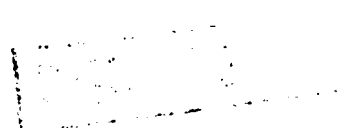AD-A235 171

Development of a USMC Officer Assignment Decision Support System: Project Management Plan

Robert E. Chatfield
Stephanie A. Gullett

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13. ABSTRACT *(Maximum 200 words)*
This Project Management Plan was completed as part of the Life Cycle Management (LCM) process for development of an Officer Assignment Decision Support System (OADSS) for the United States Marine Corps. This document summarizes tasks required to develop OADSS, provides a tentative schedule for milestone deliveries, and discusses resources required throughout the system's life cycle. The five sequentially completed phases of the LCM process are discussed: (1) Mission Analysis/Project Initiation Phase, (2) Concept Development Phase, (3) Definition/Design (DEF/DES) Phase, (4) Development Phase, and (5) Deployment/Operations Phase. The report also summarizes documents associated with each phase that facilitate management accountability and program coordination throughout OADSS' life cycle. It is recommended that a General Design Specification be completed as the next stage in the DEF/DES Phase of system development.

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FOREWORD

This report describes a management plan for development of the Officer Assignment Decision Support System (OADSS) designed to improve officer assignment procedures in the United States Marine Corps (USMC). Among deficiencies in the current assignment system are the labor-intensive review of hard copy-based information, need for a comprehensive and centralized database, and lack of standardization among officer Monitors in their assignment strategies. Monitors critically need interactive, computer-based support for assignment decisions because of the volume of assignment-related information available and the vast number of assignment alternatives to be weighed. This project management plan provides detailed information about tasks required to develop OADSS, a schedule for completion of those tasks, and discusses resources required in the life cycle of OADSS.

This is the sixth in a series of reports that detail the "concept development" and "definition and design" phases of the USMC Life Cycle Management (LCM) process associated with OADSS. The research was conducted under program element 060732M, work unit number M5402688W-RRD8FY, Marine Corps Decision Support System for Officer Assignment, sponsored by the Manpower Systems Development and Integration Branch (MI-40). This report is identical to the Project Management Plan that was submitted to MI-40 in April 1986 but has been reorganized to promote readability. The present report has been completed to provide a guide for other researchers tasked with drafting LCM documentation and is an important addition to the technical archives. Future publications will include a General Design Specification and a Detailed Design Specification.

JULES I. BORACK
Director, Personnel Systems Department

PRIOR OFFICER ASSIGNMENT DECISION SUPPORT SYSTEM PUBLICATIONS

Chatfield, R. E. (1988). *Development of a USMC officer assignment decision support system: Needs assessment* (NPRDC-TN-88-50). San Diego: Navy Personnel Research and Development Center. (AD-A198 353)

Chatfield, R. E., & Gullett, S. A. (1989). *Development of a USMC officer assignment decision support system: Feasibility study* (NPRDC-TN-89-14). San Diego: Navy Personnel Research and Development Center.

Chatfield, R. E., & Gullett, S. A. (1989). *Development of a USMC officer assignment decision support system: Economic analysis* (NPRDC-TN-89-36). San Diego: Navy Personnel Research and Development Center.

Chatfield, R. E., & Gullett, S. A. (1989). *Development of a USMC officer assignment decision support system: Functional description* (NPRDC-TN-89-32). San Diego: Navy Personnel Research and Development Center. (AD-A213 310)

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SUMMARY

Background

Due to the vast amount of assignment-related information to be considered and the number of assignment alternatives to be weighed, officer Monitors need support in their decision-making process. It is anticipated that a user-friendly, interactive Officer Assignment Decision Support System (OADSS) will help Monitors better implement United States Marine Corps staffing policy, significantly reduce their clerical workload, and enhance the match of officers to billets.

Objectives

The objectives of the Project Management Plan (PMP) were to: (1) present tasks required to develop the OADSS, (2) provide a schedule for completion of those tasks and accompanying project milestones, and (3) discuss resources required in the life cycle of OADSS. While tasks and schedules were presented for subsequent stages in the life cycle, this information should not be construed as finalized. As tasks, priorities, and other project components will evolve and change throughout the life cycle, it is impossible to forecast future plans with any high degree of certainty.

Overview of OADSS Life Cycle Management (LCM) Process

An important aspect of the LCM process is to establish a guide for identifying and scheduling resource/data requirements for system implementation. The LCM process is comprised of five phases that are carried out sequentially: (1) Mission Analysis/Project Initiation (MA/PI) Phase, (2) Concept Development (CONDEV) Phase, (3) Definition/Design Phase (DEF/DES), (4) System Development Phase, and (5) Deployment/Operations (DEP/OPS) Phase. This report summarizes documents associated with each phase that facilitate management accountability and program coordination throughout the entire OADSS life cycle.

Mission Analysis/Project Initiation Phase

Tasks associated with the MA/PI Phase of the LCM process were completed prior to the drafting of the original PMP and are only briefly described here for planning continuity and historical value. The key document in this phase was the Mission Element Needs Statement that describes deficiencies in the current system and provides alternative solutions.

Concept Development Phase

Tasks associated with the CONDEV Phase are primarily related to the areas of project management and system documentation. Preparation of a PMP, Requirements Statement, Feasibility Study/Economic Analysis, Preliminary Support Analysis, System Decision Paper I and funding support documents were discussed.

Definition/Design Phase

Tasks associated with the DEF/DES are primarily related to project management and system design. This entails preparing new documents as well as updating those previously produced. For clarity, the definition and design components were divided into two subphases and major tasks

associated with each subphase were outlined. Key documents in this phase include a Functional Description, Data Requirements Document, and System Specifications.

Development Phase

Tasks associated with the Development Phase are primarily related to developing and integrating system software and evaluating system performance in a test environment. Additional tasks include updating previous support plans and revising the Economic Analysis and other budget documents to facilitate a smooth transition to the DEP/OPS Phase. Details of program testing and writing of system documentation were summarized. Key documents in this phase include a Users Manual, Maintenance Manual, and Test Analysis Report.

Deployment/Operations Phase

The DEP/OPS Phase entails implementing OADSS in accordance with the support plans previously developed. During this time, OADSS will be fully operated, maintained, and periodically modified where necessary. For clarity, the deployment and operations components were divided into two subphases. System implementation procedures and associated system documentation were discussed. Reviews will be periodically conducted beginning 1 year after full implementation to assess the functionality of the system, confirm cost-effectiveness, and evaluate the system's design and operation efficiency.

Recommendations

The following recommendations are made:

1. A General Design Specification should be completed as the next stage in the "definition and design" phase of system development.

2. A "rapid prototyping" approach to subsystem development should be undertaken as means of minimizing system development time and ensuring the active participation of end users.

3. Representatives from the Marine Corps Central Design and Programming Activity, Quantico, should work very closely with Officer Assignment Branch and Navy Personnel Research and Development Center in the DEP/OPS Phase to facilitate the link between OADSS and the existing mainframe database management system, ADABAS NATURAL.

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INTRODUCTION

Background

The mission of the Officer Assignment Branch (MMOA),[1] located at Headquarters, United States Marine Corps (HQMC) is to administer assignment of all Marine Corps officers (colonel and below) in accordance with regulations, approved assignment policies, and criteria of the Commandant of the Marine Corps (CMC). Functions carried out in support of this mission include: issuing travel orders; classifying/reclassifying officers in occupational specialties; and assigning officers to career, intermediate, and top level schools. The individuals within MMOA who make assignment decisions (subject to approval by higher authority) are referred to as officer "Monitors." Monitors have a very difficult job in that they are expected to accommodate both the manning requirements of the Marine Corps and the career/personal needs of officers via the assignment process. Performing this task requires concurrent consideration of the job dimensions of available billets and the skills and attributes of officers being assigned.

Monitors' first consideration in staffing is the "fill" of available billets while the next is the "fit" of officers to specific billets based upon their education, work experience, Military Occupational Specialty, etc. The process of reaching an assignment decision may involve accessing on-line personnel databases such as the Joint Uniform Military Pay System/Manpower Management System (JUMPS/MMS), reviewing Officer Fitness Reports on microfiche, talking with constituents in person or on the telephone, or reviewing a number of other relevant sources of information. In conjunction with this, Monitors must also be mindful of established staffing policy, United States Marine Corps (USMC) manning levels, and the career development needs of individual officers when weighing assignment alternatives.

The idea for establishing an Officer Assignment Decision Support System (OADSS) came about because it was evident that Monitors need support in their decision-making process due to the vast amount of assignment-related information to be considered and the number of assignment alternatives to be weighed. It is anticipated that a truly user-friendly, interactive Decision Support System (DSS) will help Monitors better implement USMC staffing policy, significantly reduce their clerical workload, and enhance the match of officers to billets.

The original effort to develop a DSS for Monitors was carried out by a contractor as part of the Officer Precise Personnel Assignment System in 1979. However, this work stressed an optimization approach to officer assignment and was terminated in the early concept development (CONDEV) phase of the Life Cycle Management (LCM) process. A subsequent contractor effort to build OADSS, in 1981, was also terminated in the CONDEV phase as it also relied too heavily upon optimization techniques and was not sufficiently interactive. Both of these attempts were doomed to failure as the Marine Corps objected to any "black box" (i.e., optimization) approach perceived to automate the assignment process. The goal was to *support* Monitors in their decision-making, not to make assignment decisions for them.

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[1] In the interest of readability and to facilitate comprehension, the terms, definition, and acronyms used throughout this document are presented in Appendix A.

The idea for developing the OADSS lay dormant until 1985 when support for a third attempt at system development became available at the Navy Personnel Research and Development Center (NPRDC). The project sponsor, the Manpower Systems Development and Integration Branch (MI-40), specified that system design be carried out by Personnel Research Psychologists rather than Operations Researchers or Computer Specialists under the assumption that this would avoid yet another optimization-oriented approach that would prove unacceptable to the CMC. Also, it was MI-40's assumption that the psychologists could better assess Monitors' needs and translate them into design of a system that was easy to access and truly user-friendly.

In compliance with the USMC Life Cycle Management for Automated Information Systems (LCM-AIS), Marine Corps Order (MCO) P5231.1, a Project Management Plan (PMP) was submitted to MI-40 in April, 1986. This current technical note is based upon the PMP submitted to MI-40 and has been completed to provide a guide for other researchers tasked with drafting LCM documentation.

