

E. H. S.



The Process For Identifying Needs And Establishing Requirements

Department Of Defense

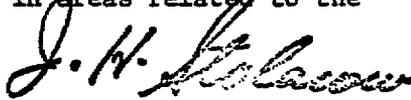
**MAJOR ACQUISITION SUBDIVISION
PROCUREMENT AND SYSTEMS
ACQUISITION DIVISION**

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FOREWORD

This is a summary of our survey on the process by which the Department of Defense identifies needs and establishes requirements for major weapons systems. It is intended primarily as an internal GAO reference document for use in planning, programming, and executing operational audits in areas related to the Department of Defense.



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CHAPTER 1

OVERVIEW

WHY THE SURVEY WAS CONDUCTED

One of the long-range objectives of GAO's Major Acquisition Subdivision (MAS), Procurement and Systems Acquisition Division (PSAD), is to be able to advise the Congress concerning the need for proposed new major weapon systems in terms of identifying (1) national policy and objectives, (2) projected enemy threats, (3) the national strategy and the implementing plans which may be necessary to respond to these threats, (4) the roles and missions of the armed forces to carry out the plans, and (5) the force levels necessary to support the response. GAO believes that information which relates to requests for each new system to this broader picture will make it easier for the Congress to make well-informed decisions as to alternative courses of action, levels of funding, urgency of need, and other national priority considerations.

Over the years GAO has repeatedly expressed the importance of having adequate knowledge about the requirements for weapons systems. During Congressional testimony in April 1971 the Comptroller General stated that identification of need for a weapon system and the relative priority assigned its development is a fundamental problem in the acquisition of weapon systems. In March 1973 he stated that one of the key objectives of the weapons acquisition process is making the right decision at the outset of what to develop and for what purpose. Within this area, specific reference was made to providing the Congress with the ability to review weapon systems on a mission basis in light of operational need.

The objective of this survey was to identify the formal process within the DOD that leads to specific systems with stated operational capabilities, and thereby place GAO in a better position to examine weapon system requirements.

OVERVIEW OF THE
NEEDS/REQUIREMENTS PROCESS

The individual Services' responsibility to be capable of accomplishing its defined roles and missions imposes the responsibility to define and develop weapon systems to meet identified needs. Establishing requirements for a weapon system usually begins with identification of need for a specific capability within a mission, family of weapons, and/or force levels. It proceeds through such steps as establishing some relative priority of need, defining performance characteristics, assessing the technical risk, and finally selecting a system that promises to provide the needed capability.

The plans developed by the Services to carry out this responsibility are coordinated by the Secretary of Defense by way of the Joint Chiefs of Staff (JCS) and the Office of the Secretary of Defense (OSD). The Secretary of Defense provides the broad national defense policies and objectives; the JCS translates these into military policies, objectives, and assumptions which are essentially the capabilities and intentions of potential enemies. This constitutes the framework for planning and programming at the Service level.

Evaluation by each service of the JCS guidance reveals deficiencies or inadequacies in their capability to accomplish assigned roles and missions which can be translated into basic research and development objectives. Funding for this technology effort is included in the Services Program Objective Memorandum (POM). As the possibility of a new and needed weapon emerges from this basic technology effort it is introduced in subsequent POM's as an individual weapon system requirement.

The OSD reviews the services' POMs as a part of the Planning-Programming-Budgeting System (PPBS). The PPBS is the DOD resource management system through which needs and requirements are matched with available funds. While the purpose of the POM reviews are emphasized as being budgetary, service conflict situations, material or requirement redundancies, and system adequacies are also scrutinized.

Another process related to the PPBS is the Defense Systems Acquisition Review Council (DSARC). It was initiated in 1969 to review individual weapon system programs which the services are proposing for development and/or acquisition. The DSARC provides the Secretary of Defense with recommendations concerning the status and readiness of individual weapon systems to enter or continue in the acquisition cycle in light of threat and economic considerations.

While differing in details, particularly in the nomenclature of documentation, the needs/requirements process in all of the military services follow the same general pattern. We believe this process falls logically into three parts--first, identifying the need; second,

establishing the requirement; and third, obtaining the Secretary of Defense's approval. Each of these parts are discussed in general terms below and in detail in the individual Service sections of this summary.

Identifying the Need

The process begins with considerations of national objectives and policies, and projections of probable economic conditions, psychological attitudes (social, political, and ideological), and technology. The threat is defined and national and military strategies are developed. Next, studies of trade-offs among missions and tactics, technology, and available resources are conducted wherein the needed operational and technical capabilities are identified.

The "idea" for a new capability can come from a variety of sources. Needs can be identified through the recognition of a deficiency as a result of threat analysis and/or capability planning. In other cases, new technology will emerge in either government or industry and a system or program will be built around it. Sometimes the motivation is to exploit the increase in capability that the new technology presents because possession of the capability by the United States could mean that it exists, or soon will exist, in some other country.

Contractual studies and analyses, prototype programs, military exercises, recognized old-age or obsolescence of current systems, for example, can all give birth to an "idea" that maintaining, improving, or adding an operational capability is necessary. Logistic Management Institute

recently completed a study for the Assistant Secretary of Defense for Installations and Logistics in which they concluded that nearly all new weapon systems are replacements.

Further review could have concluded many of the remaining new systems are the result of opportunities created by new technology. The effect of the push of new technology on systems and particularly on their cost was presented in a previous GAO report.¹

The life expectancy of systems is limited. As systems wear, maintenance costs increase and reliability decreases. Operational effectiveness declines as technology growth presents the opportunity for other nations to build systems of greater capability. Modification of the system in some instances can serve to correct its deficiencies, but as more time passes more modifications may be required and eventually such changes may be unable to provide the degree of improvement that is needed. The cumulative costs for increasing maintenance requirements and for modification eventually becomes excessive for a system that is slipping to a second rate capability. The combination of age, fatigue, loss of operational advantage, higher upkeep costs, and the opportunity of technology to provide something better, pushes new system development.

Other more subtle influences also may be at work. There quite naturally exists within DOD the desire to maintain a viable defense industry capable of responding to the needs of the defense establish-

¹ Cost Growth in Major Weapon Systems B-163058, March 26, 1973.

ment in times of national emergency, so the Defense industry must have sufficient work to sustain itself during peacetime. Another is possessing the ability to back up the Nation's international relations with modern, capable military forces. Each may play a role in the decision to acquire a weapon system, and in some instances the reason may develop and be decided upon at a higher level of Government than the Military Services. In terms of major acquisitions, a need is usually identified a number of years before the system developed to meet the need is available for operational use. As a result, it sometimes becomes difficult to identify the exact origin of the need because the original idea or concept has been since revised and changed over the years by many processes and reviews until the original idea has become lost in the exchanges.

Establishment of the Requirement

Regardless of the source of the idea that resulted in a need being identified, the official recognition of the requirement generally occurs with the preparation and submission of a "requirements document". The following table shows the differences in the names of these documents for the four services:

ARMY	ROC (Required Operational Capability)
NAVY	SOR (Specific Operational Requirement)
MARINE CORPS	SOR (" " ")
AIR FORCE	ROC (Required Operational Capability)

During the "establishment of the requirement" phase, the system proposed in the requirements document is better defined in terms of specific performance characteristics, schedule, and cost. In addition,

alternative hardware systems, tactics, and/or technological opportunities are again considered to assure that the most effective, efficient, and economical system to fulfill the need is acquired.

The requirements are usually subjected to elaborate reviews by the respective command and service headquarters. In addition, inter-and intra-service reviews are to be conducted. The ultimate goal for each requirement is the approval by the Secretary of the sponsoring service, so that the individual system can be added to the service's Program Objective Memorandum.

Obtaining the Secretary of Defense's Approval

The Program Objectives Memorandum contains all the requirements for the individual service (or other DOD component) for all appropriations and represents the total service program. Once a requirement is established in the service's POM, it is challenged as to its necessity and validity as part of the total program and its priority among other requirements in the PPBS review. The results of the PPBS reviews determine what requirements are included in the Five Year Defense Program (FYDP) forwarded to the Congress for funding. This is referred to in subsequent chapters as "Obtaining Approval of the Services Total Program".

In addition to the PPBS review and examination, a major weapon system requirement established by the service secretary must also undergo a thorough individual scrutiny by the OSD staff in the DSARC arena. This examination is focused on the merits of the requirement itself and not on its merit as part of a total service program. Overall guidance on this review process is set forth in DOD Dir. 5000.1 with amplifying instructions to be published in DOD and service implementing directives. In subsequent chapters, this is referred to as "Obtaining Recommendation For Approval From DSARC."

The need for Secretary of Defense decisions on the individual phases of each major defense system program does not always coincide with the PPBS events. However, the Development Concept Paper/Defense Systems Acquisition Review Council process augments the PPBS by addressing issues related to the progress of individual defense systems programs and ensures timely Secretary of Defense review. This review is related mainly to the individual program schedule rather than to the PPBS schedule. Secretary of Defense decisions made through the DCP/DSARC process must be reflected in the Five Year Defense Program and shall be accomplished either during the POM/Issue Paper/Program Decision Memorandum (PDM) process, or during the program Budget Decision (PBD) process, depending on when the DCP/DSARC-related decision is made. (See Appendix I to Chapter 11.)

"When an OSD-generated PPBS document, such as the Issue Paper or PBD, proposes to alter a DCP/DSARC-related decision, it shall be coordinated with the DSARC principals and DOD component head prior to submittal to the Secretary of Defense/Deputy Secretary of Defense. Where a POM or budget submittal to OSD deviates from a previously approved DCP/DSARC-related decision, this fact and the cost, schedule, and performance impact on the program shall be explained in the POM or budget submittal. In such instances the DCP/DSARC-related decision shall be a decision alternative in an Issue Paper or PBD."¹

¹Draft DOD Directive 5000.2 (Enclosure 2)

Flexibility of the Needs/Requirements Process

Throughout this summary of the needs/requirements process, the reader will see numerous uses of words such as generally, sometimes, usually, and primarily. Although these words often are used to "leave the door open for the exception", in the case of the needs/requirements process they are very meaningful.

The needs/requirements process is a dynamic, flexible, evolving system of analysis, selection and reevaluation and in many cases is very hard to define. The individual needs and resulting requirements for a major acquisitions all must be judged and processed in accordance with their own urgency, technological and economical considerations, and political influences. These and many other external influences play an important role in establishing priorities and dictating the process by which the requirement for a major acquisition is generated, processed and approved. It could be said that each system follows its own process.

We have found, for example, that a requirements documents (ROC) has never been processed for the Air Forces' A-10 close air support aircraft. The process through which this acquisition evolved, therefore, did not follow the formal document flow discussed in this summary. This is not to say that the various reviews by the Air Force and other DOD officials did not occur.

In other cases, the formal documents could be considered "backfill". That is, the documents that currently record the flow of the process for an acquisition were prepared after the fact. We believe that this is often the case since decisions are usually made based on analyses, studies, and the other influences, and then documented.

EXPECTED USE OF THE SUMMARY

This summary is to be used as an internal planning, reference, and training document. It points to specific planning and requirements documents and thus can serve as a guide to where to go and what to obtain for the justification for a specific major weapon system. It will be used by new MAS staff members as basic orientation material.

The Office of the Secretary of Defense and the Service Headquarters have reviewed this summary informally and their comments have been considered.

VIEWS ON THE CONDUCT OF GAO REQUIREMENTS ASSIGNMENTS

GAO reports on the justification or urgency for a new major weapon system must be issued to the Congress prior to the production decision if GAO is to provide timely information for consideration. Congress' options are reduced once a system has reached the production phase. Requirements assignments should, therefore, be selected from acquisitions that are at that time in the Validation or early Full-Scale Development phase.

Access to DoD planning documents is essential to the reconstruction of the information available during the process that led to the decision that a major acquisition was necessary.

SCOPE OF GAO'S SURVEY

The scope of this survey was limited to the formal process which leads to hardware acquisitions. The many informal activities and influences that occur within the DoD, and for that matter the Federal Government in general, are also important to a total understanding of

the process by which needs are identified and requirements are generated. This informal process is for the most part indefinable.

The formal process, as we have defined it, includes all documents, reviews, and briefings that by regulation or directive should occur during the initiation, review, and approval of a major weapon system acquisition.

This survey was conducted by the Operational Requirements Group of the Major Acquisition Subdivision, Procurement Systems Acquisition Division. It included the utilization of data acquired during previously related GAO assignments. This data was reviewed and where appropriate incorporated into this summary.

The primary focus of this survey was the review of directives, procedures, and documents relative to the needs/requirements process. Information was gathered by questionnaires and by interviews within the Office of the Secretary of Defense, the Joint Chiefs of staff, the three Departments, the Services, and selected DoD Agencies and Schools. We did not contact members of industry or the many important agencies and organization outside the DOD (e.g., OMB, NSC, etc.) Overall, the cooperation received from the officials contacted was excellent, except for the following access to record problem.

At the outset of our survey, access to documents used in the needs/requirements process was requested. Our interest was to examine sample documents to obtain a feeling for their coverage, tone(directive, guidance or advice), and magnitude. This request was not approved and as a result many documents were not reviewed by GAO. Thus, data included

in this summary concerning these documents has been accumulated from other sources. However, the summary has been reviewed by cognizant DoD officials and we feel confident that the descriptions included are relatively accurate.

CHAPTER 2

INTRODUCTION

A large part of our National Defense budget is used either directly or indirectly for major weapon system acquisitions. The impact of the costs of these acquisitions continues to trigger increased interest not only within the Legislative Branch of our Government, but within the Executive Branch as well.

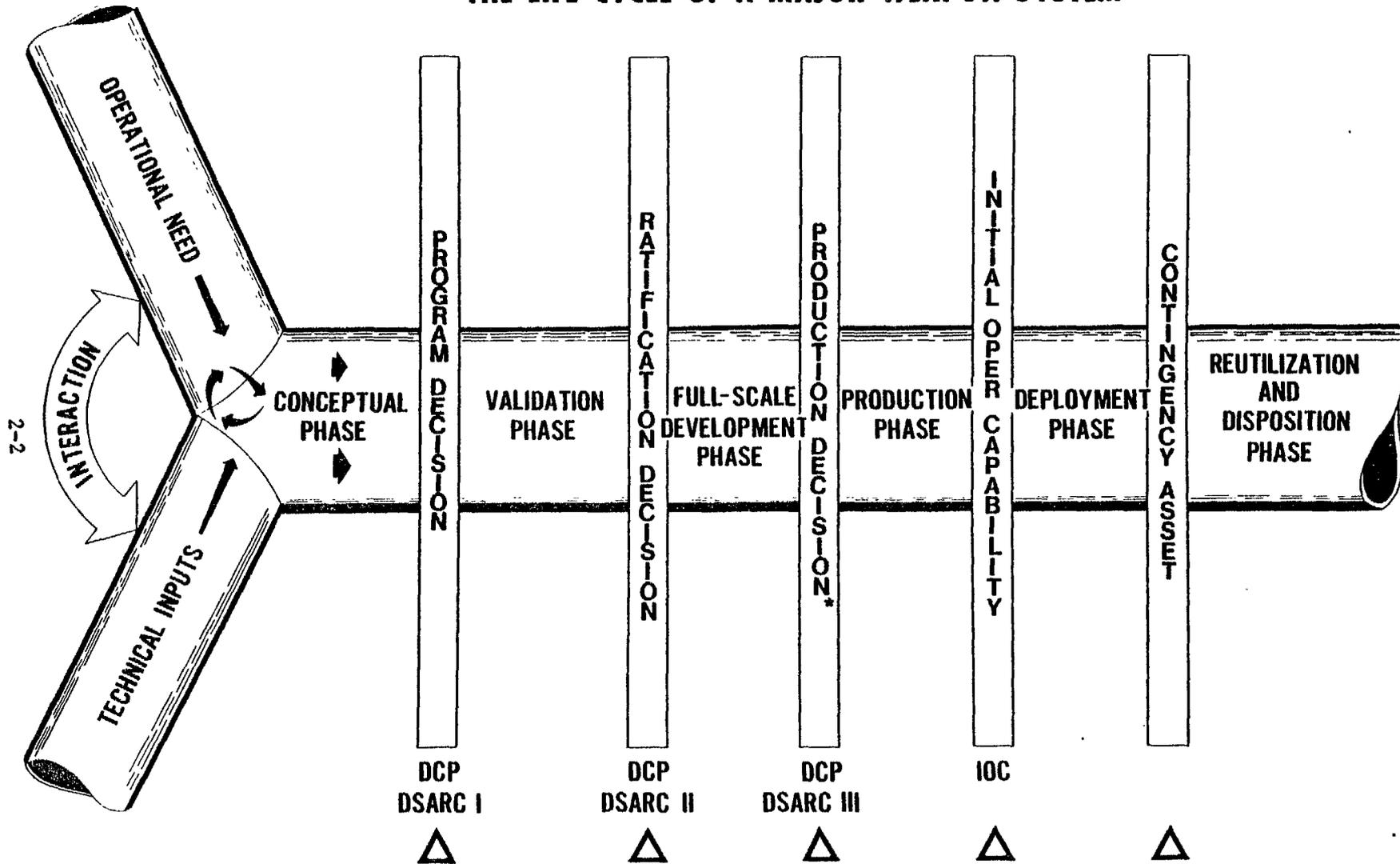
MAJOR VERSUS NON-MAJOR WEAPON SYSTEMS

A proposed weapon system is classified as a "major" system if it meets one of the following criteria as established by the Secretary of Defense in Department of Defense Directive 5000.1 (Appendix I, this chapter)

- the estimated research, development, test, and evaluation costs exceed \$50 million, or estimated procurement costs exceed \$200 million,
- the system is urgently needed from a national viewpoint, or
- the head of a military Department or defense agency (referred to as DOD Components) or officials of the Office of the Secretary of Defense recommends that the system be classified as "major".

Some of the Services have additional criteria for determining if a system should be classified as a "major" or "non-major" acquisition. These criteria will be discussed where appropriate in the individual Service sections of this summary. Whether a system is considered "major" or not is important because different management procedures may be followed and higher levels of reviews and approval placed upon them.

THE LIFE CYCLE OF A MAJOR WEAPON SYSTEM



*WHEN AN EARLIER PRODUCTION DECISION (LOW RATE INITIAL PRODUCTION OR LONG LEAD-TIME ITEM, PROCUREMENT) MUST BE APPROVED, AN EARLIER DSARC COULD MEET DSARC IIa

Figure 2-1

MAGNITUDE OF MAJOR WEAPON SYSTEM ACQUISITIONS

As of June 30, 1973, 104 major weapon systems were in the major weapon system acquisition cycle at an estimated total program acquisition cost of about \$164 billion. The following table shows the number and estimated cost of these acquisitions by Service:

	<u>Number</u>	<u>Estimated Total Cost as of June 30, 1973 (billions)</u>
Army	31	\$ 31
Navy (including Marines)	53	77
Air Force	<u>20</u>	<u>56</u>
Total	<u>104</u>	<u>164</u>

LIFE CYCLE OF A MAJOR WEAPON SYSTEM

Generally speaking, there are six phases in the life cycle of a major weapon system. As displayed in Figure 2-1 these six phases are:

1. Conceptual Phase
2. Validation Phase
3. Full Scale Development Phase
4. Production Phase
5. Deployment Phase
6. Reutilization and Disposition Phase

Initially, an operational need is identified and technological inputs are considered. From this interaction between needs and technological capability, a concept is formulated and evaluated by the DOD Components. Early conceptual effort is normally conducted at the discretion of the DOD Component until it is determined that the acquisition of a major system

should be pursued. DOD Directive 5000.1 states it is crucial that the right decisions be made during this conceptual effort because wrong decisions at this time create problems not easily overcome later in the program.

The considerations which support the determination of the need for a system, together with a plan for that program, are documented in a Development Concept Paper and reviewed by the Defense Systems Acquisition Review Council. As shown in Figure 2-1, the Defense Systems Acquisition Review Council plays an important role in the review and approval process for new acquisitions. Additional discussion of their role is included in Chapter 11.

RELATIONSHIP OF NEEDS VERSUS REQUIREMENTS FOR A WEAPON SYSTEM

Why do we make a distinction between "need" and "requirement" in discussing the process by which major acquisitions are born?

Early in our survey, it became apparent that semantics present a big problem when discussing this process. The terms, requirement and need, were discussed synonymously and interchangeably by some DOD officials but not by others. The "requirements" in terms of intelligence gathering, for example, are not the same as a "requirement" for a major acquisition. Similarly, "need" can mean different things.

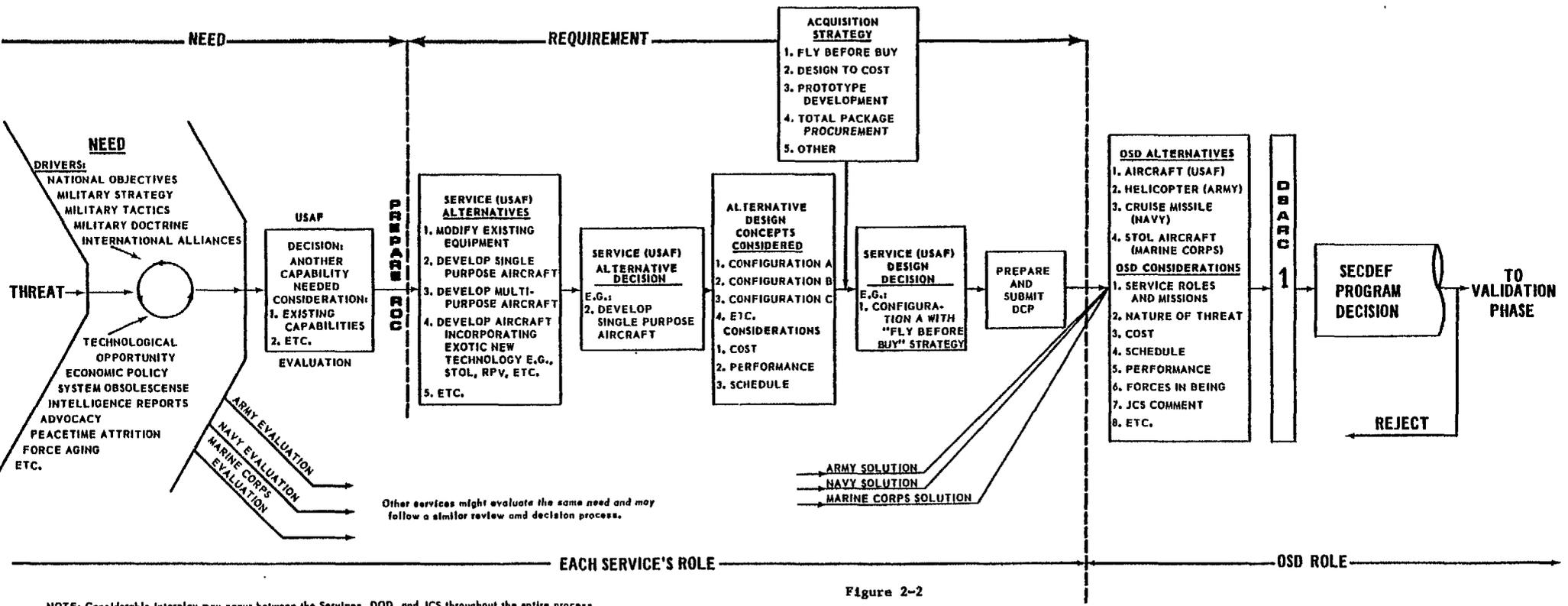
During the conduct of the survey, we found it quite convenient to use the model shown in Figure 2-2 as a vehicle to avoid semantics problems. The relationship of this model to the life cycle pipeline chart (Figure 2-1)

important. The primary emphasis of this survey was the happenings prior to DSARC I--the Conceptual Phase.

The scenario for our model is an Air Force acquisition of a new aircraft. As is discussed in our summary of the process within the Air Force (Chapter 10), a Required Operational Capability (ROC) document is generally the key to the birth of a major acquisition. It is the approval of a ROC that gives the breath of life to a major acquisition by the Air Force.

A ROC is written after an increased or new capability is identified and alternatives are considered. This "need" for additional capability is reduced to writing via the preparation of a ROC. The processing of this ROC within the Air Force for approval represents the "requirement" phase of the overall process. It is during this phase that the Air Force would consider the various alternatives by which the additional capability needed might be obtained. Specifically, the requirement to fulfill the need is defined and presented to DSARC I.

EXAMPLE-USAF DECISION PROCESS CONCEPTUAL PHASE



NOTE: Considerable interplay may occur between the Services, DOD, and JCS throughout the entire process.

Figure 2-2

APPENDIX I

DEPARTMENT
OF
DEFENSE

DOD DIRECTIVE 5000.1



July 13, 1971

NUMBER 5000.1

DDR&E

Department of Defense Directive

SUBJECT: Acquisition of Major Defense Systems

I. PURPOSE

This Directive establishes policy for major defense system acquisition in the Military Departments and Defense Agencies (referred to as DoD Components).

II. APPLICATION

This Directive applies to major programs, so designated by the Secretary of Defense/Deputy Secretary of Defense (referred to as SecDef). This designation shall consider (1) dollar value (programs which have an estimated RDT&E cost in excess of 50 million dollars, or an estimated Production cost in excess of 200 million dollars); (2) national urgency; (3) recommendations by DoD Component Heads or Office of Secretary of Defense (OSD) officials. In addition, the management principles in this Directive are applicable to all programs.

III. POLICY

A. Mode of Operation - Successful development, production and deployment of major defense systems are primarily dependent upon competent people, rational priorities and clearly defined responsibilities. Responsibility and authority for the acquisition of major defense systems shall be decentralized to the maximum practicable extent consistent with the urgency and importance of each program. The development and production of a major defense system shall be managed by a single individual (program manager) who shall have a charter which provides sufficient authority to accomplish recognized program objectives.

