing resources tied to the backbone. The ODPI network manager and senior IRM official will determine how OUSD(A) offices will access network resources.

4.3.3 Acquisition Strategy

The OUSD(A) architecture will primarily develop through an evolutionary acquisition strategy incorporated with the OASIS. The essential characteristic of evolutionary acquisition is that system definition evolves in stages based on long-term requirements defined within the contract. This process is appropriate for the OUSD(A) architecture because major components of the architecture that will be adopted, developed, expanded, or replaced during the period of this plan include computer security, information standards, communications, and mass storage devices – areas in which technology is likely to change during this acquisition.

Between now and FY93, OUSD(A) plans extensive purchases of hardware and software from the OASIS contract. This contract will provide a vehicle for procuring

computer equipment that will ease interoperability within and among OUSD(A) principal staff offices. 7CG resources devoted to supporting these contracts should be combined under general control of ODPI.

4.3.4 Suggested Schedule for Completing Initiatives

The OSD IRM Plan sent to Congress in May 1988 projected timing for completion of initiatives that support some OSD objectives which are closely related to OUSD(A) objectives. Figure 4-2 shows the OSD schedule for completing initiatives. The schedule projects the establishment of OSD interoperability standards and the completion of an OSD Data Management Plan in FY90. These initiatives are of particular importance to OUSD(A) since data management and AIS interoperability will be areas to which the organization will commit significant resources. A schedule which OUSD(A) should follow to complete initiatives that support its IRM goals is shown in Figure 4-3.

4.3.5 Management Methods

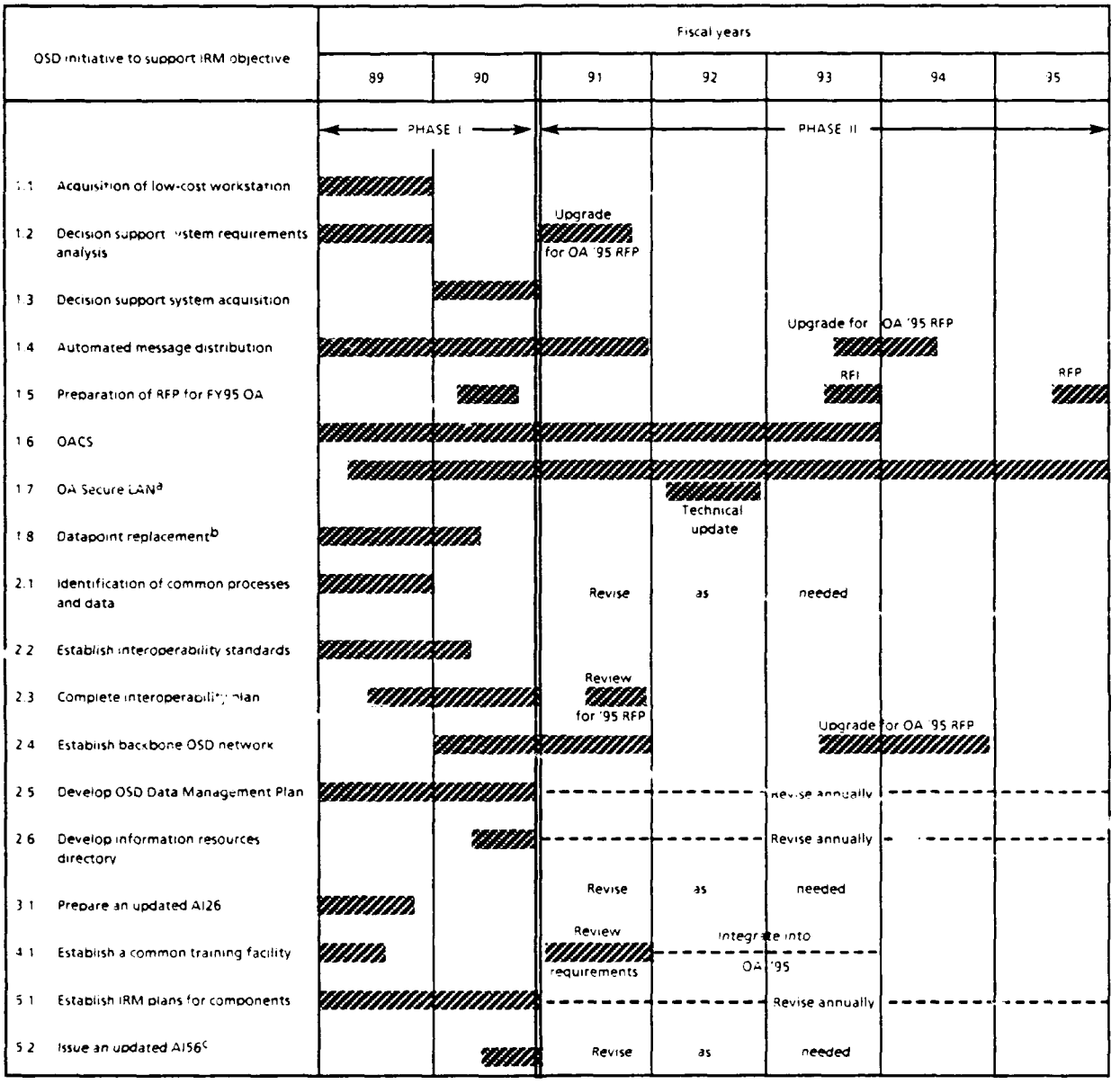
The strategy for continuing progress in managing information resources through 1995 should rely on these methods:

- Involve senior management in IRM planning and programming. The "establishment of strong centralized policies implemented through highly decentralized management structures," emphasized by David Packard in the Foreword to his commission's *Report to the President on Defense Management*, is possible only with direct participation by senior managers.

- Develop a target architecture that will meet OUSD(A)'s IRM goals and objectives and maintain that architecture as a living structure for planning that can change to meet new circumstances. Section 4.3.2 recommends an initial target architecture. Ensure the long-range plan for each AIS includes compatibility with standards used in the architecture.

- Establish a review program, in coordination with the PPBS, to measure IRM accomplishments annually against IRM goals and objectives. Update the IRM Plan to reflect that review.

- Ensure spending for IT resources matches the projects for which funds were requested and that approval for out-of-cycle priority requirements receive appropriate senior management review.



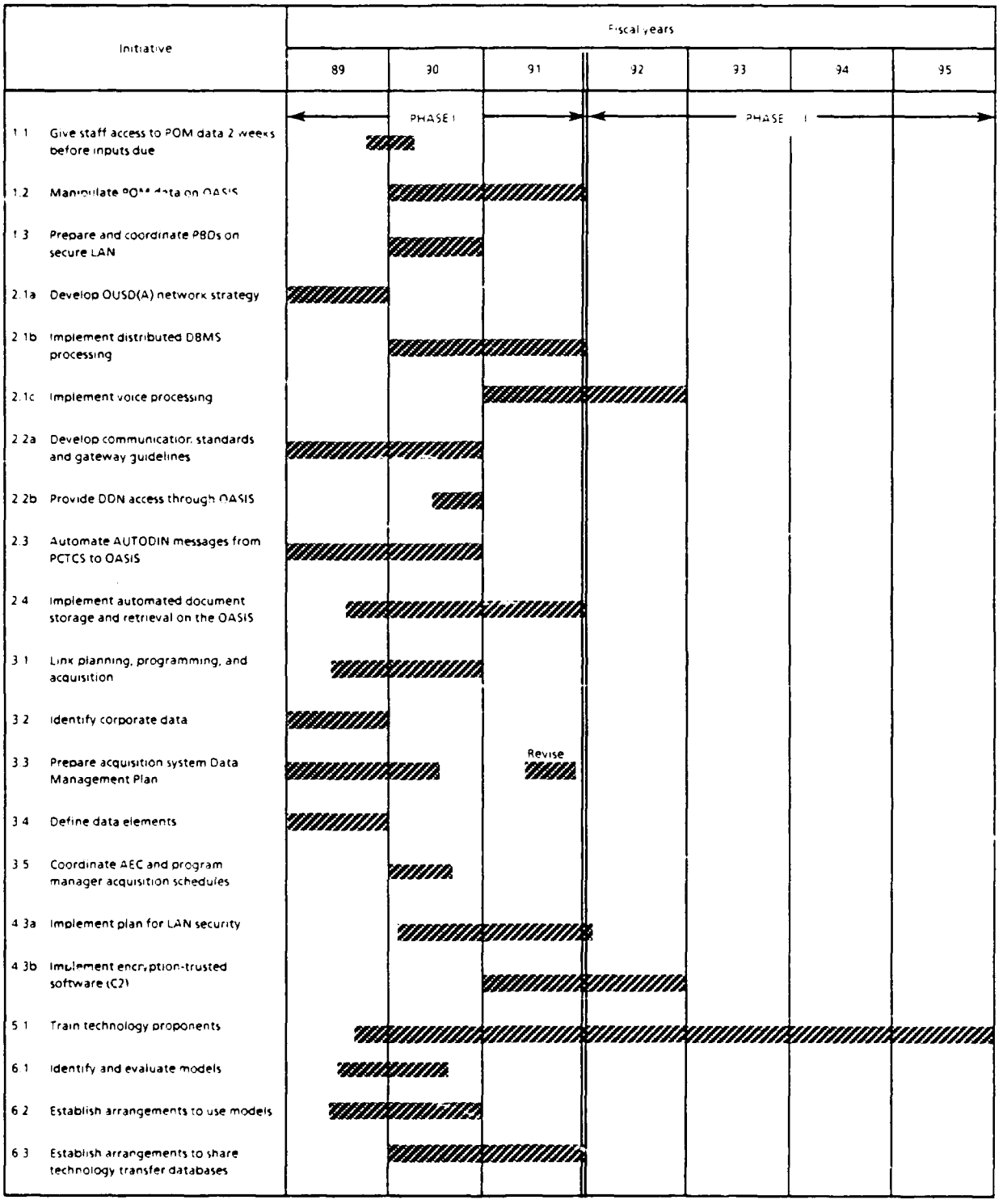
Notes: AI = Administrative Instruction; RFI = Request for Information, RFP = Request for Proposal.

[a] Secure Office Automation Local Area Network (contract awarded Mar 89 for 8-year life cycle).

[b] Datapoint system to be replaced out of OACS and/or OA Secure LAN contracts.

[c] Assuming an initial update will be completed in FY89

FIG. 4-2. PROPOSED OSD STRATEGIC INITIATIVES SCHEDULE



Note: DBMS = database management system.

FIG. 4-3. PROPOSED OUSD(A) STRATEGIC INITIATIVES SCHEDULE

4.4 REVIEW PROCESS

The annual review of this plan will determine how well OUSD(A) is (1) meeting selected IRM goals and objectives; (2) complying with established IRM policies, procedures, principles, standards, and guidelines; and (3)meeting the responsibilities specified in 4 United States Code (U.S.C.) 3506, assuring delegation of proper levels of acquisition authority for automatic data processing (ADP) resources.

Using mission goals set by the USD(A) and further refined by his Principal Staff Assistants, the Information Resource Management Officer (IRMO) can determine what information is needed to accomplish USD(A)'s mission goals. After a review of existing information resources and approved IT projects, the IRMO can determine requirements for additional automated support to meet mission information needs. The review of existing resources should include a review of the status and plans for each major AIS and a review of the past year's expenditures for each IT project to which funds were allocated. The format shown in Table 4-2 can be used to review expenditures. As a result of the annual review, the IRMO should develop and coordinate the following with the OUSD(A) staff in accordance with Appendix B:

- IRM goals and objectives
- A strategy for achieving the goals and objectives and for managing OUSD(A) AISs
- Areas in which present commitments and planned AISs fail to meet mission needs
- A prioritized set of IT projects that will be the POM submission and a prioritized set of studies which will result in ADP-related recommendations or ADP products.

TABLE 4-2

19XX INFORMATION TECHNOLOGY BUDGET ALLOCATIONS AND EXPENDITURES BY PROGRAM AND PROJECT

OSD program	OSD aggregate project	OUSD(A) project number	Project name	Funds allocated	Funds withdrawn	Expenditures	Remarks

GLOSSARY

ADP	=	automatic data processing
AE	=	Atomic Energy
AEC	=	Atomic Energy Commission
AI	=	Administrative Instruction
AIRM	=	Automated Information Resource Management
AIRMRC	=	AIRM Review Council
AIS	=	automated information system
AMIS	=	Acquisition Management Information System
ARMS	=	Automated Resources Management System
ARPA	=	Advanced Research Projects Agency
ARPANET	=	Advanced Research Projects Agency Network
ASD	=	Assistant Secretary of Defense
ASD(C3I)	=	ASD (Command, Control, Communications and Intelligence)
ASD(P&L)	=	ASD (Production and Logistics)
ASD(PA&E)	=	ASD (Program Analysis and Evaluation)
ATSD(AE)	=	Assistant to the Secretary of Defense (Atomic Energy)
AUTODIN	=	Automatic Digital Network
BES	=	Budget Estimate Submission
C3	=	command, control, and communications
C3I	=	command, control, communications, and intelligence
CAPS	=	Conventional Armaments Planning System
CINC	=	Commander-in-Chief of a Unified or Specified Command
CINCs	=	Commanders-in-Chief of the Unified and Specified Command
COMSEC	=	communications security

CSMA/CD	=	Carrier Sense Multiple Access with Collision Detection
DAB	=	Defense Acquisition Board
DAE	=	Defense Acquisition Executive
DAES	=	Defense Acquisition Executive Summaries
DASD	=	Deputy Assistant Secretary of Defense
DASD(PS)	=	DASD (Production Support)
DBMS	=	database management system
DCA	=	Defense Communications Agency
DC(IRM)	=	Deputy Comptroller (Information Resource Management)
DCTN	=	Defense Commercial Telecommunications Network
DDN	=	Defense Data Network
DDR&E	=	Director, Defense Research and Engineering
DEC	=	Digital Equipment Corporation
DEIS	=	Defense Energy Information System
DIA	=	Defense Intelligence Agency
DINET	=	Defense Industrial Network
DoD	=	Department of Defense
DoDD	=	DoD Directive
DoDI	=	DoD Instruction
DOE	=	Department of Energy
DPG	=	Defense Planning Guidance
DPI	=	Director, Program Integration
DRB	=	Defense Resources Board
DROLS	=	Defense RDT&E On-Line System
DSS	=	Directorate of Systems and Services
DTIC	=	Defense Technical Information Center
DTSA	=	Defense Technology Security Administration
DUSD	=	Deputy Under Secretary of Defense