Objectives

The objectives of the PMP were to: (1) present tasks required to develop the OADSS, (2) provide a schedule for completion of those tasks and accompanying project milestones, and (3) discuss resources required in the life cycle of OADSS. As the plan is designed to serve as the primary reference for system development, cross-referencing of MCOs and other project-related documents is necessary only to provide a greater level of detail than is presented here. It must be noted that tasks, schedules, and resource requirements presented are valid only for the "concept development" phase. While tasks and schedules are presented for subsequent stages in the life cycle, this information should not be construed as finalized. As tasks, priorities, and other project components will evolve and change throughout the life cycle, it is impossible to forecast future plans with any high degree of certainty. The plan will be updated throughout the system's life cycle as tasks and schedules become more concrete.

Project References

The following references contain information pertaining to the PMP:

1. **Mission Element Needs Statement for the Development of the Officer Assignment Decision Support System (MENS-OADSS)**, Navy Personnel Research and Development Center, 1 August 1985. This document states the mission needs based upon current problems.

2. **Life Cycle Management for Automated Information Systems (LCM-AIS)**, MCO P5231.1, 9 August 1983. This MCO establishes policies, procedures, and regulations governing the development, operation, and management of AIS.

3. **Automated Data Systems (ADS) Documentation**, Department of Defense (DoD) Standard 7935, 15 February 1983. This document provides DoD guidelines for the development and revision of documentation for ADSs and describes technical documents to be produced throughout the life cycle of an ADS.

4. **Department of the Navy Automated Data Systems Documentation Standards, (SECNAVINST 5233.1B).**

5. **Requirements Statement for the Development of the Officer Assignment Decision Support System (RS-OADSS),** Navy Personnel Research and Development Center, 30 October 1985. This document states the procedures required to correct deficiencies cited in the MENS.

Project Orientation

The goal of the OADSS is to provide officer Monitors with assistance in assigning approximately 20,000 active duty Marine Corps officers to available billets. OADSS is a broad-based effort that will make Monitors' jobs easier while also ensuring that the subjective, "human touch" in assignment-making is maintained. The computer-based system will be designed to *support* Monitors' decision-making and will not automate officer assignment. Besides enhancing computer-based ad hoc query and data retrieval capabilities, OADSS will include improved Monitor training and an interactive method of updating the Officer Staffing Goal Model (OSGM) dictionary. Potential areas of improvement to be addressed by OADSS are:

1. Streamlined and simplified procedures for updating the OSGM dictionary.

2. Development of specialized training materials and instructional programs for officer Monitors.

3. Expanded availability of computer-based decision support informational resources, to include data elements critical for assignment decision-making not presently available.

4. Support for system user (SU) ad hoc query, retrieval, and manipulation of data elements.

5. Versatile report generator that can support timely, accurate management reports and special statistical analysis requests.

6. Reduction in duplication of effort and reliance on time-consuming, manual procedures existing in the present system.

7. Increased responsiveness of the computer system supporting Monitor activities.

8. Provision of easy to use procedures for accessing data elements, downloading/uploading of files, and other computer-oriented activities.

9. Improved security and control over access to sensitive information such as performance evaluation data.

10. Easy to use procedures for maintaining and upgrading system hardware/software.

11. Introduction of inter-office communications (e.g., electronic mail).

12. Development of simple, systematic procedures for file backup/recovery and restart in the event of system failure.

Project Scope

The major emphasis of OADSS development is to provide Monitors with computer-based decision aids for carrying out officer assignment. The scope of this effort includes developing an interactive DSS, an upgraded OSGM dictionary update procedure, and improved training materials. Thus, OADSS is a broad-based effort addressing the needs of MMOA in several areas.

The following constraints must be considered, however, in system design, programming, and implementation.

1. As components of OADSS are currently operational on Control Data Corporation and Marine Corps Central Design and Programming Activity (MCCDPA) computers, any procedural modifications must be integrated with existing practices. No loss of operational capability for the Manpower Department can be permitted due to the operational tempo of the assignment process.

2. Any improvements to the officer assignment process must continue to meet applicable laws as prescribed by applicable DoD and Department of the Navy regulations.

3. Security considerations must meet or exceed that now used in the Officer Slate File (OSF) and OSGM systems. Update of information currently in personnel databases must be made via the approved input mechanisms for these databases.

4. In order to avoid data redundancy, OADSS databases should access AIS whenever possible. Examples of such systems are the Manpower Requirements Allocation System and the JUMPS/MMS. Future plans will require full integration of the data used by OADSS within the Real Time Finance and Manpower Management Information System (REAL FAMMIS).

OVERVIEW OF OFFICER ASSIGNMENT DECISION SUPPORT SYSTEM (OADSS) LIFE CYCLE MANAGEMENT (LCM) PROCESS

The OADSS project conforms with regulations/directions of the DoD and the Department of the Navy and Marine Corps concerning LCM-AIS. Figure 1 presents the standard LCM-AIS process under which the OADSS will be designed, developed, tested, implemented, and maintained. An important aspect of the process is to establish a guide for identifying and scheduling resource/data requirements for system implementation. In addition, the LCM documents facilitate management accountability and program coordination throughout the entire OADSS life cycle.

Phases in the Life Cycle Management Plan for Automated Information Systems (LCM-AIS) Process

The LCM process is comprised of five phases that are carried out sequentially. The following sections will discuss the purpose and responsibility for completion of each of the phases. As a discussion of the documents associated with each phase is beyond the scope of this technical note, the reader is referred to MCO P5231.1 for additional information.

1. *Mission Analysis/Project Initiation (MA/PI) Phase.* The purpose of this initial phase in the LCM process is to identify mission element need, validate that need, and suggest different functional methods to address the need. This phase was effectively completed with approval of the MENS.

2. *Concept Devel*̣*pment (CONDEV) Phase.* The purpose of this phase is to define the functional requirements (both technically and operationally), assess various alternatives to correct deficiencies, and to recommend one or more feasible alternatives for further investigation. This phase is completed upon approval of the concept in the System Decision Paper I (SDP I).

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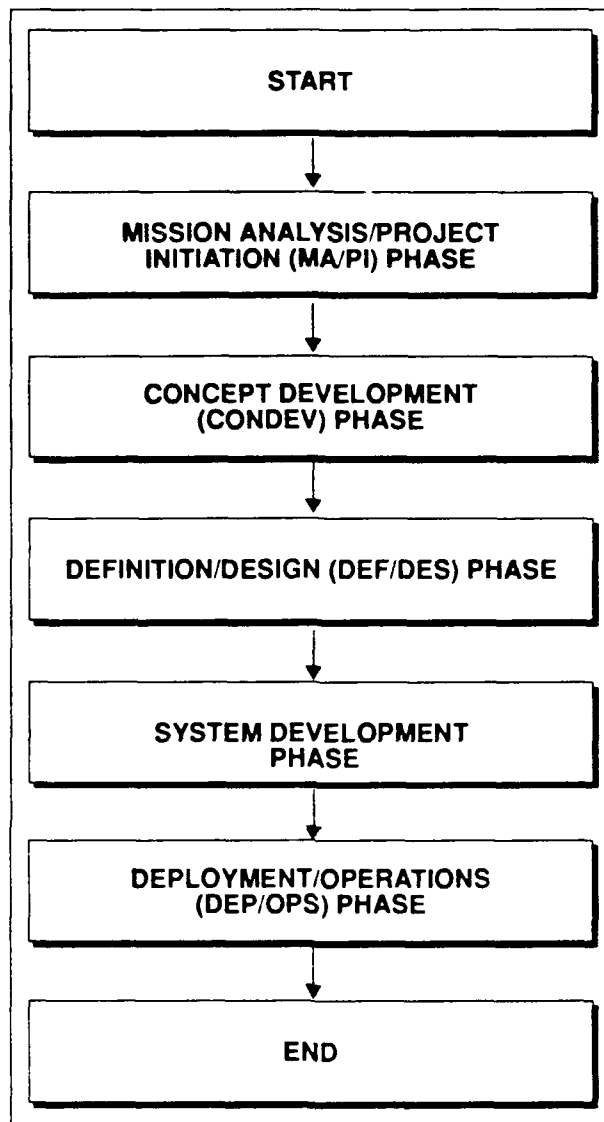
Figure 1. Phases in life cycle management for automated
information systems (LCM-AIS).

3. *Definition/Design (DEF/DES) Phase.* The purpose of this phase is to define the system's functional requirements and to derive the technical methodology to be applied in system design. This phase is completed upon formal approval of definition and design concepts in the System Decision Paper II (SDP II).

4. *System Development Phase.* The purpose of this phase is to develop, integrate, test, and evaluate the system. Completion of the phase is signaled by the Functional Manager certifying that the mission element needs have been met and subsequently approving implementation of the system.

5. *Deployment/Operations (DEP/OPS) Phase.* The purpose of this phase is to implement, operate, and maintain the OADSS during its life cycle.

Life Cycle Management for Automated Information Systems (LCM-AIS) Documentation

The LCM-AIS process requires that a variety of documents be prepared to facilitate resource planning/allocation and project management. This documentation covers the system from initial concept to actual field implementation and provides a methodology to verify that the system has met mission element needs. Documentation can be classified into three categories: (1) system decision, (2) project management, and (3) system documentation. Figure 2 provides examples of specific documentation under each category. It should be noted, however, that the number and type of documents to be completed is primarily contingent upon the project's funding threshold. The three categories of documentation are briefly discussed below:

System Decision Documentation	Mission Element Needs Statement (MENS) System Decision Papers (SDP I, II and III)
Project Management Documentation	Project Manager Charter (PMC) Project Management Plan (PMP) Funding Support Documents (FSD) Test Plan (TP) Implementation Plan (IP) Training Support Plan (TRP) Telecommunications Support Plan (TSP) Automated Data Processing Equipment (ADPE) Support Plan (ASP)
System Documentation	Requirements Statement (RS) Feasibility Study (FS) Preliminary Support Analysis (PSA) Economic Analysis (EA) Functional Description (FD) Data Requirements Document (DRD) System Specification (SyS) Program Specifications (PS) ADPE Specifications (AS) Users Manual (UM) Operations Manual (OM) Maintenance Manual (MM)

Figure 2. Examples of life cycle management for automated information systems (LCM-AIS) documentation by category.

1. *System Decision Documentation.* System decision documents are prepared for approval (at the appropriate level) as major project milestones are met. Approval of such documents are required in order to proceed to the next step in system development.

2. *Project Management Documentation.* Project management documents are prepared to indicate how the system development effort is to be carried out. These documents address such topics as resource requirements (manpower and equipment), funding, tasks and milestones to be accomplished, and scheduling of work.

3. *System Documentation.* System documents are prepared to describe the design, integration, implementation, and usage of the system. This documentation is very detailed and contains a great deal of technical information required for system maintenance.