DOD DIRECTIVE 5000.1

Layers of authority between the program manager and his Component Head shall be minimum. For programs involving two or more Components, the Component having dominant interest shall designate the program manager, and his charter shall be approved by the cognizant official within OSD. The assignment and tenure of program managers shall be a matter of concern to DoD Component Heads and shall reflect career incentives designed to attract, retain and reward competent personnel.

1. The DoD Components are responsible for identifying needs and defining, developing and producing systems to satisfy those needs. Component Heads are also responsible for contractor source selection unless otherwise specified by the SecDef on a specific program.
 2. The OSD is responsible for (a) establishing acquisition policy, (b) assuring that major defense system programs are pursued in response to valid needs and (c) evaluating policy implementation on each approved program.
 3. The OSD and DoD Components are responsible for program monitoring, but will place minimum demands for formal reporting on the program manager. Nonrecurring needs for information will be kept to a minimum and handled informally.
 4. The SecDef will make the decisions which initiate program commitments or increase those commitments. He may redirect a program because of an actual or threatened breach of a program threshold stated in an approved Development Concept Paper (DCP). The DCP and the Defense Systems Acquisition Review Council (DSARC) will support the SecDef decision-making. These decisions will be reflected in the next submission of the Program Objective Memorandum (POM) by the DoD Component.
- B. Conduct of Program - Because every program is different, successful program conduct requires that sound judgment be applied in using the management principles of this Directive. Underlying specific defense system developments is the need for a strong and usable technology base. This base will be maintained by conducting research and advanced technology effort independent of specific defense systems development. Advanced technology effort includes prototyping, preferably using small, efficient design teams and a minimum amount of documentation. The objective is to obtain significant advances in technology at minimum cost.
1. Program Initiation
 - a. Early conceptual effort is normally conducted at the discretion of the DoD Component until such time as the DoD Component

determines that a major defense system program should be pursued. It is crucial that the right decisions be made during this conceptual effort; wrong decisions create problems not easily overcome later in the program. Therefore, each DoD Component will designate a single individual, such as the Assistant Secretary for R&D, to be responsible for conceptual efforts on new major programs.

- b. The considerations which support the determination of the need for a system program, together with a plan for that program, will be documented in the DCP. The DCP will define program issues, including special logistics problems, program objectives, program plans, performance parameters, areas of major risk, system alternatives and acquisition strategy. The DCP will be prepared by the DoD Component, following an agreement between OSD and that Component on a DCP outline. The Director, Defense Research and Engineering (DDR&E) (or the Assistant Secretary of Defense (Telecommunications) for his programs) has the basic responsibility for coordination of inputs for the DCP and its submittal to the DSARC for consideration and to the SecDef for subsequent decision. If approved, the program will be conducted within the DCP thresholds.
2. **Full-Scale Development.** When the DoD Component is sufficiently confident that program worth and readiness warrant commitment of resources to full-scale development, it will request a SecDef decision to proceed. At that time, the DSARC will normally review program progress and suitability to enter this phase and will forward its recommendations to the SecDef for final decision. Such review will confirm (a) the need for the selected defense system in consideration of threat, system alternatives, special logistics needs, estimates of development costs, preliminary estimates of life cycle costs and potential benefits in context with overall DoD strategy and fiscal guidance; (b) that development risks have been identified and solutions are in hand; and (c) realism of the plan for full-scale development.
3. **Production/Deployment.** When the DoD Component is sufficiently confident that engineering is complete and that commitment of substantial resources to production and deployment is warranted, it will request a SecDef decision to proceed. At that time, the DSARC will again review program progress and suitability to enter substantial production/deployment and forward its recommendations to the SecDef for final decision. Such review will confirm (a) the need for producing the defense system in consideration of threat, estimated acquisition and ownership costs and potential benefits in context with overall DoD

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strategy and fiscal guidance; (b) that a practical engineering design, with adequate consideration of production and logistics problems is complete; (c) that all previously identified technical uncertainties have been resolved and that operational suitability has been determined by test and evaluation; and (d) the realism of the plan for the remainder of the program. Some production funding for long lead material or effort may be required prior to the production decision. In such cases, the SecDef will decide whether a DSARC review and revised DCP are required. In any event, full production go-ahead will be authorized by approval of the DCP.

C. Program Considerations

1. System need shall be clearly stated in operational terms, with appropriate limits, and shall be challenged throughout the acquisition process. Statements of need/performance requirements shall be matched where possible with existing technology. Wherever feasible, operational needs shall be satisfied through use of existing military or commercial hardware. When need can be satisfied only through new development, the equivalent needs of the other DoD Components shall be considered to guard against unnecessary proliferation.
2. Cost parameters shall be established which consider the cost of acquisition and ownership; discrete cost elements (e.g., unit production cost, operating and support cost) shall be translated into 'design to' requirements. System development shall be continuously evaluated against these requirements with the same rigor as that applied to technical requirements. Practical tradeoffs shall be made between system capability, cost and schedule. Traceability of estimates and costing factors, including those for economic escalation, shall be maintained.
3. Logistic support shall also be considered as a principal design parameter with the magnitude, scope and level of this effort in keeping with the program phase. Early development effort will consider only those parameters that are truly necessary to basic defense system design, e.g., those logistic problems that have significant impact on system readiness, capability or cost. Premature introduction of detailed operational support considerations is to be avoided.
4. Programs shall be structured and resources allocated to ensure that the demonstration of actual achievement of program objectives is the pacing function. Meaningful relationships between need, urgency,

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risk and worth shall be thereby established. Schedules shall be subject to trade-off as much as any other program constraint. Schedules and funding profiles shall be structured to accommodate unforeseen problems and permit task accomplishment without unnecessary overlapping or concurrency.

5. Technical uncertainty shall be continually assessed. Progressive commitments of resources which incur program risk will be made only when confidence in program outcome is sufficiently high to warrant going ahead. Models, mock-ups and system hardware will be used to the greatest possible extent to increase confidence level.
6. Test and evaluation shall commence as early as possible. A determination of operational suitability, including logistic support requirements, will be made prior to large-scale production commitments, making use of the most realistic test environment possible and the best representation of the future operational system available. The results of this operational testing will be evaluated and presented to the DSARC at the time of the production decision.
7. Contract type shall be consistent with all program characteristics including risk. It is not possible to determine the precise production cost of a new complex defense system before it is developed; therefore, such systems will not be procured using the total package procurement concept or production options that are contractually priced in the development contract. Cost type prime and subcontracts are preferred where substantial development effort is involved. Letter contracts shall be minimized. When risk is reduced to the extent that realistic pricing can occur, fixed-price type contracts should be issued. Changes shall be limited to those that are necessary or offer significant benefit to the DoD. Where change orders are necessary, they shall be contractually priced or subject to an established ceiling before authorization, except in patently impractical cases.
8. The source selection decision shall take into account the contractor's capability to develop a necessary defense system on a timely and cost-effective basis. The DoD Component shall have the option of deciding whether or not the contract will be completely negotiated before a program decision is made. Solicitation documents shall require contractor identification of uncertainties and specific proposals for their resolution. Solicitation and evaluation of proposals should be planned to minimize contractor expense. Proposals for cost-type or incentive contracts may be penalized during evaluation to the degree that the proposed cost is unrealistically low.

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9. Management information/program control requirements shall provide information which is essential to effective management control. Such information should be generated from data actually utilized by contractor operating personnel and provided in summarized form for successively higher level management and monitoring requirements. A single, realistic work breakdown structure (WBS) shall be developed for each program to provide a consistent framework for (a) planning and assignment of responsibilities, (b) control and reporting of progress, and (c) establishing a data base for estimating the future cost of defense systems. Contractor management information/program control systems, and reports emanating therefrom, shall be utilized to the maximum extent practicable. Government imposed changes to contractor systems shall consist of only those necessary to satisfy established DoD-wide standards. Documentation shall be generated in the minimum amount to satisfy necessary and specific management needs.

IV. IMPLEMENTATION

1. Each DoD Component will implement this Directive within 90 days and forward two (2) copies of each implementing document to the SecDef.
2. The number of implementing documents will be minimized and necessary procedural guidance consolidated to the greatest extent possible. Selected subjects to be covered by DoD Directives/Instructions or joint Service/Agency documents in support of this Directive are listed in Enclosure I. Each DoD Component will forward the joint Service/Agency documents for which it is responsible to the SecDef for approval prior to issuance.


Deputy Secretary of Defense

CHAPTER 3

THE PRESIDENT AND NATIONAL SECURITY COUNCIL

PRESIDENT

The President, as Chief Executive, is responsible for the execution of U.S. relations with other nations of the world. As Commander-in-Chief of the Armed Forces he is responsible for provisioning the Military Services with men and equipment and directing their employment in defense of the nation and in fulfilling the terms of international agreements. To this end, President Nixon set forth the Nixon Doctrine enunciating the policy he expects the Executive Branch of the Government to follow.

National Security Council

To assist him in these decisions, the President reestablished the National Security Council as the principal forum for Presidential consideration of foreign policy issues. The Council is composed of the President, the Vice President, the Secretaries of State and Defense, and the Director of the Office of Emergency Preparedness.

Title 10, United States Code, Section 101, provides that

"The function of the Council shall be to advise the President with respect to the integration of domestic, foreign, and military policies relating to the national security so as to enable the military services and other departments and agencies of the Government to cooperate more effectively in matters involving national security."

"In addition to performing such other functions as the

NSC ORGANIZATION

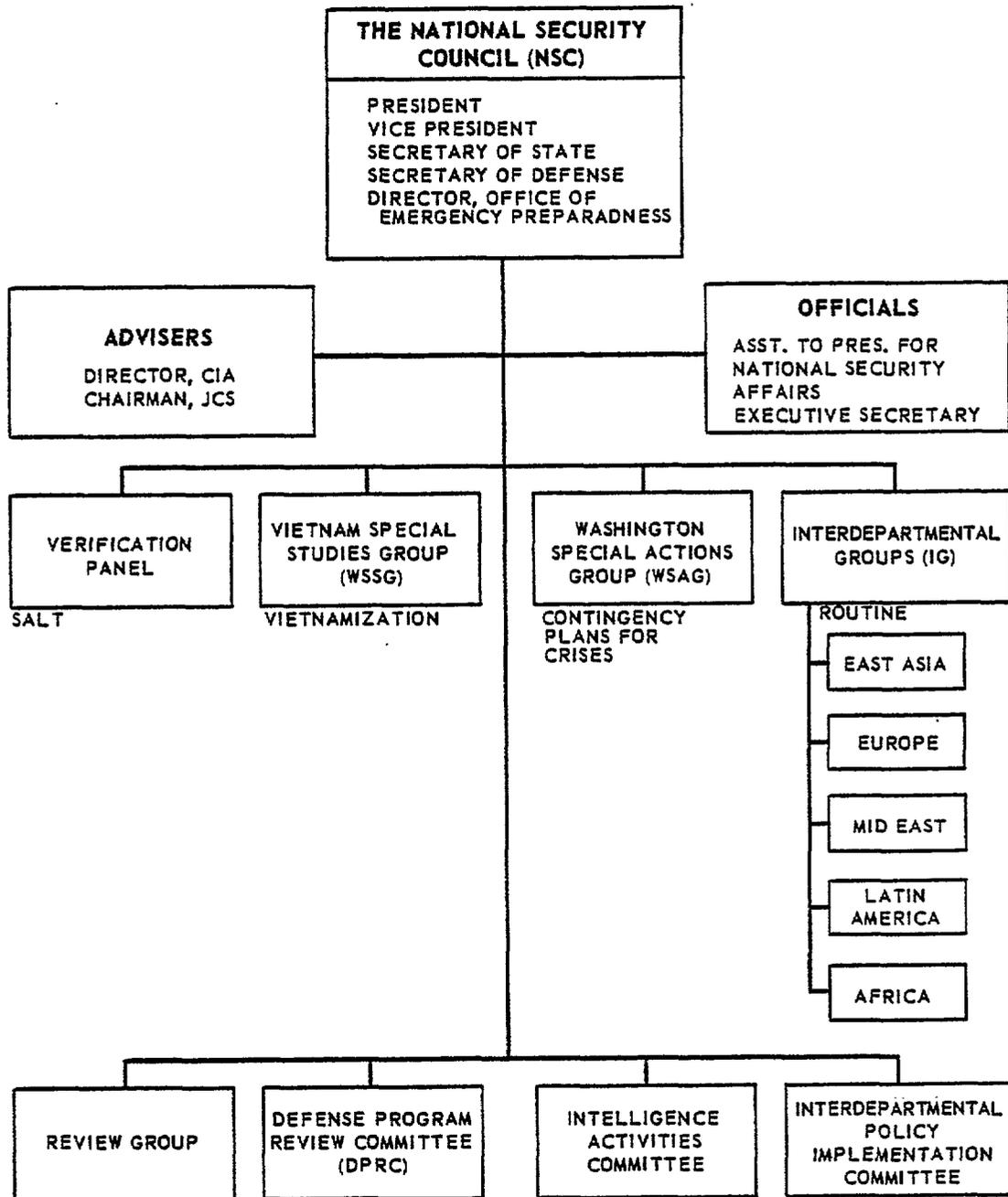


FIGURE 3 - 1

President may direct . . . it shall . . . be the duty of the Council--(1) to assess and appraise the objectives, commitments, and risks of the United States in relation to our actual and potential military power, in the interest of national security, for the purpose of making recommendations to the President in connection therewith; and (2) to consider policies on matters of common interest to the departments and agencies of the Government concerned with the national security, and to make recommendations to the President in connection therewith."

This is how the process works: the President assigns an issue to an interdepartmental group--chaired by an Assistant Secretary of State--for intensive study, asking it to formulate the policy choices and to analyze the pros and cons of different courses of action. This group's report is examined by an interagency Review Group of senior officials--chaired by the Assistant to the President for National Security Affairs--to assure that the issues, views, and options are presented fully and fairly. The paper is then presented to the President and the full National Security Council. (Figure 3-1)

The National Security Council Defense Program Review Committee reviews at the Under Secretary level the major defense policy and program issues which have strategic, political, diplomatic, and economic implications in relation to overall national priorities. The Committee consists of the

Assistant to the President for National Security Affairs (Chairman), the Under Secretary of State, the Deputy Secretary of Defense, the Chairman of the Joint Chiefs of Staff, the Director of the Bureau of the Budget, the Director of Central Intelligence, and the Chairman of the Council of Economic Advisers. The Director of Arms Control and Disarmament Agency, the President's Science Advisor and the Chairman of the Atomic Energy Commission participate as appropriate.

It is an essential function of the National Security Council system to bring together all of the agencies of the Government concerned with foreign affairs to elicit, assess, and present to the President and the Council all pertinent knowledge available.

These assessments, appraisals, and policy considerations take the form of numbered National Security Study Memorandums (NSSM) which are the official position of the NSC, with alternatives, options and minority opinions. The President's approval is necessary before any problem can be given life in a NSSM. The President's acceptance, rejection, or modification of the NSC advice in the NSSM takes the form of numbered National Security Decision Memorandums (NSDM) which are issued for implementation. Illustrative of the level and scope of these documents is the fact that NSSM/NSDM number 3^a in 1969 changed our military posture from cold war planning and readiness to fight 2 1/2 wars simultaneously to the condition of anticipating the eventuality of only 1 1/2 wars. The implementation of the

^aNational Security Council documents start a new series with each new administration.

Nixon Doctrine by the Secretary of Defense carries the national defense strategy label of Realistic Deterrence. Like military planning, national security planning is based on intelligence. The Director of Central Intelligence (DCI) receives intelligence information from all facets of Government (see Chapter 4) and in turn provides the information for NSC considerations.

National Mobilization Planning

The President establishes the national policies and objectives, generally based on the recommendations of the National Security Council. These are the basis for plans which are prepared by the Department of Defense in coordination with other agencies.

The Secretary of Defense provides guidance to the Joint Chiefs of Staff and the three military departments who in turn produce studies over the long-range period and on an annual cycle plans for the mid- and short-range periods. These plans provide statements of military requirements, and general deployments and employments of military forces.

The commanders of the unified and specified commands prepare operational plans based on the above guidance. These plans contain the missions of their component force commanders, the resources available to them, and the strategy and tactics to be employed in achieving their assigned objectives.

The basic system employed throughout the governmental structure consists of:

Planning - The selection of courses of action through a systematic consideration of alternatives to reach an objective.

Programming - The more specific determination of the manpower, materiel, and facilities necessary for accomplishing objectives.

Budgeting - Allocating available resources among programs based upon need.

CHAPTER 4

INTELLIGENCE

INTRODUCTION

The quality of national objectives, policies, and strategy, and the resultant decisions depends in large measure upon the soundness of the knowledge on which they are based. A significant portion of this knowledge is derived from "intelligence," that is, information about foreign nations or areas that has gone through a process of "collection, evaluation, analysis, integration, and interpretation." Intelligence, to be useful, must be timely adequate, and reasonably accurate. It must be well-coordinated, quickly and properly disseminated, and considered by decisionmakers within a careful context of values and objectives. Intelligence neither makes nor implements policy but there is always the danger that it may in effect do both by virtue of its importance as a basis for policy and action. Intelligence is needed that will afford timely advanced knowledge of the capabilities, vulnerabilities, and probable courses of action of other nation states.

THREAT AND THREAT ASSESSMENT

The United States formulates and maintains its national objectives, policy, and strategy in the arena of international relations as reflected in our foreign policy. Some of our national objectives, policies, and strategy are oriented to the national security ends of peace and survival. Other nation-states, based on their capabilities and intentions, pose some threat to our peace and survival. This threat is given form by intelligence reporting of the capabilities and intentions of other nation-states now, and in the future. Broadly conceived this threat covers all political, economic, and military parameters.

Since the role of the armed forces in our national structure is to act as an instrument of national policy by performing its traditional tasks, the Department of Defense consumes intelligence which forecasts the military threat. The military threat, while not discounting political and economic parameters, deals primarily with consideration of the numbers and types of potential enemy forces called "Red" forces, the disposition of these forces, their organization, the doctrine and tactics under which they are employed, and the performance capabilities of their equipment.

The scale and nature of the threat as we view it provides the primary basis for military needs. Old age, obsolescence, technological advances, changes in doctrine, strategy, or tactics, etc., are all of little concern if a threat does not exist or has not been anticipated. The output of the intelligence community--the estimate and projection documents to be discussed shortly--state the threat for the consumers. Threat assessment is the matching of what intelligence says the "Red" forces have quantitatively and qualitatively with what intelligence thinks they are capable of and might do. Like intelligence data collection and the dissemination of the threat in intelligence documents, threat assessment is a continuous process. It is a collective term for the evaluation, analysis, integration, and interpretation of intelligence information.

NET ASSESSMENT

Net Assessment has two basic purposes. First, to determine if we are below, at par with or ahead of the enemy in capability. Secondly, to determine periodically the changes in our position vis-a-vis potential enemies.

Net assessment, based on the defense agreed intelligence contained in DIA products takes place at all levels of the Department of Defense by both managers and users (Figure 4-1).

Each service makes a net assessment in light of its assigned role/mission. Within each service, the various function, corps, branch commodity, and mission and warfare area proponents do net assessment in light of their more specific interests. The Secretary of Defense has a special assistant who coordinates and prepares a net assessment of military implications for him in relation to overall DOD programs since an individual service may not be entirely objective.

The objective of Net Assessment is to look at how two or more nations stand in a particular activity (e.g.: the production of ships; the ability to project political-military power throughout the world), how each state evolved to that position and what advantages and disadvantages accrue to each side. The analysis attempts to consider all relevant factors--e.g. political, economic, sociological, organizational, technological--which influence the capability achieved by each side in the comparison. Attention also focuses on identifying the major trends in the future on each side and how these will affect the present balance between the two.

The questions to which the assessments address themselves are (a) whether the U.S. is competing efficiently in important areas and (b) what advantages does the U.S. have which present opportunities for exploitation? They may also examine such issues of how these forces

THE REQUIREMENTS DEFINITION DIALOGUE

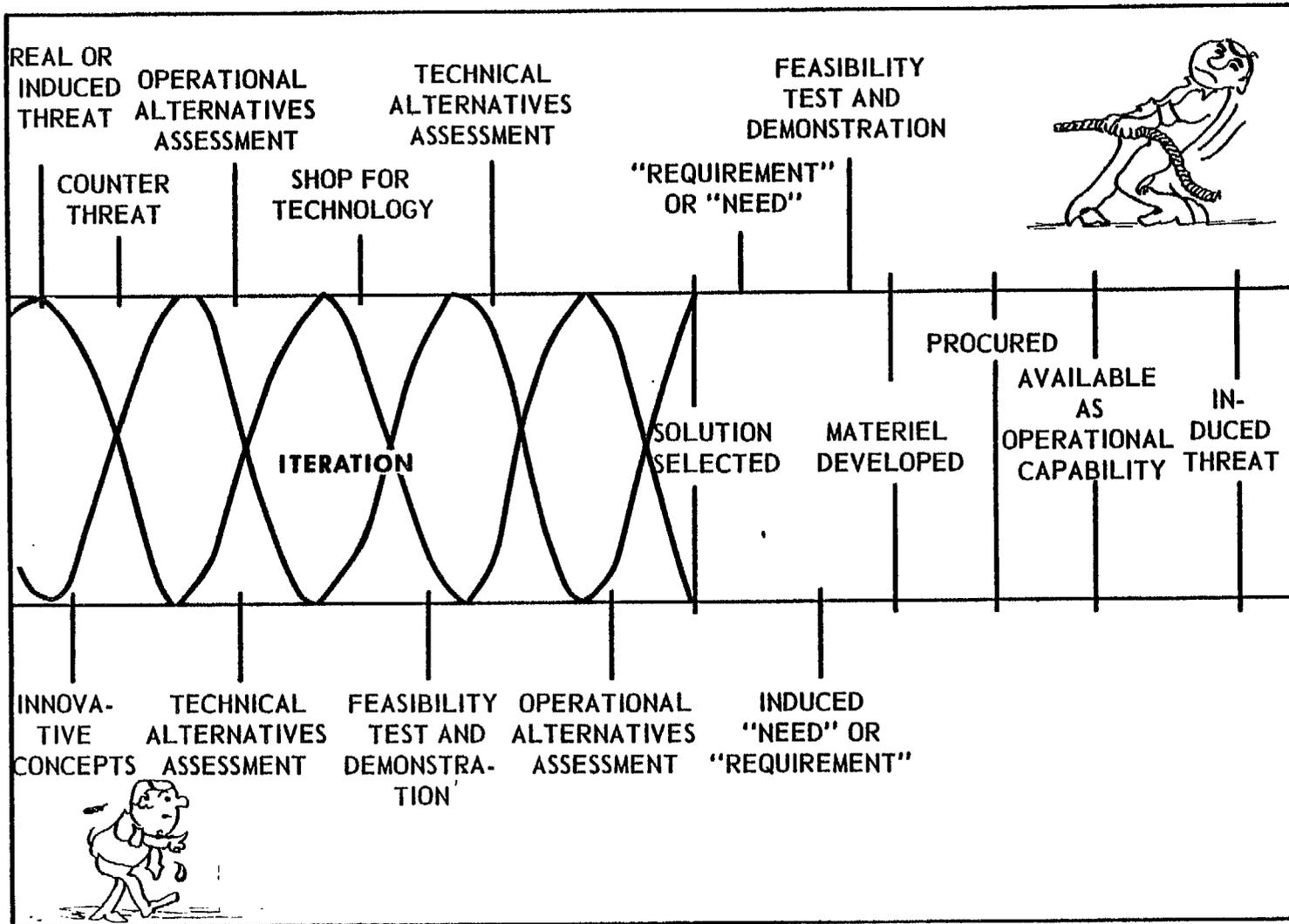


FIGURE 4-1

interact, the weapons employed by two sides and defense processes such as personnel and weapons procurement. Furthermore, assessments can be national in their scope and embrace economic and political as well as military issues.

However, in the majority of cases the Director of Net Assessment does not conduct the analyses within his office. He identifies topics to be analyzed, develops the major issues in discussions with experts in the subject and coordinates and monitors the execution of the analyses by another organization. Studies, for example have been prepared by CIA, State Department, the Services, DDR&E and ASD/PA&E. The work of these organizations is reviewed not only by the Director of Net Assessment but by ad hoc committees formed with members from concerned agencies to oversee individual studies. Key points and observations surface both in the analytical work of the responsible agency and in the discussions within these ad hoc committees.