DUSD(IIP)	=	DUSD (Industrial and International Programs)
DUSD(IP&T)	=	DUSD (International Programs and Technology
DUSD(R&AT)	=	DUSD (Research and Advance Technology)
ECCM	=	electronic counter-countermeasures
EIS	=	executive information system
E.O.	=	Executive Order
ERS	=	Executive Reporting System
FFRDC	=	Federally Funded Research and Development Center
FIRMR	=	Federal Information Resources Management Regulation
FORDTIS	=	Foreign Disclosure and Technical Information Service
FTP	=	File Transfer Protocol
FY	=	fiscal year
FYDP	=	Five Year Defense Plan
H.R.	=	House bill
HSRP	=	Headquarters Systems Replacement Program
IDSS	=	Interoperability Decision Support System
IEEE	=	Institute of Electrical and Electronic Engineers
ILS	=	Integrated Logistics Support
IMC	=	information management center
IP	=	Internet Protocol
IRIS	=	Intelligence Resource Information System
IRM	=	information resource management
IRMO	=	Information Resource Management Officer
IRRC	=	Information Resource Review Council
IT	=	information technology
J-8	=	Joint Staff Force Structure, Resource, and Assessment Directorate
JCS	=	Joint Chiefs of Staff

JMSNS	=	Justification of Major Systems New Start
JS	=	Joint Staff
LAN	=	local area network
MAISRC	=	Major Automated Information System Review Council
MCF	=	management control facility
MILNET	=	Military Network
MIS	=	management information system
MS/DOS	=	MicroSoft Disk Operating System
NACSIM	=	National Computer Security Information Management
NATO	=	North Atlantic Treaty Organization
NCS	=	National Communications System
NIS	=	NATO Identification System
NMC	=	network management center
NSR	=	National Security Review
NTSSC	=	National Technical Systems Security Committee
NWSP	=	Nuclear Weapons Stockpile Plan
OA	=	Office Automation
OACS	=	Office Automation Computer System
OASD	=	Office of the Assistant Secretary of Defense
OASD(C3I)	=	OASD (Command, Control, Communications and Intelligence)
OASD(P&L)	=	OASD (Production and Logistics)
OASD(PA&E)	=	OASD (Program Analysis and Evaluation)
OASIS	=	Office Automation Secure Information System
ODASD	=	Office of the Deputy Assistant Secretary of Defense
ODC(IRM)	=	Office of the Deputy Comptroller (Information Resource Management)
ODDR&E	=	Office of the Director, Defense Research and Engineering
ODPI	=	Office of the Director, Program Integration

ODPI(IS)	=	ODPI, Information Systems
ODPI(PA)	=	ODPI, Program Assessment
ODUSD	=	Office of the Deputy Under Secretary of Defense
ODUSD(IIP)	=	ODUSD (Industrial and International Programs)
ODUSD(R&AT)	=	ODUSD (Research and Advance Technology)
ODUSD(TWP)	=	ODUSD (Tactical Warfare Programs)
OMAISRC	=	OSD Major Automated Information System Review Council
OMB	=	Office of Management and Budget
OPR	=	office of primary responsibility
OSD	=	Office of the Secretary of Defense
OSI	=	Open System Interconnection
OUSD	=	Office of the Under Secretary of Defense
OUSD(A)	=	OUSD (Acquisition)
OUSD(P)	=	OUSD (Policy)
OUSD(P&L)	=	OUSD (Production and Logistics)
PBD	=	Program Budget Decision
PC	=	personal computer
PC-DAES	=	Personal Computer Defense Acquisition Executive Summaries
PCTCS	=	Pentagon Consolidated Telecommunications Center System
PDM	=	Program Decision Memorandum
PDRS	=	Petroleum Disruption Response System
PE	=	program element
PEDS	=	Program Review Electronic Delivery System
P.L.	=	Public Law
POC	=	point of contact
POL	=	Petroleum, Oil, and Lubricants
POM	=	Program Objective Memorandum
PPBS	=	planning, programming, and budgeting system

R&D	=	research and development
RCF	=	remote computer facility
RDT&E	=	research, development, test, and evaluation
RFP	=	Request for Proposal
7CG	=	Seventh Communications Group
SAR	=	Selected Acquisition Report
SF	=	Standard Form
SIMON	=	acronym for Manufacturing Technology Program Data System
SMTP	=	Simple Mail Transfer Protocol
SOA/LAN	=	Secure Office Automation Local Area Network
SPO	=	Special Projects Office
SPRINT	=	Standardization of Program Review Information Network Technologies
STI	=	scientific and technical information
TCP	=	Transmission Control Protocol
TEISC	=	Test and Evaluation Information Support Capability
TQM	=	total quality management
U.S.C.	=	United States Code
USD	=	Under Secretary of Defense
USD(A)		Under Secretary of Defense (Acquisition)
USD(P)	=	Under Secretary of Defense (Policy)
WHS	=	Washington Headquarters Services
XNS	=	Xerox Network Services

APPENDIX A

INFORMATION RESOURCE MANAGEMENT POLICIES AND DIRECTIVES

1.0 PURPOSE

This appendix describes the policies, directives, and organizations governing the management of information in OSD.

2.0 GOVERNING POLICIES AND DIRECTIVES

Authority to plan OSD information resource management (IRM) is established in five documents:

- Office of Management and Budget (OMB) Circular No. A-130, *Management of Federal Information Resources*
- General Services Administration, *Federal Information Resources Management Regulation (FIRMR)*
- DoD Directive (DoDD) 7740.1, *DoD Information Resources Management Program*
- DoDD 7740.2, *Automated Information System (AIS) Strategic Planning*
- DoDD 7750.5, *Management and Control of Information Requirements.*

These documents conform with the Paperwork Reduction Act of 1980, which requires agencies to

- Manage information efficiently, effectively, and economically
- Comply with the information policies, principles, standards, and guidelines prescribed by the Director of OMB.

The act also requires every Federal agency to designate a senior official to carry out IRM responsibilities, including

- Maintaining inventories of major information systems
- Periodically reviewing information management activities

- Making sure that information systems do not overlap
- Fulfilling responsibility for acquisition of information technology (IT).

The DoD IRM program was established in June 1983 by publication of DoDD 7740.1. This directive established DoD policy to implement IRM aggressively in ways that enhance mission performance through effective, economic acquisition and use of information.

Under the authority of DoDD 7740.1, the Office of the Deputy Comptroller (Information Resource Management) [ODC(IRM)], formerly the Office of the Deputy Assistant Secretary of Defense (Cost/Management Systems) [ODASD(C/MS) (IRM)], promulgated five IRM goals for DoD in late 1984:

- Improve DoD mission operations and decision making through effective and economic development and use of information
- Integrate DoD information management activities through consistent plans, programs, policies, and procedures
- Acquire and use IT to improve mission effectiveness, productivity, and program management
- Strengthen life-cycle management of information systems
- Foster general awareness of the value of information and its associated costs.

The DoD IRM program was strengthened in October 1987 when the IRM Systems Directorate was upgraded to Deputy Comptroller status. This office was given an expanded mandate to (1) review and approve all major AIS program plans; (2) develop and enforce AIS life-cycle management and information processing standards; (3) develop AIS training, education, and technical assistance programs; and (4) establish and perform a range of essential AIS assessment and planning functions. Under its expanded mandate, ODC(IRM) is updating and strengthening the Major Automated Information System Review Council (MAISRC) and has recently published a new DoDD 7920.1, *Life-Cycle Management of Automated Information Systems (AISs)*, 20 June 1988. In addition, ODC(IRM) has developed an Industry Interface Initiative with three DoD objectives:

- Develop the ability to compete successfully with the private sector in recruiting and retaining information systems professionals

- Become a principal participant in the automation information industry's efforts to develop interoperability standards and a leader in the adoption and implementation of these standards

- Improve its ability to access the expertise of the industry and increase its use of industry expertise in the concepts development, design, and system development of new AISs and existing AIS modernizations.

The importance of IRM in DoD was emphasized again when, in May 1988,[1] the Comptroller wrote to the Military Departments and Defense agencies:

> I regard Information Resources Management to be one of the highest priority areas within the DoD, and regard the aggressive management of AISs as an area in which the DoD can be a trendsetter for the entire Federal Government.

3.0 DEFINITION OF INFORMATION RESOURCE MANAGEMENT IN OSD

OSD IRM is a combined management structure and set of activities that plan, program, budget, and acquire information resources. These activities should promote a coherent strategy for improving use of information resources in the policy process, all within budgetary constraints. "Information resources" are defined broadly to include (1) all information, whether automated or not; and (2) the media, personnel, and technologies used to manage, store, transport, and process the information. An informed DoD policy has the following qualities:

- *Integration and consistency of information.* OSD policy products should be internally consistent and, to the extent possible, consistent with information in the policy products of other agencies [DoD Instruction (DoDI) 5000.18].

- *Security and integrity.* OSD systems should ensure the integrity of information and invulnerability of information to unauthorized disclosure, denial of use, or destruction to an extent commensurate with the importance of the information to the policy process and national security (DoDD 5200.28).

- *Responsiveness.* Information should reflect direction from approving authorities outside DoD (Congress, the White House, and other Federal agencies) (DoDD 7740.1 and OMB Circular No. A-130).

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[1]Letter. From ASD Comptroller. To Military Departments and Defense agencies. Subject: *Future Managerial Direction of DoD Information Resource Management (IRM)*. 31 May 1988.

- *Accessibility.* Within security constraints, information should be available to users when they need it, either on a day-to-day basis or in national emergencies (OMB Circular No. A-130).

These qualities should guide senior managers in setting information policy priorities.

4.0 INFORMATION RESOURCE MANAGEMENT RESPONSIBILITIES

4.1 OSD IRM Responsibilities

The Chief, Directorate of Systems and Services (DSS) of ODC(IRM) is responsible for collating and coordinating information resources at the OSD level, and promoting program planning guidance to make sure that corporate and Principal Staff Assistant OSD goals are pursued. DSS works with IRM representatives and points of contact (POCs) designated by the OSD Principal Staff Assistants to acquire resources to support staff mission functions. The DSS, using input from POCs, is responsible for preparing the OSD IRM Plan.

4.2 Principal Staff Assistant IRM Responsibilities

Using the broad guidelines set by the DC(IRM), OSD Principal Staff Assistants are responsible for allocating information resources to support their missions functions. DoDD 7740.1 describes these responsibilities of Principal Staff Assistants:

- Designate an IRM representative to coordinate with the Comptroller
- Oversee and manage
  - Development and evolution of information requirements
  - Development and implementation of information systems to meet these requirements
  - Administration of their portion of the annual information collection budget
- Plan and coordinate programs to achieve cost-effective integration of information and information systems
- Identify and put into effect information management initiatives that will improve mission accomplishment
- Ensure OSD information collections are justified, cost-effective, nonduplicative, require minimum data, and meet essential needs

- Develop, maintain, and provide management information to be used by the Comptroller as the statistical base of information support to other DoD senior executives.

DoDD 7740.2 describes these responsibilities of Principal Staff Assistants:

- Provide functional AIS planning guidance to the
  - Comptroller
  - Military Services and DoD agencies for their consideration in their AIS planning processes
- Participate in the planning, programming, and budgeting system (PPBS) process to ensure Service and agency AIS programs appropriately address those AIS issues identified by the OSD functional proponent.

The designated IRM representatives and POCs assist Principal Staff Assistants in establishing processes and procedures to carry out their responsibilities.

5.0 IRM PLANNING IN OSD

5.1 OSD IRM Planning Process

The Washington Headquarters Service (WHS) published OSD's first IRM Plan in December 1987. The IRM planning process in OSD has six basic elements, which occur in sequence. They are

1. Mission goals and objectives are developed by the Principal Staff Assistants. Information processes related to these goals and objectives are analyzed to determine where more effective and efficient use of information will cause increases in productivity or improve support for accomplishment of the mission goals.

2. POCs plan for the information resources needed to support mission goals and document these resource requirements in the Principal Staff Assistants' IRM Strategic Plans and automatic data processing (ADP) budgets. Program budgets are allocated based on the component's priority requirements identified in these plans.

3. DSS consolidates plans for the information resources needed by OSD. IRM Plans for the Principal Staff Assistants are consolidated, analyzed, and systematically used to build the goals and objectives of the overall OSD IRM Plan. The OSD Strategic Plan documents these resource requirements.

4. Other OSD plans are developed as needed to implement initiatives recommended in the IRM Plan. Examples of such plans are the Interoperability Plan and the Data Management Plan mentioned in the OSD IRM Plan.

5. The IRM Plan, other plans which identify IT resource requirements, and program budget submissions from POCs form the basis for the OSD IT program budget submission.

6. Plans are reviewed and updated annually. Each plan contains instructions for when it is to be reviewed and by whom.

5.2 Principal Staff Assistants' Strategic IRM Plans

Like this document, the strategic IRM Plan for a Principal Staff Office contains management goals and objectives, IRM goals and objectives, and a process and strategy for managing information resources within the Principal Staff Office. The ADP budget submission implements a strategy for each AIS for which the Principal Staff Office is the primary sponsor. If the Principal Staff Assistant issues AIS strategic planning guidance to the field as part of his functional oversight responsibilities, the guidance can be in the form of a strategic plan for all AISs which support that function in DoD or can be incorporated into overall strategic guidance to the field.

6.0 TECHNICAL CONSIDERATIONS

According to IRM policy, two technical areas should be considered when AIS acquisition is planned: (1) security and (2) interoperability. The following subsections describe IRM policy in these respects. (Security is also discussed in Section 3.4 in the main report and in Appendix F.)

6.1 Security

The FIRMR (Part 201-7), OMB Circular No. A-130 (Appendix III), and National Technical Systems Security Committee (NTSSC) require agencies to establish policies and procedures ensuring, under all conditions, sensitive data will be safeguarded from disclosure and from unauthorized modification or destruction. Adequate security must be provided for all ADP and telecommunications systems and services, including those provided by contractors.

Every installation with an ADP and telecommunications system is required to have a designated security person with responsibility for developing, implementing, operating, and testing the ADP and telecommunications security program.

DoD has a special interest in security issues because of the potential damage to national security that could result from compromise of the information it manages. DoDD 5200.28, *Security Requirements for Automatic Data Processing (ADP) Systems*, establishes policy for DoD ADP security issues.

6.2 Interoperability

OMB Circular No. A-130 (§8.b.9) requires that IT be acquired or developed "in a manner that facilitates necessary compatibilities." OSD manages many interrelated sets of automated information. DoDD 7740.1 (§E.3) requires that this information be structured to encourage sharing of information and be appropriately consolidated for decision making (§F.1.i). Principal Staff Assistants have principal responsibility for making sure that interoperability among information systems is optimized within their areas of responsibility and that functional managers consider the interoperability required to support the sharing of all data of corporate DoD interest.