Project Schedule

OADSS development is scheduled to be carried out from fiscal year 1985 to fiscal year 1988 (FY85-FY88), covering approximately 3.5 years of effort. While scheduling in the PMP appears to be quite detailed, dates beyond the CONDEV phase must be considered *tentative*. As plans become more concrete, the plan will be modified to reflect changes in scheduling orientation. Figure 3 presents a time-line depiction of the OADSS project in terms of estimated start and completion dates for each of the LCM phases. This tentative schedule is also summarized in tabular form in Figure 4.

Project Management

Responsibility for managing the OADSS project is delineated below:

1. *Functional Manager.* The functional manager for the OADSS is the Deputy Chief of Staff for Manpower (DC/S for MPR), Headquarters, U.S. Marine Corps, Washington, DC.

2. *System Sponsor (SS).* The SS is MI-40, within the Manpower Plans and Policy Division (MPI). Responsibilities include management of the OADSS effort, under cognizance of the functional manager, and establishment of OADSS requirements.

3. *System Users (SUs).* SUs will be represented by personnel in MMOA.

4. *Steering Group.* The steering group will only be convened to provide general guidance and to assist in resolution of problems that cannot be resolved through normal HQMC staffing procedures. The steering group consists of:

Chairman: Head (MI-40)

Members: Head (MMOA)
Head, Information Systems Support and Management Branch (CCI)
Director (MCCDPA), Quantico, Virginia
Program Manager, REAL FAMMIS Program Office

5. *Project Team.* Project management is considered part-time work for the project team so responsibility falls mainly upon the SS for this system, MI. These responsibilities should be regarded as an additional duty when they fall outside of the normal organizational functions. The project manager's (PM's) duties and responsibilities are defined in the OADSS Project Manger Charter (PMC). The following project team has been established:

Project Manager:	LtCol G. C. Axtell, Head (MI-40)
Asst. Project Manager:	LtCol D. M. Mize (MMOA-3)
MMOA Representative:	Maj D. R. Hundley
MPI Representative:	To be determined
CCI Representative:	To be determined
MCCDPA Representative:	To be determined
REAL FAMMIS Coordinator:	To be determined
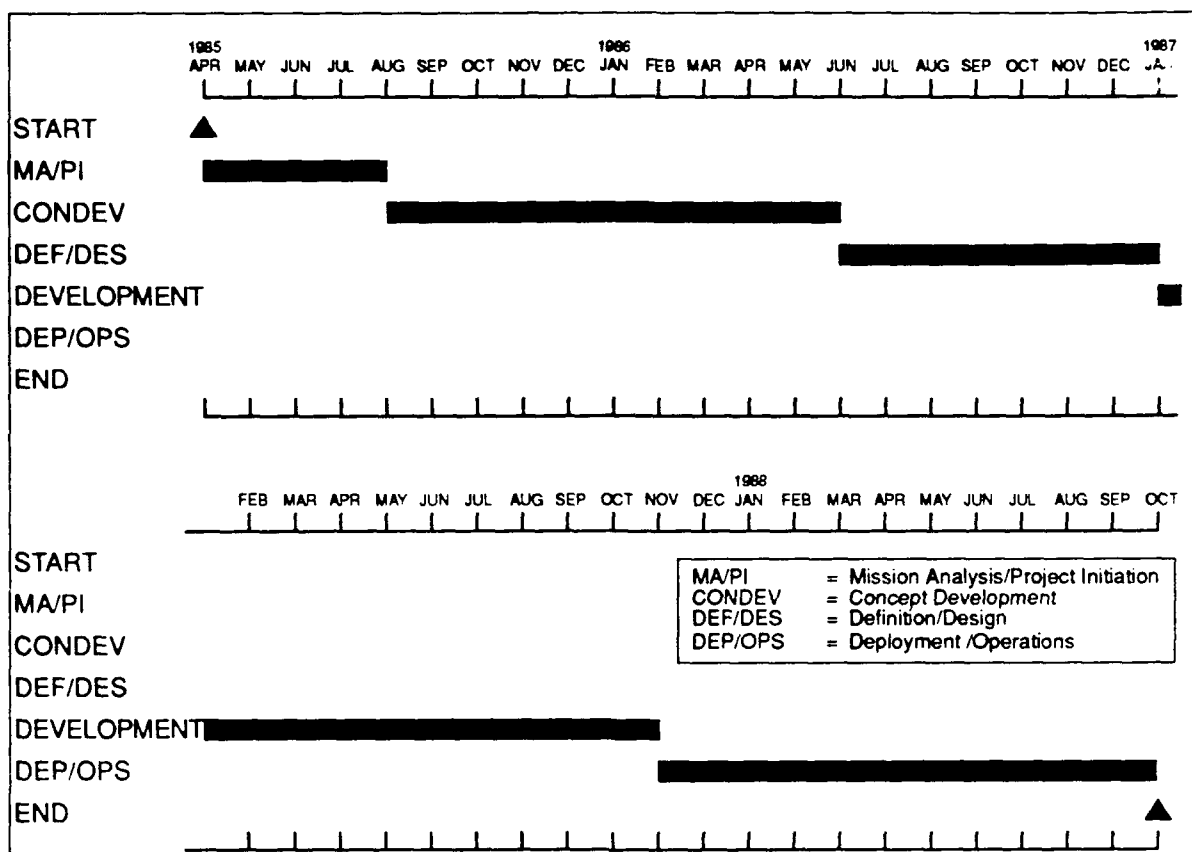
Figure 3. Officer assignment decision support system (OADSS):
Life cycle management (LCM) timeline.

TASK/MILESTONE	START DATE	COMPLETION DATE
START	1 APR 85	- - -
MA/PI	1 APR 85	31 JUL 85
CONDEV	1 AUG 85	31 MAY 85
DEF/DES	1 JUN 86	31 DEC 86
DEVELOPMENT	1 JAN 87	31 OCT 87
DEP/OPS	1 NOV 87	30 SEP 88
END	- - -	30 SEP 88

MA/PI	= Mission Analysis/Project Initiation
CONDEV	= Concept Development
DEF/DES	= Definition/Design
DEP/OPS	= Deployment/ Operations

Figure 4. Start and completion dates: Life cycle management (LCM) phases.

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The principal development work for OADSS will be performed by NPRDC and Mr. Robert E. Chatfield has been designated as the principal investigator (project manager).

Management Approach

The project will be managed within guidelines set forth in LCM-AIS, MCO P5231.1. OADSS subsystems will be developed in accordance with the LCM-AIS order as will any enhancements to existing subsystems. The Functional Description (FD) and System Specification (SyS) documents will serve as a guide for all system development. OADSS will be classified as a Class II system in support of HQMC functions. The following general policies apply to development, implementation, and management of the OADSS. Further information about each policy will be provided throughout this document where appropriate.

1. Development and management of the OADSS project will closely follow the procedures and policies set forth in this document. Any deviation from the PMP will be noted immediately and must be approved by the PM.

2. Enhancements introduced by the OADSS must be compatible with the existing Automated Data Processing Equipment (ADPE) support environment of the Marine Corps. For example, telecommunications and ADPE requirements must be satisfied by common-user communication systems and general purpose data processing facilities operated by DoD agencies or approved government contractors. Exceptions to this policy will require a waiver from the CMC.

3. High order computer languages (as opposed to assembly level languages) will be used in all applications programs. For example, ANSI standard COBOL and FORTRAN are authorized languages. Fourth generation (e.g., NATURAL, FOCUS) and Database Management System (DBMS) languages will be used where appropriate. A waiver will be obtained from the CMC where an exception to this policy is required.

Project Documentation

Documentation generated in support of OADSS development must comply with DoD Standard 7935 and MCO P5231.1. However, minor deviation from these standards is specifically authorized where needed to promote clarity or to convey information not cited in the standards. A list of documentation that may be produced for each project phase is provided below. It is important to note, however, that not all of these documents will be required for OADSS because of its funding threshold as well as limited scope and magnitude. The specific documents to be produced by NPRDC will be negotiated between the PM (HQMC) and the project leader (NPRDC). Bold letters indicate which documents NPRDC has been tentatively tasked with completing.

Mission Analysis/Project Initiation (MA/PI)

The following documents may be submitted as part of the MA/PI phase:

1. **Mission Element Needs Statement**
2. Steering Group Charter

Concept Development (CONDEV)

The following documents may be submitted as part of the CONDEV phase:

1. **Project Management Plan (PMP)**
2. **Requirements Statement (RS)**
3. **Feasibility Study/Economic Analysis (FS/EA)**
4. System Decision Paper I
5. Preliminary Support Analysis (PSA)

Definition/Design (DEF/DES)

The following documents may be submitted as part of the DEF/DES phase:

1. **Functional Description (FD)**
2. **Data Requirements Document (DRD)**
3. **Systems Specification (SyS)**
4. **ADPE Specifications (AS)**
5. **Database Specifications (DS)**
6. **Telecommunications Specifications (TS)**
7. **Test Plan (TP)**
8. **Implementation Plan (IP)**
9. Training Support Plan (TRP)
10. Telecommunications Support Plan (TSP)
11. ADPE Support Plan (ASP)
12. System Decision Paper II

Development

The following documents are may be submitted as part of the Development phase:

1. **Users Manual (UM)**
2. **Operations Manual (OM)**
3. **Maintenance Manual (MM)**
4. Updated Documentation (TP, IP, etc.)
5. System Decision Paper III

Deployment/Operations (DEP/OPS)

The following documents may be submitted as part of the DEP/OPS phase:

1. **Program Documentation**
2. **System Documentation**

Software Development

Computer programs designated to be developed in the system design documentation must meet the following criteria:

1. Must be written in a computer language approved by the USMC.

2. Must have extensive internal documentation to facilitate program changes.

3. Must be developed using structured programming techniques.

4. Must identify and isolate all source code that is dependent on a non-USMC operating environment into separate modules.

5. Both source and compiled versions of the code must be delivered to the USMC.

Software Procurement

It is anticipated that many of the functions to be accomplished with the OADSS can be most cost-effectively implemented with off-the-shelf software. This software may include: (1) a DBMS, (2) a statistical analysis package, (3) data communications facility, (4) utilities for disk/file maintenance, and (5) an artificial intelligence-based DBMS interface.

MISSION ANALYSIS/PROJECT INITIATION (MA/PI) PHASE

Tasks associated with the MA/PI phase of the LCM process were completed prior to drafting of the original PMP and are only briefly described here for planning continuity and historical value.

Mission Element Needs Statement (MENS)

The MENS described deficiencies in the current system and indicated that alternative solutions to these deficiencies should be investigated. The MENS was prepared and staffed for review in April 1986. Approval by the DC/S for MPR and the Director, Command, Control, Communications, and Computer (C4) Systems Division was granted in June 1986.