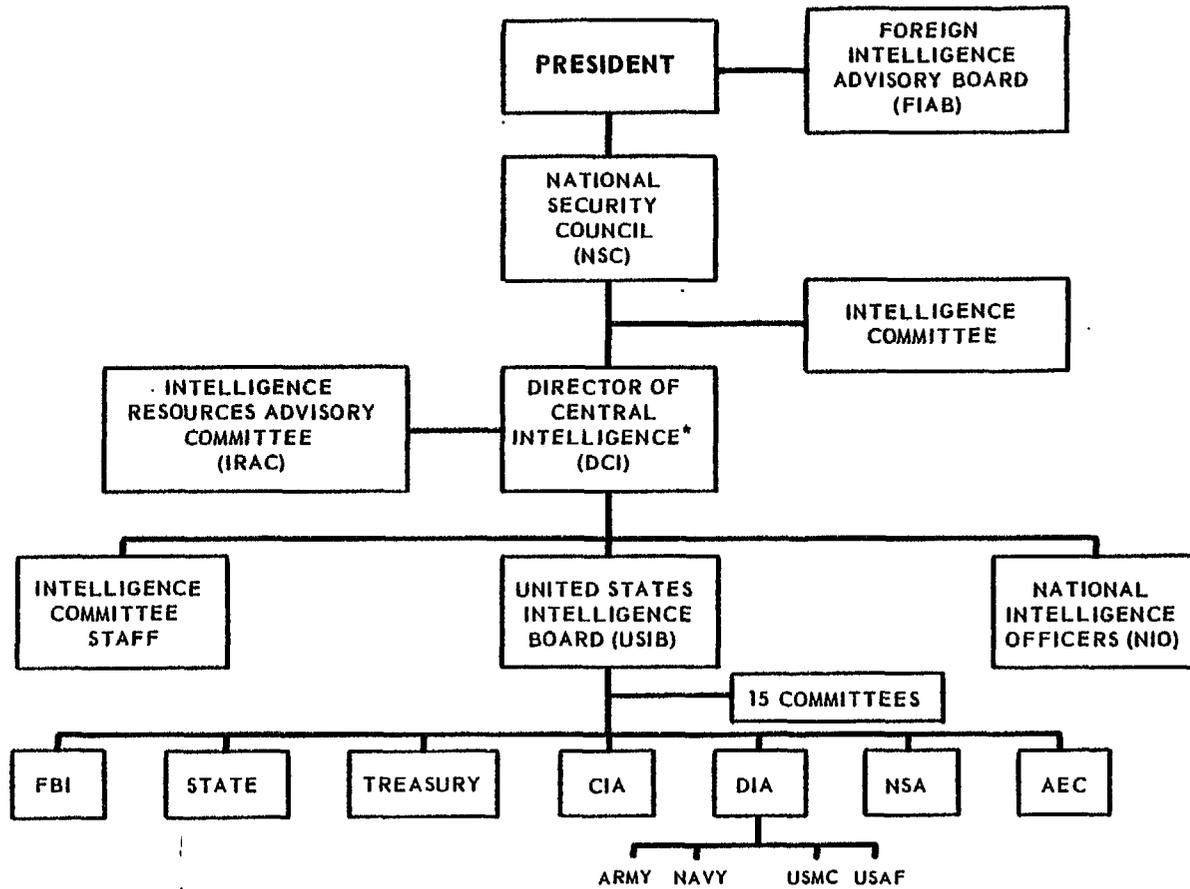
NET TECHNICAL ASSESSMENT

The Director of Defense Research and Engineering, as the manager of Program 6, Research and Development, and the RDT&E appropriation, has his own Assistant for Threat Assessment. The product attempts to evaluate foreign technology capabilities and intentions and is generally referred to as net technical assessment. An example of the scope of the work can be found in an earlier report.¹

¹Comparison of Military Research and Development Expenditures of the U.S. and Soviet Union, B-172553, July 23, 1971.

NATIONAL INTELLIGENCE COMMUNITY

FIGURE 4-2



* The Director of CIA is the Director of Central Intelligence as well as Chairman of the USIB.

The Net Technical Assessments, carried out within OSD by DDR&E appear to provide an improving basis for DDR&E sizing of the overall Soviet Military R&D effort relative to our own and highlighting areas where Soviet technology is ahead of ours. The OSD Net Technocal Assessment activity draws upon work done by the Defense Intelligence Agency and the Services. The Air Force has supported the effort by providing intelligence to the OSD contractors and has enlisted industrial expertise where needed. While the primary customer for the DDR&E work is OSD, the DDR&E Net Technical Assessment activities have had a synergistic effect in its interactions with the Services. Net Technical Assessment, in effect, is now being conducted throughout the Services in response to DDR&E. This is forcing a closer contact and communication of the intelligence community with those involved in RDT&E of U.S. weapon systems.¹

NATIONAL INTELLIGENCE COMMUNITY

As the cornerstone of military planning, the intelligence function in the DOD is an integral part of a national apparatus generally referred to as the "Intelligence Community" (Figure 4-2). The key link between the intelligence community and the top executive level of our Government is the Director of Central Intelligence (DCI). In this capacity he is in effect, the President's chief foreign intelligence officer. He also serves as the Director of the Central Intelligence Agency and the Chairman of the United States Intelligence Board. The intelligence community has a key role in the needs/requirements process since they identify the threat.

¹Senate FY 74 Authorization Hearings, Part 5, p. 3490

President's Foreign Intelligence Advisory Board (FIAB)

On March 20, 1969, President Nixon established this Board by Executive Order 11460. The Board was to advise him on the objectives, conduct, management, and coordination of the various activities making up the overall national intelligence effort. The Board is composed of persons from outside of Government appointed by the President who conduct a continuing review and assessment of foreign intelligence and related activities in which the CIA and other departments and agencies are engaged, and make recommendations to achieve increased effectiveness.

United States Intelligence Board (USIB)

The nation's intelligence community is unquestionably large but it is anything but monolithic. It is a loose aggregation of agencies, each with a specific role and place, wary of any encroachment on its prerogatives. It is brought together at the top by the USIB. The Board, which reports to the National Security Council, coordinates and supervises major American intelligence activities and exercises supervisory control over every other security system. Besides the Director and Deputy Director of CIA, membership includes a representative of the agencies shown in figure 4-2. Representatives of the intelligence organizations of the Departments of the Army, Navy and Air Force sit as observers, and the Assistant Secretary of Defense for Intelligence also attends.

National Intelligence Officers (NIO)

These are relatively new positions in the national intelligence community. National Intelligence officers as an aggregation of geographical, country, and subject area specialists have replaced the old Board of National Estimates (BNE). The NIOs now receive intelligence from all sources and either personally prepare or supervise preparation of the National Intelligence Estimates. Drafts are coordinated with agencies of interest, who usually will have contributed intelligence to the draft estimate. These draft estimates must ultimately be approved by the USIB.

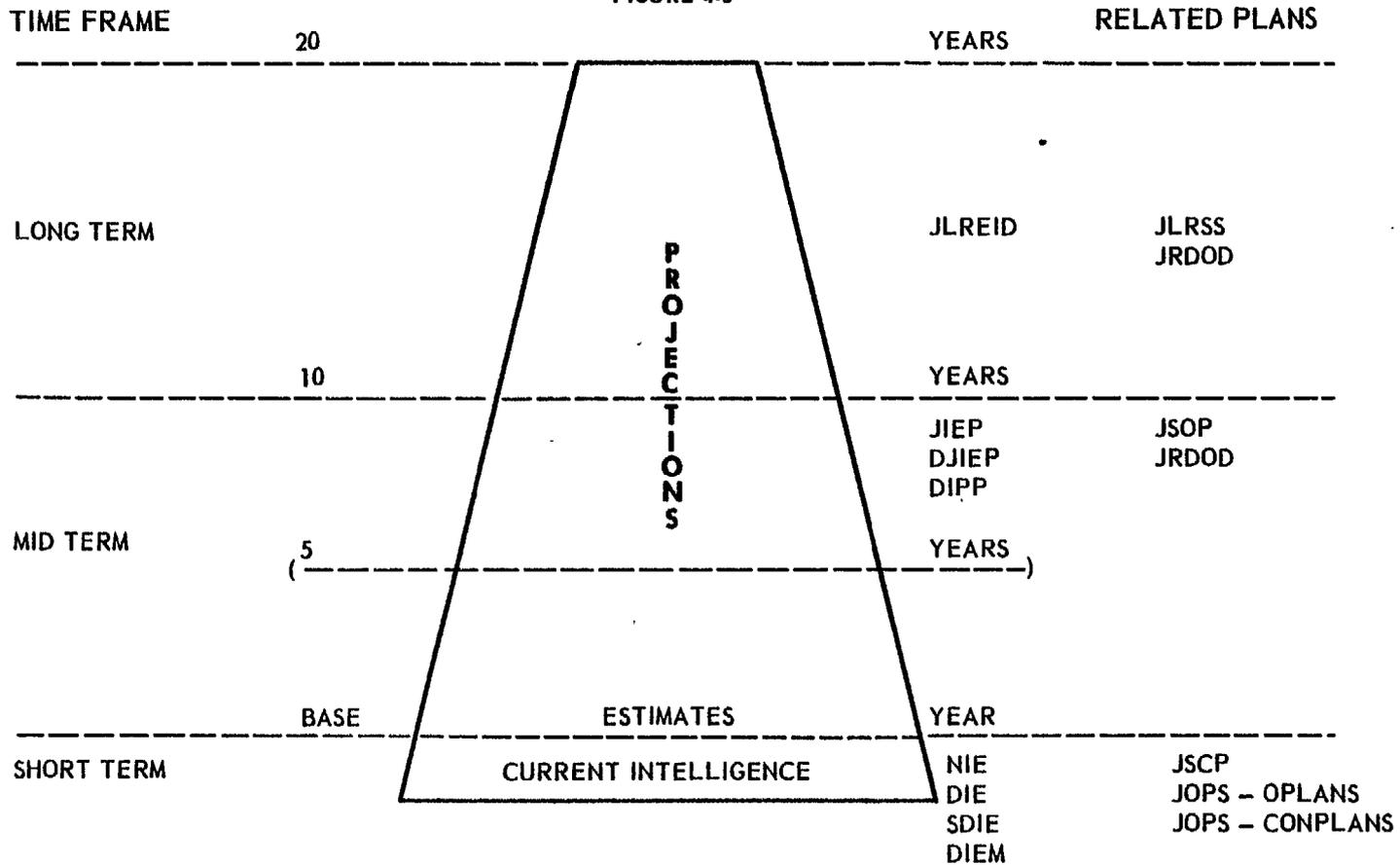
National Intelligence Estimates (NIE)

The intelligence community produces NIEs on all areas of the world, dividing it into six subordinate parts for the production of regular NIEs. These documents representing nationally agreed intelligence are produced on:

- The World
- Communist States
- Europe
- Mid-East and Southern Asia
- Far-East and South-East Asia
- Africa
- Latin America

INTELLIGENCE PRODUCTS

FIGURE 4-3



National Intelligence Estimates (NIE) are usually concerned with something less than 5 years in the future (Figure 4-3). The major military NIEs are updated on a recurring schedule staggered throughout the year. The Department of Defense and service intelligence agencies receive this Director of Central Intelligence product, but since it is keyed to national level use, its value to military planners is limited because of the broad coverage given to most national security issues.

Special National Intelligence Estimates (SNIE)

There are about 50 to 60 SNIEs produced annually and this number includes SNIEs on specialized or topical subjects such as SALT, MBFR, Arab-Israeli war, Southeast Asia and the like. The contributors are the same, as is distribution.

MILITARY INTELLIGENCE COMMUNITY

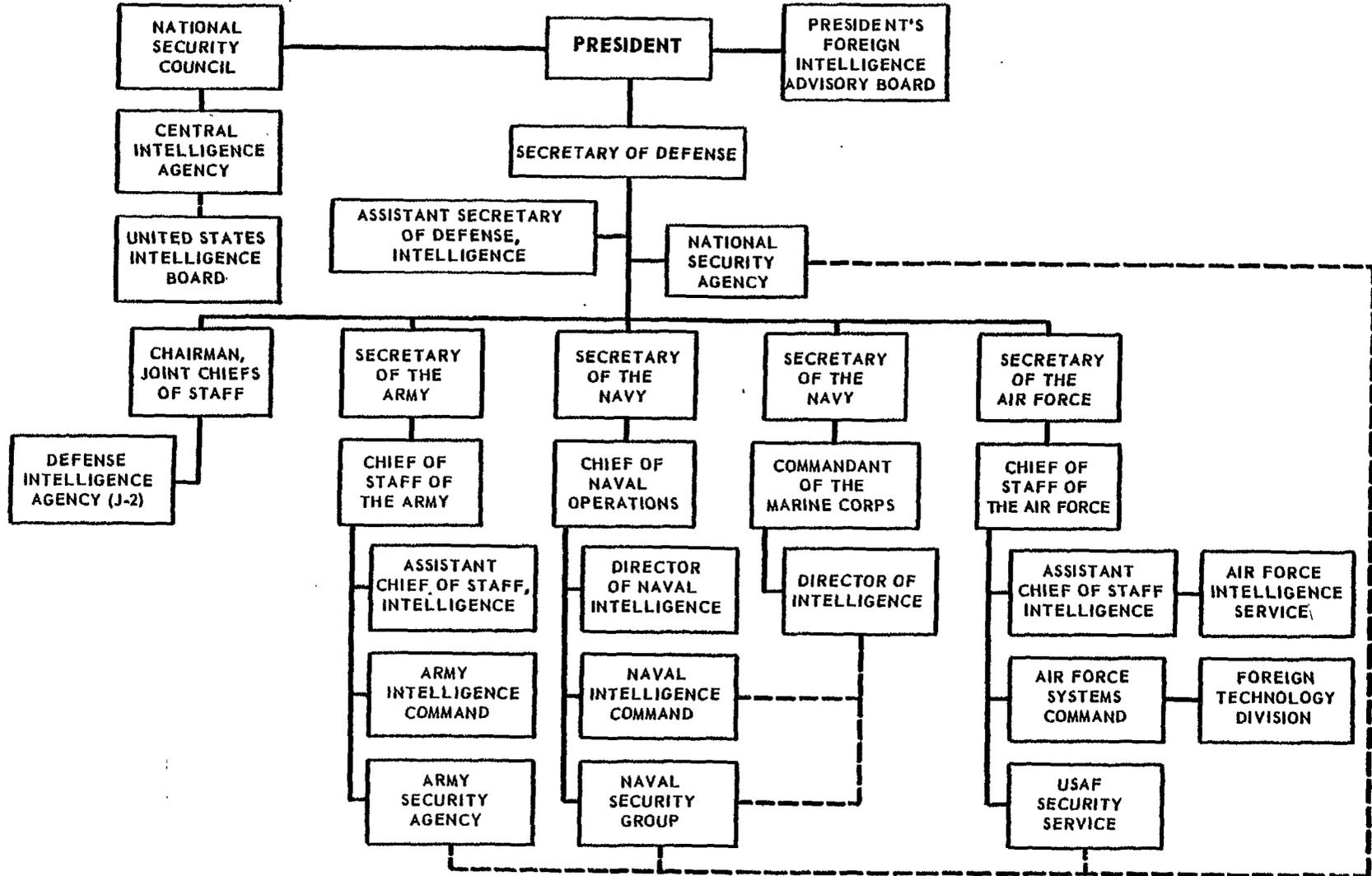
Prior to World War II each of the armed services did its own planning but not in the long-range as we know it today. The advent of the Joint Chiefs of Staff extended the planning range out to 20 years and raised the intelligence function to new stature. Figure 4-4 attempts to relate the various members of the military intelligence community to the DOD organization and generally to the national intelligence community.

National Security Agency (NSA)

This organization, established by Executive Order in 1952 as a separately organized agency within the Department of Defense. It is under the direction, authority, and control of the Secretary of Defense who is the executive agent for the performance of highly specialized

FIGURE 4-4

MILITARY INTELLIGENCE COMMUNITY



technical functions in support of the intelligence activities of the United States. NSA has technical and operational control over the unique collection and processing efforts of three service organizations-- Army Security Agency (ASA), Naval Security Group (NSG), and Air Force Security Service (AFSS). The product of this effort is disseminated to the intelligence community.

Defense Intelligence Agency (DIA)

The establishment of the Defense Intelligence Agency in 1961 brought centralized management to what had been difussed, separate, traditional service functions. The need for this agency was well recognized. A number of organizations had been doing similar or parallel work and there was little unified direction of the total intelligence activity in the Department of Defense. In establishing the agency, the Secretary of Defense decided that it should be a union, not a confederation. DIA became responsible for organizing, directing and controlling the intelligence resources assigned to it, and for reviewing and coordinating the functions retained by the military departments. Its jurisdiction, however, does not extend to the National Security Agency; coordination between these two DOD agencies is effected through liaison arrangements. The DIA director reports to the Secretary of Defense through the Joint Chiefs of Staff. He receives guidance from the Director of Central Intelligence in that individual's role as chairman of the United States Intelligence Board. As the reviewer and coordinator of intelligence functions retained by or assigned to the military departments, DIA is responsible for overall guidance of the conduct and management of military intelligence and is charged with assessing the worldwide military situation. The agency analyzes all military and related intelligence

information collected by all agencies of the Government including the military services. The evaluated intelligence is provided to national level users as well as being disseminated within the DOD. Major intelligence products are:

Joint Long Range Estimative Intelligence Document (JLREID) - The JLREID provides the principal intelligence basis for the development of the long-range planning documents under the Joint Strategic Planning System (i.e., the Joint Long Range Strategic Study (JLRSS) and the long range portion of the Joint Research and Development Objectives Document (JRDOD); see chapter 5). It summarizes factors and trends affecting world power relationships in the long-range planning period (10-20 years in the future). The JLREID includes an intelligence estimate of the likelihood and capabilities of important foreign nations to undertake courses of action which could materially affect the national interests of the United States.

The JLREID is coordinated with the military services' intelligence and planning staffs. Because of the uncertainty implication of its long range nature, it is noted, but not approved by, the Joint Chiefs of Staff and published annually on September 1. Between annual publication dates it is updated to reflect significant changes in intelligence.

Joint Intelligence Estimate for Planning (JIEP) - The JIEP provides the principal intelligence basis for the short-range (current year and the next budget year) and mid-range (2-10 years in the future) planning documents of the Joint Strategic Planning System (i.e., the Joint Strategic Objectives Plan (JSOP), the Joint Strategic Capabilities Plan

(JSCP), the Joint Forces Memorandum (JFM), and the mid-range portion of the Joint Research and Development Objectives Document (JRDOD); See Chapter 5).

Defense Intelligence Estimate for Joint Planning - The DIEJP contains the up-to-date, detailed intelligence that supports the estimative intelligence and judgments in the JIEP. It contains political, economic, scientific, and technological factors that impinge on military policies and capabilities. It includes current order of battle and military force projections and related data on non-Soviet communist countries and Free World countries of importance to the US. It is coordinated with the Service Intelligence Chiefs and their differing views may appear as footnotes. The DIEJP was first published in 1971. Previously, the information it contains had been included in the JIEP.

Defense Intelligence Projections for Planning (DIPP) - The DIPP contains the military force projections of Soviet and Chinese forces for the short and mid-range planning documents under the JSPS. It provides some narrative description of these forces and supporting rationale for the projections. It is coordinated with the Service Intelligence Chiefs and their differing views may appear as footnotes.

Additional Estimative Intelligence Support. The Defense Intelligence Agency (DIA) will prepare and maintain up-to-date amplifying estimative intelligence, in addition to the Defense Intelligence Projections for Planning (DIPP), designed to support the JSCP and the JSOP. It shall contain current and projected order of battle data on non-Soviet communist countries and selected Free World countries together with appropriate rationale for the projections. It will follow, so far as practical

the DIPP format and content and shall be as prescribed in the guidelines. These data shall be prepared in loose-leaf format and be coordinated with the Service Intelligence chiefs; their difference of view will be reflected.

There are three types of initiative estimates - Defense Intelligence Estimates (DIE), Special Defense Intelligence Estimates (SDIE), and Defense Intelligence Estimate Memoranda (DIEM). This series was started in November 1970 when the DIA Directorate for Estimates was established. Previously, all DIA estimative production was channeled into either Joint Estimates (e.g., JIEP, JLREID) or National Intelligence Estimates (NIE; SNIE).

All three initiative estimates are strictly estimative in character--that is, they deal with the implications of intelligence or future trends and developments. [Estimative intelligence may be conceived, by and large, as that intelligence which is of particular usefulness to planners and policy makers.] The Defense estimates deal essentially with developments that will or may affect US national interests, defense programs or policies, or military force posturing.

The DIEs and SDIEs are coordinated with the Service Intelligence Chiefs and their differing views may appear as footnotes. The SDIEs generally address subjects or issues that are narrower in scope and more specific in impact than those treated in DIEs.

The DIEMs generally address subjects of less importance to Military Service interests than the DIEs and SDIEs. They are, consequently, not coordinated with the Service Intelligence Chiefs.

Assistant Secretary of Defense, Intelligence (ASD/I)

Established November 1, 1971, this post was part of a more extensive, government-wide reorganization plan aimed at making the gathering of all types of military and foreign intelligence more efficient and economical.

He is the principal staff advisor and assistant to the Secretary of Defense for the management of intelligence resources, programs, and activities, including those for intelligence, warning, reconnaissance, the intelligence aspects of command and control, and other related areas which may be designated by the Secretary of Defense. His responsibility specifically includes equipment, systems, and activities in the above areas which are organic to military forces or units so that his role covers both strategic and tactical intelligence. He attends meetings of the USIB, and while not a full member, may present his views.

Military Departments

It should be noted that unlike the Office of the Secretary of Defense, the Military Department Secretaries have no Assistant Secretary for Intelligence. The functional lines for intelligence bypass the department secretaries. The four assistant secretaries of the Army, Navy, and Air Force have no intelligence role except as consumers of intelligence products. The service secretary is provided with intelligence information by the Chief of the appropriate military intelligence staff. (Figure 4-4)

Military Services

Prior to World War II, each service has its own intelligence staff function and intelligence collection organization. Since the establishment

of the DIA, this agency has assumed the role of production and coordinating authority for all DOD intelligence production requirements except those in the scientific and technical (S&T) area.

The services operate the scientific and technical intelligence analysis centers, oriented to their particular roles, for the intelligence community. These are managed by DIA and consist of:

Army - Foreign Science and Technology Center, Charlottesville, VA.

Missile Intelligence Division, Huntsville, AL.

Navy - Navy Intelligence Support Center, Suitland, MD.

Air Force - Foreign Technology Division, Dayton, OH.

One specific product of these specialized intelligence agencies is their annual discrete package inputs to Section IV, Technological Developments of Military Significance, of the Joint Long Range Estimative Intelligence Document (JLREID). Prior to 1971, the Defense Intelligence Agency provided the Joint Staff (J-5) with unrelated regional forecasts. Prompted to some extent by Army efforts, the JCS called for worldwide coverage in 1971 and the JLREID was created and issued in 1972. It is intended to relate international developments, conflict possibilities, country and regional forecasts, and the intelligence product of the military technical analysis centers.

CONGRESS

In conducting any audit, the first action in either survey or review phase is to research the subject area. Research includes determining what is already known about the subject area and the Congress cannot be overlooked. In relation to the threat and threat assessment, Congress

receives data as a part of the classified posture statements of the Secretary of Defense and the Chairman of the Joint Chiefs of Staff presented during the annual budget cycle. Additional classified data is presented by witnesses during the hearings but this is usually not specific threat or threat assessment data.

Individual members may obtain intelligence briefings from the Central Intelligence Agency. CIA briefings though, are thought to be broad in coverage and at the foreign policy level. Specific military intelligence data can be requested from the Assistant Secretary of Defense for Legislative Affairs and provided by the Defense Intelligence Agency. DIA may call on service intelligence specialists to assist in such briefings.

DIA also conducts weekly intelligence briefings on Capitol Hill for the staffs of committees. This series of briefings covers current intelligence and not in-depth threat or threat assessment coverage. The Senate Appropriations Committee initiated the series and the House Appropriations Committee staff became regular participants. While the staffs of the armed services committees are invited, they attend infrequently.

CHAPTER 5

JOINT CHIEFS OF STAFF

The Joint Chiefs of Staff were first given statutory recognition in the National Security Act of 1947. However, their current organization and functions stem from the Defense Reorganization Act of 1958. They are the principal military advisors to the President, the National Security Council, and the Secretary of Defense.

ORGANIZATION AND FUNCTIONS

The Organization of the Joint Chiefs of Staff has three major components--the Joint Chiefs of Staff themselves as a corporate body; the Joint Staff, headed by a Director, which performs tasks to support the Joint Chiefs' decisions; and supplementary staff organizations deemed necessary for the Joint Chiefs to carry out their responsibilities (see Figure 5-1).