7.0 ACQUISITION CONSIDERATIONS

7.1 Identification of Requirements

Because the creation or collection of information requires the allocation of scarce resources, the user must first ascertain that the required data are not available from other sources. DoDD 7750.5, *Management and Control of Information Requirements*, specifies that each item of data in an information requirement be evaluated and screened against data in existing collections to determine whether such information can satisfy the requirement.

Every IRM project requires a functional description commensurate with the cost and complexity of the system. DoD Standard 7935, *Automatic Data Systems (ADS) Documentation*, provides guidance for assigning a complexity rating to IRM projects. The FIRMR requires the development of specifications to a level of detail that promotes competition. Functional specifications are the preferred method of expressing user requirements in specification documents, but the type of each

specification should depend on the nature of the mission need and the ability of the market to satisfy those needs.

7.2 Sole-Source Procurement

Specifications should not limit the number of responsible sources that can satisfy a requirement. Under Federal Acquisition Regulations and the FIRMR, agencies should select and impose only those specifications and standards that contribute to requirements essential to the defined mission performance of a system. Before exercising a renewal option on a system selection awarded on a sole-source basis, the agency concerned must conduct a new market survey to determine the availability of alternative sources of supply.

7.3 Economic Analysis

The FIRMR requires that an economic analysis be performed for every project with a life-cycle cost that exceeds $50,000. The economic analysis compares the costs and benefits of the alternatives systematically to identify those which yield the greatest benefit for a given level of cost. Typically, several system configurations are capable of meeting system objectives. Projects with life-cycle costs under $50,000 require a comparative cost analysis, which "may be limited to an analysis that demonstrates that the benefits of acquiring the proposed system will outweigh the costs" (FIRMR, Part 201-30.009-1).

APPENDIX B

INFORMATION RESOURCE MANAGEMENT PLANNING, PROGRAMMING, AND BUDGETING

1.0 PURPOSE

This appendix to the Under Secretary of Defense (Acquisition) [USD(A)] Information Resource Management (IRM) Plan provides procedures for the planning, programming, and budgeting for information resources in the Office of the Under Secretary of Defense (Acquisition) [OUSD(A)]. It complies with IRM policy guidance summarized in Appendix A and ensures the guidance provided in the OSD IRM Plan, Administrative Instruction (AI)56 – *Computer and Office Automation Resource Administrative Instruction*, and appropriate DoD directives and instructions is applied to IRM processes within the OUSD(A).

2.0 APPLICABILITY AND SCOPE

The procedures described in this appendix apply to the acquisition and use of the following information resources: (1) software (off-the-shelf and custom developed or modified), (2) computer equipment and peripheral devices, (3) telecommunications equipment, (4) office automation (OA) and word processing equipment, (5) time-sharing services or facilities, and (6) data collected for use in or created by automated systems.

3.0 DEFINITIONS

3.1 OSD Major Automated IRM Review Council

The Automated IRM (AIRM) Review Council,[1] proposed by the USD(A), performs annual senior OSD management reviews and approves or disapproves the OSD IRM Plan. The council is chaired by the Comptroller, with representatives from the USD(A), USD (Policy), Assistant Secretary of Defense (Program Analysis and Evaluation) [ASD(PA&E)], and other OSD representatives.

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[1] AIRMRC.

It is supported by the AIRM Committee composed of Deputy Assistant Secretary of Defense (DASD)/Deputy Under Secretary of Defense (DUSD)-level executives and chaired by the Deputy Comptroller (IRM) [DC(IRM)]. The AIRM Committee provides executive oversight of the preparation of the OSD IRM Plan and resolves budget allocation or related issues raised by the AIRM Operations Committee. This group is composed of point of contact (POC) representatives and chaired by the Chief, Directorate of Systems and Services (DSS) of ODC(IRM)]. This peer group is charged with the preparation and execution of the approved OSD IRM Plan.

3.2 OUSD(A) Information Resource Review Council

The Information Resource Review Council (IRRC) (1) reviews all OUSD(A) information resource plans, programs, and budgets for consistency in supporting management goals and objectives; (2) recommends program and project priorities for consideration by the USD(A); and (3) assists the Director, Program Integration (DPI) in preparing the OUSD(A) IRM Plan. The IRRC is chaired by the DPI with a representative from each of the OUSD(A) Principal Staff Assistants: Director, Defense Research and Engineering; ASD (*Production and Logistics*); and ASD (Command, Control, Communications and Intelligence).

4.0 RESPONSIBILITIES

The DPI shall (1) serve as the senior Information Resource Manager for the OUSD(A), recommending and implementing policies for managing, acquiring, and using information resources; (2) chair the OUSD(A) IRRC and represent the USD(A) on the OSD Major Automated Information System Review Council (OMAISRC); (3) review and approve the OUSD(A) information resource budget for submission to the Comptroller; (4) act as the senior IRM policy official for life-cycle management of OUSD(A) systems; and (5) ensure life-cycle management practices are observed in the management, acquisition, and use of information resources.

OUSD(A) Principal Staff Assistants shall (1) designate an Information Resource Management Officer (IRMO) for computer and OA within their office who is responsible for coordinating with the Office of the Director, Program Integration, Information Systems [ODPI(IS)] for acquisition and use of computer and OA resources; (2) establish appropriate procedures for managing information resources within their office to facilitate overall IRM processes described in this appendix;

(3) establish priorities for acquiring and using information resources in support of their goals and objectives; (4) designate a project officer responsible for each project encompassing the acquisition and use of computer and OA resources; and (5) designate security officers for each office responsible for automated information system (AIS) security plans, controls, and practices.

The Chief, Information Systems [ODPI(IS)] shall (1) approve the obligation of OUSD(A) information resources within the budget program approved by the USD(A); (2) allocate information resources in accordance with USD(A) direction and review their use; (3) initiate, evaluate, and monitor technical support agreements among OUSD(A) activities and Federal or commercial technical support sources; (4) implement procedures and provide technical assistance to OUSD(A) staff members for planning acquisition and use of information resources; (5) prepare and coordinate submission of the OUSD(A) automatic data processing (ADP) budget and resource data; (6) monitor the performance and progress of projects encompassing the acquisition and use of information resources; (7) act as the Executive Secretary of the OUSD(A) IRRC and serve as Chairman in his absence; and (8) act as the OUSD(A) POC for computer and OA resources for the purpose of dealing with the DSS.

Principal Staff Assistant's IRMOs shall (1) coordinate and submit computer and OA resource requests and budgets through the OUSD(A) POC; (2) provide and coordinate technical assistance required by their staff in planning for, acquiring, and using computer and OA resources; (3) advise the DPI, through the OUSD(A) POC, on priorities, needs, and alternatives for meeting their computer and OA requirements; and (4) ensure each directorate within the Principal Staff Assistant's office has a system administrator to manage that directorate's information system resources.

The OUSD(A) POC shall (1) collect, compile, and coordinate all IRM planning, programming, and budget data needed by the USD(A), within guidance provided by the DPI and Chief, Information Systems [ODPI(IS)]; (2) coordinate the preparation of the OUSD(A) IRM Plan, including the call for program budget data from OUSD(A) components, supporting the DPI to establish priorities between OUSD(A) projects and programs, and ensuring the linkage of information projects to management goals and objectives; (3) act as the representative of the OUSD(A) Information Resource Manager to the DSS; (4) assist OUSD(A) IRMOs with their planning, programming, and budgeting needs; and (5) ensure execution of the OUSD(A) information resource

budget is in accordance with the OUSD(A) IRM Plan, and that appropriate issues are considered by the DPI and the IRRC.

5.0 PROCEDURES FOR INFORMATION RESOURCE PLANNING AND PROGRAMMING

5.1 Planning and Programming Overview

The formal planning and programming phases of the IRM process are carried out in conjunction with the DoD Program Objective Memorandum (POM) process. The DPI will call for project information planning data from each OUSD(A) Principal Staff Assistant every March. This planning information will describe how each Principal Staff Assistant plans to allocate funds to each of his projects over the current fiscal year and the subsequent 5 years. The planning information will indicate project priorities and how each project supports the Principal Staff Assistant's goals and objectives, as well as the OUSD(A) IRM goals, objectives, and information programs.

The DPI will review Principal Staff Assistant plans for consistency with the USD(A) IRM goals and objectives, and for opportunities to reduce duplication. He will collate all OUSD(A) project funding against IRM goals and objectives, and against OSD programs, to establish alternative funding profiles to remain within expected budget constraints.

The DPI will prepare, staff, and update the IRM Plan for approval by the USD(A) by mid-May. Funding issues that require resolution by the Comptroller will be forwarded through the AIRM Operations Committee, AIRM Committee, and/or OSD AIRMRC.

5.2 Budget and Execution Overview

The approved IRM Plan serves as the baseline for all budgetary information resource activities and should be revised as budget information changes. The DPI will revise budget plans and programs in accordance with USD(A) guidelines set forth in the IRM Plan, as budget constraints change. Budget changes that severely affect the accomplishment of the OUSD(A) mission may necessitate revision of the IRM Plan and/or resubmission of the requirement to the OSD AIRMRC.

Principal Staff Assistant IRMOs will receive from the Chief, Information Systems [ODPI(IS)], periodic reports on the obligations against project funds and the

progress on meeting assigned IRM goals and objectives. Standard Form (SF)-419 is the standard mechanism for implementing contract requests to meet project objectives, within already approved project funding. The process for submitting and tracking SF-419s is spelled out in the AI56 procedures manual and is handled among each IRMO, the OUSD(A) POC, and the DSS.

New requirements for information resources will either be (1) included in planning for the next planning and programming cycle, (2) satisfied from current OUSD(A) project resources, or (3) submitted to the DSS and the AIRM Operations Committee for allocation of additional resources.

5.3 Acquiring Information Resource Support

The process for obtaining support for information resource requirements begins with a statement of need from an office director to the appropriate IRMO. The IRMO and office director, assisted by the office system administrator, will document the validated need for support using one or more of the following methods:

- Modify an existing project description
- Prepare a memorandum of agreement with another OUSD(A) office or DoD organization to meet the need, with appropriate compensation arrangements
- Prepare a new project description.

The Chief, Information Systems [ODPI(IS)] and the OUSD(A) POC are available for consultation on how to best meet new requirements within overall OUSD(A) information resources.

APPENDIX C

FUNCTIONS OF THE PRINCIPAL STAFF ASSISTANTS TO THE UNDER SECRETARY OF DEFENSE (ACQUISITION)

This appendix contains the responsibilities, functions, and management goals and objectives of the Principal Staff Assistants who head the major components of the Office of the Under Secretary of Defense (Acquisition) [OUSD(A)]:

- Director, Defense Research and Engineering (DDR&E)
- Deputy Under Secretary of Defense (Industrial and International Programs) [DUSD(IIP)]
- Assistant Secretary of Defense (Command, Control, Communications and Intelligence) [ASD(C3I)]
- Assistant Secretary of Defense (Production and Logistics) [ASD(P&L)]
- Director, Program Integration (DPI)
- Assistant to the Secretary of Defense (Atomic Energy) [ATSD(AE)].

1.0 DIRECTOR, DEFENSE RESEARCH AND ENGINEERING

The DDR&E is the Principal Staff Assistant and advisor to the Secretary of Defense and USD(A) for DoD scientific and technical matters, basic and applied research, and the development of weapon systems.

The specific responsibilities and functional areas described in DoD Directive (DoDD) 5134.3 are listed in Tables C-1 and C-2.

TABLE C-1

DDR&E RESPONSIBILITIES

1. Conduct analyses, develop policies, provide advice, make recommendations, and issue guidance on Defense plans and programs.

2. Develop systems and standards for the administration and management of approved plans and programs.

3. Initiate programs, actions, and taskings to ensure adherence to DoD policies and national security objectives, and ensure programs are designed to accommodate operational requirements.

4. Review and evaluate programs for carrying out approved policies and standards.

5. Inform appropriate organizations and personnel of new and significant trends or initiatives.

6. Review proposed resource programs, formulate budget estimates, recommend resource allocations, and monitor the implementation of approved programs.

7. Participate in those planning, programming, and budgeting activities which relate to DDR&E responsibilities.

8. Review and evaluate recommendations on requirements and priorities.

9. Promote coordination, cooperation, and mutual understanding within DoD and between DoD and other Federal agencies and the civilian community.

10. Serve on boards, committees, and other groups pertaining to the DDR&E's functional areas and represent the Secretary of Defense and the USD(A) on DDR&E matters outside DoD.

11. Perform such other duties as the Secretary of Defense or the USD(A) may, from time to time, prescribe.

TABLE C-2

DDR&E FUNCTIONAL AREAS

The DDR&E shall carry out the responsibilities for the following functional areas:

1. Basic and applied research and advanced technology program, design, and engineering, and the development of weapon systems.

2. Tactical warfare programs activities related to research and development.

3. Strategic and theater nuclear forces programs activities related to research and development.

4. Development, test, and evaluation, in accordance with DoDD 5000.3, to include ensuring the test and evaluation program is sufficient to support milestone decisions.

5. Scientific and technical information.

6. Assignment and reassignment of research and engineering responsibility for systems.

7. Research interchange with friendly and allied nations, in conjunction with the Under Secretary of Defense (Policy).

8. Contract placement and administration for research and development programs.

9. Oversight of Federally Funded Research and Development Centers.

10. Such other areas as the Secretary of Defense or the USD(A) may, from time to time, prescribe.

1.1 DDR&E Goals and Objectives

While exercising these responsibilities, within the functional areas, the DDR&E has set certain specific goals and objectives, listed below:

- *Goal 1:* Shorten the time to insert new technologies into the weapon system development process.
  - *Objective 1.1:* Eliminate restrictions on milestone decisions so that greater flexibility is allowed to make such decisions as technological opportunities develop.
  - *Objective 1.2:* Shift emphasis on subsystem prototyping and testing, and proof of principle, to earlier in the acquisition cycle.
  - *Objective 1.3:* Promote concurrency among full-scale development, testing, and procurement for selected programs; and greater willingness to upgrade existing systems rather than developing new weapon systems.
- *Goal 2:* Establish a technology investment strategy that links deterrence and war-fighting requirements to technology development initiatives.
  - *Objective 2.1:* Establish an analytical capability to identify technological requirements that will be needed to support future military needs, by 30 September 1989.
  - *Objective 2.2:* Establish priorities for technology R&D that will guide DoD laboratory activities, by 30 December 1989.
  - *Objective 2.3:* Establish, in coordination with the Joint Staff (JS) and the DUSD(IIP), a process for linking technology development programs with technological requirements, by 1 April 1990.
  - *Objective 2.4:* Prepare an initial technology investment strategy, by 1 January 1991.
- *Goal 3:* Coordinate Military Service weapon programs, in conjunction with the JS, to optimize program support to meet requirements of the Commanders-in-Chief of the Unified and Specified Commands (CINCs).
  - *Objective 3.1:* Improve the coordination of technology R&D carried out by the Military Departments to support the "competitive strategy" approach.
  - *Objective 3.2:* Eliminate or reduce "gold plating" on weapon systems that are developed and produced for conventional forces.