Steering Group Charter

The designation of a steering group was made in the MENS and no formal Steering Group Charter will be prepared. The OADSS is classified as a Level 4 system as discussed in MCO P5231.1.

Funding Documents

Funding documents include the Requirements Review and Approval Document, Headquarters Commitment Authorization, Statement of Work, and a R&D work directive for NPRDC.

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CONCEPT DEVELOPMENT (CONDEV) PHASE

Tasks associated with the CONDEV Phase are primarily related to the areas of project management and system documentation. Figure 5 diagrams steps in the CONDEV Phase. Figure 6 provides a *tentative* time-line depiction of tasks and milestones to be accomplished while Figure 7 summarizes the same information in tabular form.

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│  │   PREPARE REQUIREMENTS    │                                 │
│  │      STATEMENT (RS)       │                                 │
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│  │ PREPARE FEASIBILITY STUDY/ECONOMIC                         │
│  │       ANALYSIS (FS/EA)    │                                 │
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│                 │                                              │
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│  │ PREPARE PROJECT MANAGEMENT│                                 │
│  │         PLAN (PMP)        │                                 │
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│                 │                                              │
│  ┌──────────────────────────┐                                 │
│  │  PREPARE SYSTEM DECISION  │                                 │
│  │     PAPER I (SDP I)       │                                 │
│  └──────────────────────────┘                                 │
│                 │                                              │
│                 ├──────────────────────────┐                  │
│                 │            UPDATE SUPPORT PLANS (SP)         │
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│  │ PREPARE PRELIMINARY SUPPORT│   ┌────────────────────────┐  │
│  │      ANALYSIS (PSA)       │    │   PROGRAM OBJECTIVE     │  │
│  └──────────────────────────┘    │   MEMORANDUM (POM)      │  │
│                                   │         AND            │  │
│                                   │  BUDGET DOCUMENTS       │  │
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Figure 5. The concept development (CONDEV) phase.

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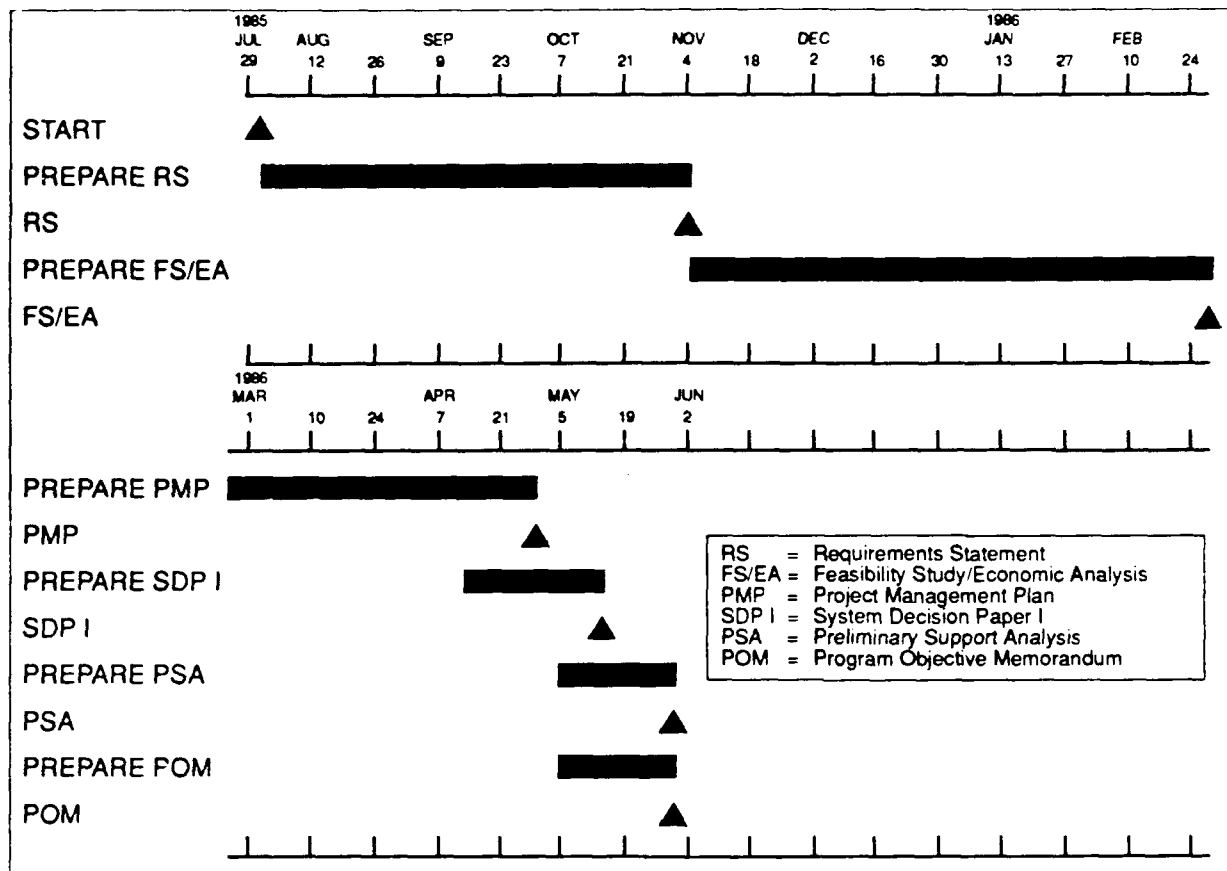
Figure 6. Officer assignment decision support system (OADSS): Concept development (CONDEV) phase timeline.

TASK/MILESTONE	START DATE	COMPLETION DATE
START	1 AUG 86	- - -
PREPARE RS	1 AUG 86	30 OCT 86
PREPARE FS/EA	1 NOV 85	28 FEB 86
PREPARE PMP	1 MAR 86	30 APR 86
PREPARE SDP I	15 APR 86	15 MAY 86
PREPARE PSA	1 MAY 86	3O MAY86
PREPARE POM	1 MAY 86	30 MAY 86
POM AND BUDGET DOCUMENTS	- - -	30 MAY 86

RS = Requirements Statement
FS/EA = Feasibility Study/Economic Analysis
PMP = Project Management Plan
SDP I = System Decision Paper I
PSA = Preliminary Support Analysis
POM = Program Objective Memorandum

Figure 7. Start and completion dates: Concept development (CONDEV) phase.

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Prepare Project Management Plan (PMP)

The PM is responsible for drafting and updating the PMP as required, based upon input from the NPRDC Project Leader. This document details tasks to be accomplished, designates who is responsible for task completion, and provides a tentative task schedule. The PMP is restaffed to the steering group by the PM upon completion of each phase or major milestone.

Prepare Requirements Statement (RS)

The RS presents existing system deficiencies and general requirements needed to correct the problems. Existing procedures, input and output, personnel, equipment, and deficiencies are all discussed in detail. The RS states functional (technical and operational) requirements, potential interfaces with other systems, communications needs, and performance requirements. The RS was prepared by NPRDC after extensive interviewing of Marine Corps personnel, reviewing existing policy guidance, training materials, etc.

Prepare Feasibility Study/Economic Analysis (FS/EA)

The FS portion of the FS/EA document discusses system hardware and software alternatives, criteria used to evaluate alternatives, extensively reviews (i.e., "scores") the various alternatives for feasibility of implementation, and provides a summary of findings. The FS eliminates some alternatives from consideration while recommending one or more alternatives for further investigation. The EA portion of the document provides estimates of costs (nonrecurring and recurring) for feasible alternatives as well as discussing maintenance and operation considerations. Included in the EA are assumptions on which the cost analysis was based and any constraints or exclusions related to the analysis. The alternative(s) recommended must meet various conditions of suitability, feasibility, and acceptability if it is to provide an acceptable solution. The FS/EA was completed by the NPRDC and submitted to MPI in March, 1986.

Prepare Preliminary Support Analysis (PSA)

The PSA provides the PM with initial estimates about existing/planned ADPE, software, telecommunications, personnel resources, and funding required to support system operations. In addition, critical support issues which must be resolved prior to selecting the preferred alternative are identified. The PSA is prepared by the CMC (Code CC) upon receipt of the FS/EA.

Prepare System Decision Paper I (SDP I)

The SDP I provides a summary of project accomplishments to date, indicates proposed changes to project plans, and presents cost-to-date information and projected costs for the following DEF/DES Phase. The SDP I is prepared by the PM and is staffed for concurrence prior to being submitted to the Steering Group for approval. After Steering Group approval, the SDP is submitted to the DC/S for MPR and the Director, C4 Systems Division for final approval.

Prepare Funding Support Documents (FSD)

The Program Objective Memorandum (POM) and other budget documents will be prepared/ reviewed as appropriate. Operations and Maintenance, Marine Corps and PMC funds are coordinated via the Director, C4 Systems Division. Preparation of these documents is the responsibility of the PM with approval authority provided by the Functional Manager.

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DEFINITION/DESIGN (DEF/DES) PHASE