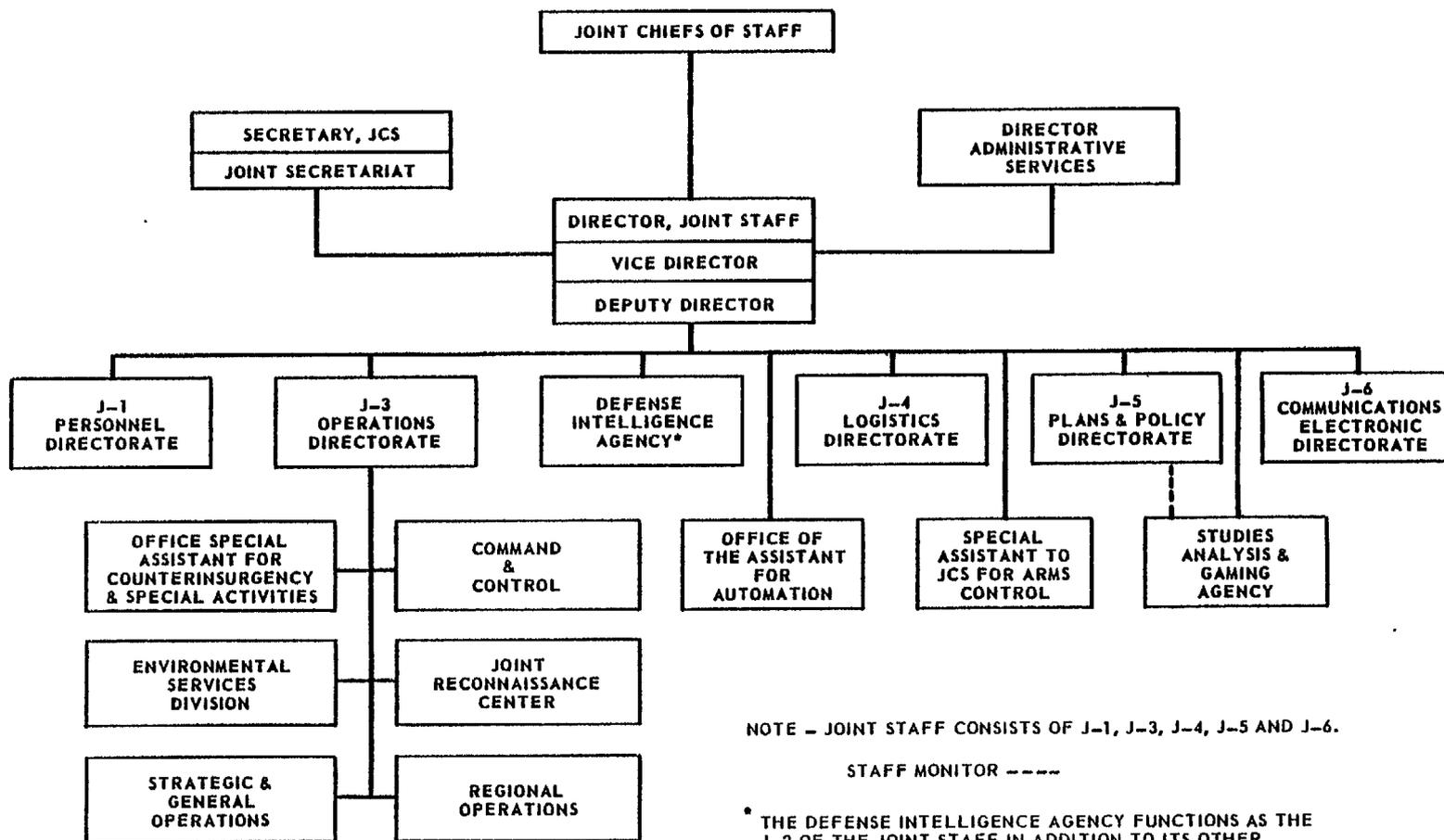
Joint Chiefs of Staff

The Joint Chiefs of Staff membership includes the

- Chairman of the Joint Chiefs of Staff
- Chief of Staff of the Army
- Chief of Naval Operations
- Chief of Staff of the Air Force
- Commandant of the Marine Corps (who has coequal status with the other members on matters directly concerning the Marine Corps)

Although the three Chiefs and the Commandant serve in a dual capacity as a member of the Joint Chiefs of Staff and as Chief of their respective Services,

INTERNAL ORGANIZATION OF THE JOINT CHIEFS OF STAFF



NOTE - JOINT STAFF CONSISTS OF J-1, J-3, J-4, J-5 AND J-6.

STAFF MONITOR -----

* THE DEFENSE INTELLIGENCE AGENCY FUNCTIONS AS THE J-2 OF THE JOINT STAFF IN ADDITION TO ITS OTHER RESPONSIBILITIES.

Figure 5-1

their Joint Chiefs of Staff duties take precedence over all of their other duties. As a result, appropriate authority is usually delegated to their Vice Chiefs for managing their respective Service. The Chairman does not have a dual role in the same sense, but he or his representative participates in the National Security Council matters and members of the Joint Staff participate in its working groups to ensure that Joint views on military matters are made known and considered during the national policy-making process (see Chapter 3).

As discussed in Chapter 6, there are two separate channels of authority emanating from the Secretary of Defense. One extends to the Secretaries of the three military Departments through which men, materiel, and money are provided--the support forces--and the other through the Joint Chiefs of Staff to the unified and specified Commands--the combat force. The concept of our military establishment as an efficient team of land, naval, and air forces is based on the principle that effective utilization of the military power of the Nation requires that the efforts of the separate military Services be closely integrated. Unity of effort among the Services at the national level is obtained by the authority of the President and the Secretary of Defense exercised through the Secretaries of the Military Departments and the Joint Chiefs of Staff; by the strategic planning and direction of the Joint Chiefs of Staff; and by common, joint, and cross-servicing by the Military Departments. Unity of effort among Service forces assigned to unified or specified commands is achieved by exercise of operational command, by adherence to common strategic plans and directives, and by sound operational

and administrative command organization. This concept is the basis for a sound working relationship between the Joint Chiefs of Staff and the commanders of unified and specified commands in the overall strategic direction of the Armed Forces on the one hand and, on the other, the Military Departments and Services charged with preparing and providing forces for the unified and specified commands and administering and supporting the forces so provided.

Basically, the Departments organize, equip, train, and support forces for assignment to unified and specified Commands in preparation for war. Any forces not assigned to these Commands remain under the military Department's control. The Departmental Secretaries are therefore responsible to the Secretary of Defense for their Department's operating or management efficiency.

Unified and specified commanders are responsible to the President and the Secretary of Defense through the Joint Chiefs of Staff. These commanders have full operational command over the forces assigned to them. With this organizational arrangement, the Joint Chiefs of Staff actually serve within an operational chain of command extending from the President and the Secretary of Defense to the unified and specified commanders. With the advice of the Joint Chiefs of Staff, the President, through the Secretary of Defense, establishes unified or specified combatant commands for the performance of military missions, and determines the force structure of such combatant commands. Commanders of unified and specified commands are responsible to the President and the Secretary of Defense for the accomplishment of the military missions assigned to them. The chain of command runs from the President to the

Secretary of Defense and through the Joint Chiefs of Staff to the commanders of unified and specified commands. Orders to such commanders will be issued by the President or the Secretary of Defense, or by the Joint Chiefs of Staff by authority and direction of the Secretary of Defense. These commanders shall have full operational command over the forces assigned to them and shall perform such functions as are assigned by competent authority.

Joint Staff

The Chairman of the Joint Chiefs of Staff has the authority and responsibility for organizing the Joint Staff. Statutory limits require the Joint Staff to be composed of not more than 400 officers. These officers are selected in approximately equal number from the Army, the Navy and Marine Corps, and the Air Force. They are currently organized into Directorates concerned with personnel, operations, logistics, plans and policy, and communications-electronics. The Defense Intelligence Agency absorbed the intelligence directorate when DIA was organized in 1961.

The Staff's principal function is to prepare reports on which the Joint Chiefs base their decisions. Actions are to be coordinated among the Services to arrive at a "single" position whenever possible. However, provision is made for dissenting and minority opinion.

Supplementary Staff Organizations

In addition to the statutory limits placed on the number of personnel serving in the actual Joint Staff, a number of other staff organizations also perform specific functions for the Joint Chiefs. The Congress has neither challenged this, nor indicated a willingness to raise the limitation.

Some of these organizations include the

- Joint Secretariat
- Directorate of Administrative Services
- Studies, Analysis, and Gaming Agency
- Office of the Assistant for Automation
- Special Assistants
- Representatives to International Organizations

PLANNING FUNCTIONS

The readiness of an optimum force capable of immediate reaction to aggression, and the determination to employ forces when necessary, are essential means for deterring war. Well-conceived and well-understood plans of action are therefore essential. War plans must deal with the most probable eventualities, be kept up-to-date, and provide maximum flexibility to meet shifting requirements.

The Joint Chiefs are charged by the National Security Act of 1947 with the responsibility of preparing such plans. They include intelligence statements, analyses and studies, and strategic and operational plans, and are expressed through the Joint Strategic Planning System (JSPS) and the Joint Operational Planning System (JOPS). The former System is mainly concerned with what is needed to do the job, the latter with how the forces will be employed.

The cornerstone for rational defense planning is intelligence and threat information about foreign nations or areas. To be useful, however, it must be adequate, timely, and accurate. It must be collected, evaluated, analyzed, integrated, interpreted, disseminated to users, and carefully considered by decision-makers in developing their plans. (See Chapter 4 for a discussion

of intelligence). the Joint Chiefs of Staff have a key role in performing these intelligence tasks.

Strategic Planning

The Joint Strategic Planning System (JSPS) requires periodic publication or updating of the following nine classified documents which are grouped into three areas:

Intelligence

- JIEP - Joint Intelligence Estimate for Planning (annually)
- DIPP - Defense Intelligence Projection for Planning (annually)
- DIEJP - Defense Intelligence Estimate for Joint Planning (annually)
- JLREID - Joint Long-Range Estimative Intelligence Document (annually)

Strategy

- JSCP - Joint Strategic Capabilities Plan (bi-annually)
- JFM - Joint Force Memorandum (annually)
- JSOP - Joint Strategic Objectives Plan (Annually)
- JLRSS - Joint Long-Range Strategic Study (quadri-annually)

Research and Development

- JRDOD - Joint Research and Development Objectives Document (annually),

The System is divided into three time periods--short--mid--and long-range, and the display below (Figure 5-2) shows the relationship of the documents to time. The documents include the fiscal years which coincide with the first and last year of the period covered. In subsequent planning cycle years, the fiscal years covered are advanced one year each year.

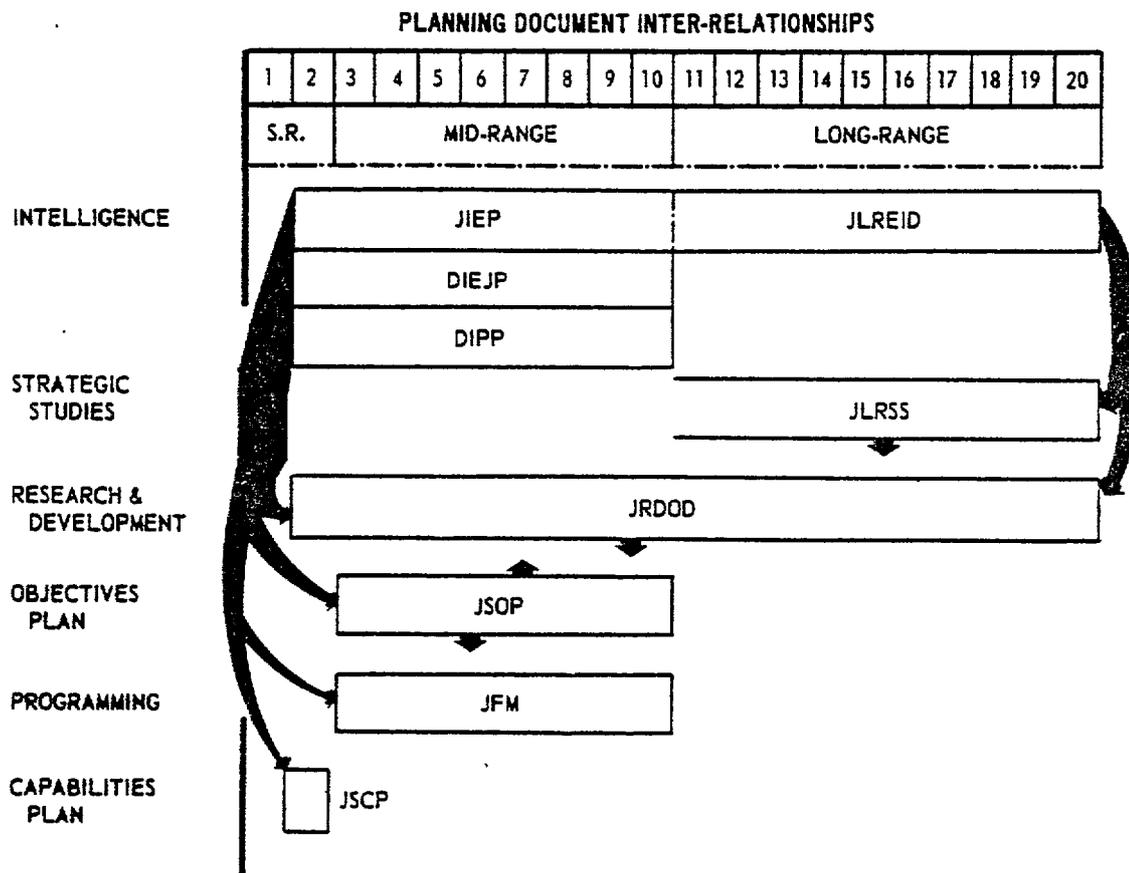
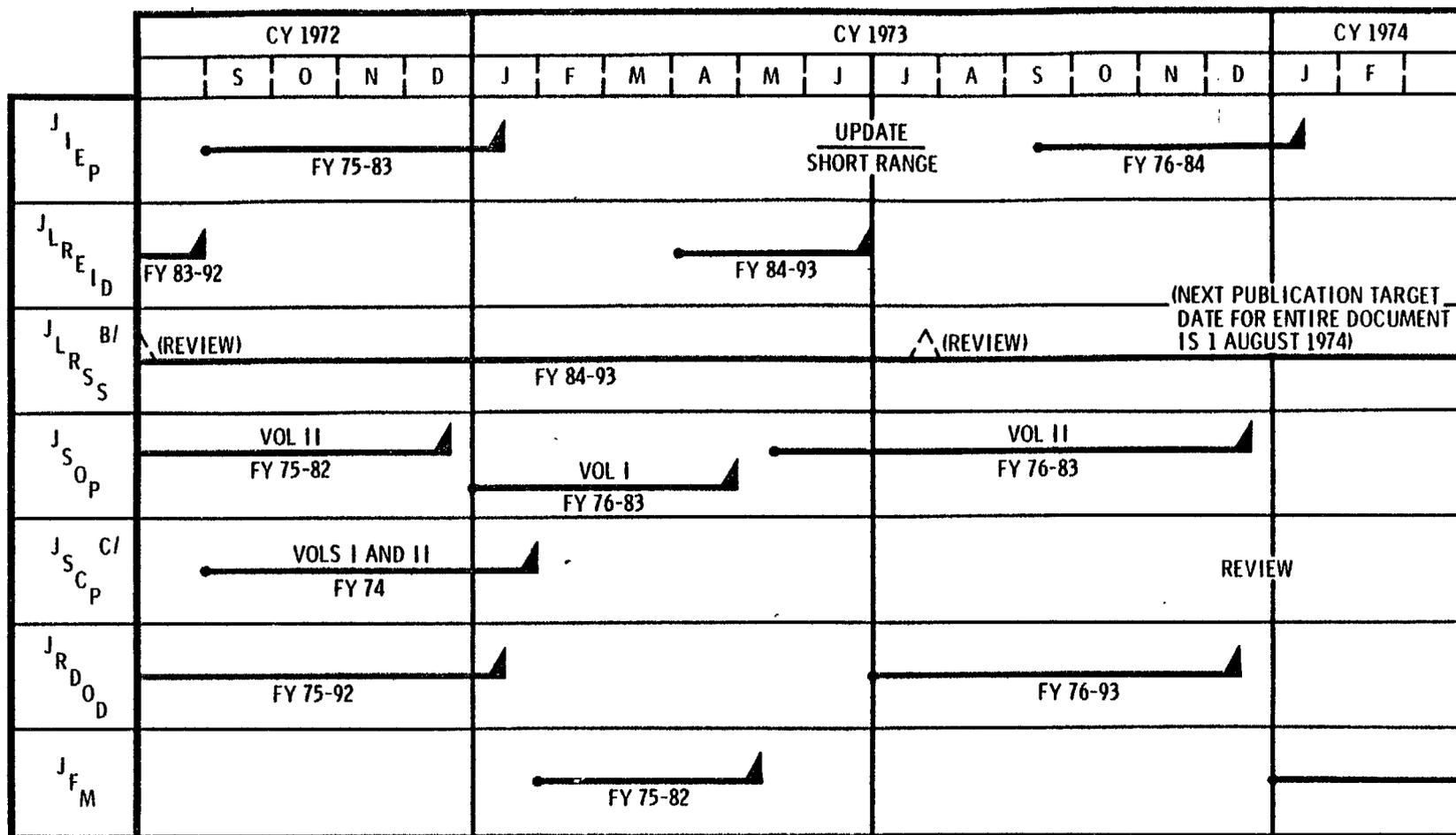


Figure 5-2

The schedule of events in Figure 5-3 displays the annual sequence in preparing and reviewing seven of these documents. Preparation and publication of the strategy and research and development documents are dependent upon, and may vary because of, the Program/Budget Review Calendar published annually by the Office of the Secretary of Defense. Preparation and staffing responsibilities for the planning documents are displayed in Figure 5-4 and 5-5.

With the exception of the intelligence documents which were discussed in Chapter 4, a brief description of these planning documents is provided below. A more detailed description, except for the Defense Intelligence Agency unique documents, is provided in Appendix 1 to this chapter.

PLANNING SEQUENCE FOR THE JOINT STRATEGIC PLANNING SYSTEM ^{A/}



5-9

A/ SCHEDULE MAY VARY IN ACCORDANCE WITH PROGRAM/BUDGET REVIEW SCHEDULE PUBLISHED ANNUALLY BY OSD
 B/ REVIEW ANNUALLY AND UPDATE TO REFLECT SUBSTANTIVE CHANGES; PUBLISH ENTIRE DOCUMENT QUADRENNIALLY.
 C/ REVIEW ANNUALLY AND UPDATE TO REFLECT SIGNIFICANT CHANGES. PUBLISH BIENNIALLY.

Figure 5-3

The Joint Strategic Objective Plan (JSOP) provides Joint Chiefs of Staff and Service advice to the President, National Security Council, and Secretary of Defense on military strategy (Volume I) and force structure (Volume II) required to attain national security objectives in the mid-range period.

The Joint Force Memorandum (JFM) provides the Secretary of Defense with Joint Chiefs of Staff recommendations on fiscally constrained major forces and support levels and the risks inherent therein developed in accordance with Secretary of Defense Planning and Programming Guidance Memorandum (PPGM). It compares costs of the fiscally constrained force levels and support programs with the cost of the approved Five-Year Defense Program (FYDP).

The Joint Strategic Capabilities Plan (JSCP) provides guidance to the commanders of unified and specified commands and to Chiefs of Services for accomplishing military tasks, based on projected military capabilities and conditions, for the coming year. It contains military strategy based on projected available forces, to support the national security objective and the derived military objectives.

The Joint Long-Range Strategic Study (JLRSS) is a source document that explains the strategic implications of worldwide and national economic, political, social, technical, and military trends. It deals with national objectives, policies, and military constraints and relates these to world and regional trends. It is intended to stimulate more sharply focused strategic studies and to be useful in developing military policies, plans and programs having long-range implications.

The Joint Research and Development Objectives Document (JRDOD) is to translate into research and development objectives; (1) the broad strategic implications of United States military capabilities projected in the Joint Long-Range Strategic Study, and (2) the strategic appraisal and concept, objective force level, and functional requirements of the Joint Strategic Objective Plan.

Operational Planning

The Joint Operation Planning System (JOPS) was approved by the Joint Chiefs of Staff in August 1970 to improve current war planning for D-Day contingencies. It establishes the system used in planning and support of joint military operations and consolidates policies and procedures for the development, review, approval and execution of joint plans. The objective of this planning is to provide detailed instructions to subordinates, fully coordinated requests to supporting commands and agencies, and comprehensive data for use in evaluating the United States capability to fulfill strategic responsibilities.

The complete planning process begins when the Joint Chiefs of Staff assign combat operational tasks to unified and specified commanders. Each year the Joint Strategic Capabilities Plan (JSCP) assigns new tasks or continues old task assignments to these commanders, and they must prepare Operation Plans in Complete Format (O-PLANS) or Operation Plans in Concept Format (CONPLAN). The Joint Strategic Capabilities Plan also tells these commanders what assigned, augmentation, and supporting forces the Joint Chiefs of Staff have made available for planning the accomplishment of the operational task. The commander analyzes the operation, prepares estimates, develops a

JOINT STRATEGIC PLANNING SYSTEM (JSPS)

JOINT DOCUMENT	TIME FRAME	PURPOSE	SERVICE SUPPORTING PLAN			
			ARMY	NAVY	MARINE CORPS	AIR FORCE
Joint Long Range Strategic Study (JLRSS)	Long Range (10-20 yrs in the future).	<ul style="list-style-type: none"> • Forecasts nature of possible conflict • Anticipates Scientific and Technological developments likely to affect future warfare 	Army Strategic Appraisal (ASA)	Navy Strategic Study (NSS) Annex B, Long-Range Guidance	Marine Long Range Plan (MLRP)	U S A F Planning Concepts (The Plan)
Joint Strategic Objectives Plan (JSOP)	Mid-Range (2-10 in the future) Vol. I-Strategy Vol II-Force Objectives	<ul style="list-style-type: none"> • Specifies basic undertakings for the DOD during the period • Relates undertakings to resources and force structures required • Develops military rationale for the Five Year Defense Program 	Army Strategic Appraisal (ASA) Army Force Guidance (AFG)	Navy Strategic Study (NSS) Annex A, Mid-Range Guidance	Marine Corps Mid-Range Objectives Plan (MMROP)	U S A F Planning Concepts (The Plan)
Joint Research and Development Objectives Document (JRDDO)	Part I--Long-Range (11-20) Part II--Mid-Range (1-10) [the Budget year plus 19 years in PPBS Planning]	<ul style="list-style-type: none"> • Translates broad operational requirements for materiel into R&D objectives • Provides advice to OSD regarding relative military importance of R&D activities to support the strategic concept, military objectives and the needs of the unified and specified commands • Provides guidance to the services for their R&D planning 	(ASA) (AFG) Army Long Range Technological Forecast (ALRTF)	Navy Strategic Study (NSS) Navy Technological Projections (NTP)	(MLRP) (MMROP) (NTP)	U S A F Planning Concepts (The Plan)
Joint Strategic Capabilities Plan (JSCP)	Short Range (Current Fiscal Year) --[the Budget Year in PPBS Planning]	<ul style="list-style-type: none"> • Translates national objectives and strategic concepts • Relates world-wide strategic problems to the resources currently available 	Army Strategic Capabilities Plan (ASCP)	Navy Capabilities Plan (NCP)	Marine Capabilities Plan (MCP)	U S A F War and Mobilization Plan (WMP)

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Figure 5-6

concept of operation, and then assigns tasks and inter-Service support requirements to his subordinate component commanders. In some cases he may be able to task other unified and specified commands.

Two of the more important parts of the operations plans are the Time-Phased Force and Deployment List (TPFDL) and the Transportation Requirements List (TPTRL). The deployment list will include combat, combat support, and combat Service support units to be employed in executing the plan or supporting its execution. Individual forces are usually listed at the highest level for which Service documents prescribe a standard composition; for example: Army battalion; Navy Commissioned ship; Marine Corps division and separate units down to and including separate companies or comparable levels; Air Force squadron. The transportation list includes data for each listed unit which requires separate movement scheduling.

It is interesting to note the correlation between resources and plans. For example the Air Force, in response to the Joint Strategic Capabilities Plan and implementing Joint Operational Plans, refers Air Force component commanders of unified commands to the Air Force War and Mobilization Plan which lists Air Force assets on hand and projected in the Air Force current POM and the current Five-Year Defense Program. The Joint Chiefs of Staff must depend upon the military departments to make adequate forces and equipment available to unified commands. The unified commander, responsible for fighting the war, is restricted to what the various military department secretaries choose to maintain or program to meet JCS objective force levels. The Secretary of Defense has the final decision on the adequacy or inadequacy

of the forces and equipment made available. He accomplishes this by reviewing the Services' Program Objective Memorandums and examining their consonance with the Joint Forces Memorandum.

JOINT STRATEGIC PLANNING SYSTEM DOCUMENTS

There are two intelligence estimates in the Joint Strategic Planning System--the JIEP and the JLREID. The JIEP provides the principal intelligence basis for the development of the JSOP, JFM, and the mid-range period of the JRDOD. The JLREID provides the principal intelligence basis for the development of the JLRSS and the long-range period of the JRDOD. Appendix I to this Chapter 5 contains a description of the seven Joint Chiefs of Staff documents that comprise the Joint Strategic Planning System (JSPS). It is an abridgement of the descriptions contained in the Joint Chiefs of Staff Memorandum of policy which governs the operation of the JSPS (12th revision--23 February 1973). Figure 5-6 shows the supporting plans of each of the Services.

JOINT LONG-RANGE STRATEGIC STUDY (JLRSS). The JLRSS is designed to produce a source document including representative environmental projections and useful analyses of trends and relationships. It addresses the strategic implications of worldwide and national economic, political, social, technical, and military trends. It deals with national objectives, policies, and military constraints and relates these to world and regional trends. As a source document, it is intended to stimulate more sharply focused strategic studies and to be useful in developing military policies, plans, and programs having long-range implications.

Scope. The JLRSS will take into consideration the JLREID and will include:

- A strategic appraisal of the major political, ideological, military, socio-economic, and techno-scientific factors and trends which are expected to influence the world environment over the long term.
- A consideration of the probable major world power groupings, including alternative power alignments, and a listing of possible conflict situations.
- A broad description of the capabilities that the US Armed Forces **should possess in order to serve as an instrument of national policy in the long-range period.**
- A correlation of the anticipated US military capabilities with major research and development goals in terms of required long-range operational capabilities

Administrative Procedures. The JLRSS shall be presented at least every 2 years to the Joint Chiefs of Staff for approval and publication by 1 October. The document will be reviewed annually and updated as appropriate.

JOINT STRATEGIC OBJECTIVES PLAN (JSOP). The purpose of the JSOP is to advise the President, the National Security Council, and the Secretary of Defense on the military strategy and force structure required to attain the national security objective of the United States and to provide planning guidance to the Chiefs of the Services and to the commanders of the unified and specified commands.

Scope. The JSOP shall contain the military strategy, mid-range military requirements, and objective force levels developed by the Joint Chiefs of Staff. It shall consist of: Volume I, Strategy and Force Planning Guidance; and Volume II, Analyses and Force Tabulations, and annexes.