- *Objective 3.3:* Increase the emphasis on mission area analyses as a means of identifying deficiencies in acquisition plans and programs.
- *Objective 3.4:* Rank war-fighting deficiencies and prioritize new developments, product improvements to existing systems, and technology base enhancements needed to reduce or eliminate those deficiencies.

- *Goal 4:* Provide greater emphasis on the development and application of process technologies.
  - *Objective 4.1:* Ensure manufacturing technology is considered as part of all basic science and technology programs.
  - *Objective 4.2:* Ensure manufacturing technology is included in the criteria for all weapon systems development programs.
- *Goal 5:* Develop a DoD plan for managing scientific and technical information (STI).
  - *Objective 5.1:* Define the DoD requirements for STI and the processes by which STI requirements are identified, by 1 January 1990.
  - *Objective 5.2:* Prepare a plan for management of DoD STI to include recommendations for changes in regulations and legislation, by 1 January 1991.
- *Goal 6:* Increase consideration of technological opportunities in formulating U.S. arms control positions.

2.0 THE DEPUTY UNDER SECRETARY OF DEFENSE (INDUSTRIAL AND INTERNATIONAL PROGRAMS)

The responsibilities of the DUSD(IIP) are summarized in his mission statement and mission functions. The mission statement is

> Implement and manage DoD policies and programs to strengthen international cooperation, two-way technology flow, US industrial base competitiveness and allied industrial base responsiveness in all phases of research, development and production of Defense systems and equipment. Enhance allied access to US defense markets and US access to allied defense markets.

A more detailed delineation of these responsibilities appears in Table C-3.

TABLE C-3

DUSD(IIP) RESPONSIBILITIES

1. Serve as DoD focal point for all international cooperative research, development, and production activities within allied/friendly nations.
2. Serve as DoD focal point for industrial base competitiveness and responsiveness matters.
3. Oversee U.S. industrial base planning and programmatic activities.
4. Serve as DoD focal point for development, implementation, and surveillance of industrial resources policy, plans, and programs; and for all industrial supply demand analyses.
5. Review U.S. acquisition programs; develop and implement strategy for fostering greater alliance standardization, interoperability, and affordability of defense systems and equipment.
6. Assess each planned DoD acquisition program start for cooperative development potential and recommend whether the United States should seek to cooperate with one or more other nations.
7. Chair the International Programs Committee of the Defense Acquisition Board.
8. Recommend requirements and funding priorities for weapons and systems that are being developed/produced cooperatively with NATO allies, major non-NATO allies (Australia, Israel, Egypt, Korea, and Japan), and other friendly countries.
9. Oversee preparation of memoranda of understanding and other formal agreements for cooperative research, development, and acquisition programs; and ensure program coordination within DoD and with the Departments of State and Commerce.
10. Provide primary point of contact with NATO armaments groups, including the Conference of National Armaments Directors (CNAD), and the NATO Industrial Advisory Group (NIAG).
11. Represent DoD in interagency and international fora for all acquisition issues relating to exports and export control lists.
12. Provide DoD point of contact and management support for the Defense Policy Advisory Committee on Trade (DPACT).
13. Represent USD(A) on the National Disclosure [of Classified Military Information] Policy Committee (NDPC).
14. Provide management oversight to the Office of Industrial Base Assessment (OIBA).
15. Manage activities of the Defense Manufacturing Board.

2.1 DUSD(IIP) Goals and Objectives

While exercising these responsibilities, the DUSD(IIP) has set certain specific goals and objectives, listed below:

- *Goal 1:* Establish defense industrial strategic plans that support military strategic plans.
  - *Objective 1.1:* Establish an analytical methodology for translating military strategies and plans into requirements for industrial output.
  - *Objective 1.2:* Establish, in coordination with the JS, priorities for improving industrial responsiveness to military plans.

- *Objecti e 1.3:* Establish, in coordination with the Departments of State, Treasury, and Commerce, defense industrial plans that provide the means to match industrial capabilities to military plans.

- *Objective 1.4:* Ensure contractors who specialize in military production remain viable components of the industrial base.

- *Goal 2:* Develop manufacturing capabilities concurrent with the development of weapon systems.

  - *Objective 2.1:* Ensure DoD components address manufacturing capabilities in Mission Need Statements and in Defense Acquisition Board (DAB) milestones 2 and 3.

  - *Objective 2.2:* Ensure program managers consider surge/mobilization requirements for support of weapon system production, and establish a surge/mobilization baseline and plan.

  - *Objective 2.3:* Analyze aggregate capability of industrial base to support all weapon system programs.

- *Goal 3:* Improve arrangements with friendly nations that enhance our ability to share resources and wage coalition warfare.

  - *Objective 3.1:* Establish defense trade arrangements with friendly nations to improve access to each other's markets.

  - *Objective 3.2*: Develop logistics support plans and agreements that ensure maximum, reliable support to deployed U.S. forces by host nations.

  - *Objective 3.3:* Ensure the NATO Conventional Armaments Planning System (CAPS) becomes the operational standard for defining allied weapon systems requirements.

  - *Objective 3.4:* Assess the impact of defense trade agreements on the industrial base.

  - *Objective 3.5:* Identify the technological cooperation opportunities with Pacific rim countries, especially Japan and Australia.

- *Goal 4:* Improve the capability to assess the ability of the industrial base to support acquisition programs and the role of international cooperation in DoD's technology investment strategy.

  - *Objective 4.1:* Acquire access to information that will facilitate identification of the impact of changes in foreign materiel and technological dependency on the responsiveness of the industrial base to support acquisition programs.

- *Objective 4.2:* Acquire access to information that will facilitate identification of vulnerabilities in the responsiveness of the industrial base to support acquisition programs.

- *Objective 4.3:* Develop an international cooperative component of the DoD technology investment strategy in cooperation with the Deputy Under Secretary of Defense (Research and Advance Technology) [DUSD(R&AT)].

- *Goal 5:* Increase U.S. participation in cooperative R&D.

  - *Objective 5.1:* Enhance NATO conventional defense capabilities by (1) identifying arms cooperation opportunities for each new project for which Justification of Major Systems New Start (JMSNS) is submitted, (2) increasing United States/Canada joint participation in cooperative projects and Canadian acquisition of major equipment, (3) having Services consult with NATO allies in establishment of operational and design requirements for future major systems, (4) having Services consider NATO industry sources and equipment for the acquisition of nondevelopmental items before approving acquisition strategies.

  - *Objective 5.2:* Develop and negotiate appropriate mutually beneficial agreements or contracts for allied/friendly nation participation in selected strategic defense initiative and conventional defense initiative programs.

  - *Objective 5.3:* Ensure continued cooperation with Israel in information sharing, test and evaluation, and codevelopment programs.

  - *Objective 5.4:* Pursue additional coproduction and data exchange programs with Egypt under the Defense Production Assistance Agreement.

3.0 ASSISTANT SECRETARY OF DEFENSE (COMMAND, CONTROL, COMMUNICATIONS AND INTELLIGENCE)

The ASD(C3I) is the Principal Staff Assistant to the Secretary of Defense and the USD(A) for DoD telecommunications and C3I resources (including related warning and reconnaissance activities). He also serves as Principal Staff Assistant in carrying out the Secretary of Defense's responsibilities as Executive Agent of the National Communications System (NCS).

DoDD 5137.1 describes the responsibilities of the ASD(C3I) and the functional areas within which his responsibilities will be carried out. In addition, DoDD 5137.1

describes the ASD(C3I)'s authorities and relationships with other DoD officials. These responsibilities and functional areas are listed in Tables C-4 and C-5.

TABLE C-4

ASD(C3I) RESPONSIBILITIES

1. Provide advice; make recommendations; and issue guidance on DoD plans, programs, and fiscal activities.
2. Develop policies, systems, and standards for the administration and management of approved plans and programs.
3. Initiate and review programs for carrying out approved policies.
4. Review the quality and timeliness of products and their effectiveness for users.
5. In conjunction with the Comptroller, review proposed programs and the resources required to implement them, formulate budget estimates, and recommend resource allocations.
6. Monitor the implementation of approved programs, cooperation, and mutual understanding between DoD and other Federal agencies.
7. Participate in those planning, programming, and budgeting activities which relate to ASD(C3I) responsibilities.
8. Exercise (subject to the direction of the DDR&E) direction, authority, and control over all research and development matters related to C3I.
9. Exercise direction, authority, and control over all DoD actions to allocate resources for intelligence activities, except those organic to combatant forces and those intelligence support activities specifically delegated to the Joint Chiefs of Staff. Authority over the intelligence activities of the Military Departments will be exercised through the Secretary of the Military Department concerned.
10. Serve on boards, committees, and other groups pertaining to his functional areas.
11. Perform such other duties as the Secretary of Defense may, from time to time, prescribe.

3.1 ASD(C3I) Goals and Objectives

While exercising these responsibilities, the ASD(C3I) has set certain specific goals and objectives, listed below:

- *Goal 1:* Improve the interoperability in all joint, combined, and national C3I efforts.
  - *Objective 1.1:* Improve the interoperability of C2 and intelligence systems as managed within the Joint Tactical Fusion Program.
  - *Objective 1.2:* Ensure Service communications standards for data distribution provide appropriate interoperability.
  - *Objective 1.3:* Establish architecture for overall C3I interoperability and systems development.
  - *Objective 1.4:* Establish a mechanism for ensuring C3I interoperability has been considered at each milestone in system development.

TABLE C-5

ASD(C3I) FUNCTIONS

The ASD(C3I) shall carry out responsibilities described in the following areas:

1. Facilities, equipment, systems, and resources
2. C3I-related space systems
3. Command and control systems, including the World-Wide Military Command and Control System (WWMCCS)
4. Telecommunications
5. Application and integration of automatic data processing technology
6. National Communications System (NCS)
7. Surveillance, warning, and reconnaissance architectures and systems related to C3I activities
8. Integration of national and tactical C3I
9. Intelligence collection and processing
10. Communications security (COMSEC)
11. Electronic counter-countermeasures (ECCM)
12. Special forces technology and systems
13. Navigation and position-fixing and identification system, and electronic warfare
14. NATO C3I systems
15. Such other areas as the Secretary of Defense may, from time to time, prescribe

- *Goal 2:* Expedite fielding of C3I systems.
  - *Objective 2.1:* Increase the use of nondevelopmental items of equipment to satisfy C3I requirements.
  - *Objective 2.2:* Improve the ability to analyze and assess technology transfer issues related to C3I technologies.
  - *Objective 2.3:* Expedite development of joint C3I doctrine and standards.
- *Goal 3:* Improve oversight of Black (special access) programs to prevent abuse.
- *Goal 4:* Ensure joint and national C3I programs are coordinated to best support national military strategies.
  - *Objective 4.1:* Complete a study of the strategic sensor systems to determine those programs which must receive highest priority in the next budget. This includes completing congressionally directed actions on the transition from the Defense Support System to the Boost Surveillance and Tracking System.

- *Objective 4.2:* Emphasize international collaborative programs to promote NATO Identification System (NIS) and C3I system development to maximize allied interoperability.

- *Objective 4.3:* Coordinate joint and Service electronic counter-countermeasures (ECCM) weapons programs to ensure cost-effective acquisition decisions.

- *Objective 4.4:* Improve the ability of the Joint Tactical Command, Control, and Communications Agency to evaluate Service requirements and make recommendations for optimum allocation of C3I resources.

- *Objective 4.5:* Encourage the Defense Communications Agency (DCA) and Military Services to proceed with assessment and testing of C3I programs and projects that provide optimum support of inter-Service functions.

- *Goal 5:* Improve the ability to coordinate *Defense Planning Guidance* (DPG), Program Objective Memorandum (POM), Defense Acquisition Board (DAB), and Five Year Defense Plan (FYDP) information, and prepare the Assistant Secretary of Defense and Under Secretary of Defense for decisions relating to these activities.

- *Goal 6:* Improve, in concert with the Under Secretary of Defense (Policy) [USD(P)], coordination and integration between space policy formulation processes and associated space policy implementation activities.

  - *Objective 6.1:* Establish DoD acquisition strategies that identify program options for the DoD space policy program to fully meet current DoD space policy requirements, by 1 July 1990.

  - *Objective 6.2:* Coordinate with the USD(P) to establish a mechanism for preparing the space policy aspects of the DPG, by 1 October 1989.

  - *Objective 6.3:* Coordinate with the Secretaries of the Military Departments and the Directors of the Defense agencies to define improvements to the DoD acquisition oversight process to ensure DoD space systems being acquired conform to space policy requirements, by 1 October 1989.

  - *Objective 6.4:* Recommend to the USD(A) and the Secretary of Defense changes to the DoD acquisition oversight process necessary to tailor it specifically for more streamlined management of DoD space system acquisitions, by 1 January 1990.

  - *Objective 6.5:* Recommend to the USD(A) and the Secretary of Defense changes to the current DoD management organizational structure that will improve integration and management of the policy and acquisition processes for DoD space systems, by 1 October 1989.

4.0 ASSISTANT SECRETARY OF DEFENSE (PRODUCTION AND LOGISTICS)

The ASD(P&L) is the Principal Staff Assistant and advisor to the USD(A) and the Secretary of Defense for management of DoD procurement, production, logistics, installations, environmental programs, and other related matters.

DoDD 5128.1 (Paragraph C) describes the responsibilities of the ASD(P&L) and the functional areas within which his responsibilities will be carried out. In addition, DoDD 5128.1 (Paragraph D) describes the ASD(P&L)'s authorities and relationships with other DoD officials. These responsibilities and functional areas are listed in Tables C-6 and C-7.

TABLE C-6

ASD(P&L) RESPONSIBILITIES

1. Develop policies; conduct analyses; provide advice; make recommendations; and issue guidance on DoD plans, programs, and requirements determinations.

2. Develop systems and standards (including automated systems) for the administration and management of approved DoD plans, programs, and policies.