Tasks associated with the DEF/DES Phase are primarily related to project management and system design. This entails preparing new documents as well as updating those produced earlier. Figure 8 diagrams steps in the DEF/DES Phase. Figure 9 provides a *tentative* time-line depiction of tasks and milestones to be accomplished while Fi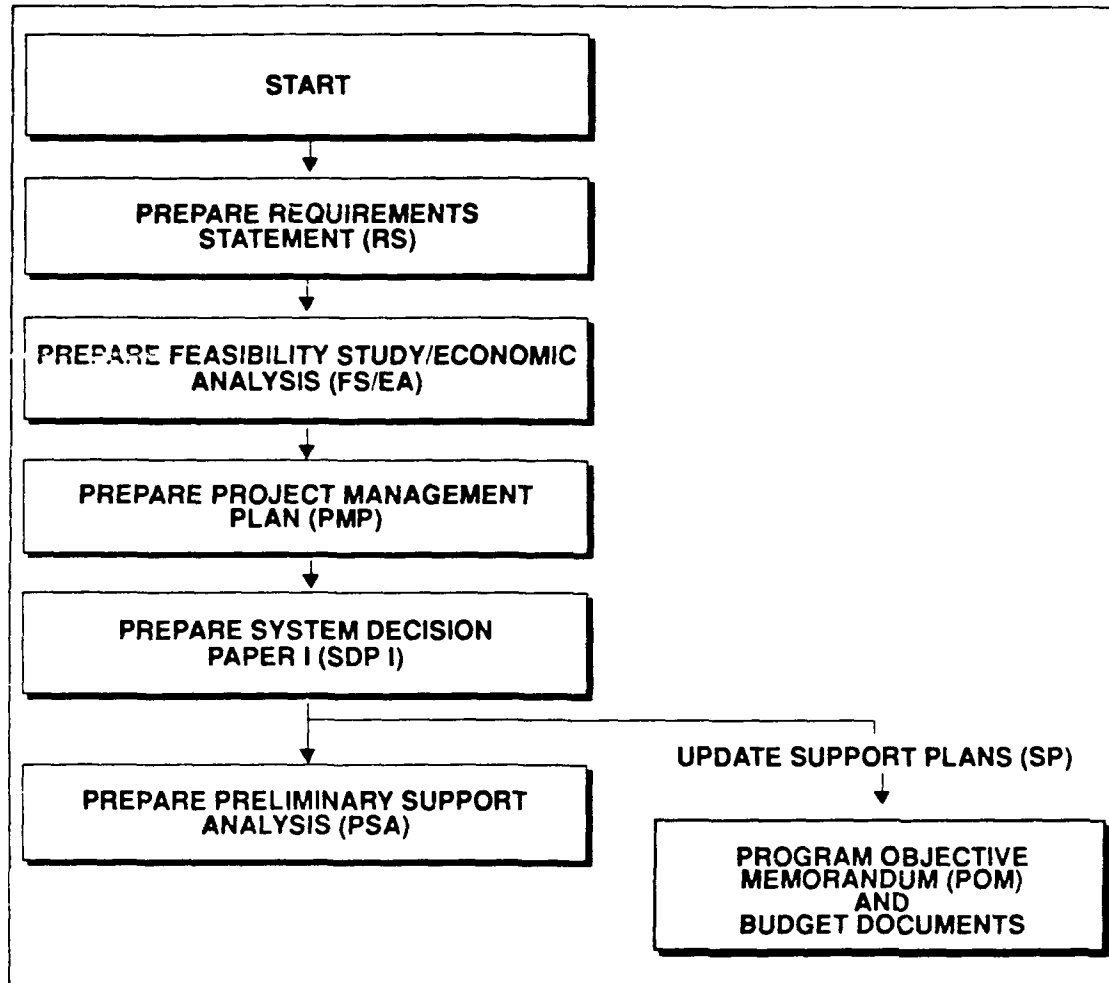gure 10 summarizes the same information in tabular form. Estimated start and completion dates will be updated in the PMP at major milestones. For the sake of clarity, definition and design components have been divided into two separate subphases. Responsibility for accomplishing tasks presented in each phase are denoted as follows.

PM: Project Manager

SU: System User

NPRDC: Navy Personnel Research and Development Center

Where a task is to be accomplished jointly, the party with primary responsibility for completion has been underlined.
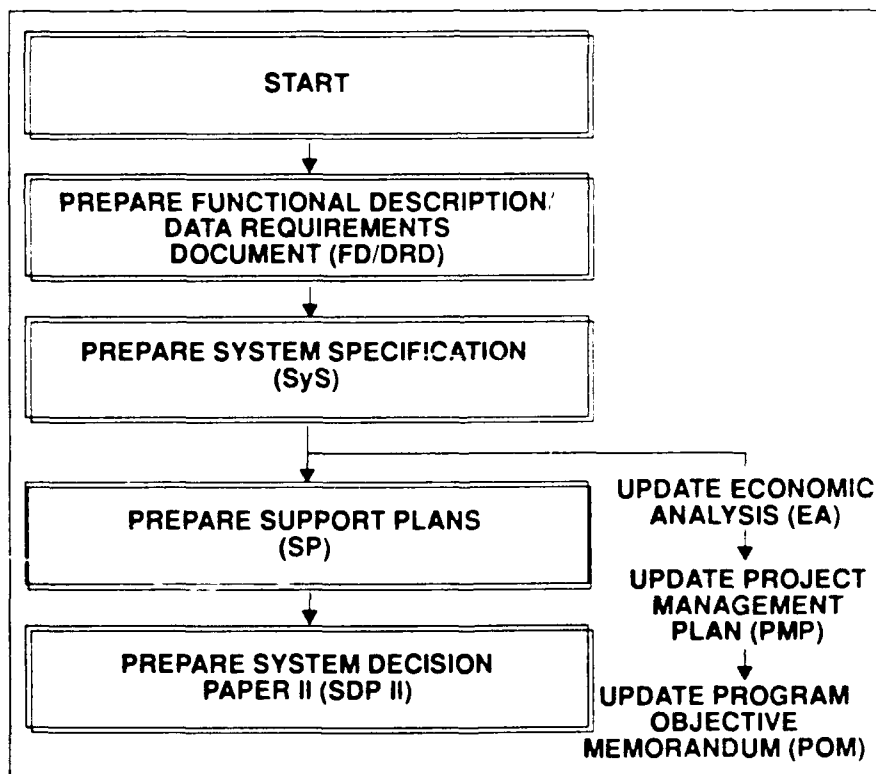
Figure 8. The definition/design (DEF/DES) phase.

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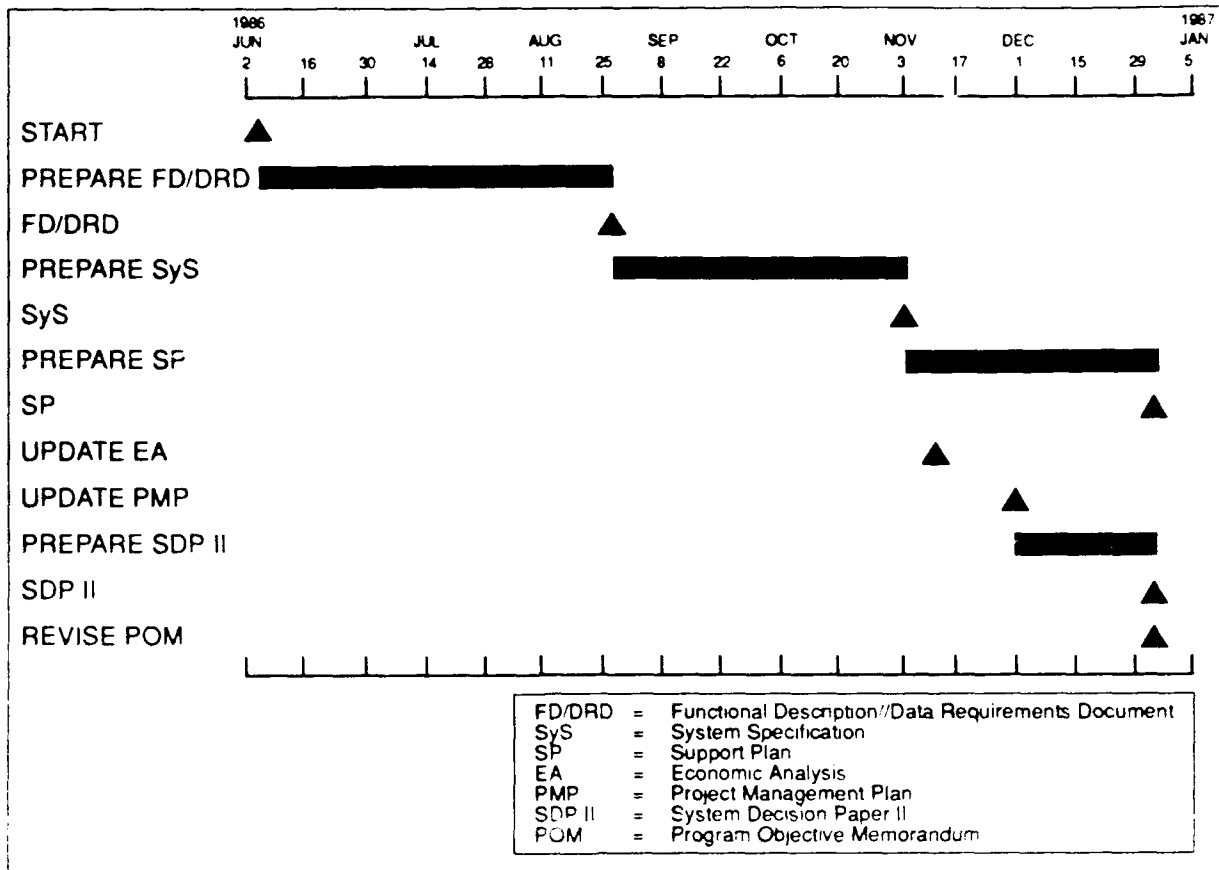
Figure 9. Officer assignment decision support system (OADSS): Definition/design (DEF/DES) phase timeline.

TASK/MILESTONE	START DATE	COMPLETION DATE
START	1 JUN 86	- - -
PREPARE FD/DRD	1 JUN 86	31 AUG 86
PREPARE SyS	1 SEP 86	31 OCT 86
PREPARE SP	1 NOV 86	31 DEC 86
UPDATE EA	28 FEB 86	15 NOV 86
UPDATE PMP	30 APR 86	1 DEC 86
PREPARE SDP II	1 DEC 86	31 DEC 86
REVISE POM	30 MAY 86	31 DEC 86

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FD/DRD  =  Functional Description//Data Requirements Document
SyS     =  System Specification
SP      =  Support Plan
EA      =  Economic Analysis
PMP     =  Project Management Plan
SDP II  =  System Decision Paper II
POM     =  Program Objective Memorandum
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Figure 10. Start and completion dates: Definition/desig: (DEF/DES) phase.

Definition Subphase

The major tasks completed during the definition subphase are drafting of the FD and DRD. These documents provide a detailed description of the functions to be included in the system and the data elements to be accessed. As these two documents are somewhat inter-related, they will be developed in parallel and staffed concurrently (referred to as the FD/DRD). Following completion of all design-related tasks and associated documentation, a Functional Requirements Review will be held to formally establish a functional baseline for the system. Steps to be taken in preparation of the FD/DRD are briefly summarized below:

1. Review the RS-OADSS. (PM/SU/NPRDC)

2. Conduct additional interviews of SUs as necessary and review/modify information flows documented previously. (NPRDC)

3. Prepare draft FD. (NPRDC)

4. Review draft FD. (PM)

5. Prepare draft DRD. (NPRDC)

6. Review draft DRD. (PM)

7. Prepare and staff final FD/DRD Document. (PM/NPRDC)

Design Subphase

This subphase includes design of general/detailed SySs as well as development of required system support plans. Upon completion of system design tasks, a walk-through will be held to establish the design baseline. Steps to be taken in the design subphase are briefly summarized below:

1. Identify manual processing, inputs/outputs, data elements, and computer processing required for each function discussed in the FD. (SU/NPRDC)

2. Assess system performance requirements and detail how they will be acceptably met. (PM/SU)

3. Identify systems that may interface with OADSS. (PM/NPRDC)

4. Identify functions/responsibilities that must be met upon system installation. (PM/SU/NPRDC)

5. Define overall system architecture. (NPRDC)

6. Draft SyS Document. (NPRDC)

7. Staff draft SyS Document. (PM)

8. Conduct walk-through of SyS/design. (PM/NPRDC)

9. Prepare and staff final SyS Document. (PM)

Support Plans

A variety of system-related support plans need to be developed, as appropriate, for successful implementation of any AIS. Typically, these plans are included as appendices to the updated PMP. The following steps describe preparation of all potential support plans, however, any plans not applicable to the OADSS effort will be omitted from its LCM.