Volume I, JSOP, Strategy and Force Planning Guidance. Volume I, JSOP, shall consist of two parts under one cover: Part I, Military Strategy, and Part II, Force Planning Guidance. Part I shall provide a statement of the national security objective and the military objectives derived therefrom in consideration of US national interests and commitments and the estimate of the threat as described in JIEP, Volume II, augmented by other intelligence documents, as necessary. Additionally,

in consideration of the major political, military, economic, and psychological factors and trends likely to influence US military strategy, Part I shall provide military appraisals and strategic concepts on both a worldwide and a regional basis. Part II shall contain force planning guidance provided by the Joint Chiefs of Staff to the commanders of the unified and specified commands and the Services for the development employment, and support of military forces to serve as a bridge between the strategic concept and the analyses and judgments essential in the planning process continued in the succeeding volume and annexes of the JSOP.

Volume II, JSOP, Analyses and Force Tabulations. Volume II shall be based upon Volume I, and the Secretary of Defense's Defense Policy and Planning Guidance (DPPG). It shall consider the recommendations of the Chiefs of the Services and the commanders of the unified and specified commands, the views of the Joint Chiefs of Staff as expressed in other papers, and pertinent guidance and studies provided to the Joint Chiefs of Staff.

Volume II shall:

- Develop the major US force requirements to execute the strategy for coping with global and regional threats in concert with allies, as appropriate.
- Recommend major US/Free World objective force levels to execute the strategy within the criteria of reasonable attainability and prudent risks.
- Appraise the capabilities of major programmed forces to meet the threat and execute the strategy.
- Present the conclusions and recommendations of the Joint Chiefs of Staff regarding mobilization requirements and planning.
- Develop modernization and procurement objectives.
- Present force tabulations showing the recommendations of the Joint Chiefs of Staff for the mid-range period and forces programmed for each fiscal year in the Five Year Defense Program.

Annexes. The development of the JSOP annexes shall be based upon and be consistent with the basic military objectives, global and regional appraisals, and strategic concepts in Volume I and the analyses, rationale, and force tabulations in Volume II; and shall include consideration of analysis and objective force levels for Free World Forces presented in Volume II. These annexes shall provide a basis for the development of research and development objectives for the JRDOD in the functional areas indicated by their titles. The purpose and scope of the annexes follow:

- Annex A, Intelligence. This annex shall be in two parts. Part I shall contain the major military intelligence objectives and priorities and resource planning advice. Part II shall contain intelligence resource objective recommendations and major intelligence resource issues.

APPENDIX I

• Annex B, Logistics. This annex shall contain the logistic objectives to support the objective force levels in the JSOP. It shall contain appropriate rationale to support the stated logistic objectives necessary to provide for peacetime readiness and for support of US and selected-Free World Forces to attain US military objectives.

• Annex C, Nuclear Weapons. This annex shall contain the objectives and recommendations on the levels of nuclear weapons, together with appropriate rationale.

• Annex D, Communications-Electronics (C-E). This annex shall present the recommended C-E objectives, including those relating to the Defense Communications System and communications support for the Worldwide Military Command and Control System (WMCSS). It shall contain the factors affecting military C-E requirements and guidance to insure consistency of C-E objectives with the objective force levels.

• Annex E, Command and Control. This annex shall contain the major command and control objectives. It also shall provide planning guidance for the evolutionary development of an improved WMCSS, including its interface with other command and control systems.

• Annex F, No longer a part of JSOP Volume II.

• Annex G, Mapping, Charting, and Geodesy (MC&G). This annex shall be in two parts. Part I shall contain the major MC&G objectives, priorities and requirements, and resource planning guidance. Part II shall contain MC&G resource objective recommendations and major resource issues.

• Annex H, Electronic Warfare (EW). This annex shall contain the EW objectives to support the force level objectives shown in the JSOP and the supporting rationale upon which the EW objectives are based. The annex shall also provide EW resource planning guidance, resource objective recommendations, and major resource issues.

Administrative Procedures

• Volume I, Strategy. Volume I shall be presented to the Joint Chiefs annually in time for approval and publication by 1 June. Volume I shall be forwarded to the Chiefs of the Services, the commanders of the unified and specified commands, and other addressees shown on the distribution list by 15 June and to the Secretary of Defense by 1 July.

• Volume II, Analyses and Force Tabulations. Volume II shall be presented to the Joint Chiefs of Staff annually for approval and publication by 23 December.

JOINT FORCE MEMORANDUM (JFM)

The purpose of the JFM is to provide the Secretary of Defense with the **views of the** Joint Chiefs of Staff on major force and support levels, developed in accordance with the constraining guidance issued by the Secretary of Defense.

Scope. The JFM shall include a summary of analyses and assessment of risks associated with the constrained forces as measured against the military objectives and the strategic concepts in JSOP, Volume I, and appropriate guidance from the Secretary of Defense. Also, it shall highlight major force issues which require decisions during the current year, include program costs and associated manpower requirements provided by the Services, and compare costs of the constrained force levels and the support programs with the costs of the approved FYDP baseline.

Administrative Procedures. The Joint Chiefs of Staff will promulgate guidelines in sufficient time to permit the Services to provide appropriate inputs to the JFM. The JFM and its annexes shall be presented annually to the Joint Chiefs of Staff in time for approval and publication in accordance with the Program/Budget Review Schedule published for each calendar year by the Secretary of Defense.

JOINT STRATEGIC CAPABILITIES PLAN (JSCP)

The purpose of the JSCP is to provide guidance to the commanders of the unified and specified commands and the Chiefs of the Services for the accomplishment of military tasks, based on projected military capabilities and conditions, for the short-range period.

Scope. The JSCP shall provide the strategic concept to support the national security objective and the basic military objectives derived therefrom. This concept shall be based on: projected available forces, and Volume I of the JSOP, as modified by the strategy guidance issued by the Secretary of Defense. It shall provide guidance on forces, logistics, intelligence including essential elements of information (EEI), and the development of plans. The JSCP shall consist of: Volume I — Concept, Tasks, and Planning Guidance; Volume II — Forces; and the annexes.

Volume I shall:

- Comprise the basic plan and contain the national security objective and basic military objectives derived therefrom.
- Present global and regional appraisals of the major factors likely to affect US interests and to influence US strategy.
- Provide military strategic concepts which apply worldwide and military strategic concepts for each of the major regions corresponding generally to the unified command areas.
- Set forth force capabilities.
- Assign tasks to the commanders of the unified and specified commands and, where appropriate, specify for each task the type of plan required.

APPENDIX I

- Contain planning guidance governing the development of plans to accomplish the tasks assigned.

- Identify the tasks to be appraised if an operation plan package **appraisal**, as described in the Joint Operation Planning System, is to be conducted during the ensuing fiscal year.

- Include planning guidance to the Services for the support of the unified and specified commands in the execution of assigned tasks.

- Require that the Joint Chiefs of Staff be advised should the commander of the unified or specified command concerned determine that the forces made available for planning in Volume II or those made available by the Military Services are inadequate to accomplish an assigned task or that other serious limiting factors exist. This notification shall include:

- A listing of forces and materiel shortfalls, indicating those considered critical and specific reasons therefor.

- An estimate of the added risk incurred through force shortfalls, an estimate of the threat level for which available forces are considered adequate, and, if appropriate, recommended changes in tasks.

- Provide guidance for the development of timephased force and deployment lists for operation plans which are prepared in complete format. Forces listed shall not exceed:

- Those major combat forces and other combat and support forces identified in pertinent sections of Volume II and in the annexes as **available** for planning

The other combat and support forces identified by each Service, through its component commanders, as being available for planning.

Volume II shall:

- Identify the forces for planning for the development of operation plans.

- Contain a time-phased projection of the major military combat forces available to unified and specified commands for planning and the estimated US military expansion and development capability from M-day up to full mobilization. In addition, a listing of major combat forces for augmentation of unified and specified commands when mobilization is authorized will be provided.

- Cite Service documents available to aid in determining, for planning purposes, the availability of forces not specifically shown in Volume II or the annexes.

The ANNEXES to the JOPF shall prescribe planning guidance and indicate capabilities and assign tasks within the functional areas implicit in their titles. The annexes shall be mutually compatible and supportable. The purpose and scope of the annexes follow:

• Annex A, Intelligence. This annex shall assign intelligence tasks in support of the JSCP and prescribed intelligence planning actions to support the strategic concepts of the JSCP. Annex A shall provide intelligence planning guidance to the commanders of unified and specified commands, the Chiefs of the Services, and the Director, DIA, for the development of intelligence to support US and allied military operations required by the JSCP. In addition, Annex A shall contain the EEI of the Joint Chiefs of Staff.

• Annex B, Logistics. This annex shall provide logistic planning guidance and shall contain, as an appendix, statements by the Services as to their capability to support the forces identified in Volume II. The Defense Supply Agency may provide a similar statement of its capability to support the Services during the JSCP period.

• Annex C, Nuclear. This annex, together with the National Strategic Targeting and Attack Policy, shall provide guidance for the employment of nuclear weapons and for the preparation and coordination of capabilities plans to accomplish nuclear weapon associated tasks assigned in the JSCP.

• Annex D, Psychological Operations (PSYOP). This annex shall provide guidance and assign tasks for the planning and conduct of PSYOP, including propaganda activities, in situations short of and during open hostilities. The annex will establish PSYOP objectives, provide planning guidance, identify the PSYOP forces of each Service, and specify tasks applicable to the commanders of the unified and specified commands and the Military Services.

• Annex E, Unconventional Warfare (UW). This annex shall provide guidance and assign tasks for the planning and conduct of UW operations in support of the basic objectives and tasks established in Volume I. The annex will identify UW objectives and resources, establish planning guidance, and specify tasks applicable to the unified and specified commands and the Military Services.

• Annex F, No longer a part of Volume II.

• Annex G, Military Communications and Security. This annex shall provide MC&G planning guidance in support of US and allied military operations and shall indicate the capabilities of the DOD MC&G community to support projected military conditions during the JSCP timeframe. In addition, MC&G tasks shall be assigned to DOD MC&G elements by Annex G.

• Annex H, Nuclear Weapons Damage Considerations, Civil Defense, Recovery, and Reconstitution. This annex shall provide general **considerations** and guidance concerning the following:

- Introduction of nuclear damage considerations into military logistic base planning.
- Possible impact of a nuclear attack against US resources.

Possible effects of nuclear attack for use in:

Developing plans and measures to improve survival probabilities.

Preparation of plans and procedures for recovery and re-constitution of US Forces and resources.

Civil defense preattack requirements and postattack capabilities.

Military participation in support of civil defense.

• Annex I, Communications-Electronics. This annex shall provide guidance to the commanders of unified and specified commands, the Chiefs, of the Services, and Directors of Defense agencies, as appropriate, for the accomplishment of military C-E tasks, based on projected military capabilities and conditions for the JSCP time period.

• Annex J, Strategic Movement. This annex shall contain the strategic movement planning guidance to support the deployment of the major forces outlined in JSCP, Volume II, and the necessary support forces. This annex shall specify the airlift and seallift resources the capability of these resources, and guidance for the use of these lift resources in the development of operation plans.

• Annex K, Cover and Deception. This annex shall provide guidance and assign tasks for the planning and conduct of, and the development of capabilities for, cover and deception operations in support of the basic objectives and tasks established in Volume I.

• Annex L, Civil Affairs. This annex shall provide guidance and tasks to the commanders of unified and specified commands and to the Military Services for the planning and conduct of civil affairs operations.

• Annex M, Electronic Warfare. This annex shall provide guidance and assign tasks for the conduct of EW operations. This annex will identify EW objectives, establish planning guidance, and specify those EW which are applicable to the commanders of the unified and specified commands and to the Military Services.

Administrative Procedures

The JSCP shall be reviewed annually and published by the Joint Chiefs of Staff bi-annually or as provided below:

• Volume I and Volume II reviewed annually, by 31 January.

• The annexes shall be reviewed annually in conjunction with the development of Volume I. The director responsible for preparation of an annex will, in coordination with the Services, determine whether revision of the annex is required. Revised annexes will be submitted for approval as soon as possible but not later than 45 days following approval of Volume I.

The forces identified in Volume II shall be supported by joint strategic movement capability analysis which will be issued separately.

The JSCP shall be revised between cycles as necessary when events or change dictate. Revision necessary to update the JSCP and its annexes shall be promulgated in the form of page changes or, when the situation requires, by message. The directorate/agency responsible for the preparation and publication of the JSCP volumes and annexes is responsible for issuing update changes.

JOINT RESEARCH AND DEVELOPMENT OBJECTIVES DOCUMENTS (JRDOD)

The purpose of the JRDOD is to translate the broad strategic implications of US military capabilities projected in JLRSS, the strategic appraisal and concept, objective force levels, and functional area requirements of the JSOP into research and development (R&D) objectives in order to provide advice and assistance to the Secretary of Defense in developing the DOD R&D program.

Scope. The JRDOD shall consider the JIEP, JLREID, and applicable intelligence and shall contain:

- R&D objectives which are responsive to the strategy and force recommendations in the JSOP.

- R&D objectives, based on broad trends and future technologies, required to furnish military forces with the capabilities needed to execute the military role prescribed for them in the long-range period by the JLRSS.

- Indicators of the relative importance of the R&D objectives considered essential to support the mid-range strategy and the military objectives of the war, the needs of the commanders of the unified and specified commands, and the needs of the National Command Authorities.

- Rationale to support the R&D objectives recommended.

Administrative Procedures

Guidelines. Recommendations concerning R&D matters shall be provided by the commanders of unified and specified commands and the Chiefs of the Services. By 1 August, the Joint Chiefs of Staff will promulgate specific instructions for these submissions in a memorandum entitled "Guidelines for the Development of JRDOD FY . ." Inputs to JRDOD from the commanders of the unified and specified commands and the Chiefs of the Services are required by 1 October.

The JRDOD shall be presented to the Joint Chiefs of Staff for approval and publication by 15 January.

CHAPTER 6

SECRETARY OF DEFENSE

The position of Secretary of Defense (SECDEF) was established through the National Security Act of 1947 in order to promote unification within the armed services. Further modifications were made in 1949. For almost 150 years prior to this Act, the two military departments--Army and Navy--had evolved as separate and distinct entities, each looking directly to the President for leadership in linking foreign policy and military planning. United States experience during World War II had provided strong impetus for change, and between 1947 and 1958, several reorganizations occurred that moved the Services toward a more integrated defense structure.

The Secretary's authority was appreciably strengthened through the Defense Reorganization Act of 1958 in that the Departments of the Army, Navy, and Air Force were no longer required by law to be administered separately. The Act gave the Secretary "direction, authority, and control" over the Department of Defense. As a result, he can take actions to improve effectiveness, efficiency, and economy in Department administration and operation, including transferring, reassigning, abolishing, and consolidating functions. However, there is one major exception to this authority which is designed to prevent arbitrary readjustment in the military establishment. This exception requires that no Defense Department function established by law shall be substantially changed until the first 30 calendar days of continuous session of Congress have expired following the date on which the Secretary

FIGHTERS - PROVIDERS

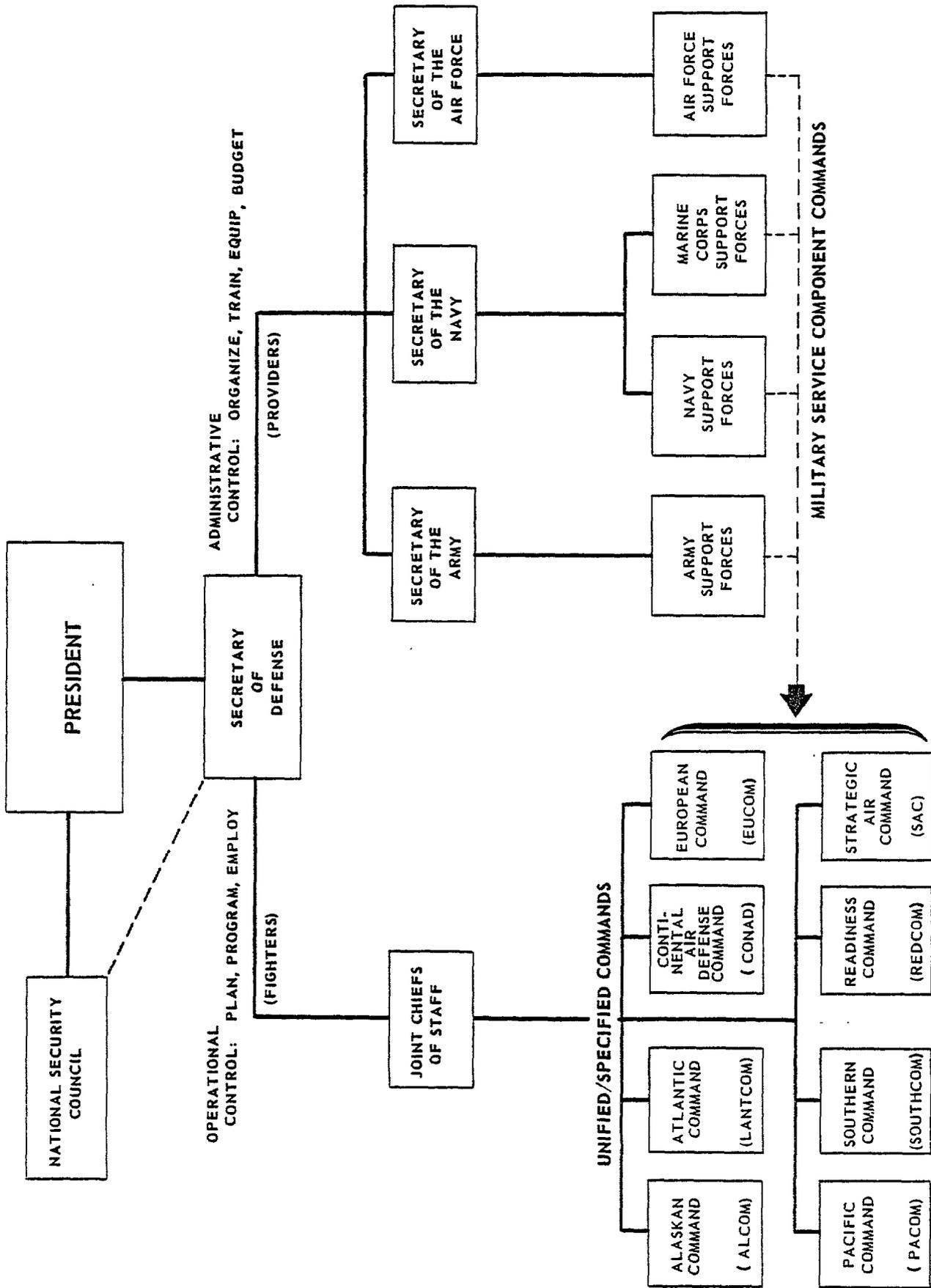


Figure 6-1

reports pertinent details of the actions to be taken to the Armed Services Committees of the Senate and House of Representatives. In effect it provides an opportunity for Congressional veto.

The Secretary's role--under the President and with the Secretary of State--of making and implementing national security policies gives him vast influence. He is responsible for relating defense policy to national policy, for determining the military strength necessary to achieve defense objectives, and for procuring and maintaining this strength as efficiently and economically as possible.

As the head of the Department of Defense, the Secretary of Defense actually maintains two separate lines of authority (see Figure 6-1). One establishes control over combat forces, and the other over support forces. The Secretary shapes the defense program and manages the Department through an institutional process known as the Planning, Programming, and Budgeting System (PPBS) which was established in 1961. Each phase is interlocked and provides for an orderly progression from national security objectives, through development of strategy, force requirements, force structure and programs, to budget preparation, execution, and review. More detail on this System, is provided in Chapter 11.

The Secretary is assisted in administering the Department by a Deputy Secretary of Defense who acts for, and exercises the powers of, the Secretary of Defense. The Deputy Secretary essentially manages the work of the Office of the Secretary of Defense which represents the Staff offices of the Assistant Secretaries, Directors, and General Counsel.

Control Combat Over Forces

The Secretary's operational control over combat forces flows through the Joint Chiefs of Staff to the commanders of the following eight unified and specified combat commands that provide an integrated system of land, sea, and air forces worldwide:

Alaskan Command	-	Unified
Atlantic Command	-	Unified
Continental Air Defense Command	-	Unified
European Command	-	Unified
Pacific Command	-	Unified
Readiness Command	-	Unified
Southern Command	-	Unified
Strategic Air Command	-	Specified

With this authority, the Secretary makes decisions and issues memoranda regarding threat appraisal, strategy, and force structure. The Joint Chiefs of Staff do not command forces or establish national policy with respect to military force levels, but as the principal military advisory to the President, they do make recommendations on such matters. A more detailed discussion of the Joint Chiefs of Staff is provided in Chapter 5.

Control Over Support Forces

The Secretary's administrative control over support forces and logistical matters flows through the civilian Secretaries of the military Departments (Army, Navy, and Air Force) to the military Service Chiefs (Army, Navy, Marine Corps, Air Force). With this authority, he makes decisions and issues memoranda regarding resource programming to support the force structure, materiel acquisition, and budgeting for annual funds to support defense programs.

It is through these non-combat force functions that the weapons of war are provided for the combat forces. Since the Service Chiefs are also members of the Joint Chiefs of Staff, their duties to that Joint organization take precedence. This requires some delegation of authority to their Vice Chiefs for the administrative functions of their respective Services.

CHAPTER 7
UNITED STATES ARMY

INTRODUCTION

The legal basis for the United States Army is set forth in Title 10, United States Code, Section 3062 (a) and (b) which states:

"(a) It is the intent of Congress to provide an Army that is capable, in conjunction with the other armed forces, of-

(1) preserving the peace and security and providing for the defense of the United States, the Territories, Commonwealths, and possessions, and any areas occupied by the United States;

(2) supporting the national policies;

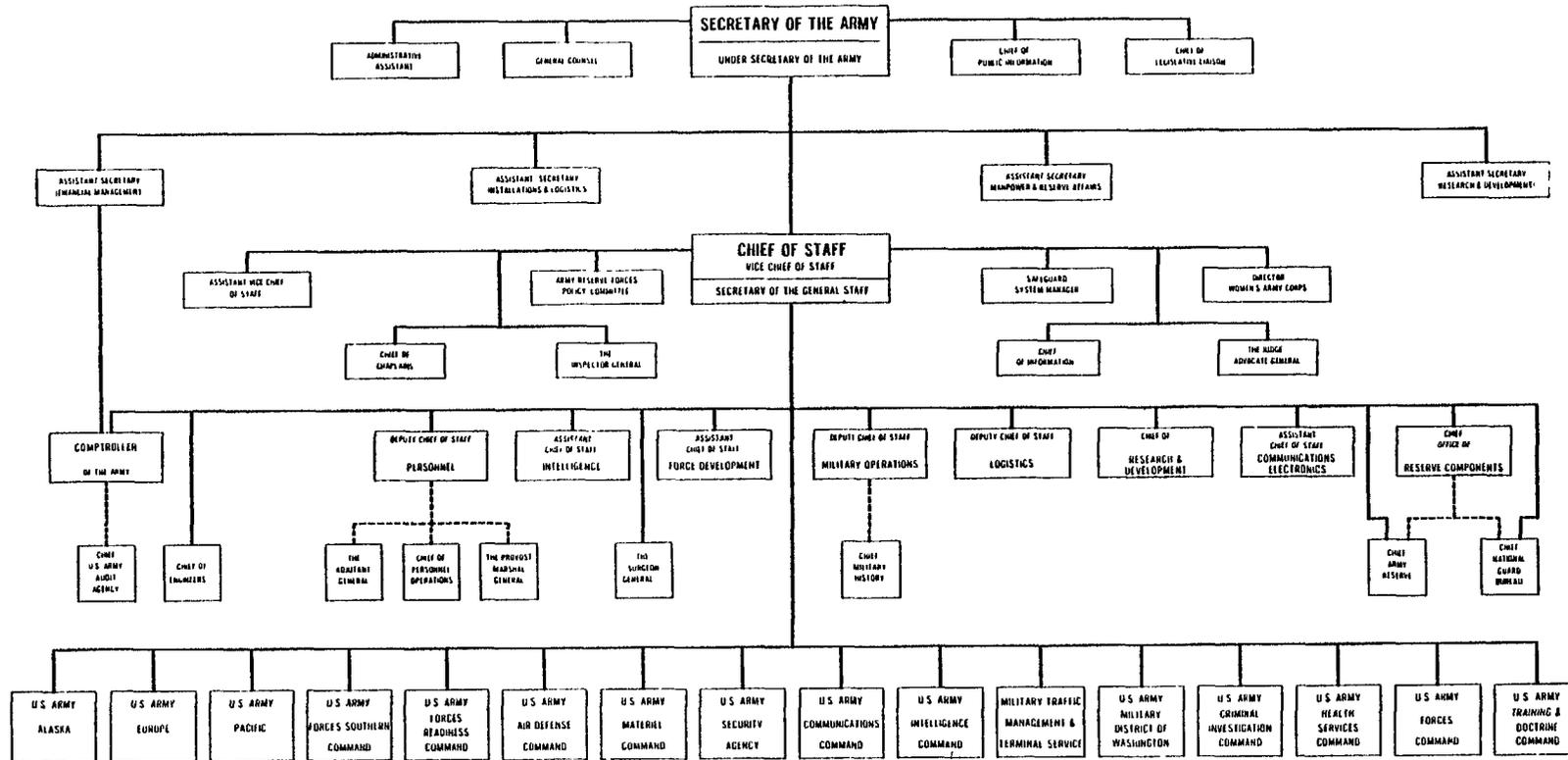
(3) implementing the national objectives; and

(4) overcoming any nations responsible for aggressive acts that imperil the peace and security of the United States.