3. Develop and promulgate plans, programs, actions, and taskings to ensure adherence to DoD policies and national security objectives.

4. Review and evaluate DoD component plans and programs to ensure adherence to approved policies and standards.

5. Participate in all aspects of the Defense Acquisition System and Major Automated Information System approval processes.

6. Participate in planning, programming, budgeting, and follow-up activities.

7. Serve as primary focal point and principal spokesman for, and serve on boards, committees, and other groups pertaining to, assigned functional areas.

8. Develop, coordinate, and maintain regulations as necessary and appropriate to implement the acquisition regulatory responsibilities of the Secretary of Defense and the USD(A).

9. Perform other duties as the Secretary of Defense and the USD(A) may prescribe.

TABLE C-7

ASD(P&L) FUNCTIONAL AREAS

The ASD(P&L) shall carry out the responsibilities described for the following functional areas:

1. Maintenance and administration of the Federal Acquisition Regulation and the DoD Supplement and other implementations thereto within DoD
2. Contract policy, administration, cost, pricing, and finance
3. Materiel and facilities readiness and sustainability
4. Transition to production planning and production management
5. Production and logistics aspects of industrial base issues
6. Manufacturing and manufacturing technology
7. Total quality management
8. Defense Standardization and Specification Program
9. Technical data management
10. Acquisition logistics, including integrated logistics support, postproduction support, and weapon support assessment
11. Support systems acquisition and technology requirements
12. Computer-aided Acquisition and Logistic Support (CALS)
13. International coproduction, logistics, and military construction agreements, in coordination with the USD(P)
14. Supply, warehousing, and distribution management
15. Materiel maintenance management, including repair, overhaul, modification installation, and preventive maintenance of weapon systems, equipment, secondary items, and munitions
16. Transportation (including airlift and sealift) and traffic management
17. Energy management and petroleum logistics
18. Host-nation support
19. Military mobilization planning guidance for installations and logistics
20. Installation management; and real property planning, design, acquisition, maintenance, and disposal
21. Military base structure and utilization
22. Construction, including construction funded by host nations under the NATO infrastructure program
23. Commercial activities and Defense regional Inter-Service support programs
24. Environmental quality and natural resources management
25. Postal services and customs inspection
26. Planning and management of all technological aspects of modernization within DoD of automated information systems associated with the preceding functions.

4.1 ASD(P&L) Goals and Objectives

The ASD(P&L) has established an extensive structure of goals, subgoals, objectives, and strategies. This section presents only an overview of the goals and objectives.

- *Goal 1:* Improve the acquisition of supportable and effective weapon systems by more effective management of the acquisition process.
  - *Objective 1.1:* Improve the logistics support for weapon systems.
  - *Objective 1.2:* Improve and streamline the acquisition process.
  - *Objective 1.3:* Improve the initial fielding process.
- *Goal 2:* Improve force readiness by providing an excellent base infrastructure, quality systems, logistics support, and a responsive industrial base.
  - *Objective 2.1:* Refine requirements forecasting to better articulate operational mission requirements. Establish system readiness and support objectives based on operational mission requirements.
  - *Objective 2.2:* Improve logistics methods and support concepts.
  - *Objective 2.3:* Enhance the quality of installations.
  - *Objective 2.4:* Improve the environment and environmentally associated DoD functions.
- *Goal 3:* Improve mobilization and deployment capabilities by developing the necessary plans and providing the required assets.
  - *Objective 3.1:* Improve industrial preparedness planning for mobilization and deployment.
  - *Objective 3.2:* Improve the mobilization and deployment planning process.
  - *Objective 3.3:* Expand the mobility forces resource base.
  - *Objective 3.4:* Improve preparedness capabilities through investment in assets to offset planning deficiencies.

- *Goal 4:* Improve the ability to sustain the deployed forces throughout the spectrum of operations by ensuring adequate war reserves are available and by optimizing the infrastructure and industrial base.
  - *Objective 4.1:* Develop operationally oriented measures of sustainability.
  - *Objective 4.2:* Attain sufficient inventory levels to counter threat and eliminate war reserve insufficiencies.
- *Goal 5:* Improve the management of P&L support functions by improving the ability to acquire, maintain, deploy, and sustain forces.
  - *Objective 5.1:* Modernize logistics information systems.
  - *Objective 5.2:* Field improved command, control, and communications (C3) systems for operational and logistics managers to provide responsive decision support.
  - *Objective 5.3:* Implement total quality management (TQM) within DoD.
  - *Objective 5.4:* Recruit, train, maintain, and retain a highly motivated work force to support the mission assigned to the Office of the ASD(P&L).
  - *Objective 5.5:* Establish and maintain a good working relationship with the Congress, General Accounting Office, Office of Management and Budget, DoD Inspector General, and industry.
  - *Objective 5.6:* Define and establish methods and standards to track performance of strategies in this plan and the identification and tracking of resource requirements in the POM and budget processes.

5.0 DIRECTOR, PROGRAM INTEGRATION

The DPI is responsible for ensuring the efforts and activities of the OUSD(A) organization are integrated and directed toward accomplishing the responsibilities of the USD(A) as set forth in DoDD 5134.1. These responsibilities are listed in Table C-8. Because of the integration nature of the Office of the Director, Program Integration (ODPI) duties, these responsibilities extend across all of the programmatic functional areas of OUSD(A).

TABLE C-8

DPI RESPONSIBILITIES

The DPI is responsible for:

1. Acquisition system policies and procedures. Develop, evaluate, and recommend management policies and procedures governing the operations of the DoD Acquisition System for USD(A) approval and subsequent implementation by DoD components.

2. DAB operations. Manage operations of the DAB and ensure the supporting structure of 10 Acquisition Committees develop and provide timely recommendations on major acquisition issues for DAB consideration and decision.

3. Program assessments. Provide continuing, timely assessments and recommendations on all aspects of the $150 billion per year DoD acquisition program.

4. Program stability/smart business practices. Promote program stability and the use of smart business practices that result in the most effective use of defense acquisition resources.

5. Planning, programming and budgeting system (PPBS) interface. Publish operating guidelines and ensure the efforts of the USD(A) organization are integrated and directed toward the timely accomplishment of all requirements associated with the PPBS and Defense Resources Board (DRB) decision-making process.

6. Program reviews. Establish procedures and manage the periodic monthly program review and Secretarial Performance Review processes for acquisition programs.

7. Information systems. Develop, implement, and manage an integrated management information system that facilitates acquisition program decision making within OUSD(A), supports the information requirements associated with the PPBS process, and provides for periodic assessments of designated major DoD acquisition programs.

8. Strategic planning and competitive strategies. Develop long-term requirements, resource assessments, and strategic planning options for USD(A) and DAB consideration as well as specific acquisition initiatives to be pursued in the Secretary of Defense Competitive Strategies Program.

9. Apportionment and funds releases. Develop recommendations for the apportionment of acquisition budget line items, including those budget line items subject to funding withholds or reprogramming limitations; and establish a system for managing those withholds.

10. Cross-Service and allied management of joint programs. Promote coordination, integration, and mutual understanding of all matters involving cross-Service and allied management of joint programs within DoD and between DoD and other Federal agencies, and with Cooperative Programs and Information Systems.

11. Internal operations. Direct the staff activities and operations of the Office of Program Integration which consists of the Directorates of Acquisition Systems Management, Program Assessment, and Program and Budget Integration; and the Offices of Strategic Planning and Information Systems.

12. Equal opportunity. Ensure continuing affirmative application of the OSD-wide policy of equal employment opportunity and be responsible for keeping abreast of developments, policy issuances, etc., in this area.

13. Other duties as assigned by the USD(A).

5.1 DPI Goals and Objectives

While exercising these responsibilities, the DPI has certain goals and objectives, listed below:

- *Goal 1:* Improve linkage between national military strategy and acquisition programs.
  - *Objective 1.1:* Establish a planning mechanism that will define required operational capabilities in terms that will promote the formulation of alternative acquisition programs targeted on the required capabilities.
  - *Objective 1.2:* Improve the capability to analyze the impact of acquisition and logistics resource constraints on strategic planning, and to optimize the mix of acquisition programs under changing resource constraints.
  - *Objective 1.3:* Improve the OUSD(A) acquisition program review process with explicit consideration of how each acquisition program is supporting military strategy and war-fighting requirements.
- *Goal 2:* Improve USD(A) influence within the programming phase of the planning, programming, and budgeting system (PPBS) to ensure affordability considerations take account of OUSD(A) concerns.
  - *Objective 2.1:* Improve capabilities to analyze impact of cost, budget, production, and logistics constraints on program viability.
  - *Objective 2.2:* Improve capabilities to assess the status of program milestones and the schedule of program reviews.
  - *Objective 2.3:* Establish evaluation criteria for major automated information system acquisitions.
  - *Objective 2.4:* Improve tracking of Program Budget Decisions (PBDs).
  - *Objective 2.5:* Establish a consistent set of Program Baselines for major programs.
- *Goal 3:* Improve ability to prepare the USD(A) for decisions relating to DPG, POM, Defense Resources Board (DRB), DAB, and other acquisition system activities.
  - *Objective 3.1:* Improve capabilities to analyze impact of cost, budget, production, and logistics constraints on program viability. (Same as Objective 2.1.)
  - *Objective 3.2:* Improve the capability to assess the status of programs addressed by Program Decision Memorandum (PDM) and PBDs.

- *Objective 3.3:* Improve tracking of POM issues and decisions. (Same as Objective 2.4.)
- *Objective 3.4:* Establish a consistent set of Program Baselines for major programs. (Same as Objective 2.5.)

- *Goal 4:* Improve the management of the Acquisition System process by more accurate and timely tracking of program milestone activities.
  - *Objective 4.1:* Improve capabilities to assess the status of program milestones and the schedule of program reviews. (Same as Objective 2.2.)
  - *Objective 4.2:* Establish a consistent set of Program Baselines for major programs. (Same as Objectives 2.5 and 3.4.)
- *Goal 5:* Improve the management of the Acquisition System process and support for USD(A) component program interests by more timely access to financial and programmatic information.
  - *Objective 5.1:* Arrange for release by the Comptroller of consolidated FYDP data at the same time as it is compiled by the Comptroller.
  - *Objective 5.2:* Provide FYDP data to USD(A) components in distributed network, machine-readable, or paper form within 1 week of receipt of Comptroller FYDP data.

6.0 ASSISTANT TO THE SECRETARY OF DEFENSE (ATOMIC ENERGY)

The ATSD(AE), as the Principal Staff Assistant for the Department of Defense atomic energy matters, is responsible to the Secretary of Defense, through the USD(A), for matters associated with (1) nuclear and chemical weapons safety, security, and survivability; (2) nuclear survivability of strategic and theater nuclear forces and associated systems; (3) chemical and biological survivability of all DoD materiel; and (4) planning and implementation of modernization and upgrading of the nuclear and chemical weapons stockpile. Additionally, the ATSD(AE) serves as the single OSD focal point with responsibility for integrated management of all chemical and biological defense and chemical stockpile destruction matters within DoD. The responsibilities and related functions of the ATSD(AE) are listed in Table C-9 and are further elaborated in DoDD 5148.2, 4 February 1986. A new charter for the ATSD(AE) is still in staff coordination as of 12 May 1989.

TABLE C-9

ATSD(AE) RESPONSIBILITIES AND FUNCTIONS

The ATSD(AE) shall carry out the following responsibilities:

1. Develop policies, provide advice, make recommendations, and issue guidance on defense atomic energy, chemical warfare, and biological defense plans and programs.

2. Develop systems and standards for the administration and management of approved atomic energy; chemical warfare; and nuclear, biological, and chemical defense plans and programs.

3. Review and evaluate programs for carrying out approved policies and standards.

4. Promote coordination, cooperation, and mutual understanding on atomic energy, chemical warfare; and nuclear, biological, and chemical defense policies, plans, and programs within the Department of Defense, and between the DoD and other Federal agencies.

5. Participate in those DoD planning, programming, and budgeting activities which relate to atomic energy; chemical warfare; and nuclear, biological, and chemical defense matters.

6. Develop policies and procedures for the transmission of information to the Senate and House Armed Services Committees, as required by the Atomic Energy Act of 1954, as amended, and coordinate such information with other officials and agencies as appropriate.

7. Approve the recommendations of the DoD Steering Committee on Chemical Warfare Matters, which is chaired by the Deputy ATSD(AE) Chemical Matters.

8. Serve as Chairperson of the Defense Nuclear Agency Coordinating Committee.

9. Serve on boards, committees, and other groups concerned with atomic energy; chemical warfare; and nuclear, biological, and chemical defense. Also, represent the Secretary of Defense on atomic energy, chemical warfare, and nuclear, biological, and chemical defense matters outside the Department of Defense.

10. Serve as an advisor to the DAB for review of systems that include nuclear components or warheads and for systems required to operate in nuclear, chemical, and/or biological environments.

11. Perform such other functions as the Secretary of Defense and the USD(A) may assign.

6.1 ATSD(AE) Goals

While exercising these responsibilities within the functional areas, the ATSD(AE) has identified certain goals, listed below:

- *Goal 1:* Ensure employed chemical and nuclear weapons are as safe as technology allows.
- *Goal 2:* Ensure military hardware is capable of surviving nuclear and chemical warfare environments envisioned by the Joint Chiefs of Staff.
- *Goal 3:* Ensure R&D programs in chemical and biological agents enable us to meet changes in Soviet threat.
- *Goal 4:* Replace the outdated unitary weapons stockpile with a binary stockpile and ensure destruction of the unitary stockpile.
- *Goal 5:* Convince the Department of Energy (DOE) to enhance quality and efficiency of research, development, and production of nuclear warheads.

APPENDIX D

MAJOR DATA CLASSES AND AUTOMATED INFORMATION SYSTEMS

1.0 PURPOSE

This appendix describes the classes of data that the Office of the Under Secretary of Defense (Acquisition) [OUSD(A)] needs and the systems supporting these information needs.

2.0 PROGRAM BUDGET DATA

Program budget data are critical to decision making and must be accessed by multiple users in OUSD(A). The DoD Five Year Defense Plan (FYDP) is the Top Secret classified corporate program budget database. It is the official program which summarizes the approved plans and programs for DoD. The scope of the FYDP includes force; manpower; financial data; and information covering historical, current, and succeeding fiscal years. Financial and manpower data are included for prior fiscal years, current fiscal year, budget year, and the four succeeding fiscal years. The FYDP annexes contain detailed data about the allocation and expenditures of specific types of budgeting funds. Updates to the FYDP coincide with submission of the Program Objective Memorandum (POM), budget estimates, and the President's Budget. Beginning with the FY87 budget, DoD's budget presentation has become a biennial presentation. Every odd year, DoD prepares a 2-year, in-depth budget submission, while even-year budget submissions reflect only mid-course corrections.