1. Prepare TSP. (PM)

2. Prepare ASP for procurement of required system equipment. (PM)

3. Prepare TRP, discuss system training requirements, and identify on-going training needs after OADSS becomes operational. (PM)

4. Identify personnel to carry out steps of the system implementation process, schedule implementation events, and define tasks required to install and operate the system. (PM/NPRDC)

5. Prepare the IP. (PM)

6. Determine testing requirements for the OADSS. (NPRDC)

7. Prepare TP. (PM)

Update Economic Analysis (EA)

The EA, submitted as part of FS/EA, will be revised to reflect any changes that have occurred since its completion in the CONDEV Phase. Any deviation from predicted costs that are attributable to system design modifications and impact on the System Development Phase will be identified and validated. The estimated cost of the OADSS will be evaluated against actual development costs to date. Responsibility for updating and staffing the updated EA rests with the PM, however, NPRDC will be available to provide input as required.

Update Project Management Plan (PMP)

The PMP will be updated on an "as needed" basis to reflect changes that have occurred since the original version. The key to this update procedure is submission of a revised task/milestone accomplishment schedule. All support plans generated as part of the DEF/DES Phase will be appended to the PMP. The PMP update must be completed before final approval is given for completion of this phase. Responsibility for updating and staffing the updated PMP is the responsibility of the PM, however, NPRDC will be available to provide input as required.

Prepare System Decision Paper II (SDP II)

SDP II is essentially a summary of all project accomplishments to date. The document includes current and projected cost estimates, documentation supporting revisions to previously approved documents, and other managerial-level considerations. SDP II is prepared and staffed by the PM prior to submission to the Steering Group for approval. Following Steering Group approval, the document is submitted to the DC/S for MPR and the Director, C4 Systems for approval. The System Development Phase is initiated by formal approval of this decision paper.

DEVELOPMENT PHASE

Tasks associated with the Development Phase are primarily related to developing and integrating system software and evaluating system performance in a test environment. Additional tasks include updating various plans and revising the EA and other budget documents to facilitate a smooth transition to the DEP/OPS Phase. Figure 11 diagrams steps in the Development Phase. Figure 12 provides a *tentative* time-line depiction of tasks and milestones to be accomplished while Figure 13 summarizes the same information in tabular form. Estimated start and completion dates will be updated in the PMP at major milestones. Responsibility for accomplishing tasks presented in this phase are again denoted by the PM, SU, and NPRDC designations. Where a task is to be accomplished jointly, the party with the primary responsibility for completion has been underlined.
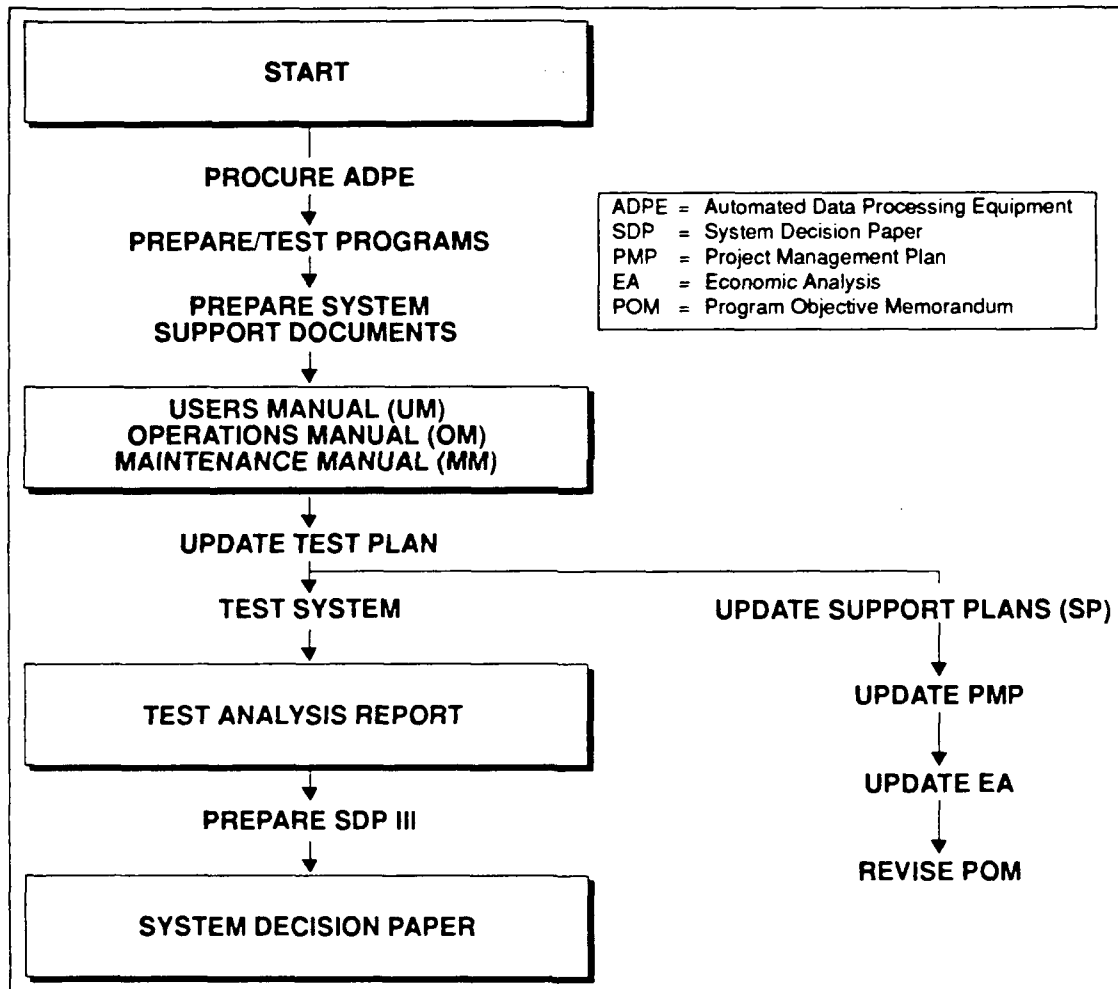
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│                │                                                        │
│          PROCURE ADPE                                                   │
│                │          ┌──────────────────────────────────────────┐ │
│        PREPARE/TEST PROGRAMS │ ADPE = Automated Data Processing Equipment │
│                │          │ SDP  = System Decision Paper             │ │
│         PREPARE SYSTEM    │ PMP  = Project Management Plan           │ │
│       SUPPORT DOCUMENTS   │ EA   = Economic Analysis                 │ │
│                │          │ POM  = Program Objective Memorandum      │ │
│  ┌──────────────────────┐ └──────────────────────────────────────────┘ │
│  │   USERS MANUAL (UM)   │                                             │
│  │ OPERATIONS MANUAL (OM)│                                             │
│  │ MAINTENANCE MANUAL(MM)│                                             │
│  └──────────────────────┘                                             │
│                │                                                        │
│        UPDATE TEST PLAN                                                 │
│                │                                                        │
│         TEST SYSTEM              UPDATE SUPPORT PLANS (SP)              │
│                │                          │                             │
│  ┌──────────────────────┐              UPDATE PMP                      │
│  │  TEST ANALYSIS REPORT │                 │                            │
│  └──────────────────────┘              UPDATE EA                       │
│                │                          │                             │
│        PREPARE SDP III                 REVISE POM                      │
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│  │ SYSTEM DECISION PAPER │                                             │
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Figure 11. The development phase.

Procure Automated Data Processing Equipment (ADPE)

Procurement of ADPE will take place at the outset of the Development Phase. NPRDC will be responsible for procuring ADPE to be used in prototype development while the PM will be responsible for coordinating ADPE procurement for full system implementation.
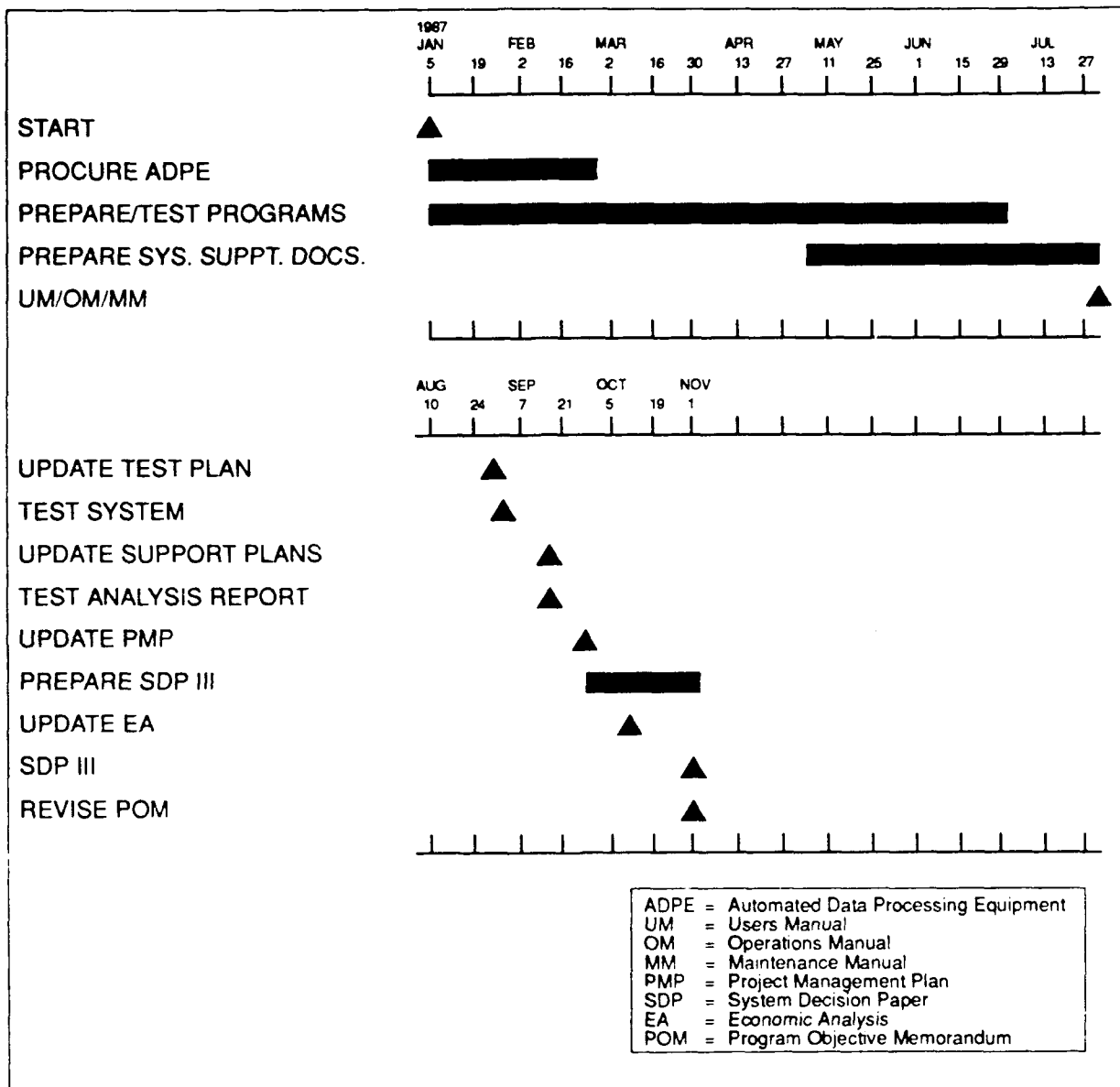
Figure 12. Officer assignment decision support system (OADSS): Development phase timeline.