"(b) In general, the Army, within the Department of the Army, includes land combat and service forces and such aviation and water transport as may be organic therein. It shall be organized, trained, and equipped primarily for prompt and sustained combat incident to operations on land. It is responsible for the preparation of land forces necessary for the effective prosecution of war except as otherwise assigned, and in accordance with integrated joint mobilization plans, for the expansion of the peacetime components of the Army to meet the needs of war."

The Army's most basic mission, therefore, is combat operations on land. In order to successfully accomplish this, forces in the field are organized into units that perform combat, combat support, and combat service support functions. This is referred to as a "balanced field force."

ORGANIZATION OF THE DEPARTMENT OF THE ARMY



THE CHIEF OF PUBLIC INFORMATION ALSO SERVES AS CHIEF OF INFORMATION

THE CHIEF OF ENGINEERS IS UNDER DESIGNATED ARMY GENERAL STAFF AGENCIES IN THEIR FUNCTIONAL AREAS OF RESPONSIBILITY FOR LEAD FUNCTIONS. THE CHIEF OF ENGINEERS REPORTS DIRECTLY TO THE SECRETARY OF THE ARMY

THE SURCOM GENERAL IS UNDER DESIGNATED ARMY GENERAL STAFF AGENCIES IN THEIR FUNCTIONAL AREAS OF RESPONSIBILITY

Figure 7-1

7-2

The Army organizes its combat forces in terms of five types of divisions - infantry, armored, mechanized infantry, airborne, and airmobile - which can be tailored to specific battlefield requirements. For example, a division is formed by adding a varying number and mixture of combat battalions having these five functions. However, an armored division will usually have more tank battalions than mechanized infantry battalions while a mechanized infantry division will have a greater proportion of mechanized infantry battalions. An infantry division will consist predominantly of infantry battalions with some tank and mechanized infantry battalions as necessary. The Army's peacetime forces currently consist of 13 1/3 active divisions and it is primarily for these forces that major weapon systems are acquired.

Organization^{1/}

Because Army Headquarters is organized along functional lines, several different offices have management responsibilities associated with acquiring major systems. However, the degree of responsibility varies with the office, and each office will have responsibilities other than those specifically related to major systems. Extensive coordination and communication is required to ensure that requirements are properly defined and systems properly acquired.

The Army organization chart shown in Figure 7-1 includes the Headquarters offices and 16 major field commands. Six of the major commands -- U.S. Army, Alaska; U.S. Army, Europe; U.S. Army, Pacific;

^{1/} See Appendix I for July 1974 reorganizations plans.

ARMY BRANCH STRUCTURE

BASIC ARMY MISSION	BRANCH CLASSIFICATION	BRANCHES	ARMS & SERVICES	
LAND COMBAT	Basic Branches	Infantry Air Defense Artillery Field Artillery Armor	Combat Arms	
		Military Intelligence	Combat Support Arms	
		Engineers Signal Military Police	Both Combat Support Arms and Combat Service Support	
		Ordnance Chemical Transportation Quartermaster Adjutant General Finance	Combat Service Support	
		Special Branches	Medical Judge Advocate General Chaplain	
		Separate Branch	Womens Army Corps	

Source: Army Regulation 10-6, Branches of the Army

Figure 7-2

U.S. Army Forces Southern Command; U.S. Army Forces Readiness Command; and U.S. Army Air Defense Command -- are considered "Tactical Commands" (fighting forces) and are Army components of the respective unified commands -- U.S. Alaskan Command, U.S. European Command, U.S. Pacific Command, U.S. Southern Command, U.S. Readiness Command, and Continental Air Defense Command -- that are under the Joint Chiefs of Staff operational command. The remaining 10 major Army commands are considered "Functional Commands" (providing forces) because of the supporting role they play.

Mission Areas

Army mission areas are not specifically categorized as to the parts which make up the broad land combat mission. We found only two ways which approach an understanding of what could be viewed as mission areas. One is through the branch structure, and another is a means of grouping system requirements.

Branch names are used to identify personnel and units trained in the principal functions associated with that branch. They also provide a framework for developing and adapting weapons, tactics, and techniques within the balanced field force. Branches can be classified into two groups - basic and special. They can also be grouped into "arms and service" categories. Arms represent those branches primarily concerned with combat and combat support. The combat arms are those branches whose officers are directly involved in the conduct of actual fighting while the combat support arms provide operational assistance to the combat arms. Services represent those branches primarily concerned with providing combat service support and/or administrative support. Figure 7-2 shows these relationships.

ARMY FUNCTIONAL AREAS
FOR GROUPING REQUIREMENTS

INFANTRY

ARMOR

FIELD ARTILLERY

AVIATION

ENGINEER

AIR DEFENSE

COMMUNICATIONS-ELECTRONICS

AIRBORNE

AMPHIBIOUS

NUCLEAR

CHEMICAL, BIOLOGICAL, AND RADIOLOGICAL

SPECIAL OPERATIONS

PSYCHOLOGICAL

UNCONVENTIONAL WARFARE

INTERNAL DEFENSE AND INTERNAL DEVELOPMENT.

CIVIL AFFAIRS

PERSONNEL AND ADMINISTRATION

INTELLIGENCE

LOGISTICS

SPACE OPERATIONS

OTHER SERVICE SUPPORT

MILITARY POLICE OPERATIONS

Source: Catalog or Approved Requirements Document prepared within the Office of the Assistant Chief of Staff for Force Development

Figure 7-3

Another way of visualizing Army mission areas is in terms of how system requirements are grouped. For example, when a required operational capability for a weapon system is established, it will be assigned to one of the "functional areas" shown in Figure 7-3. These areas are used as a convenient management device by the Assistant Chief of Staff for Force Development who has the responsibility for receiving, processing, and recording requirements documents.

Major Acquisitions

As of June 30, 1973, the Army had 22 major systems under development with a total estimated program cost of \$23.4 billion (see Figure 7-4). These systems were subject to special management procedures including review by the Army System Acquisition Review Council (ASARC) which is discussed later in this Chapter. [Although not considered developmental acquisitions by the Army, and not managed as a major system by the Army or the Office of the Secretary of Defense in the sense that an ASARC and a Defense System Acquisition Review Council (DSARC) review would be expected, the Department of Defense inventory of major acquisitions listed 13 additional systems with a total estimated program cost of \$7.2 billion (see Figure 7-5). These systems essentially represented follow-on quantity purchases, even though some research, development, test, and evaluation funds were programmed for product improvements]^{1/}

In addition to the Secretary of Defense criteria for a major system contained in DOD Directive 5000.1, a system can still be considered

^{1/} The 35 systems (22+ 13) differs from the 31 shown in Chapter 2 because 5 additional systems were listed by the Army as major acquisitions (Figure 7-4) and 2 systems listed in the OSD inventory were grouped as 1 by the Army,

ARMY INVENTORY OF 22 MAJOR ACQUISITIONS
AS OF JUNE 30, 1973

<u>SHORT</u> <u>TITLE</u>	<u>TITLE</u>	<u>PROGRAM ESTIMATE</u> <u>(millions)</u>
* SAM-D	Surface to Air Missile Development	\$ 4,481.8
* UTTAS	Utility Tactical Transport Aircraft System	2,325.7
* MICV	Mechanized Infantry Combat Vehicle	252.2
* XM-1	New Army Battle Tank	3,040.5
* AAH	Advanced Attack Helicopter	1,800.2
SAFEGUARD	Safeguard Defense System/Site Defense	6,337.9
LANCE	MGM-52C LANCE Missile System	921.4
IMPROVED HAWK	HAWK Improvement Program	773.7
HLH	Heavy Lift Helicopter	189.9
ARSV	Armored Reconnaissance Scout Vehicle	244.3
DRAGON	Medium Antitank Assault Weapon	560.1
TACFIRE	Tactical Fire Direction System	272.6
STINGER	Man Portable Air Defense System	484.8
BUSHMASTER	Vehicle Rapid Fire Weapons System - Successor	266.2
XM-198	Howitzer, Towed, 155MM	143.6
PERSHING II	PERSHING II Missile System	468.6
TOS	Tactical Operations System	45.6 a/
NAVSTAR - GPS	Navstar - Global Positioning System	37.2 a/
AN/TPQ 37	Artillery Locating Radar	172.0
CLGP	Canon Launched Guided Projectile	78.8 a/
HELLFIRE	Heliborne Fire and Forget Missile	16.0 a/
SHORAD	Short Range Air Defense System	<u>443.0</u>
Total Estimated Program Costs		<u>\$ 23,356.1 b/</u>

* The Army refers to these systems as the "Big Five" because their capabilities and functions are considered central to the Army's combat mission.

a/ Procurement requirements to be determined at a later date

b/ Includes Research, Development, Test, and Evaluation; Procurement; and Military Construction Appropriations

Source: Office of the Assistant Chief of Staff for Force Development

Figure 7-4

OTHER ARMY MAJOR ACQUISITIONS*
AS OF JUNE 30, 1973

<u>TITLE</u>	<u>PROGRAM ESTIMATE</u> <u>(millions)</u>
Tank, M60A1	\$ 1,720.1
Tank, M60A1E2	406.8
Recovery Vehicle, M578	164.9 <u>a/</u>
Tube-Launched, Optically-Tracked, Wire Guided Antitank Missile (TOW)	825.3
Huey Cobra Helicopter (AH-1G)	468.0
Airplane, Utility (U-X)	75.8
Army Tactical Communication System (ATACS)	965.4
Automatic Digital Network (AUTODIN)	218.2
Truck, 2 1/2 ton	1,278.3 <u>a/</u>
Truck, 1/4 ton	581.5 <u>a/</u>
Truck, Goer, 8 ton	82.2 <u>a/</u>
Truck, 22 1/2 ton	77.7 <u>a/</u>
Rifle, M16A1	<u>338.0 a/</u>
 Total Estimated Program Costs	 <u>\$7,202.2 b/</u>

* These acquisitions were not subject to normal ASARC or DSARC management procedures, and were therefore not managed by the Army or the Office of the Secretary of Defense as major developmental systems.

a/ Research, development, test, and evaluation costs not separately identifiable.

b/ Includes both Research, Development, Test, and Evaluation and Procurement Appropriations

Source: Office of the Assistant Secretary of Defense (Comptroller)

Figure 7-5

major within the Army depending upon how the Army views:

- the significance of the added operational capability;
- the level of interest, such as Congressional, Secretary of Defense, Secretary of the Army, or Army Chief of Staff;
- overall resource impact;
- the relationship to other programs and materiel developers;
- the necessity for cooperation with other Defense Departmental components and allied governments; or
- the development risks and system complexity.

Changes in Materiel Acquisition Documents

Recently the Army made two significant changes in their materiel acquisition documents. Consequently when searching for such documents, older ones may be found, and obsolete terminology may occasionally be used. This section highlights these changes.

The Materiel Need (MN) concept, established in 1971, included an assortment of documents with a single format to set forth requirements for new or improved materiel. This concept was intended to reduce the time devoted to document processing experienced under the preceding Qualitative Materiel Requirement (QMR) concept which included a series of different documents.

In 1972, the Required Operational Capability (ROC) concept superceded the Materiel Need concept, and is the current method used in describing new or improved system requirements. This change was a part of major system acquisition policy revisions which were designed to shorten the overall time spent in generating requirements and developing systems, and to bring top-level Army managers into the decision process at key points in a system's life cycle.

A list of Army materiel acquisition documents under the present, previous, and old concepts is shown in Figure 7-6.

IDENTIFYING THE NEED

Major system acquisitions must be based upon identifiable "needs", that is, in order to justify developing or producing a system, a need statement should identify a problem and provide evidence to explain why

ARMY MATERIEL ACQUISITION DOCUMENTS

PRESENT ROC CONCEPT

PREVIOUS MN CONCEPT

OLD QMR CONCEPT

OCO - Operational Capability Objective	OCO - Operational Capability Objective	
ROC - Required Operational Capability	IDPMN - Initial Draft Proposed Materiel Need DPMN - Draft Proposed Materiel Need PMN,TP - Proposed Materiel Need w/Technical Plan MN,TP - Materiel Need w/Technical Plan MN(PI) - Materiel Need (Product Improvement) MN(A) - Materiel Need (Abbreviated)	OCO - Operational Capability Objective QMDO - Qualitative Materiel Development Objective
ADP - Development Plan	ADP - Advanced Development Plan SDP - System Development Plan DPMN(ED) - Draft Proposed Materiel Need (Engineering Development) PMN(ED) - Proposed Materiel Need (Engineering Development) MN(ED) - Materiel Need (Engineering Development) PMMP - Project Manager Master Plan	QMR - Qualitative Materiel Requirement SDR - Small Development Requirement
CFP - Concept Formulation Package TOD-Trade-Off Determination TOA-Trade-Off Analysis BTA-Best Technical Approach COEA-Cost and Operational Effectiveness Analysis	CFP - Concept Formulation Package TOD - Trade-Off Determination TOA - Trade-Off Analysis BTA - Best Technical Approach COEA - Cost and Operational Effectiveness Analysis	ADO - Advanced Development Objective SDP - System Development Plan QMA - Qualitative Materiel Approach CDOG - Combat Development Objectives Guide
Eliminated	MN(P) - Materiel Need (Production)	
ARDS - Catalog of Approved Requirements Documents	CDOG - Combat Development Objectives Guide	

7-12

Figure 7-6

SCHEME FOR IDENTIFYING NEEDS

MEANS/BASIS	DESCRIPTION	SELECTED PRODUCTS USED/WORK PERFORMED	RESULT	TRANSITION
The Army Planning System	A resource management function designed to determine in advance how the Army will carry out its roles and missions	-Intelligence data -Threat analysis -Army Strategic Appraisal -Army Force Guidance -Army Force Program -Army Capabilities Plan	NEEDS ARE IDENTIFIED	REQUIREMENTS ARE ESTABLISHED & REQUIRED OPERATIONAL CAPABILITY (ROC) DOCUMENT PREPARED
The Combat Development Function	The task of formulating concepts, doctrine, organization, and materiel objectives and requirements for employing Army forces	-Land combat studies -Operational Capability Objectives		
The Army Study Program	A means of seeking alternative solutions and new approaches to problems	-Specific studies -Priority Areas of Concern -Threat analysds		
Research and Development	A means of developing materiel to meet operational requirements	-Army Long-Range Technological Forecast		
Combat Experience & Field Exercises	Deficiencies are recognized	-Actual experience		
Individual or Group Ideation	Ideas originated informally or spontaneously	-Human thought		
Obsolesence and Old-Age	Evolutionary materiel improvement	-Research, development, studies, analyses		

7-13

Figure 7-7

a solution should be sought. Once a need is known, it can be reduced to a "requirement" designed to express what should be developed.

The Army is responsible for identifying its own needs, and needs for weapons must always be related to actual or potential enemy threats. Nevertheless, technological advancements, and equipment approaching obsolescence or old-age are factors that can also create needs. Sometimes needs might be satisfied in ways other than through acquiring major weapon systems, such as by using differing force levels or mixes, or by changing doctrine or tactics. However, when the need for a new or improved weapon system capability is identified, the requirement to satisfy this need could result in the development of a new system, or a qualitative modification to an existing system.

Figure 7-7 and the topics in this section highlight various means in which the Army either identifies its needs for major systems or establishes a foundation upon which ideas can originate. The means discussed are intended to be neither all inclusive because of other ways to identify needs for which we may be unaware, nor mutually exclusive because of the interrelationship among them. Each topic tends to portray methodical and formal tasks, but it is particularly important to recognize that spontaneous and informal ideation by individuals or groups may be just as prevalent, if not dominant. Although not discussed below, actual combat experience, combat simulation during field exercises, and aging or obsolete equipment are other means contributing to needs identification.

The Army Planning System

As the first phase of the planning, programming, and budgeting system, Army planning impacts upon identifying needs for major systems in the

sense that it addresses the development of national military strategy, policy, force objectives and capabilities, and resource requirements in carrying out Army roles and missions. The Planning System provides a basis upon which the Army Staff can manage Army affairs for the Chief of Staff in both the short-and mid-range period - that is, from a current year up to 10 years in the future. It also provides military advice and assistance to the Secretary of the Army.

Intelligence/Threat Support

The Army generally relies upon Defense Intelligence Agency documents (see Chapter 4) to provide basic intelligence and threat data. However, some additional threat analysis is performed by the Staff within the Office of the Assistant Chief of Staff for Intelligence (ACSI) and published in the Army Strategic Appraisal document (described below). Basically, it is a reiteration of the Defense Intelligence Agency mid-range data, but tailored for Army users.

The Army has a requirement for detailed long-range threat projections based upon the data contained in the Joint Chiefs of Staff, Joint Long-Range Estimative Intelligence Document (JLREID). The ACSI is also publishing the Army Long-Range Environmental Projection (ALREP) which provides information on the political, economic, and social environment. This document provides a base from which mid-and long-range projections can be made. The Army Threat Analysis Document (ATAD) will be an extension of ALREP and will address conflict situations and force data principally in the mid-range period. ATAD has replaced the Army Analysis of Intelligence (AAI) Volume III which previously addressed the threat in the long-range period.

BASIC ARMY PLANNING DOCUMENTS

DOCUMENT - CONTENTS/PURPOSE	TIME PERIOD	RESPONSIBLE OFFICE	RELATED JCS DOCUMENT
ARMY STRATEGIC APPRAISAL (ASA) -The basic planning document regarding strategy - organized on both a worldwide and regional basis -Contains national security interests, objectives, and policies including regionally-oriented appraisals, strategic concepts, and military objectives -Provides Army views on military policies and strategy based on Presidential, National Security Council, and Defense pronouncements -Provides threat analysis and identifies intelligence gaps	Mid-range (3-10 years)	DCSOPS	JSOP I
ARMY FORCE GUIDANCE (AFG) -Contains guidance for developing objective force levels and resource requirements to carry out national strategy, based on the ASA document, Defense Policy and Planning Guidance, and Joint Strategic Objectives Plan I -Provides input to Joint Strategic Objectives Plan II	Mid-range (3-10 years)	DCSOPS	JSOP II
ARMY FORCE PROGRAM (AFP) -Develops detailed approved active Army force structure (troop list) and manpower programs for current and budget years -Identifies Army Reserve Component force structure in detail -Projects asset demands and availability to assess the capability to support forces -Presents activation, inactivation, reorganization, and deployment schedules -Supports the Army budget request throughout the budget cycle	Short-range (0-2 years)	ACSFOR	None
ARMY CAPABILITIES PLAN (ACP) -Provides administrative and operational guidance for employing/supporting forces -Reflects specific tasks and capabilities attainable within existing programs and budget limitations -Assigns tasks to major Army commands -Documents active Army forces available to carry out operation plans, including mobilization schedule and plans for developing forces -Provides guidance for personnel, intelligence, logistics, and special operations -Outlines the Army's concept of, and role in, security assistance	Short-range (0-2 years)	DCSOPS	JSCP

7-16

Source: Army Regulation 1-1

Figure 7-8

The Intelligence Threat Analysis Detachment (ITAD) provides threat analysis support to high visibility studies at the Army Staff level and to other studies, within the limits of its resources. Beyond this, ITAD provides guidance, support, and supervision to other Army threat developers in their preparation of threat support to studies which will require approval at the Department of the Army level, or which will subsequently be incorporated into actions which will require Department of the Army approval.

Planning Documents

As part of the Joint Strategic Planning System and PPBS, the Army prepares four basic planning documents which are described in Figure 7-8.^{1/} Two of the documents are applicable to the mid-range time period (3 to 10 years into the future), while the other two cover the short-range period (0 to 2 years). Generally, only decisions and guidance resulting in a major force or resource change will necessitate changes to these documents.

The Combat Development Function

The combat development function is also a principal means of identifying Army needs for major systems. In general, it involves the Army's perception of its various mission areas and expectations for accomplishing these missions in the future. More specifically, it includes formulating concepts, doctrine, organization, and materiel objectives and requirements for employing Army forces in a theater of operations and in control of civil disturbances.

^{1/} See Army Regulation 1-1 for more details, and Figure 7-14, to this Chapter for the relationship of Army documents to Joint Chiefs of Staff and Secretary of Defense documents.

At Army Headquarters, the Assistant Chief of Staff for Force Development (ACSFOR) has general staff responsibility for overall combat developments and related policy. The U.S. Army Training and Doctrine Command (TRADOC), as one of the major commands, is the principal combat developers with responsibilities to guide, coordinate, and integrate the Army's total combat development effort. This is accomplished through service schools, functional centers, and other special organizations, and in coordination with other Army commands having their own special combat development tasks. (See Appendix II for a list of these activities).

Land Combat Studies

Periodic long-range land combat studies are used as vehicles to help design the conceptual Army of the future. The most recent study referred to as Land Combat System I (LCS I) was prepared by the U.S. Army Combat Development Command (which no longer exists due to an Army reorganization on July 1, 1973). It made Army design projections to 1995, based upon perceptions of the 1995 time frame, as seen in the late 1960's. Supporting information for such studies includes long-range threat analysis, long-range technological forecasts, and National and Defense policies.

The newly organized Training and Doctrine Command now has the combat developments function, but its role in terms of studies is limited to the short-and mid-range periods. Future long-range land combat studies are expected to be conducted when necessary, by the newly organized Concepts Analysis Agency, field operating agency of the Office of the Assistant Chief of Staff for Force Development.

Operational Capability Objectives

Emanating from land combat studies are Operational Capability Objectives (OCO). The most recent study recommended revising the Army's 56 existing Objectives - the titles of which are shown in Figure 7-9, grouped under six functional categories. These Objectives are considered generally stable and represent Army approved descriptions of desired capabilities 10 to 20 years into the future. They basically establish long-range goals for combat development and research and development planners. They specifically support Research, Exploratory Development, and Nonsystem Advanced Development (6.1, 6.2 and 6.3a programs elements respectively) within the Research, Development, Test, and Evaluation (RDT&E) program.

The Objectives are to be reviewed annually by the Training and Doctrine Command in coordination with other interested commands and agencies. Additions, deletions, and modifications may be made by these offices or by Headquarters staff, and approval is an Assistant Chief of Staff for Force Development responsibility. Although the land combat studies are the principal source for new Operational Capability Objectives, any element or individual within the Army may propose them. Once approved, they are recorded in a classified quarterly document called Catalog of Approved Requirements Documents (CARDS) prepared by the Assistant Chief of Staff for Force Development.

ARMY OPERATIONAL CAPABILITY OBJECTIVES
FOR LAND WARFARE OPERATIONS

A. INTELLIGENCE

1. Integrated Systems Concept
2. Target Acquisition Reconnaissance and Surveillance
3. Interrogation
4. Meteorological Data
5. Weather Prediction
6. Mapping Geodesy and Military Geographic Intelligence
7. Counterintelligence Cover and Deception - Counter Surveillance
8. Strategic Intelligence
9. Clandestine Collection
10. Screening
11. Identification of Hostile Aerial Threat

B. MOBILITY

12. General Purpose Forces Mobility
13. Selected Maneuver Units
14. Air Mobility
15. Amphibious Operations
16. Unconventional Warfare Operations
17. Strategic Mobility
18. Combat Engineering

C. FIREPOWER

19. Individual Firepower
20. Support of Maneuver Units
21. Heavy Assault and Counter armor
22. Air and Space Defense
23. Nuclear
24. Ammunition
25. Chemical Firepower
26. Flame and Incendiaries
27. Barriers
28. Psychological Warfare Operations
29. Firepower Countermeasures
30. Weather Control
31. Fire Support from Other Services
32. Electronic Warfare
33. Counter Artillery/Mortar Firepower

Figure 7-9
Page 1

ARMY OPERATIONAL CAPABILITY OBJECTIVES
FOR LAND WARFARE OPERATIONS (CONT'D)

D. COMMAND, CONTROL, AND COMMUNICATIONS

- 34. Tactical Communications
- 35. Control
- 36. Special Communications
- 37. Warning
- 38. Counter Control

E. SERVICE SUPPORT

- 39. Supply
- 40. Maintenance
- 41. Electrical Power
- 42. Transportation-Movements Control
- 43. Chemical, Biological, and Radiological Defense System
- 44. Medical Services
- 45. Personal Services
- 46. Rear Area Protection
- 47. Construction and Maintenance Facilities
- 48. Civil Affairs
- 49. Military Support of Civil Defense
- 50. Mobilization Base
- 51. Fuel
- 52. Rapid Acclimatization Means

F. SPECIAL OPERATIONAL CAPABILITY OBJECTIVES

- 53. Space Operations and Technology
- 54. Night Operations
- 55. Construction Support to Other Services
- 56. Internal Defense and Internal Development

DEPARTMENT OF DEFENSE AND ARMY
STUDY CATEGORIES

GENERAL CLASSIFICATION	STUDY CATEGORIES
STUDIES and ANALYSES [Research, Development, Test, & Evaluation Appropriations Used - Specifically 6.5 Management & Support Funds]	MANPOWER AND PERSONNEL
	CONCEPTS AND PLANS
	OPERATION AND FORCE STRUCTURE
	LOGISTICS
	SCIENCE AND TECHNOLOGY
MANAGEMENT [Operations and Maintenance Appropriations Used]	MANAGEMENT

Source: Department of Defense Directive 5010.22
Army Regulation 5-5

Figure 7-10

The Army Study Program

Another important means of identifying needs is through the Army Study Program, the overall purpose of which is to seek ways of developing or exploiting new opportunities and to solve pressing problems. Studies are basically devoted to assisting decision-makers by offering alternative solutions and new approaches to problems and developing recommendations for Army input to Joint and Defense Department policies and positions.