The following elements of FYDP data are regularly analyzed by OUSD(A) staff and managers:

- FYDP funding program element (PE) detail (deltas, summary totals, and mission area details)
- The research, development, test, and evaluation (RDT&E) annex
- The procurement annex

- The construction annex
- The manpower data from the FYDP command, control, communications, and intelligence (C3I) authorizations and expenditures.

The major OUSD(A) automated information systems (AISs) which use program budget data are the Acquisition Management Information System (AMIS), the Automated Resources Management System (ARMS), and the Intelligence Resource Information System (IRIS). There are at least 25 minor systems, consisting principally of individual minicomputer and microcomputer systems, that also depend upon program budget data. Most of these individual systems require FYDP, or its supporting work breakdown structure, data to analyze the impact of Military Department programs on particular functional acquisition areas, such as spare parts availability, fuels supply status, on logistics readiness. A few of these individual systems, such as the Office of the Director, Program Integration (ODPI)'s Apportionment Processing System, and Program Budget Decision (PBD) Processing System, require FYDP data to directly support planning, programming, and budgeting system (PPBS) activities throughout OUSD(A).

The FYDP resides on a Top Secret Honeywell MULTICS system managed by the United States Air Force Seventh Communications Group (7CG). Only the Office of the Comptroller, which is the FYDP database sponsor, can access the file directly. The FYDP is updated three times each year. After each update, the Comptroller releases copies of the FYDP and its annexes for OSD staff use. Then, 7CG converts the FYDP and annex databases to formats useful to OUSD(A) and transfers these data to the AMIS. The 7CG programmers detailed to OUSD(A) also copy C3I FYDP resource data to tape for the Office of the Assistant Secretary of Defense (C3I) [OASD(C3I)] to load on their two systems, ARMS and IRIS. The Data General-based IRIS supports management and analysis of intelligence and special warfare resource data. The Wang-based ARMS supports management and analysis of command, control, and communications (C3) data.

OUSD(A) recently created the AMIS to provide access to and analysis of the corporate program budget and acquisition data to which the largest number of OUSD(A) users require access. Because of security restrictions imposed by the data and lack of access to the data in users' work areas, the initial implementation of AMIS did not satisfy all OUSD(A) data needs. Primary users have created their own

personal computer (PC)-based systems that they use to analyze budget data. These are the major PC-based systems which manipulate program budget data:

- Budgetary tools that assist the Office of the Deputy Under Secretary of Defense (Research and Advance Technology) [ODUSD(R&AT)] include
  - The Computer and Electronic Technology DoD Program Level Budget Management Tools which are a collection of 75 spreadsheets and 10 databases that help manage the 8 computer and electronic technology PEs.
  - The Environment and Life Sciences DoD Project Level Budget Management Tools which are a collection of 5 spreadsheets and 10 databases that help manage the budgets of all projects involved in the 98 PEs associated with the environment and life sciences.
  - The Research and Lab Management Budgetary Tools which are a collection of 50 spreadsheets and databases that help manage contracts, research funding, geographic distribution of funds, and amounts of money obligated and funded over a specific period of time in 61 PEs.
- Electronic Systems Technology Project Presentation Tools which help analysts maintain current and historic budget data and present information on approximately 500 projects under their purview.
- Cross Reference Tables which support budget cross referencing with tables such as PE/Project by Weapons System, and Procurement Line Item by FBD.
- The Congressional Activity System which takes information from legislative reports and produces status reports concerning budgets for the acquisition programs.
- The Construction Projects System which is used to maintain data on construction projects in the military construction program for Defense installations.
- The Military Construction Information Sheet which provides general information on military construction projects.
- The Conventional Defense Initiatives System which uses the current and previous years' FYDP data to produce a series of four reports showing the PEs grouped by DoD agency and the three major Military Services.
- The Conventional Munitions Master Planning System which uses budget and enactment data to analyze the DoD posture and status relative to conventional munitions.

- The Installations Budget Management System which maintains running totals of congressional changes to DoD installations programs.

- The Logistics System which uses PE and funding data to analyze funding in logistics-related PEs.

- The Management Support Analysis System which performs analysis on RDT&E annex weapon systems. It handles congressional tracking, actual expenditures, and budget planning for weapon systems. Users can select data by weapon system, PE, procurement line item, or apportionment. The system is classified Secret.

- The PBD Tracking System which tracks the status of OUSD(A) reviews of PBD issue papers. In a sense, it acts as an automated accounting mechanism for the PBDs as the dollar values change during the review process. This system is being redesigned to use AMIS to update its reports.

- The PPBS Budget for Atomic Energy which manages the atomic energy portion of the DoD budget.

- The Defense Resources Model which provides ODPI with estimates of the effects of force changes on DoD resources, aligning the FYDP resources according to traditional categories of force readiness, sustainability, and modernization.

- The Program Execution (Apportionment) Model which tracks withheld funds appropriated for the current year and the activities of Congress relative to PEs and procurement line items. The system is classified Secret.

- The Program Review and Evaluation FYDP Analysis System which analyzes budget and program data related to past and future years. The system is classified Secret.

- The Program Review Electronic Delivery System (PEDS) and Standardization of Program Review Information Network Technologies (SPRINT) System consists of two parts. SPRINT is used in the Pentagon and eases transfer of program review data among various OSD organizations [including some in OUSD(A)] and the OASD (Program Analysis and Evaluation) [OASD(PA&E)]. PEDS handles the input and distribution of program review documents to the Commanders-in-Chief of the Unified and Specified Commands (CINCs). These systems handle secret data.

- The RDT&E Annex Data Management System which will help analysts manage PPBS data on RDT&E programs. Input to the system will come from AMIS.

Table D-1 lists these same PC-based systems that are required to support program budget data, the software used for each, and the sponsoring office.

Some fundamental problems exist in the management of FYDP data. Up-to-date data are not accessible in machine-readable form from professional workstations. Action officers and middle managers have the least support from data technology during the most time-sensitive parts of the programming and budgeting process. Another significant problem is that data are not available in level of detail needed by action officers who must track activities that cut across programs and that are aggregated in PEs. The proliferation of these PC-based systems indicates the lack of timely access to data in a usable format.

3.0 ACQUISITION PROGRAM DATA

A primary mission of the USD(A) is to oversee the major DoD acquisition programs. Corporate data essential to perform this mission are contained in the Defense Acquisition Executive Summaries (DAES) and include the status of each major DoD acquisition program. They are prepared in a standard automated format and submitted quarterly by program managers through the Service Acquisition Executives to USD(A). The DAES for each major acquisition program contains this information:

- A program and contract cost information summary
- Supplemental contract cost information
- Program schedule milestones
- A program funding summary
- A program assessment which includes cost estimates and delivery schedules
- A program variance analysis.

In addition to the major program AISs, there are several PC-based systems which contain acquisition program data:

- Personal Computer Defense Acquisition Executive Summaries (PC-DAES) for program managers and Service Acquisition Executives to maintain and submit quarterly DAES reports to OUSD(A). The OUSD(A) Director, Program Integration (DPI) is responsible for its development, maintenance, and subsequent processing

TABLE D-1

PC-BASED SYSTEMS REQUIRED TO SUPPORT PROGRAM BUDGET DATA

System/tool	Sponsor	Hardware used	Software used
Computer and Electronic Technology DoD Program Level Budget Management Tools	ODUSD(R&AT)		10 dBase clones for Macintosh databases 75 Excel spreadsheets
Environment and Life Sciences DoD Project Level Budget Management Tools	ODUSD(R&AT)	Z150/248	5 Lotus or Excel spreadsheets 10 dBase III databases
Research and Lab Management Budgetary Tools	ODUSD(R&AT)	Z150/248	Lotus 1-2-3 and Framework III 50 spreadsheets and databases
Cross Reference Tables	7CG Analysts	MULTICS, IBM PCs	Derived from Honeywell tables dBase II Clipper code
Congressional Activity System	USD(A) Executive Office	Xerox	dBase III/500 lines of code
Construction Projects System	OASD(P&L) Installations	Wang VS65	Lancer Data Management
Conventional Defense Initiatives System	ODUSD(R&AT)		Lotus 1-2-3
Conventional Munitions Master Planning System	ODUSD(TWP)	Z150/248	dBase III
Defense Resources Model	ODPI(IS)	Z150/248	Custom-developed
Electronic Systems Technology Project Presentation Tools	ODUSD(R&AT)	Z150/248	Lotus 1-2-3 Ventura Publisher
Installations Budget Management System	OASD(P&L) Installations	Lanier	Lanier Peachcalc
Logistics System	ODUSD(R&AT)	Z150/248	dBase II Clipper code
Management Support Analysis System	ODPI(IS)	IBM PC/AT	450,000 lines of Clipper code
Military Construction Information Sheet	OASD(P&L) Installations		Lotus 1-2-3

Note: ODUSD(R&AT) = Office of the Deputy Under Secretary of Defense for Research and Engineering (Research and Advanced Technology); ODUSD(TWP) = Office of the Deputy Under Secretary of Defense (Tactical Warfare Programs); ODPI(IS) = Office of the Director, Program Integration (Information Systems); ODPI(PA) = Office of the Director, Program Integration (Performance Analysis)

TABLE D-1

PC-BASED SYSTEMS REQUIRED TO SUPPORT PROGRAM BUDGET DATA (Continued)

System/tool	Sponsor	Hardware used	Software used
PBD Tracking System	ODPI(IS)	Z150/248	dBase III
PPBS Budget for Atomic Energy	ATSD(AE)	Xerox	Xerox 8010 spreadsheet
Program Execution (Apportionment) Model	ODPI(IS)	Z150/248	dBase III 50,000 lines of Clipper code
***Program Review and Evaluation FYDP Analysis* System**	ODPI/(IS)	Z150/248	Lotus 1-2-3
Program Review Electronic Delivery System (PEDS) and Standardization of Program Review Information Network Technologies (SPRINT) System	ODPI(PA) OASD(C3I)	SOA/LAN OACS Xerox	Word Perfect Xerox word processor
RDT&E Annex Data Management System			

Note: ODUSDRE(R&AT) = Office of the Deputy Under Secretary of Defense for Research and Engineering (Research and Advanced Technology), ODUSD(TWP) = Office of the Deputy Under Secretary of Defense (Tactical Warfare Programs), ODPI(IS) = Office of the Director, Program Integration (Information Systems), ODPI(PA) = Office of the Director, Program Integration (Performance Analysis)

- The Acquisition Tracking System which tracks the status of reports concerning approximately 150 major DoD acquisition programs.
- The Defense Acquisition Board (DAB) Program Management System which allows action officers within the ODUSD(R&AT) DoD Technical Analysis Office to evaluate 50 programs under their purview.
- The Economic Models System which is used to analyze the effects of changing production rates for acquisition programs.
- ODPI's Program Assessment Model which uses data based on a review of 14 program status indicators to produce weekly program management reports.

The *Defense Planning Guidance* (DPG) describes the resources DoD needs to provide for national security over a succeeding 5-year period and provides planning guidance on which the Services and agencies should base their POM. USD(A) provides input to the DPG and is expected to assess whether acquisition programs follow DPG policy guidance.

Problems with the management of acquisition program data are similar to those with management of budget data: data in departmental systems are not accessible from professional workstations and cannot be used in document preparation for required reports, and data in some professional workstations cannot be easily merged with word processing data to produce composite documents.

3.1 Acquisition Management Information System

The AMIS, managed by ODPI, is the most important information system in OUSD(A) because it contains data needed by the most users. Data are loaded to the AMIS from the FYDP, its RDT&E annex, its procurement annex, and the DAES. The AMIS is divided into two subsystems, the Executive Reporting System (ERS) and the Information Management System. The ERS is a sophisticated briefing preparation and display system. The Information Management System manages information in the AMIS database. There are eight data groups in this OUSD(A) departmental database:

1. *Defense Organizations.* This data group defines the Service, Department, office of primary responsibility (OPR), program managers, and their office names for major acquisition programs.

2. *Mission Areas.* This group relates OUSD(A) mission area codes to each other and to DPG areas, OPRs, FYDP PEs, and procurement line items.

3. *Program Budget Decision (PBD) Budgets.* This group relates FYDP PEs and procurement line items in the PBD budget by PBD issue number.

4. *Appropriation Classifications.* This group relates OUSD(A) appropriations for acquisition programs to funding data and to FYDP, RDT&E, and procurement budgets.

5. *Programs.* This data group contains information on major acquisition programs: funding and cost estimates, delivery schedules, assessment of contractor performance, and contractor information.

6. *RDT&E PE Budgets.* This group contains budgetary information on programs which comprise the DoD RDT&E annex to the FYDP.

7. *FYDP PE Budgets.* This group contains budgetary, manpower, and force structure information on all FYDP PEs.

8. *Procurement Line Items.* This group contains budgetary and quantity information on programs and line items under procurement.

The DAES data are input to AMIS from the PC-DAES system. The PC-DAES database is updated by the quarterly program summaries submitted by Service acquisition program managers and produces reports for the program managers.

The AMIS is a Top Secret system, resident on the OUSD(A) Remote Computer Facility. Most users of AMIS data do not access the system directly. They receive computer graphics, hard-copy reports, or briefings. Plans are to provide protected access to AMIS through the OUSD(A) Office Automation Secure Information System (OASIS). This includes expanding access to ODPI, to the Office of the Director, Defense Research and Engineering (ODDR&E) and the OASD (Production and Logistics) [OASD(P&L)] cleared users, as well as users in OASD(C3I). In the future, selective access to AMIS will allow cleared users responsible for assigned PEs/programs the capability to copy their information into their own secure processing environment for detailed analysis.

4.0 POLITICAL-MILITARY DATA

Political-military information includes strategic planning information, net assessments, international agreements, and similar information. Many organizations outside OUSD(A) use political-military information for decision making, and the demands for information are supported by large databases. The DoD General

Counsel database contains full text of all international agreements in which DoD participates. The Crisis Control System managed by the Office of the Under Secretary of Defense (Policy) contains information on emergency authorities. Although OUSD(A) uses political-military information to make decisions and desires access to databases which contain this information, the organization does not maintain any large political-military databases.