TASK/MILESTONE	START DATE	COMPLETION DATE
START	1 JAN 87	- - -
PROCURE ADPE	1 JAN 87	28 FEB 87
PREPARE/TEST PROGRAMS	1 JAN 87	30 JUN 87
PREPARE SYSTEM SUPPORT DOCUMENTS	1 MAY 87	31 JUL 87
UM/OM/MM	1 MAY 87	31 JUL 87
UPDATE TEST PLAN	1 AUG 87	31 AUG 87
TEST SYSTEM	1 AUG 87	1 SEP 87
UPDATE SUPPORT PLANS	1 SEP 87	15 SEP 87
TEST ANALYSIS REPORT	1 AUG 87	1 SEP 87
UPDATE PMP	1 DEC 86	30 SEP 87
PREPARE SDP III	15 MAY 86	31 OCT 87
UPDATE EA	15 NOV 86	15 OCT 87
SDP III	31 DEC 86	31 OCT 87
REVISE POM	31 DEC 86	31 OCT 87

ADPE =	Automated Data Processing Equipment
UM =	Users Manual
OM =	Operations Manual
MM =	Maintenance Manual
PMP =	Project Management Plan
SDP =	System Decision Paper
EA =	Economic Analysis
POM =	Program Objective Memorandum

Figure 13. Start and completion dates: Development phase.

Prepare/Test Programs and Write System Documentation

This process concerns development of applications programs, system documentation, and layout of databases to be accessed. It is anticipated that this activity will overlap somewhat with the DEF/DES Phase: therefore, some work may be completed as PS are incrementally approved by the PM.

Develop System Software

This portion of system development concerns coding, debugging, and testing applications programs. Included in this effort are the following tasks:

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1. Validate PS. (PM/SU/<u>NPRDC</u>)

2. Review databases and integration plans. (PM/<u>NPRDC</u>)

3. Assess which, if any, existing programs may be used. (PM/<u>NPRDC</u>)

4. Determine software design techniques to apply (e.g., top-down) and supervise programming efforts to ensure milestone deadlines are met. (NPRDC)

5. Ensure that software developed adequately meets SySs. (PM/SU/<u>NPRDC</u>)

Prepare System Support Documents

An important aspect of the Development Phase is drafting documents that address the use, operation, and maintenance of the OADSS. Included in this effort are the following tasks:

1. Prepare draft copies of a UM, OM, and MM in accordance with DoD Standard 7935. (NPRDC)

2. Evaluate drafts of the UM, OM, MM as configured items in conjunction with the system test. (<u>PM</u>/SU/NPRDC)

3. Revise drafts of the UM, OM, and MM as necessary. Review finalized system documents with PM and, when approved, prepare final copies. (PM/<u>NPRDC</u>)

4. Review UM, OM, MM with designated personnel and submit to the Functional Manager for approval. (PM)

Test and Evaluate the System

Test and evaluation of OADSS will be based primarily upon the updated TP (see Figure 13). Testing will be carried out in sequential fashion with procedures and results well documented. This stage is extremely important as OADSS performance will be closely monitored and accepted/ rejected upon test results.

Test Execution and Evaluation

The following tasks will be included in the system test and evaluation procedures:

1. Test the system based upon the approved TP. (PM/<u>NPRDC</u>)

2. Evaluate OADSS applications program logic and output to verify that data/reports generated are correct. (PM/<u>NPRDC</u>)

3. Test/evaluate all procedures described in the system documentation (i.e., UM, OM, MM) to verify accuracy and comprehensiveness. Ensure that procedures described can be understood by both technical personnel and SUs. (PM/<u>NPRDC</u>)

4. Test/evaluate OADSS performance to ensure that the system does not require an inordinate amount of computer processing power (CPU time, memory, telecommunications, etc.) in its operation. (PM/<u>NPRDC</u>)

Prepare Test Analysis Report (TAR)

The TAR is prepared to summarize results of the test procedures. The following tasks will be included in TAR preparation:

1. Prepare draft TAR in accordance with instructions in DoD Standard 7935. (NPRDC)

2. Prepare final TAR following approval of the PM. (NPRDC)

3. Staff the TAR for review/concurrence. (PM)

Project Management

The Development Phase requires that a number of plans be reviewed and updated as needed. This level of project management is critical for ensuring a smooth transition to system implementation and operation. The following tasks will be included:

1. Update system plans pertaining to telecommunications, ADPE, training, and implementation. Incorporate changes to plans as required. (PM)

2. Prepare distribution copies of final plans and staff them for review/concurrence. Append SP to System Decision Paper III (SDP III). (PM)

3. Update the PMP, placing emphasis on activities that must be validated on a recurring basis throughout the phase. (PM)

4. Append the updated PMP to SDP III for approval. (PM)

5. Review and update the EA as required. (PM)

6. Revise budget documents (e.g., POM Budget) as required. (PM)

Prepare System Decision Paper III (SDP III)

SDP III represents a summary of all project accomplishments to date as well as current and projected cost estimates. The SDP is prepared by the PM who staffs it for concurrence prior to submitting it to the Steering Group for approval. Following Steering Group approval, SDP III is submitted to the Assistant Commandant of the Marine Corps for final approval. SDP III approval signals initiation of the final phase, DEP/OPS. The following tasks are included:

1. Prepare SDP III and staff for comment, recommendations, and concurrence. (PM)

2. Submit finalized SDP III to Steering Group for concurrence. Coordinate scheduling of a Steering Group meeting for principals, chaired by the DC/S for Training. (PM)

3. Submit SDP III to the Deputy Chief of Staff for Manpower and Planning and the Director, C4 Systems Division for final approval.

DEPLOYMENT/OPERATIONS (DEP/OPS) PHASE

The DEP/OPS Phase entails implementing OADSS in accordance with the plans previously developed. During this time, OADSS will be fully operated, maintained, and periodically modified where necessary. This section addresses procedures, tasks, and milestones that are a part of the DEP/OPS Phase. Figure 14 diagrams steps in the DEP/OPS Phase. Figure 15 provides a *tentative* time-line depiction of tasks and milestones to be accomplished while Figure 16 summarizes the same information in tabular form. Estimated start and completion dates will be updated in the PMP at major milestones. For the sake of clarity, DEP/OPS components have been divided into two separate subphases. Responsibility for accomplishing tasks presented in each phase are denoted as follows:

PM: Project Manager

SS: System Sponsor

SU: System User

NPRDC: Navy Personnel Research and Development Center

Where a task is to be accomplished jointly, the party with the primary responsibility for completion has been underlined.
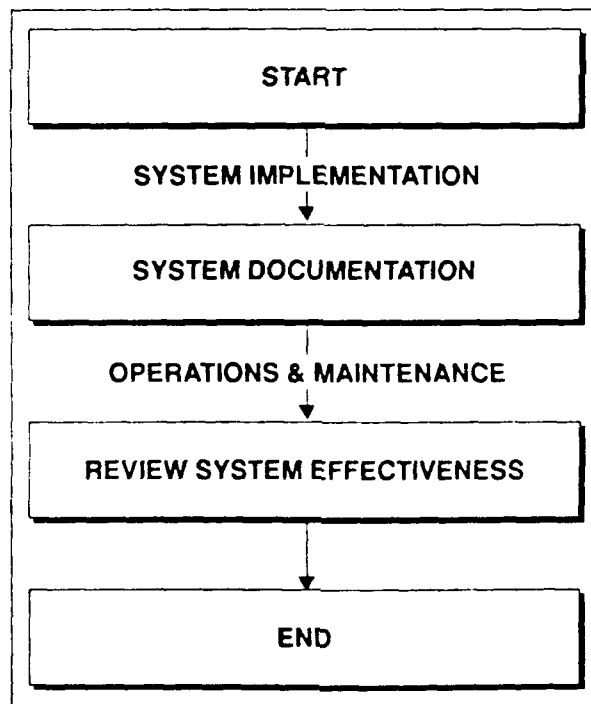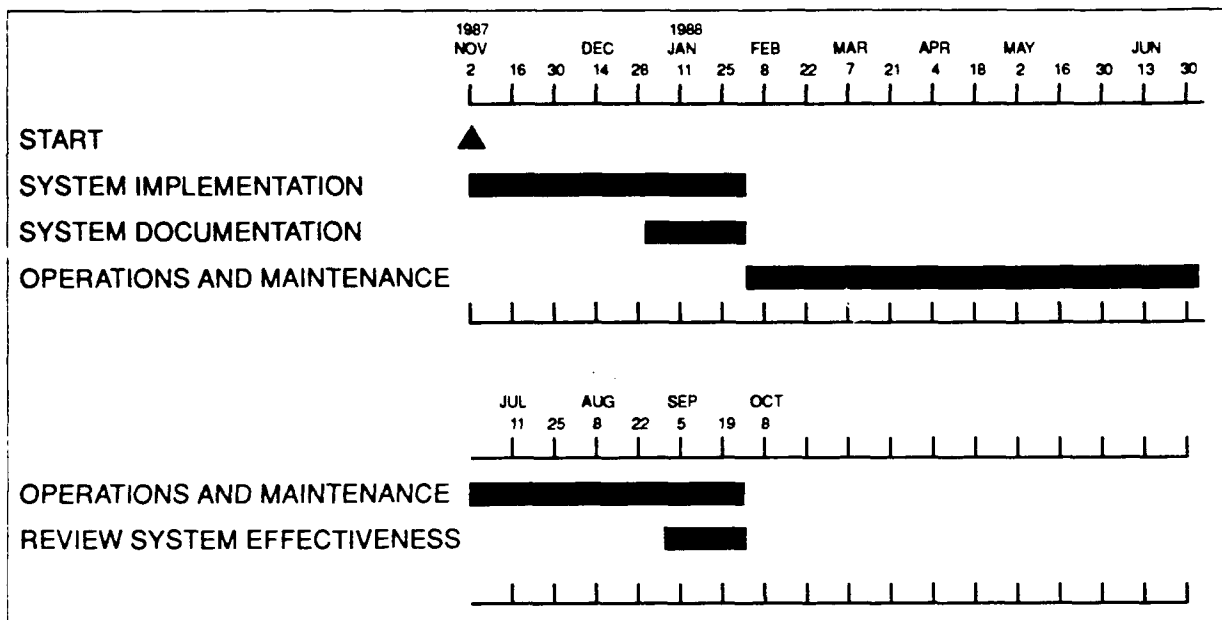

Figure 14. The deployment/operations (DEP/OPS) phase.