In practice, there is often narrow distinction between studies and research and development. However, this Program is directed more toward operations research studies which address such areas as strategy and tactics, materiel and personnel systems, force structure, and technology. Research and development studies relate to increased knowledge of natural phenomena, improved technology, and technical development of a single weapon system or other materiel.

The Army conducts its studies under the six broad categories shown in Figure 7-10. During May of each year, the Chief of Staff approves The Army Study Program and a document is published listing all Army studies to be undertaken during the ensuing fiscal year. Contractual studies costing \$100,000 or more must be approved by the Assistant Secretary of the Army (Research and Development). The 1974 document listed 601 studies sponsored by 18 Headquarters agencies and major field commands. The Program amounted to over \$19 million in contractual funds and over 1,200 technical man-years of in-house effort. "Priority Areas of Concern" (see Appendix III) approved by the Chief of Staff through his Study Planning Guidance document served as a framework against which 107 of these studies were programmed.

Although not all 601 studies were related to major systems, the examples listed below are typical of some broad study topics that could bear upon system needs.

- Armor Concepts and Force Design Study
- Army Requirements for Air Force Close Air Support
- The Army Role in the Suppression of Enemy Air Defenses
- Field Artillery Concepts and Force Design Study
- Helicopter Requirements to Support the Army Logistics Mission
- Integrated Tactical Communication System
- Nuclear Doctrine, Organizations, and Equipment
- Concept for Electronic Warfare Support to the Army in the Field

A list of the principal Army study organizations is shown in Appendix IV. Limited study capability is also available in Army staff agencies and major commands.

Threat Analysis Support

In conjunction with some studies, an analysis of actual or potential enemy threat may be required. The Intelligence Threat Analysis Detachment (ITAD) assigned to the Office of the Assistant Chief of Staff for Intelligence supplies this type of analysis in support of Army studies in weapons research, force developments, and long-range planning. Consequently, assessment or interpretation of the current and future capabilities of a nation or group of nations which could be used to oppose the goals or interests of another nation or alliance (the Detachment's definition of "threat") can have significant impact upon identifying needs for major systems because it can influence study results. The Detachment's specific stated mission is to (1) provide threat analysis support to the Army, (2) supervise Army threat analysis operations performed by other Army organizations, and (3) develop and monitor Army threat analysis methodology.

The Detachment's work basically provides a means by which agreed intelligence-based threat data can be extrapolated for study and planning purposes within the Army. Two reasons given for establishing this threat analysis capability were that (1) National, Defense, and Joint intelligence documents provided very little intelligence data beyond the mid-range time frame (10 years) and (2) intelligence for short- and mid-range periods were not considered to be properly structured or sufficiently detailed to meet the needs of Army studies and war game simulations. After receiving the Chief of Staff's annual Study Planning Guidance document, study sponsors and intelligence offices develop their study plans. If a study sponsor requests threat analysis from the Detachment, projections are tailored to fit the assumptions, scope, purpose, and time frame of studies being supported.

In developing long-range threat projections - 10 to 20 years into the future - models depicting a given foreign nations' environment and leadership are used to consider the full range of plausible options and capabilities open to that nation. Where intelligence information on foreign weapons systems and force structures is either not available, or not in sufficient detail, Detachment analysts supplement available data with a threat analysis, pretending they were actually enemy ("red") planners.

An example of this type of work has included an allocation of Warsaw Pact aircraft against the 7th Army in Europe. Examples of some current projects follows:

- Antiaircraft Artillery Systems, Union of Soviet Socialist Republic/Peoples Republic of China, 1973-1993
- Electronic Warfare Threat to TOW, SHILLELAGH, DRAGON, and HELLFIRE, 1973-1993
- Helicopter Projections, Union of Soviet Socialist Republic/ Peoples Republic of China, 1972-1992.

Research and Development

The ultimate Army research and development objective is to develop weapons, systems, and equipment primarily for Army use that have superior performance capabilities to those of potential enemies and that can be effectively manned and supported in any environment and under all conditions of war. This is basically accomplished by maintaining a strong technological base within the physical, engineering, environmental, life, behavioral, and social sciences. It includes cognizance of research and development being pursued by allies and other nations.

The research and development program is responsive to the Army Planning System and the Combat Development Function. Part of the program's activities are directed toward achieving the Operational Capability Objectives (OCO) shown in Figure 7-9. Basic Research (6.1), Exploratory Development (6.2) and Nonsystem Advanced Development (6.3a) categories within the Research, Development, Test, and Evaluation program structure are used for this purpose, and to that extent, research and development becomes an important means of identifying needs.

Research and development activities are also directed toward expanding technological alternatives to meet future national security needs. Early decisions on the technical feasibility of proposed systems are important to the success of matching operational needs with equipment superior to the expected enemy threat. Consequently, technological forecasting becomes the first stage of the Army research and development planning cycle, and is intended to reduce risks inherent in the conceptualization and development of new weapons systems.

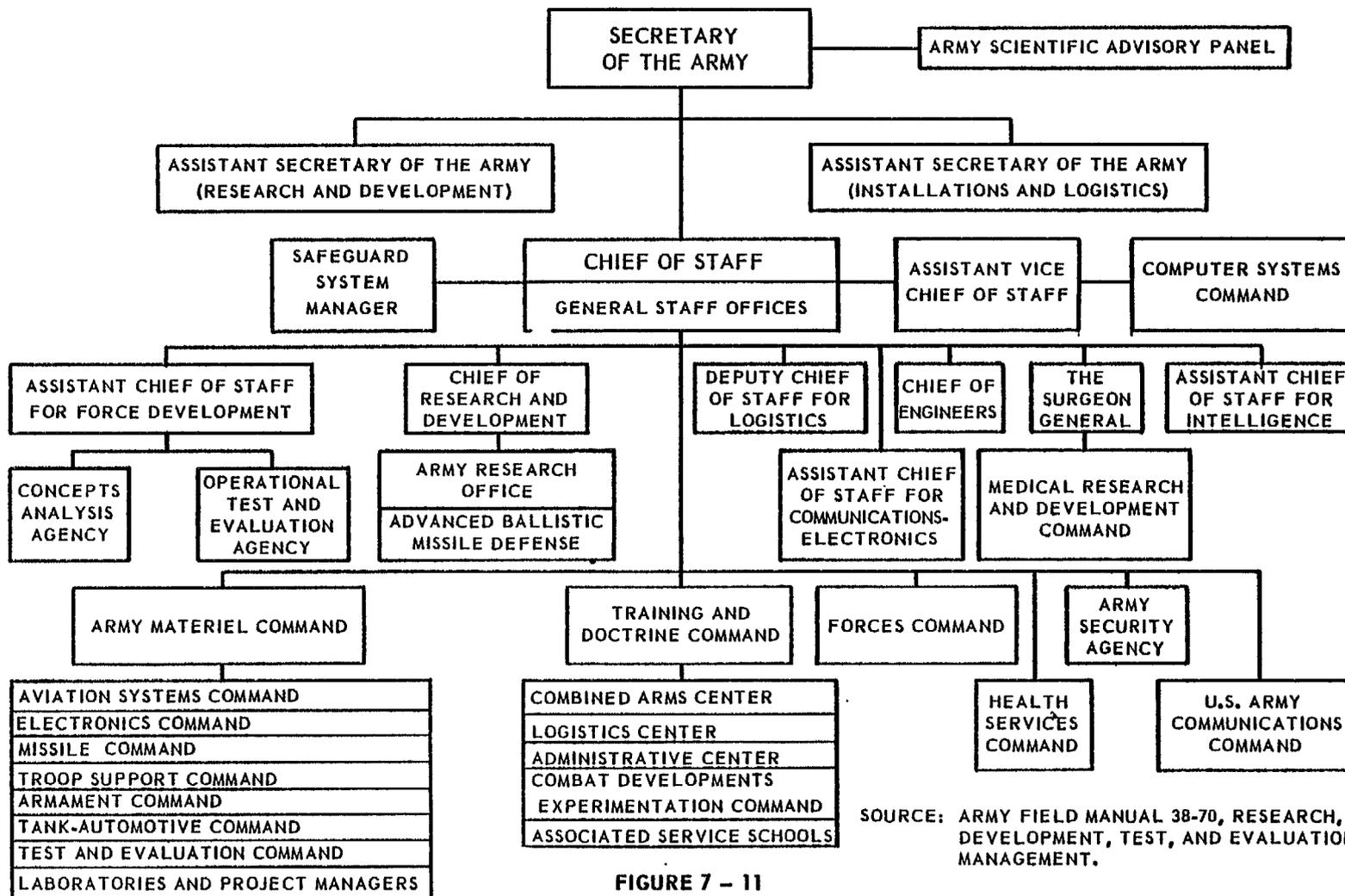
The basic planning document for forecasting is the Army Long-Range Technological Forecast (ALRTF). This document is intended to describe knowledge, capabilities, and materiel which science and technology can be expected produce, up to 20 years into the future, if supported by orderly research and development programs. It is published in three volumes entitled (1) "Scientific Opportunities" which discusses opportunities and limitations in both materiel and non-materiel oriented research that will affect the future technical capabilities of the Army; (2) "Technological Capabilities" which describes the technological capabilities foreseen as achievable in areas vital to the provision of future high-performance materiel; and (3) "Advanced Systems Concepts" which includes examples of materiel systems that might be provided if the capabilities described in the preceding volume are achieved. The document is compiled from Army-wide critiques and contributions by the U.S. Army Materiel Command in cooperation with the Army Research Office and on behalf of the Chief of Research and Development.

Nearly all major staff agencies and field commands have some interest in or responsibility for research and development. Figure 7-11 identifies the principal organizations.

ESTABLISHING THE REQUIREMENT

Once a need is identified, alternatives for satisfying it must be sought. If a weapon system is considered to be the solution, a new system could be developed, an existing system could be modified, a foreign system could be purchased, or the quantities being bought for an existing system could be increased. Whatever the choice, a requirement is established.

**ARMY AGENCIES AND COMMANDS HAVING AN INTEREST
IN OR RESPONSIBILITY FOR RESEARCH AND DEVELOPMENT**



7-28

FIGURE 7 - 11

SOURCE: ARMY FIELD MANUAL 38-70, RESEARCH, DEVELOPMENT, TEST, AND EVALUATION MANAGEMENT.

In response to Department of Defense efforts to seek ways of acquiring systems more quickly and economically, the Army revised their system acquisition policies in July 1972 to:

- shorten the requirements generation time, reduce the amount of detail and output, and improve product quality;
- require high level decision-making on major weapon systems' development through an Army System Acquisition Review Council (ASARC);
- shorten development time to about six years from the time of the first Army System Acquisition Review Council decision (immediately after the Conceptual Phase and before entering the Validation Phase) to the time of the system's initial operational capability (IOC), when it can be done without inordinate risks;
- fully fund priority projects within the Research, Development, Test, and Evaluation Appropriation so development time would not be lengthened for reasons of marginal funding;
- trade high quantity buys for smaller buys with higher unit costs when more sophisticated equipment was required to provide superiority on the battlefield; and
- exercise care to ensure that costs estimates realistically represent system acquisition costs and that meaningful cost control is maintained.

Procedures were also outlined which described a formal process for reviewing and approving requirements within Army Headquarters (see Figure 7-12). This process can serve as a guide to pertinent documents and responsible participants; however, particular sensitivity to any informal relationships or influences that may reverse or short-circuit this process is necessary, whether the result is favorable or unfavorable.

**REQUIRED OPERATIONAL CAPABILITY
REVIEW AND APPROVAL PROCEDURES**

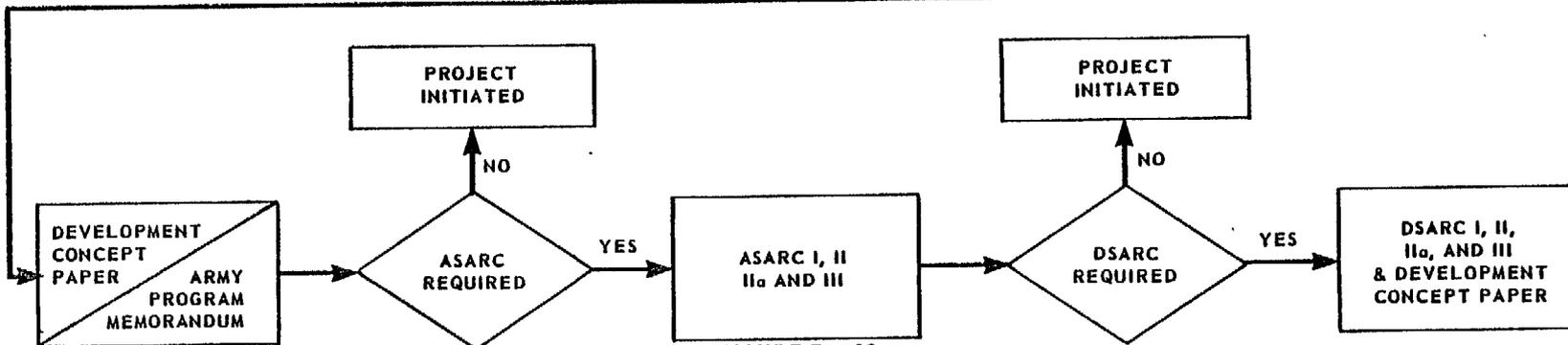
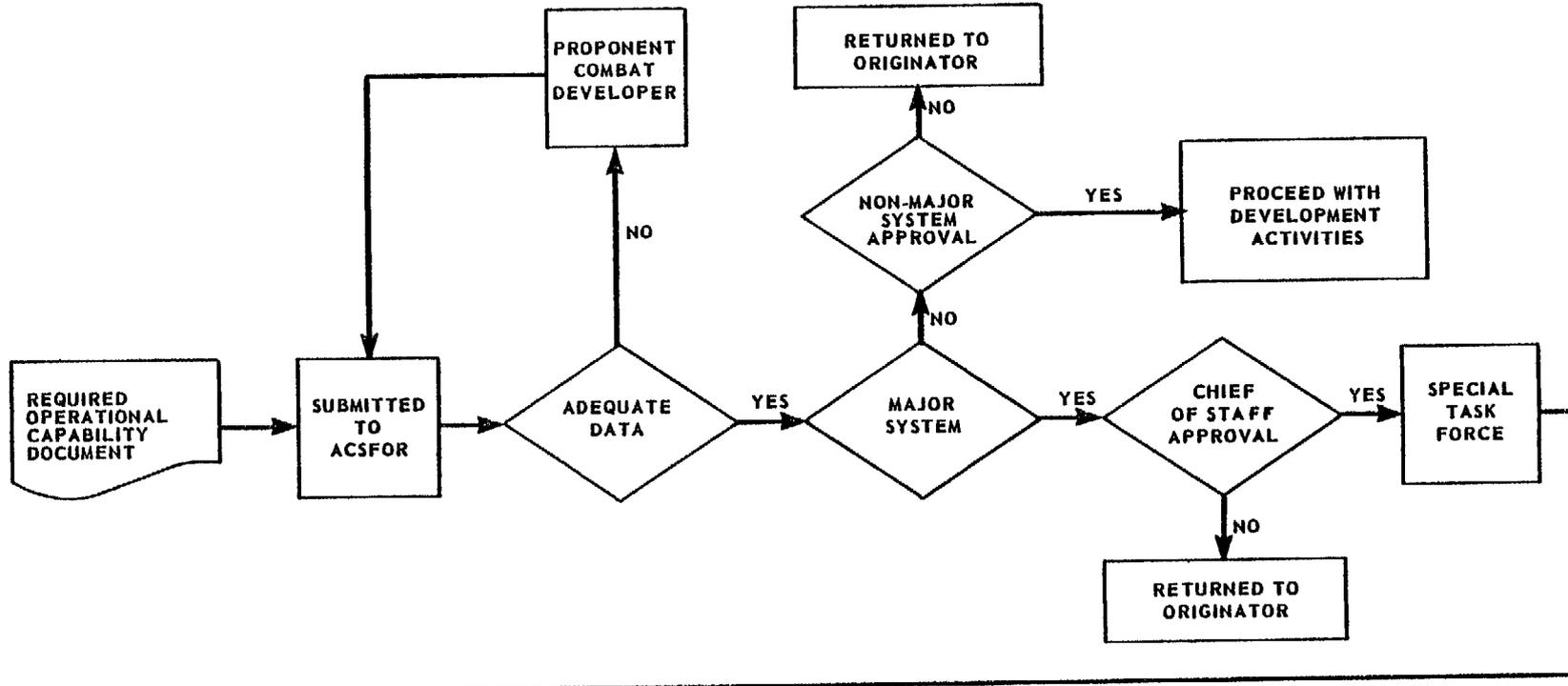


FIGURE 7 - 12

Processing and Approval Actions

The basic document used to describe a requirement for new or improved Army systems is called Required Operational Capability (ROC)^{1/}. It may originate anywhere within the Army such as at schools and centers, or at major command, staff, or secretariat levels. Ideas for requirements may also originate within private industry where solutions to problems frequently result in both solicited and unsolicited proposals. In this regard, the Army also sponsors, co-sponsors, and indorses unclassified scientific and technical meetings when it has an interest, or when the future capability to carry out research and development necessary to accomplish its mission is affected. For the most part, however, Required Operational Capability documents originate within the U.S. Army Training and Doctrine Command and the U.S. Army Materiel Command.

The stated requirement can support Exploratory, Advanced, and Engineering Development (6.2, 6.3, and 6.4 program elements respectively) within the Research, Development, Test and Evaluation program. However, while Operational Capability Objectives (OCO) specifically support expenditure of 6.1, 6.2 and 6.3a funds (research, exploratory development, and non-system advanced development, respectively) the majority of the requirements addressing materiel needs come within 6.3b and 6.4 program elements (system advanced and engineering development, respectively).

^{1/} For improvements in existing systems which do not significantly change performance characteristics, a Product Improvement Proposal (PIP) is submitted to the Deputy Chief of Staff for Logistics.

It is generally appropriate to prepare a Required Operational Capability document when (1) a potential threat or operational deficiency is identified, (2) a technological opportunity appears, or (3) existing systems in the inventory are approaching old-age or obsolescence.

Submitting the document to the Assistant Chief of Staff for Force Development within Army Headquarters starts the requirements approval process. In approximately four pages, the document is to describe why the system is needed, how and where it will be used, its essential characteristics, the necessary technical development, and the fiscal consequences as described below. This is to permit an Army Headquarters decision for initiating development.

The prescribed document format is shown below.

1. Statement describing the need, with the recommended Catalog of Approved Requirements Documents (CARDS) paragraph number for the proposed system
2. Expected time frame in which the new or improved system is required.
3. Description of the threat or operational deficiency the system is expected to overcome.
4. Statement on how the equipment would be used in terms of mission capability, the geographical areas of use, and the type of unit(s) expected to use it /
5. Principal performance, reliability, availability, and maintainability characteristics necessary to describe the system's operational features
6. A broad analysis of the required technical effort
7. A broad-based cost estimate categorized in terms of research and development, non-recurring investment, and recurring investment

Approved Required Operational Capabilities are assigned to the appropriate functional categories shown in Figure 7-3, and recorded in the Catalog of Approved Requirements Document (CARDS) maintained by the Assistant Chief of Staff for Force Development. This Catalog is updated quarterly and provides guidance to research and development activities, including private industry, in the 6.1, 6.2, and 6.3a funding areas. It lists approved requirements by title, and identifies the materiel developer and the assigned user or user representative for the approved requirement.

The Assistant Chief of Staff for Force Development is the focal point within the Headquarters for requirements documents. Initially, the Force Development Staff determines whether adequate information is included in the document for a decision to initiate a development program. If not, the document will be sent to the appropriate combat developer or other agency for additional information. The time allowed for this refinement process is 60 days. When the document is returned to Army Headquarters for approval, a target of 45 days is established to complete staffing requirements. Total processing time will vary, however, with the type and complexity of the specific Required Operational Capability.

Simultaneously with initial submission to the Headquarters, a Required Operational Capability document originated by combat developers is to be sent to selected major U.S. Army commands and quadripartite countries^{1/} for their review and comments. The major commands are given

^{1/} Great Britain, Canada, and Australia

30 days to respond to Army Headquarters, and no response represents concurrence. Comments considered valid and which change the described operational capability will be included in an Army Headquarters approval letter for incorporation into a Development Plan (DP) prepared by the materiel developer. Comments from quadripartite countries are to be considered and acted upon separately at the time of receipt.

The Assistant Chief of Staff for Force Development in coordination with the Chief of Research and Development, and the Deputy Chief of Staff for Logistics determines which proposed systems will be considered major under the criteria discussed in Chapter 2 and the Introduction to this Chapter. If the proposed system is considered to be non-major, the Assistant Chief of Staff for Force Development has approval or disapproval authority. If it is classified as major, the Assistant Chief forwards it to the Chief of Staff for decision, along with a recommendation to assemble a Special Task Force to conduct concept formulation activities.

After the Required Operational Capability document is approved, the proponent combat developer is to forward a copy to the quadripartite countries for information purposes and to the other military Services for review and harmonization. Army instructions state, however, that developmental activities will not be delayed pending receipt of comments from these countries and Services.

Special Task Force Functions

Upon approval of a Required Operational Capability document for a major system, the Chief of Staff appoints a Special Task Force which operates under the supervision of the Assistant Chief of Staff for Force

Development. The purpose of the Task Force is to challenge the validity of the requirement, investigate alternative design approaches, and recommend an approach to meet the system requirement objective. These activities are conducted during the Conceptual Phase of the system's life cycle and terminated when the project enters the Validation Phase or when the designated Project Manager assumes management responsibility.

At minimum, Special Task Force membership includes a Director; Project Manager (designee); materiel user, materiel developer, and combat developer representatives; trainers (Army schools and centers); technical and support agency personnel; and resource programmers. Other positions may also be designated as needed. The Director receives a Letter of Instruction from the Chief of Staff providing the Task Force's mission, organization, authority, responsibilities, tasks, tenure, constraints, reporting requirements, milestone program, and other necessary information. The Task Force's initial work is to prepare its charter for Chief of Staff approval. The charter will reflect applicable portions of the Letter of Instruction with the Director's recommended modifications or amplifications.

The Special Task Force's products include the following three basic documents:

- Concept Formulation Package (CFP)
- Final Report
- Draft Development Concept Paper (DCP), Draft Program Memorandum (PM), or Draft Army Program Memorandum (APM), whichever is applicable.

The Concept Formulation Package is one of the most important documents generated during the requirements process. It supports the content of the Development Concept Paper, Program Memorandum, or Army Program Memorandum drafts, whichever are used, and includes the following four elements:

Trade-Off Determination - This is prepared by the materiel developer and includes discussions and analyses on (1) each technical approach that could potentially satisfy the materiel requirement; (2) potential product improvement of a current item or system to satisfy the requirement; (3) trade-offs required for each approach; (4) cost, schedule, risk, and feasibility estimates of each approach; (5) ecology/environment impact; and (6) requirements for test, measurement, and diagnostic equipment and training devices. From this information, a decision can be made to delete the Required Operational Capability either entirely, because of technological barriers that require excessive time or cost to rectify, or temporarily while continuing research and development to meet cost, schedule, and risk criteria.

Trade-Off Analysis - This is a detailed assessment of the Trade-Off Determination in perspective with the Required Operational Capability and the established equipment mission. It is prepared jointly by the combat and materiel developers, and may recommend eliminating the desired Capability of continuing further research and development efforts. When the technical, cost, and time estimates are within the scope and constraints of the development efforts, the Analysis must recommend the best approach to satisfy the requirement.

Best Technical Approach - The combat and materiel developers analyze the results of the Trade-Off Determination and Analysis to ensure the approaches presented are the best and no other ones exist. The purpose is to select the best one.

Cost and Operational Effectiveness Analysis - The combat and materiel developers finally (1) analyze the system proposed as the Best Technical Approach on a cost and operational effectiveness basis with other competing Defense Department systems, and (2) determine if, considering costs, it represents a major increase in operational capability.

The Task Force's Final Report is prepared in the following format and provided to the Project Manager:

1. System summary
2. System requirements
3. An executive summary of the Concept Formulation Package discussing alternatives considered and relationships to other systems
4. System development plan
5. Technical portion of the request for proposal prepared by the materiel developer
6. Financial and procurement plan
7. Test and evaluation plan
8. Personnel and training requirements, if applicable
9. Logistical support plan, if applicable.

The Report is also provided to the materiel developer for his use in preparing a Development Plan (DP) which becomes the single controlling document used to manage materiel development effort.

The Development Plan records development program decisions, outlines the users operational requirements, and provides analysis of the technical options and life cycle plans for development, test, evaluation, production, personnel training, and logistics support of an item or system. It

consists of six sections which correspond to sections 1, 2, 6, 7, 8, and 9 of the Special Task Force's Final Report outlined above. It is to be refined and updated throughout the development process and when changes to the materiel system occur during the remaining portion of the system's life cycle.

Unless otherwise directed by Army Headquarters Staff, the Special Task Force uses the outline shown below as a point of departure for preparing the Draft Development Concept Paper, Draft Program Memorandum, or Draft Program Memorandum:

1. Nature of the program
2. Background
3. Management Issues
4. System/Program alternatives
5. Assessment of program alternatives with recommendations
6. Cost, schedule, and performance thresholds
7. Test and evaluation
8. Logistical support
9. Security classification guidelines

The Development Concept Paper, discussed in Chapter 11, is a Secretary of Defense decision recording document presenting rationale for starting, continuing, reorienting, or stopping a development program at each critical milestone in a system's acquisition cycle. This document (limited to 20 pages) is prepared in draft form by the Special Task Force when a system is to be reviewed by the Defense System Acquisition Review Council (DSARC) before proceeding into the Validation Phase. The Project Manager prepares all subsequent revisions to the document for succeeding Council reviews.