5.0 RESOURCE MANAGEMENT DATA

The continuing evolution of the U.S. industrial base from a predominantly manufacturing base to one dependent on foreign production will cause DoD to use more systems and technologies developed outside the United States. Especially in OUSD(A), emphasis will focus on foreign military sales, host-nation support agreements, and technology transfer as a set of information related to the U.S. industrial base. Several databases assist OUSD(A) components in managing the resources over which they have functional oversight. The Defense Communications Agency, Defense Logistics Agency, and Defense Intelligence Agency sponsor many databases which support OUSD(A) functional oversight. The Foreign Disclosure and Technical Information Service (FORDTIS) provides information on sales of military technologically sensitive requests. The Defense Technology Security Administration (DTSA) is developing a large system to track foreign military sales cases and export licenses. IRIS, in addition to supporting the Deputy Assistant Secretary of Defense (Intelligence) PBDs, supports resource management of intelligence, special operations forces, and electronic warfare activities in OASD(C3I).

These OUSD(A) databases support logistics resource management:

- Automated Acquisition Regulations[1] will be an OASD(P&L) database of Federal Acquisition Regulations and Defense Acquisition Regulations. The entire DoD contracting community will eventually have access.
- Bases contains data on U.S. military installations worldwide. Information typically includes size, location, numbers of civilian and military personnel, and the primary function of each installation. Plans include a bulletin board displaying planned trips to each installation.

[1] An emerging AIS which is not yet fully operational.

- The Case Action Management System (CAMS) is a database of Defense Acquisition Regulation case management, energy policy analysis, readiness assessment, and research and development.
- The Defense Industrial Network (DINET)[2] will collect, analyze, and evaluate information from many sources to assess the capabilities of various U.S. industrial sectors, monitor foreign sources, and detect constraints on production.
- The Defense Maintenance Information System covers the reliability and maintainability of common components used in DoD, and cost and production data associated with organic and contract field- and depot-level maintenance.
- The Defense Trade Balance Statistics System manipulates trade balance data from other databases to produce production charts that are distributed to Congress and others.
- The Installation Database contains base operating support costs for approximately 250 major military installations. The database is used to produce the Base Structure Report.
- Integrated Logistics Support (ILS) Database includes reliability and maintenance data, ILS data, cost data, and schedule and equipment characteristics.
- The International Logistics Database,[3] now being developed, will contain information about equipment of U.S. origin in foreign inventories, including follow-on support.
- The Interoperability Decision Support System (IDSS)[4] contains information on planned research and development activities of the United States and its allies. It is a prototype PC-based worldwide network which provides users with access to international arms acquisition and other industrial databases. Plans include communicating with 46 Offices of Defense Cooperation worldwide.
- The Logistics System Modernization Management Information System tracks milestones and accomplishments for the logistics automated system development program of each major DoD component. It provides a central repository of system descriptions, benefits, and cost data.

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[2]Ibid.

[3]Ibid.

[4]Ibid.

- The Management Information System for Spare Parts[5] will provide for the automated storage and retrieval of 25 linear feet of spare parts files.
- The Manufacturing Technology Program Data System (SIMON) combines manufacturing technology data maintained by all Military Services.
- The Nuclear Weapons Deployment Plan System gives the locations of nuclear weapons.
- The Nuclear Weapons Stockpile Plan (NWSP) lists nuclear weapons by weapon type and number.
- The Petroleum Disruption Response System (PDRS) will integrate a variety of petroleum product supply options, energy supply data, and statutory authorities predating 1973. It will support decision making during an energy crisis.
- The Test and Evaluation Information Support Capability (TEISC) prototype system has four subsystems. They are
  - Financial Management which manages PE funds controlled by the Test and Evaluation Directorate.
  - Weapons System Assessment which helps monitor and determine the status of significant weapon system acquisition programs.
  - Foreign Weapons Evaluation which supports the test and evaluation of foreign weapon systems and the assessment of their suitability for use by U.S. forces.
  - Live Fire Test which supports the testing of friendly and enemy weapon systems to represent actual fire from opposing forces.
- The Weapon System Supply Management System uses models to review supply system performance relative to weapon system effectiveness and assess the impact of this relationship on requirements and material budgets.

6.0 STAFF MANAGEMENT DATA

Data in this category is associated with the management of local staff resources in day-to-day operations. Personnel actions, equipment inventories, suspense tracking, document storage and retrieval, and office automation management are

[5]Ibid

supported by information in this category. OUSD(A) offices are primary users of two OSD-wide AISs supporting staff management data. The systems are

- OASIS.[6] OUSD(A) at present has many installed LANs that run Xerox Network Services (XNS) protocols on the Ethernet.[7] OUSD(A) awarded a competitive contract in 1989 to Contel Federal Systems as OSD's next generation (8-year life cycle) secure processing environment. Near-term planning for this network includes integration of many existing LANs into secure organizational networks using end-to-end encryption to support intercommunication among all OSD users. Classified and unclassified correspondence and electronic communications will be routed through the LAN facilities. Optical disk-based storage and retrieval systems and application support services can also be procured from this contract. Interface to wide area networks [such as the Automatic Digital Network (AUTODIN) through the Pentagon Consolidated Telecommunications Center System (PCTCS) and the Defense Data Network (DDN)] will extend communications to worldwide locations.

- Office Automation Computer System (OACS). OSD awarded to Electronic Data Systems an open-ended contract to provide principally unclassified workstations, decision support systems, and an Ethernet network which will run Transmission Control Protocol/Internet Protocol (TCP/IP). This network architecture will support unclassified users with Sun and Tandem PC equipment. OASD(P&L) is the largest OUSD(A) user of this equipment.

These two systems provide the primary support to OUSD(A) offices. Their LANs use the same computational and information preparation communication protocols but process different levels of classified information. Due to security restrictions, the systems do not interface with each other and only the OASIS will interface with the AMIS.

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[6]Ibid.

[7]Ethernet is a registered trademark of Xerox Corporation.

APPENDIX E

INFORMATION TECHNOLOGY BASELINE

1.0 INFORMATION PROCESSING RESOURCES

This appendix lists the major elements of the technology supporting the Office of the Under Secretary of Defense (Acquisition) [OUSD(A)] information requirements. This ensemble of computers, networks, and workstations comp ises the OUSD(A) information technology baseline.

- *Large-scale computing resources.* The Seventh Communications Group (7CG) is the principal data processing organization that supports large-scale computing requirements. The 7CG Top Secret MULTICS system holds the major Five Year Defense Plan (FYDP) corporate databases and runs analytical models for OUSD(A). Other 7CG computers support unclassified database applications. Most applications now hosted on MULTICS are being transferred to the OUSD(A) VAX 8350 (see departmental computing resources below) or to local area network (LAN) resources or to personal computers (PCs). A few will continue to be supported by the MULTICS replacement, the Headquarters Systems Replacement Program (HSRP). HSRP will provide an expanded, faster processing capability to support Air Staff and OSD needs.

- *Departmental computing resources.* The 7CG MULTICS is being replaced at a time when OUSD(A) requirements for large databases and analytical tools are increasing. Even after MULTICS is replaced, 7CG cannot satisfy all OUSD(A) demands for secure, distributed processing services. OUSD(A) has begun to acquire powerful processing capability with network connectivity.[1] Currently, these are the major departmental computing resources in OUSD(A):

  - A VAX 8550 in the remote computer facility (RCF) is used to maintain the Acquisition Management Information System (AMIS), generate charts and reports, prepare automated briefings, and provide executive decision support functions.

  - A VAX 8200 is used by the management control facility (MCF) to present computer-generated graphics for large screen display.

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[1]7CG provides on-site personnel to support computing needs in the Office of the Director, Program Integration and the Office of the Assistant Secretary of Defense (Production and Logistics).

- A Data General MV4000 supports the intelligence functions of the Office of the Assistant Secretary of Defense (Command, Control, Communications and Intelligence) [OASD(C3I)] Intelligence Resource Information System (IRIS) II system.

- A Wang VS65 computer supports the command, control, and communications functions of the OASD(C3I) Automated Resources Management System (ARMS).

The Special Projects Office (SPO) of the Defense Technical Information Center (DTIC) supports the Manufacturing Technology Program Data System (known as SIMON) and the Defense Industrial Network (DINET) on their VAX 11/780.

- *Office automation workstations.* The following are the primary types of workstations: professional workstations, word processors, personal computers (PCs), and terminals that are linked to the 7CG and OUSD(A) computers. Professional workstations, word processors, and PCs are placed in the work areas of primary users. Some are linked and some are stand-alone. Most terminals are in classified processing sites near the users' primary work areas. Terminals linked to the VAX 8550 are in the RCF. Terminals linked to the Wang VS65 are located in the OASD(C3I) Plans and Resources site. The majority of classified office automation (OA) work is produced on Xerox 8010 and 6085 workstations, stand-alone microcomputers including IBM and Zenith PCs, and stand-alone dedicated Lanier or Xerox word processors. The Lanier word processors are being replaced with Sun Microsystems. Unclassified work is produced on Xerox, Lanier, Sun, and IBM PC-compatible workstations.

  The most pervasive influence of information technology on OUSD(A) in recent years has been the augmentation or replacement of dedicated word processing systems with networked OA systems to improve support for idea processing, research, analysis, and high quality publications drafting by professional staff members and managers. New OA systems support professional functions, as well as traditional word processing. In many OUSD(A) offices, PCs which support professional functions are not linked to the office suite LAN nor are they compatible with the workstations that support word processing. However, both LAN systems have specific requirements to integrate these MicroSoft Disk Operating System (MS/DOS) resources into their overall architecture.

- *Information management centers.* The information management centers (IMCs) of OUSD(A) collects and distributes mail, manages and tracks suspenses, distributes Automatic Digital Network (AUTODIN) messages, and controls and archives documents. The level of automated support for these tasks varies within individual OSD components. Plans are to provide OUSD(A) with automated support and to link this IMC and others to their

major sources of correspondence and messages, the Washington Headquarters Services (WHS) Correspondence and Directives Center, and the Pentagon Consolidated Telecommunications Center.

- *Executive Decision Support Center.* The MCF is a shielded executive briefing and conference room in which the USD(A) and his Principal Staff Assistants receive briefings about budget and program information using computer graphics and audio visual systems for large screen display. It also serves as the OUSD(A) video teleconferencing center using the Defense Commercial Telecommunications Network (DCTN).

- *Local area networks.* Implementation of local area communications in OUSD(A) is under development. However, secure networks and communications links in OUSD(A) perform vital functions, and there is widespread user demand for growth in this area. So that users may access needed data and computing capabilities from their work areas, OUSD(A) is installing and enlarging internal networks. Several Pentagon LANs support OUSD(A):

  - The new OASIS contract provides secure Ethernet LANs running Transmission Control Protocol/Internet Protocol (TCP/IP). This LAN will support most OUSD(A) offices with a planned 3-year transition from the present Xerox environment using Xerox Network Services (XNS) protocols.

  - The Office Automation Computer System (OACS) LAN contract provides an Ethernet LAN running the TCP/IP. This supports the Office of the Assistant Secretary of Defense (Production and Logistics) [OASD(P&L)] users in a primarily unclassified environment. The XNS and TCP/IP protocols coexist on an unclassified LAN, with projects under way to permit file transfer, mail, and host log-in interoperability.

  - The encrypted links of 7CG provide secure communications between the OUSD(A) classified RCF site and the 7CG computer facilities; 7CG dial-up capabilities provide nonsecure links to 7CG computers.

  - OUSD(A) uses limited Datapoint ARCNET facilities to access the OSD Correspondence Control System.

  - Under the OASIS system, plans are to electronically transmit AUTODIN messages that arrive at the Pentagon Consolidated Telecommunications Center to the OSD Directorates to whom they are addressed. Users of the OASIS interface with the OUSD(A) IMC to access these messages from workstations connected to the LAN. Until fully implemented, the AUTODIN message handling requirements will continue to rely upon Joint Staff (JS) support.

- *Wide-area communications.* Wide-area communications capability is less developed in OUSD(A) than are local communications, and there is a similar user demand for expansion of services. OUSD(A) components communicate with organizations and databases outside the Pentagon in a variety of ways. Outbound message processing is provided through the JS Information Services Center. OUSD(A) subscribes to the Defense Data Network (DDN), DTIC's Defense RDT&E[2] On-line System (DROLS), and the DCTN. OUSD(A) is planning to add a secure teleconferencing capability to its MCF. Other users communicate from terminals installed specifically to communicate with external databases.

2.0 ARCHITECTURE

OUSD(A) has a limited, integrated technical architecture based on Ethernet LANs. There are presently several architectural concerns and initiatives. They are

- *Proliferation of incompatible hardware and software.* Plans are to phase out hardware and software which cannot be integrated into the overall architecture and to link OUSD(A) LANs to unlike equipment through gateways and other interfaces where needed.

- *The AMIS database management system (DBMS) structure.* Plans are to extend data access capability to the workstations of authorized users via the OASIS. The AMIS database has a relational architecture using Oracle

- *The ARMS DBMS structure.* Plans are to extend data access capability to the workstations of OASD(C3I) users via the OASIS. The ARMS database is of a customized Wang design.

- *The IRIS structure.* Plans are to complete processing modules for the loading and manipulation of IRIS' text database. The modules are still under development.

- *The OASIS architecture.* Plans are to establish an architecture and the related security features required to support classified OA needs of OUSD(A) offices. The OASIS architecture is compatible with the OACS architecture, using TCP/IP protocols, Sun network file system, and Ethernet communications where security procedures permit.

- *The OACS architecture.* This architecture is principally supporting unclassified OASD(P&L) OA needs using clustered PCs hosted on a Sun workstation. The OACS architecture does not contain the rigorous security features of the OASIS architecture.

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[2]Research, Development, Test, and Evaluation

APPENDIX F

INFORMATION SECURITY

1.0 SECURITY OVERVIEW

The increased use of microcomputers, for both classified and unclassified processing, emphasizes the need for policies and procedures regarding system security on small systems and networks. Washington Headquarters Services (WHS) has provided guidance on these topics in Administrative Instruction (AI)25, *OSD Automated Information System Security*, and AI26, *Information Security Supplement to DoDD 5200.1-R*.

AI26 states that "classified information shall be processed on accredited automated information systems (AIS) only" and that "the Director, Physical Security Division, Washington Headquarters Service, shall be the designated approving authority that accredits AIS to process classified information."

AI25 states that "each AIS" within the purview of the Director, Physical Security Division

> . . . shall have system security, continuity of operations, and risk analysis addressed These subjects can be covered in a single AIS Security Plan. System security shall be addressed in a security plan in which technical, administrative, personnel, and physical security measures shall be developed.

(Definitions of the terms "technical," "administrative," "personnel," and "physical security" are provided following this overview.)