Figure 15. Officer assignment decision support system (OADSS): Deployment/operations (DEP/OPS) timeline.

TASK/MILESTONE	START DATE	COMPLETION DATE
START	1 NOV 87	- - -
SYSTEM IMPLEMENTATION	1 NOV 87	31 JAN 88
SYSTEM DOCUMENTATION	1 JAN 88	31 JAN 88
OPERATIONS & MAINTENANCE	1 FEB 88	30 SEP 88
REVIEW SYSTEM EFFECTIVENESS	1 SEP 88	30 SEP 88

Figure 16. Start and completion dates: Deployment/operations (DEP/OPS) phase.

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Deployment

The following subsections discuss procedures for deployment of OADSS.

System Implementation

This subphase deals with preparing the site for system implementation, installing the system, and ensuring that deployment procedures are complete. Steps to be taken in carrying out system implementation are briefly summarized below:

1. Review the IP for completeness and accuracy. (PM/SU/NPRDC)

2. Coordinate the formation of an Implementation Team comprised of system developers, SUs, and the PM (or a designated representative) who will head the team. (PM/SU/NPRDC)

3. Review system documentation to ensure validity, completeness, and compliance with Marine Corps documentation standards. (PM/SU/NPRDC)

4. Distribute all system manuals (to include vendor supplied hardware documentation) and ensure that site preparation is complete. Ensure all necessary supplies are in place. (PM/SU)

5. Ensure that trained personnel are scheduled for system activation. (PM/SU)

6. Carry out IP and certify site acceptance in accordance with prescribed standards. (PM/SU/NPRDC)

7. Conduct user training as appropriate. (NPRDC)

System Documentation

This subphase deals with maintenance, control, and distribution of system documentation. The following system documents are to be maintained (i.e., reviewed and revised) as required.

1. **Functional Documents:**

   a. Requirements Statement (RS)
   b. Functional Description (FD)
   c. Data Requirements Document (DRD)
   d. Users Manual (UM)

2. **Technical Documents:**

   a. System Specification (SyS)
   b. Database Specifications (DS)
   c. ADPE Specifications (AS)
   d. Telecommunications Specifications (TS)
   e. Program Specifications (PS)
   f. Maintenance Manual (MM)
   g. Operations Manual (OM)

It is anticipated that system implementation will necessitate changes to OADSS documentation. The PM or SS, as appropriate, will control, approve, and request printing for all

documents in accordance with current Marine Corps policy. Documentation shall be updated through either page changes (minor changes) or completely revised versions. The SS will decide when such revisions will be distributed as official changes. Interim, unofficial revisions are acceptable where the SUs require immediate action. The PM or SS, as appropriate, shall determine the appropriate distribution of system documentation.

Operations and Maintenance

The following subsections discuss procedures for operation of OADSS.

Establishment of System Manager (SM)

Following installation and acceptance of OADSS, the PM position will be abolished. At that time, MI-40 will assume responsibility as the SS for OADSS. The major responsibilities of the SS is to oversee the use of the operational OADSS and to verify that user needs have been adequately met.

Configuration Management

Configuration Management is primarily the responsibility of the SM. Some of the tasks associated with this process are discussed below:

1. Use the Configuration Management Plan (CMP) to define system change procedures. Update the CMP to reflect new management tasks, refine current procedures, etc. (SM)

2. Review all cognizant and configuration changes in accordance with the CMP to ensure cost-effectiveness. Compare incorporated change costs with pre-change costs. (SM)

3. Periodically review all system documentation. (SM/SU)

4. Ensure all audits and standardization inspections are adequately costed out. (SM)

5. Coordinate periodic review of OADSS operation. Compare the value of system updates versus potential phase out; with special emphasis on cost-effectiveness. (PM/SU)

System Modifications

It is anticipated that the system will be periodically modified to correct problems detected and to enhance end user capabilities. Taken together, these two procedures can be considered to constitute system maintenance. That is, maintenance concerns both the correction of identified deficiencies as well as an improved/expanded scope of functionality. Modifications will be made in three instances: (1) OADSS is not meeting a requirement and its modification would be less costly than new system development, (2) cost savings can be documented, and (3) a new requirement is imposed by higher authority. However, all maintenance actions are of course subject to budgetary limitations. As such, each request must be stated, justified, approved, and prioritized. All changes must be reflected in system documentation. Some of the tasks associated with system modification are discussed below.

1. Prepare reports on all system-related maintenance problems. (SM/NPRDC)

2. Evaluate each problem to determine cause (i.e., operator, software logic, user input, etc.). (SM/NPRDC)

3. Periodically review maintenance reports to analyze recurring problems. Determine whether the problems are principally user, application, or hardware based. (SM/NPRDC)

4. Perform maintenance to correct problems detected. (NPRDC)

5. Submit enhancement requests using standard modification request procedures. Ensure enhancement procedures follow those of original system development. (SM/SU)

6. Coordinate all OADSS maintenance with system developer (NPRDC) and other relevant contractors. (SM)

7. Prepare annual FSD and monitor expenditure of OADSS funds. (SM)

Review System Effectiveness

In accordance with procedures set forth in MCO P5231.1, OADSS effectiveness reviews will be periodically conducted beginning 1 year after full implementation. These reviews will assess the functionality of the system, confirm cost-effectiveness, and evaluate the system's design and operation efficiency. The reviews are the responsibility of the Functional Manager with technical assistance provided by the Director, C4 Systems Division and SUs. Effectiveness reviews will then be conducted every two years to ensure optimum use and effectiveness of OADSS. The following questions illustrate the types of issues that the reviews should address:

1. Does the system meet design specifications?

2. Does the system provide all information required to meet user needs?

3. Are processing methods satisfactory?

4. Is the system's responsiveness acceptable?

5. Is system reliability acceptable?

6. Is the format of system reports and other output satisfactory?

7. Are personnel effectively using the system or relying on old methods?

8. Is management cognizant of system input, output, and functionality?

9. Is operation of the system cost-effective?

10. Does the information provided effectively assist officer Monitors in making personnel assignments?

11. Should additional data elements be added or current elements deleted?

12. Are system controls (e.g., security) adequate? If not, how should they be improved?

13. Has OADSS been integrated satisfactorily with existing AIS?

14. Are the frequency of system problems within acceptable limits?

Unfortunately, review of system effectiveness is often ignored by system developers, or given token attention at best. However, this final phase is essential to "close the loop" in terms of

ensuring that the system is meeting end user needs. Ongoing review of system effectiveness also promotes introduction of timely system enhancements and encourages the active participation of end users. NPRDC appreciates the importance of th's process and will actively critique system performance following OADSS implementation.

RECOMMENDATIONS

The following recommendations are made:

1. A GDS should be completed as the next stage in the "definition and design" phase of system development.

2. A "rapid prototyping" approach to subsystem development should be undertaken as a means of minimizing system development time and ensuring the active participation of end users.

3. Representatives from the MCCDPA, Quantico, should work very closely with MMOA and NPRDC in the DEP/OPS Phase to facilitate the link between OADSS and the existing mainframe DBMS, ADABAS NATURAL.

APPENDIX

TERMS AND ABBREVIATIONS

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ADPE	Automated Data Processing Equipment
ADS	Automated Data Systems
AIS	Automated Information Systems
AS	ADPE Specifications
ASP	ADPE Support Plan
CCI	Information Systems Support and Management Branch
CMC	Commandant of the Marine Corps
CMP	Configuration Management Plan
CONDEV	Concept Development
DBMS	Data Base Management System
DC/S for MPR	Deputy Chief of Staff for Manpower
DEF/DES	Definition/Design
DS	Data Base Specifications
DoD	Department of Defense
DRD	Data Requirements Document
DSS	Decision Support System
EA	Economic Analysis
FD	Functional Description
FS	Feasibility Study
FSD	Funding Support Documents
GDS	General Design Specification
HQMC	Headquarters, United States Marine Corps
IP	Implementation Plan
JUMPS/MMS	Joint Uniform Military Pay System/Manpower Management System
LCM	Life Cycle Management
LCM-AIS	Life Cycle Management for Automated Information Systems
MA/PI	Mission Analysis/Project Initiation
MCC	Monitored Command Code
MCCDPA	Marine Corps Central Design and Programming Activity
MCO	Marine Corps Order
MENS	Mission Element Needs Statement
MI-40	Manpower Systems Development and Integration Branch
MM	Maintenance Manual

MMOA	Officer Assignment Branch
MMOA-3	Officer Assignment Branch (Plans, Policy, Systems, and Special Programs)
MPI	Manpower Plans and Policy Division
MPI-40	Manpower Systems Development and Integration Branch
OADSS	Officer Assignment Decision Support System
OM	Operations Manual
OSF	Officer Slate File
OSGM	Officer Staffing Goal Model
PM	Project Manager
PMC	Project Manger Charter
PMP	Project Management Plan
POM	Program Objective Memorandum
PS	Program Specifications
PSA	Preliminary Support Analysis
REAL FAMMIS	Real Time Finance and Manpower Management Informations System
RS	Requirements Statement
SS	System Sponsor
SDP	System Decision Paper
SM	System Manager
SP	Support Plan
SU	System User
SyS	Systems Specification
TAR	Test Analysis Report
TS	Telecommunications Specifications
TP	Test Plan
TRP	Training Support Plan
TSP	Telecommunications Support Plan
UM	Users Manual
USMC	United States Marine Corps

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