In accordance with these instructions, all office suites in the Office of the Under Secretary of Defense (Acquisition) [OUSD(A)] must write a security plan to gain WHS accreditation. In many cases, such a plan simply documents existing procedures and system usage, and accounts for installed equipment. In some cases, operating procedures must be modified to obtain accreditation. Many suites in OUSD(A) have already written plans and gained accreditation. The outline of a sample plan is provided following this overview.

In March 1989, a contract was awarded for the installation of an Office Automation Secure Information System (OASIS) in OSD. The OASIS local area network (LAN) will link Xerox LANs already installed throughout the organization with new LANs for offices previously unsupported using network encryption technology. Initially, the OASIS will permit electronic communication only among the executive offices of OUSD(A); eventually, most suites in the organization will be interconnected. Because the new OUSD(A) organizational LAN will operate at the Top Secret level, existing LANs in OUSD(A) must eventually become authorized to operate at that level.

The functional manager of each office suite must protect classified information for that suite. A key requirement in all OUSD(A) suites is the appointment of an AIS security officer. A security officer, on behalf of the Functional Manager of the suite, bears the following responsibilities for protecting classified information processed in the suite:

- Ensure each person using AISs reads and understands the procedures for processing classified information
- Inventory and control all AISs in the suite
- Ensure AISs are reconfigured or rearranged only with his/her approval
- Report any AISs configuration, location, layout, or procedural changes to the proper OUSD(A) official
- Ensure the suite's AIS security plan is up-to-date
- Ensure the accreditation for classified processing on the AIS does not expire
- Ensure AIS hardware, software, and data are protected from theft or physical abuse and are used for official use only
- Maintain cognizance of all software used by AIS in the suite
- Report all suspected or actual security violations and AIS vulnerabilities to the proper authorities
- Manage communications security (COMSEC) account oversight for cryptographic material issues for use in his/her office suite (i.e., network encryption devices).

Information on preparation of AIS security plans, on obtaining WHS authorization, or on the responsibilities of a security officer can be obtained from Mr. John Collier, Office of the Director, Program Integration, Information Systems [ODPI(IS)], 695-6451.

2.0 DEFINITIONS[1]

2.1 Administrative Security

The management constraints, operational procedures, accountability procedures, and supplemental controls established to provide an acceptable level of protection for sensitive data. This term is synonymous with "procedural security."

2.2 Personnel Security

The procedures established under the Personnel Security Program to ensure all personnel who have access to any sensitive information have the required need to know as well as the appropriate clearances.

2.3 Physical Security

(1) The use of locks, alarms, guards, badges, and similar measures to control access to computers, communications, and related equipment; (2) the measures required for the protection of the structures housing the computer, related equipment, and their contents from damage by accident, fire, and environmental hazards.

2.4 Technical Security

Those measures, not administrative, personnel, or physical in nature, used to protect the system and its information. This may include COMSEC, emanations security (TEMPEST), operating system enhancements (trusted software), etc.

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[1] Source: AI25.

3.0 OUTLINE OF SAMPLE AIS SECURITY PLAN

AIS security plans written for OUSD(A) directorates and approved by WHS have been organized in the following way:

3.1 Plan Summary

1. *Executive Summary*

2. *Operational Description*
   Hardware, Positioning, Layout, Communications, Software

3. *Security Environment*
   Facility, Information, Personnel

4. *Security Description*
   Communications Security, Emanations Security, Computer-Based Security, Administrative Security, Information Security, Operational Security, Personnel Security, Physical Security

3.2 Appendices

A. *AIS Inventory*
   Inventory of all AIS equipment installed in the suite including security level and time usage by classification

B. *AIS Configuration*
   Floor plan of the suite showing location of all AIS equipment, administrative phones, and secure phones

C. *Security Overview*
   Additional information on topics in the Plan Summary, including environment, communications, and LAN security, as well as emergency procedures and security guidelines developed by the President's Council on Integrity and Efficiency

D. *AIS Operating Procedures*
   Procedures for set-up and processing of classified information; declassification of personal computers; transfer of media; AIS maintenance, marking, safekeeping, and storage; and end user AIS manager responsibilities

E. *Continuity of Operations Plan*
   Procedures and policy for processing in the event of damage or failure of AIS components or software

APPENDIX G

OFFICE OF THE UNDER SECRETARY OF DEFENSE (ACQUISITION) STUDIES WITH INFORMATION RESOURCE MANAGEMENT IMPLICATIONS

1.0 PURPOSE

This appendix provides, in Table G-1, a list of studies directed by OSD which have the potential to impact information resources of the Office of the Under Secretary of Defense (Acquisition) [USD(A)].

2.0 SCOPE

This appendix includes studies funded in FY89. These studies were requested by the Office of the Director, Defense Research and Engineering (ODDR&E); the Office of the Assistant Secretary of Defense (Production and Logistics) [OASD(P&L)]; and the Office of the Director, Program Integration (ODPI). All studies listed will result in an information technology (IT) product or a recommendation about an IT product.

TABLE G-1

STUDIES WITH IRM IMPLICATIONS

Study	Requester	FY89 funds ($000)
Evaluation of DoD Information Analysis Center	ODDR&E	205 (RDT&E)
Concept for an International Decision Support System	OASD(C3I)	200 (RDT&E)
Environmental Analysis Database	OASD(P&L)	250
Current/Future Functional/Technical Architecture and Database	OASD(P&L)	450
Interoperability/Standardization	OASD(P&L)	400
P&L Command and Control Architecture	OASD(P&L)	100
Information Engineering Guidelines	OASD(P&L)	75
P&L Technology Forecast	OASD(P&L)	50
Implementation of Electronic Data Interchange (EDI) DoD Transportation	OASD(P&L)	300
Electronic Processing of Transportation Vouchers	OASD(P&L)	300
Artificial Intelligence for Logistics	OASD(P&L)	100
Electronic Interface/Contract Process	OASD(P&L)	150
Local Area Network Encryption Technology	ODPI	250 (RDT&E)
Acquisition Management System Data Base	ODPI	220
Major Programs Book Preparation	ODPI	60
Defense Acquisition Executive Summary – AWP Data Support	ODPI	75

Notes: All study funds are expressed in $000 of operations and maintenance funds unless otherwise noted OASD = Office of the Assistant Secretary of Defense; C3I = Command, Control, Communications and Intelligence; P&L = Production and Logistics; RDT&E = research, development, test, and evaluation.

APPENDIX H

OFFICE OF THE UNDER SECRETARY OF DEFENSE (ACQUISITION) INFORMATION PROJECTS

1.0 OFFICE OF THE SECRETARY OF DEFENSE TECHNOLOGY PROGRAMS

The Office of the Under Secretary of Defense (Acquisition) [OUSD(A)] information technology (IT) projects are aligned with aggregate programs which reflect the major areas of IT activity in OSD. The aggregate projects are grouped in these four OSD IT programs:

- *Program 01, OSD Component Mission Support.* This program supports OSD component missions providing a broad range of information processes and applications across a variety of hardware/software systems. The focus is to promote productivity in performing missions and functions unique to a component. The program provides funds for program/budget systems, major OSD databases, analyses, modeling, and software development. It also supports application of new technology for principal staff offices and contract MULTICS software conversion. It includes 14 aggregate projects.

- *Program 02, Office Automation and Networking.* This program supports the exchange of compatible information within and among OSD organizations. It provides gateway and interoperability interconnectivity links between systems. Its three aggregate projects support both secure and non-secure office automation (OA), local computers, networking, and cabling.

- *Program 03, OSD Operational/Management Support.* This program provides large mainframe computer resources support to OSD by the Seventh Communications Group (7CG), including support for conversion of OSD computer systems to the new 7CG Headquarters Systems Replacement Program (HSRP). It also provides application and prototype development, facilities management, and those functions needed to operate and maintain installed information resources. It provides funds for information resource management (IRM) planning, decision support systems, and Request for Proposal development. It includes four aggregate projects.

- *Program 04, Automatic Data Processing (ADP) Maintenance.* This program supports maintenance of ADP and related systems in OSD. It includes one aggregate project.

1.1 Program 01, OSD Component Mission Support

OUSD(A) projects are funded in 9 of the 14 aggregate projects in Program 01. The OUSD(A) activities which each aggregate project supports are described in this section.

- *DSS104; P&L Analyses, Models, and Software Development* provides support for systems analysis, modeling, and software development unique to the mission requirements of the Office of the Assistant Secretary of Defense (Production and Logistics) [OASD(P&L)] within OUSD(A). The project includes support for microcomputer applications and software, the Readiness Decision Support System for Unit Force Readiness, the Installation Database and its Congressional Base Structure Report, the proposed International Logistics Database, the Defense Maintenance Information System for field and depot maintenance, weapon systems supply management software, and Office Automation Computer System (OACS) OA enhancements.

- *DSS107; Technical and Systems Engineering* provides support for cataloguing OUSD(A)'s ADP hardware and applications systems, evaluating ADP systems' performance, accomplishing requirements analyses and planning, and providing technical guidance and consulting support for applications development. It supports the transition from the existing ADP environment to an improved future ADP environment in OUSD(A) by providing funds for design and engineering of interoffice local area networks (LANs), including integration of new equipment with existing personal computers (PCs), LANs, and minicomputers; establishing PC connections with existing LANs; and unifying the network of the Executive Office of the USD(A). It also supports user training and OUSD(A) access to the OSD legislative tracking system.

- *DSS108; RE Systems Improvement* provides OUSD(A) maintenance support for the management control facility (MCF) hardware, software, and networking. It funds the purchase of additional Defense Commercial Telecommunications Network (DCTN) equipment in support of expanded teleconferencing operations which link the MCF with the Cameron Station earth station for satellite links supporting teleconferencing and other data transmission.

- *DSS109; Programming, Budgeting, and Financial Support Systems* provides Acquisition Management Information System (AMIS) support services to track, correlate, evaluate, and recommend the allocation of resources to satisfy DoD requirements. Major project resources are allocated to integrating the Comptroller's planning, programming, and budgeting system (PPBS) databases [e.g., the Five Year Defense Plan (FYDP); research, development, test, and evaluation (RDT&E) annex; procurement annex; and

distributed systems, including the Digital Equipment Corporation (DEC) VAX 8550 and workstations to support the Defense Acquisition Executive Summaries (DAES) reporting system throughout DoD].

- *DSS109A; Component Program Budget Projects* provides a database management system (DBMS) for intelligence and one for command, control, and communications applications unique to the mission requirements of the Office of the Assistant Secretary of Defense (Command, Control, Communications and Intelligence) [OASD(C3I)] within OUSD(A).

- *DSS111; Acquisition Management Information System* provides funds for AMIS. It supports the purchase of system hardware and software upgrades to VAX 8550, 8200, and Micro-VAX computers to increase capability for expanded mainframe operations through interface with OUSD(A)'s secure LAN. It provides contractor support for the development of enhancements to AMIS, corporate DBMSs, and graphics software; and for development of system and applications software to allow sharing of AMIS data on the OUSD(A) OASIS. The program also funds the automated information systems (AISs)' resources and specialized software for DAES system action officers used within OSD and Military Services.

- *DSS113; New Technology Applications* provides funds for the OASD(P&L) Office of the Future, including evaluating an optical disk-based storage and retrieval system for spare parts management and for artificial intelligence applications.

- *DSS114; Petroleum Issues Analysis* supports defense petroleum issues analysis by providing funds for the Petroleum Quality Data System; Petroleum Disruption Response Analysis; Petroleum, Oil, and Lubricants (POL) Distribution Model; Fuels Producibility Analysis; and Energy Information Analysis.

- *DSS115; Industrial Databases and Networks* supports defense industrial base analysis by providing funds for the Defense Industrial Network (DINET), the Manufacturing Technology Program, and the Industrial Productivity Computer system.

1.2 Program 02, Office Automation and Networking

OUSD(A) projects are funded in all three of the aggregate projects in Program 02. The OUSD(A) activities which each aggregate project supports are described in this section.

- *DSS201; Secure Office Automation Projects* provides the capital investment required to purchase secure OA networks. For OUSD(A), this funds hardware, software, and related services for workstations, print servers, laser printers, communications/file servers, network DBMS host, document

storage and retrieval system, Pentagon Consolidated Telecommunications Center System (PCTCS) message processor system, network control system, and encryption devices purchased via the OSD Secure Office Automation Local Area Network (SOA/LAN) contract and its replacement, the Office Automation Secure Information System (OASIS) contract. It provides funds for upgrading the Data General MV4000 which hosts the Intelligence Resource Information System (IRIS) for OASD(C3I).

- *DSS202; Office Automation* provides OA capabilities primarily in the non-secure environment. It includes stand-alone workstations, clustered workstations, and clusters in local networks. It also funds support of OA, administrative support, electronic mail, and records management.

  DSS202 also supports time-sharing for OUSD(A) users of the Defense Technical Information Center (DTIC) and the Defense Data Network (DDN), and access to econometric databases for economic analysis systems. It provides support for TECNET, LEGI-SLATE, and for the Military Network (MILNET)/Advanced Research Projects Agency Network (ARPANET) accounts for the Defense Science Board and others.

- *DSS203; Networking and Cabling Projects* provides analysis of requirements for gateway access from OUSD(A) LANs to the Joint Staff, the Defense Intelligence Agency, the National Security Agency, and other databases with important information.

1.3 Program 03, OSD Operational/Management Support

OUSD(A) projects are included in all of the aggregate projects in Program 03. The OUSD(A) activities which each aggregate project supports are described in this section.

- *DSS301; Large Scale Computer Support* funds the 7CG functions and services that provide mainframe computer time, programming, network support, and systems administration. It provides analysis and design of knowledge-based and expert system techniques for acquisition data and consideration of financial alternatives during the planning, programming, and budgeting system (PPBS) cycle.

- *DSS303; AF Conversion Support for HSRP* provides systems analysis and programming for transition planning for HSRP. It also provides development of computer programs on the HSRP to allow OSD databases to be uploaded from and downloaded to the departmental systems such as OUSD(A)'s VAX 8550. Provides conversion of applications software databases on MULTICS to HSRP for those classified systems/databases shared with other OSD components.

- *DSS304; IRM Planning, DSS Systems and RFP Development* provides contractor services for IRM planning. It also funds payments for the engineering, contracting, and technical assistance needed to administer the OASIS contract for the program office within OUSD(A) Program Integration/Information Systems.

1.4 Program 04, Automatic Data Processing (ADP) Maintenance

DSS401; Maintenance provides support for all OUSD(A) maintenance except some maintenance associated with AMIS and MCF equipment and software separately addressed.