The Secretary of Defense may direct the Army to prepare a Program Memorandum (PM) for review and approval by the Director, Defense Research and Engineering (DDR&E). This document is used to control Service programs that do not qualify as a major system for Defense System Acquisition Review Council decisions, but that have special interest at the Office of the Secretary of Defense level. The document is normally 10 pages or less.

When either of the two documents discussed above are prepared, they will also be used by the Army System Acquisition Review Council (ASARC), discussed more thoroughly below, when a major system is involved. However, for major systems not meeting the criteria for a Defense System Acquisition Review Council decision, or not having special Secretary of Defense interest, but yet considered to be major by the Army, an Army Program Memorandum (APM) is prepared. Although the length of this document may vary depending upon the proposed system's complexity, 10 pages or less is the goal.

Army System Acquisition Review Council

The Army System Acquisition Review Council parallels the Defense System Acquisition Review Council to review major programs at critical points during the acquisition process. Its purpose is to assist the Secretary of the Army and the Army Chief of Staff in ensuring that all work is completed within the Conceptual, Validation, and Full-Scale Development Phases before proceeding into each succeeding phase. The Council consists of the following ten regular members:

1. Vice Chief of Staff - Chairman
2. Assistant Secretary of the Army (Financial Management)
3. Assistant Secretary of the Army (Research and Development)
4. Assistant Secretary of the Army (Installations and Logistics)
5. Deputy Under Secretary of the Army (Operations Research)
6. Assistant Chief of Staff for Force Development
7. Comptroller fo the Army
8. Chief of Research and Development
9. Deputy Chief of Staff for Logistics
10. General Counsel

The Assistant Chief of Staff for Communications-Electronics also participates when a requirement is related to his functional area, as does the Deputy Chief of Staff for Military Operations when materiel dependent upon strategic, space and nuclear planning is involved.

The table below shows the offices responsible for making preparations for each Council review.

<u>OFFICE</u>	<u>MILESTONE</u>	<u>REVIEW</u>
Assistant Chief of Staff for Force Development	Enter Validation	ASARC I / DSARC I
Chief of Research and Development	Enter Full-Scale Development	ASARC II / DSARC II
Assistant Chief of Staff for Force Development	Low-Rate Initial Production	ASARC IIa / DSARC IIa
Deputy Chief of Staff for Logistics	Full-Scale Production	ASARC III / DSARC III

The decision recording documents for these reviews are the Development Concept Paper, the Director of Defense Research and Engineering's Program Memorandum, or the Army Program Memorandum, as applicable, each of which were described in the section on Special Task Force Functions.

OBTAINING SECRETARY
OF DEFENSE APPROVAL

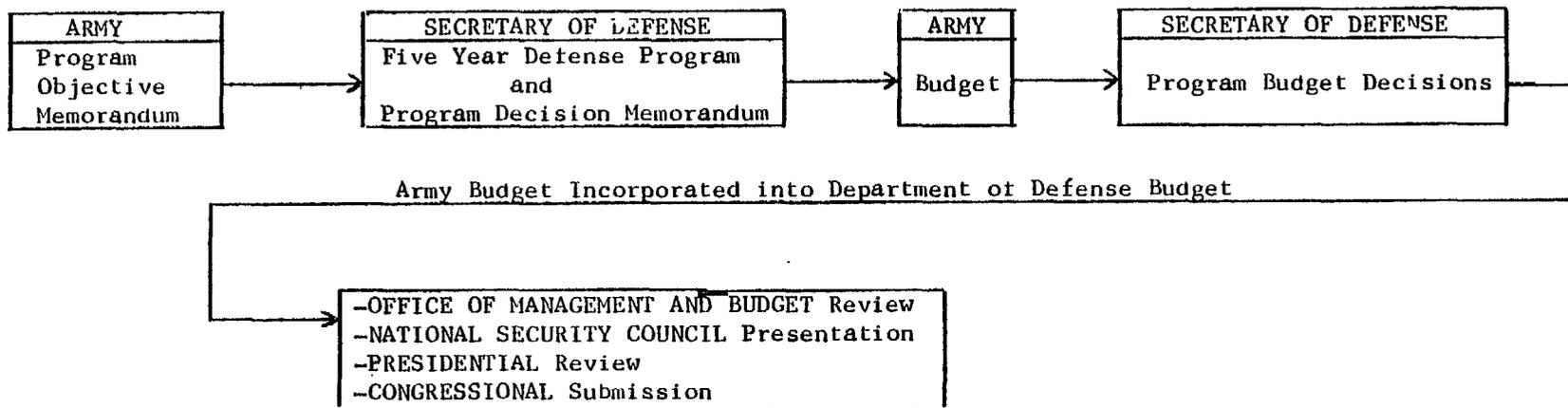
As stated in Chapter 1 of this summary, the Department of Defense Planning-Programming-Budgeting System (PPBS) is a resource management system through which needs and requirements are matched with available funds. The Army PPBS responds to and is dependent upon both the Department of Defense PPBS and the Joint Chiefs of Staff Joint Strategic Planning System (the latter system is discussed in Chapter 5). The Planning phase of this system was addressed earlier in this Chapter under "Identifying the Need".

The second and third phases of PPBS -- programming and budgeting -- were once viewed as separate, almost independent activities within the Army where programming was characterized as the bridge between planning and budgeting. A refined conception is that these two functions are inherent to any realistic planning process. It is therefore not beneficial to consider in isolation from each other either the outputs expressed in the program or the input requirements stated in the budget. Programming establishes goals, defines alternatives and estimates resource requirements. The resulting document is a Program Objective Memorandum (POM). Budgeting refers to those processes by which the resource requirements to carry out approved programs are developed, presented, defended, acquired, controlled, distributed, and used.

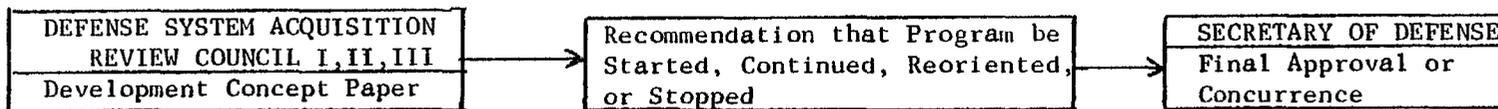
The Army POM and budget are eventually forwarded to the Office of the Secretary of Defense where they become part of the DOD Five Year Defense Program (FYDP) and budget, respectively.

GENERAL REPRESENTATION FOR OBTAINING
SECRETARY OF DEFENSE APPROVAL ON MAJOR SYSTEMS

PROGRAMING - BUDGETING



ACQUISITION REVIEW



Sources: Department of Defense Directive 5000.1
Department of the Army Pamphlet 1-12

Figure 7-13

While major system requirements are reflected in the Army's POM and budget, broad review by the Secretary of Defense does not always permit an adequate review of the progress of individual systems. The Defense System Acquisition Review Council (DSARC) is therefore designed to complement or overlay the programming-budgeting process (see Figure 7-13).

Programming and Budgeting

After using the Defense Policy and Planning Guidance (DDPG) Memorandum from the Secretary of Defense to assist in developing Army forces and support programs, the Army (actually all Services) receive a Planning and Programming Guidance Memorandum (PPGM) from the Secretary for preparing a Program Objective Memorandum (POM). This starts the annual programming and budgeting cycle (see Figure 7-14).

Programming

The Assistant Chief of Staff for Force Development has the primary staff responsibility for preparing the Army's Program Objective Memorandum which expresses total program (force, manpower cost, and materiel) requirements for a designated budget year plus four additional years. It also provides rationale for proposed changes to the 10 categories within the Defense Department's Five Year Defense Program (FYDP).

The Program Objective Memorandum is reviewed by an Army Program Guidance and Review Committee (PGRC), chaired by the Director, Planning and Programming Analysis within the Office of the Chief of Staff. This Committee is a subcommittee of an Army Select Committee, chaired by the Assistant Vice Chief of Staff. The Review Committees' analysis

RELATIONSHIP OF ARMY DOCUMENTS TO
JOINT CHIEFS OF STAFF AND SECRETARY OF DEFENSE DOCUMENTS

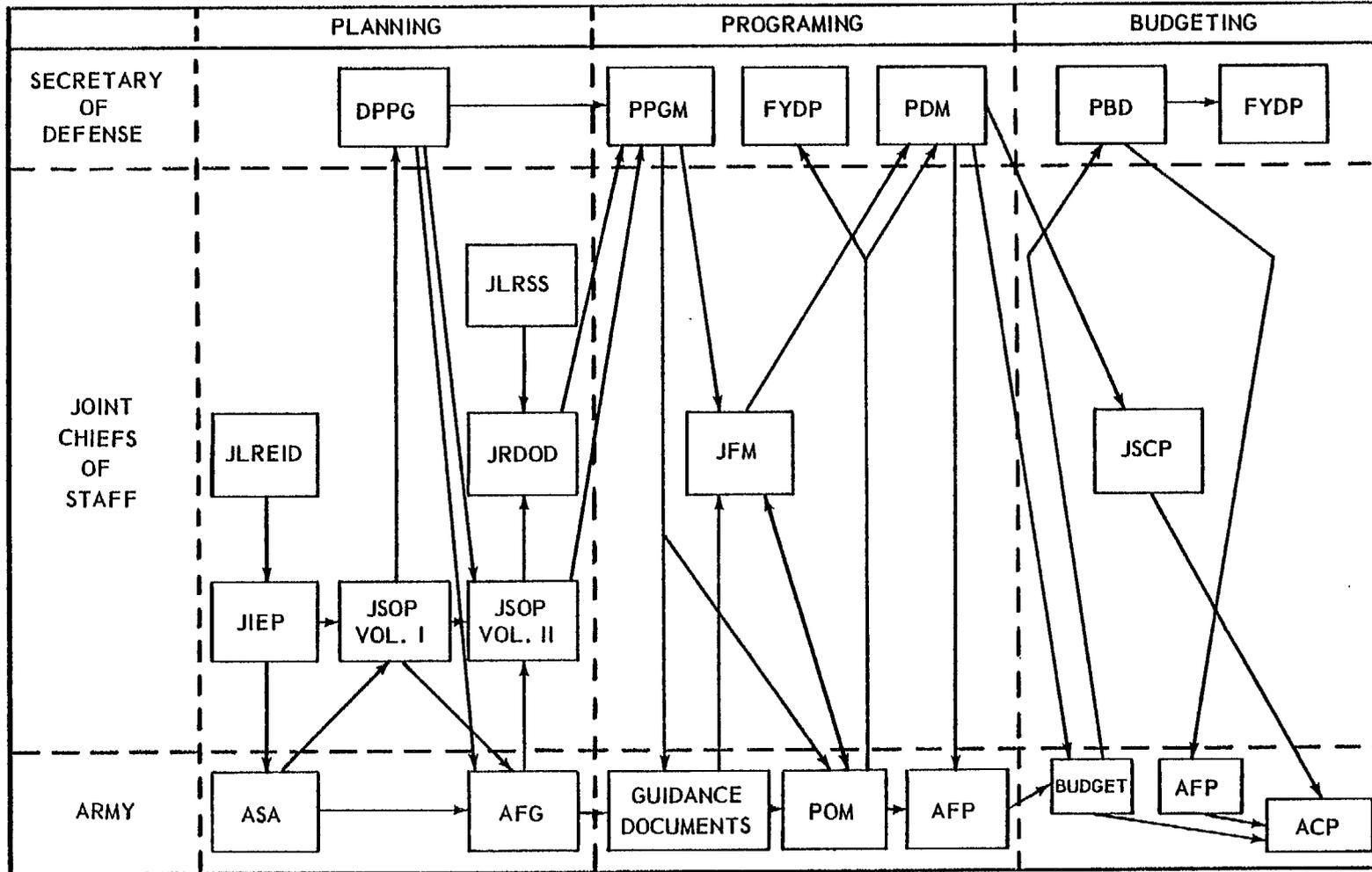


FIGURE 7 - 14

7-44

ARMY DOCUMENTS

ACP	Army Capability Plan
AFG	Army Force Guidance
AFP	Army Force Program
ASA	Army Strategic Appraisal
POM	Program Objective Memorandum

JOINT CHIEFS OF STAFF DOCUMENTS

JFM	Joint Force Memorandum
JIEP	Joint Intelligence Estimate for Planning
JLREID	Joint Long Range Estimative Intelligence Document
JLRSS	Joint Long Range Strategic Study
JRDOD	Joint Research and Development Objectives Document
JSCP	Joint Strategic Capability Plan
JSOP	Joint Strategic Objectives Plan

SECRETARY OF DEFENSE DOCUMENTS

DPPG	Defense Policy and Planning Guidance
FYDP	Five Year Defense Program
PBD	Program Budget Decision
PDM	Program Decision Memorandum
PPGM	Planning and Programming Guidance Memorandum

Figure 7-14
Page 2

and recommendations related to the Memorandum are submitted to the Select Committee for additional review before further submission to the Chief of Staff, Secretary of the Army, and Secretary of Defense.

The Secretary of Defense's Planning and Programming Guidance Memorandum (PPGM) is also issued to the Joint Chiefs of Staff at the same time it is issued to the Services. From this Memorandum, a Joint Force Memorandum (JFM) is prepared which provides recommendations on fiscally constrained major force and support levels. Both the Joint Force Memorandum and the Army's Program Objective Memorandum should be compatible and each are submitted to the Office of the Secretary of Defense to assist in preparing a Program Decision Memoranda (PDM).

An intermediary step to this, however, is preparation of Issue Papers which are discussed in Chapter 11. Issue Papers related to Program Objective Memoranda are prepared by the Director of Program Analysis and Evaluation (DPA&E) at the Office of the Secretary of Defense level, then sent to the Services for review, and to the Secretary and Deputy Secretary of Defense for decision. This decision becomes a tentative Program Decision Memorandum which is analyzed by the Army to identify major issues the Secretary of the Army should personally discuss with the Secretary of Defense before a final Amended Program Decision Memorandum is issued. The Program Objective Memorandum as amended then becomes a basis for updating the Army's portion of the Defense Department's Five Year Defense Program.

Budgeting

After receiving the Secretary of Defense Amended Program Decision Memorandum, the Army updates its Army Force Program which develops the Army force structure in detail for the current and budget years. Program decisions are then translated into one-year budget estimates during August and September. These estimate documents include the prior, current, and budget years. The Army Staff performs the major role in formulating and executing the budget through Appropriation and Budget Program Directors.

The budget is reviewed by a subcommittee of the Army Select Committee (discussed above) called the Budget Review Committee (BRC). This Budget Committee is chaired by the Director of the Army Budget. Regular members include the Director of Planning and Programming Analysis within the

Office of the Assistant Vice Chief of Staff, all Directors responsible for budgeting within each staff office, and the Director of Operations within the Office of the Deputy Chief of Staff for Military Operations. Recommendations are prepared for the Select Committee which reviews the budget before submitting it to the Chief of Staff, Secretary of the Army, and finally to the Secretary of Defense in early October.

During October, the Army budget is jointly reviewed by a team of analysts from the Office of the Secretary of Defense, and the Office of Management and Budget. Witnesses are called from the Army staff to defend their programs. Based upon these sessions, the Secretary of Defense will publish a series of Program budget Decisions (PBD) which require the Army to make changes in its budget submission and Five Year Defense Program, if necessary.

Budget changes can still be made during December when the Secretary of Defense convenes a Major Budget Issues Meeting with the Service Secretaries and Joint Chiefs of Staff representatives. Revisions can then be made to the Program Budget Decisions.

At this point, the Army's budget becomes a portion of the Department of Defense budget. It is given a final review by the Office of Management and Budget, and after presentation to the National Security Council, is submitted to the President for final decisions. The result becomes part of the Federal Budget presented to the Congress.

Defense System Acquisition Review Council

Overlaying the programming-budgeting process is the separate and distinct DSARC process. As discussed in Chapter 11, the DSARC is an advisory body to the Secretary of Defense which reviews major system programs at critical points during the acquisition process. For purposes of this summary, the most critical point is after Conceptual Phase and prior to Validation Phase of a systems life cycle i.e., DSARC I.

The Development Concept Paper (DCP) is the Defense Department management document that presents rationale for starting, continuing, reorienting, or stopping a major development program. For Army major systems, the draft of this document is prepared by the Special Task Force. After the Secretary of Defense approves the document, it constitutes a contract between the Office of the Secretary of Defense and the Army.

PLANNED ARMY REORGANIZATION

On March 5, 1974, the Secretary of the Army announced a major reorganization of the Army to be effective by July 1, 1974. The result will directly impact upon this Chapter in that staff responsibilities will be shifted.

Although other organizational changes will also be made, those relative to needs and requirements for major systems will be as follows:

- The position and agency of Assistant Chief of Staff for Force Development ACSFOR and Chief of Research and Development (CRD) will be eliminated.
- An Office of the Deputy Chief of Staff for Research, Development, and Acquisition (ODCSRDA) will be established. It will be responsible for all phases of the staff management of the Army's system acquisition policy. In addition to research and development responsibility, this Office will provide staff supervision for the procurement and production of all major items of Army equipment. The major position of the CRD function will be assumed by ODCSRDA.
- The Office of the Deputy Chief of Staff for Military Operations (ODCSOPS) will be reorganized and retitled Office of the Deputy Chief of Staff for Plans and Operations (ODCSPO). In addition to the responsibilities now discharged by ODCSOPS, this Office will establish materiel and force structure requirements, and recommend resource priorities. Required Operational Capability (ROC) documents will be received and processed by (ODCSPO) and

then sent to ODCSRDA for research, development, and acquisition.

--ACSFOR functions will be assigned to ODCSPG, ODCSRDA, and the Office of the Deputy Chief of Staff for Personnel.

ARMY ORGANIZATIONS HAVING
COMBAT DEVELOPMENT INTERESTS

MAJOR COMMANDS

US ARMY TRAINING AND DOCTRINE COMMAND
US ARMY COMMUNICATIONS COMMAND
US ARMY SECURITY AGENCY
US ARMY HEALTH SERVICES COMMAND
HEADQUARTERS MODERN ARMY SELECTED SYSTEMS TEST EVALUATION AND
REVIEW (MASSTER), FORT HOOD, TEXAS 1/

COLLEGES

ARMY COMMAND AND GENERAL STAFF COLLEGE, FORT LEVAVENWORTH, KANSAS 2/
ARMY WAR COLLEGE, CARLISLE BARRACKS, PENNSYLVANIA 3/

BRANCH SCHOOLS 2/

ARMY AIR DEFENSE SCHOOL, FORT BLISS, TEXAS
ARMY ARMOR SCHOOL, FORT KNOX, KENTUCKY
ARMY ENGINEER SCHOOL, FORT BELVOIR, VIRGINIA
ARMY FIELD ARTILLERY SCHOOL, FORT SILL, OKLAHOMA
ARMY INFANTRY SCHOOL, FORT BENNING, GEORGIA
ARMY INTELLIGENCE SCHOOL, FORT HUACHUCA, ARIZONA
ARMY MILITARY POLICE SCHOOL, FORT GORDON, GEORGIA
ARMY ORDNANCE SCHOOL, ABERDEEN PROVING GROUND, MARYLAND
ARMY QUARTERMASTER SCHOOL, FORT LEE, VIRGINIA
ARMY SIGNAL SCHOOL, FORT MONMOUTH, NEW JERSEY
ARMY SOUTHEASTERN SIGNAL SCHOOL, FORT GORDON, GEORGIA
ARMY TRANSPORTATION SCHOOL, FORT EUSTIS, VIRGINIA

SPECIALIST SCHOOLS 2/

ARMY AVIATION SCHOOL, FORT RUCKER, ALABAMA
ARMY INSTITUTE FOR MILITARY ASSISTANCE, FORT BRAGG, NORTH CAROLINA
ARMY MISSILE AND MUNITIONS SCHOOL, REDSTONE ARSENAL, ALABAMA

FUNCTIONAL CENTERS 2/

ARMY COMBINED ARMS CENTER, FORT LEAVENWORTH, KANSAS
ARMY LOGISTICS CENTER, FORT LEE, VIRGINIA
ARMY ADMINISTRATION CENTER, FORT BENJAMIN HARRISON, INDIANA

1/ Subordinate to U.S. Army Forces Command
2/ Subordinate to U.S. Army Training and Doctrine Command
3/ Operates under the control and supervision of the Deputy Chief
of Staff for Military Operations

SPECIAL ORGANIZATIONS 2/

ARMY COMBAT DEVELOPMENTS EXPERIMENTATION COMMAND, FORT ORD, CALIFORNIA
ARMY COMBAT ARMS TRAINING BOARD, FORT BENNING, GEORGIA
ARMY AIR DEFENSE HUMAN RESEARCH UNIT, FORT BLISS, TEXAS
ARMY ARMOR HUMAN RESEARCH UNIT, FORT KNOX, KENTUCKY
ARMY AVIATION HUMAN RESEARCH UNIT, FORT RUCKER, ALABAMA
ARMY INFANTRY HUMAN RESEARCH UNIT, FORT BENNING, GEORGIA

2/ See Page 1

APPENDIX III

SELECTED PRIORITY AREAS OF CONCERN
FOR STUDIES DURING FISCAL YEAR 1974 a/

1. What are the major factors impacting on the roles and missions of the U. S. Army in the proximate future, including the procedural concepts or net assessment and total force planning, which will influence the Army's size, cost and capability?
2. Determine the requirement for tactical and strategic nuclear forces and their optimum employment. How should nuclear and nonnuclear forces be integrated? What are the command, control, communications, and logistics implications of such a force mix?
3. How can the factors relating to combat consumption of materiel be improved to better validate the basis for materiel procurement for War Reserve Stocks and future production requirements?
4. Determine the impact on capability, strategy, strategic mobility, telecommunications, force structure, research and development, logistics, and costs of an Army based primarily in the Continental United States. Should the United States maintain stationing rights and telecommunications sites, and conduct "REFORGER" type exercises as a means of maintaining a presence in the event of complete withdrawal from important overseas areas?
5. Determine the optimal structuring of the combat and support echelons of the Army and their distribution between the Active Army and Reserve Components considering manpower and fiscal constraints, and political and strategic implications. Within likely resource constraints, how can the readiness of Active Army and Reserve forces be improved? To what extent and in what ways can the integration of personnel, training, and logistic functions between Active and Reserve elements be improved in order to enhance the readiness of both components?
6. How should the Army contribution to security assistance programs be organized and conducted in the light of the Nixon Doctrine and Congressional guidance on foreign aid?

a/ Represents 6 of 10 Priority Areas of Concern which more closely relate to this survey report. The Areas shown are not listed in order of priority.

PRINCIPAL ARMY STUDY ORGANIZATIONS

<u>STUDY ORGANIZATION</u>	<u>SUPERVISION/ SPONSOR</u>	<u>STUDY AREA SPECIALITY</u>
<u>STAFF SUPPORT AGENCIES</u>		
Army Concepts Analysis Agency	ACSFOR	Analysis of Army force design, Army objective force requirements and capabilities, strategic and tactical operational plans and concepts, and materiel mix alternatives
Army Intelligence Threat Analysis Detachment	ACSI	Prepares or supervises preparation of threat analysis of foreign forces weapon systems, and environmental factors
Engineer Agency for Resources Inventories	COE	Resource atlases, reference data management services, planning assistance and technical engineering skills
Engineer Strategic Studies Group	COE	Implications of logistic, engineer, nuclear, and force planning activities; strategic analyses; base development planning; and mobility analyses
<u>FIELD OPERATING AGENCIES</u>		
Strategic Studies Institute, U.S. Army War College	DCSOPS	Conducts strategic studies on the nature and use of the U.S. Army during peace and war, and formulates strategic concepts in order to assist in achieving U.S. national objectives, and conducts other studies as directed
Army Research Institute for the Behavioral and Social Sciences	—	Personnel management research and human performance experimentation; research in motivation, morale, leadership, contemporary social problems; and training and manned system research
<u>MAJOR COMMAND AGENCIES</u>		
Army Management Engineering Training Agency	AMC	Management engineering
Army Logistics Management Center	AMC	Logistic research

PRINCIPAL ARMY STUDY ORGANIZATIONS (CONT'D)

<u>STUDY ORGANIZATION</u>	<u>SUPERVISION/ SPONSOR</u>	<u>STUDY AREA SPECIALITY</u>
<u>MAJOR COMMAND AGENCIES (CONT'D)</u>		
Army Materiel System Analysis Agency	AMC	Materiel oriented systems analysis
Army Security Agency Combat Developments Activity	ASA	Cryptologic and electronic warfare doctrine, organization, and materiel requirements documentation; conducts studies for design of forces and definition of support relationships for interface with Army and joint operations
Army Combined Arms Combat Development Activity	TRADOC	Concepts, doctrine, organizations, materiel requirements, and functional systems requirements for combat, combat support, and command and control for Army divisions and echelons above division
Army Logistics Center	TRADOC	Logistics concepts, doctrine, organizations, materiel requirements, and functional systems requirements for the Army (excluding AMC wholesale logistics)
Army Personnel & Administration Combat Developments Activity	TRADOC	Army personnel and administration concepts, doctrine, organizations, materiel requirements, and functional systems requirements

-
- ACSFOR - Assistant Chief of Staff for Force Development
 - ACSI - Assistant Chief of Staff for Intelligence
 - COE - Chief of Engineers
 - DCSOPS - Deputy Chief of Staff for Military Operations
 - AMC - Army Materiel Command
 - ASA - Army Security Agency
 - TRADOC - Training and Doctrine Command

CHAPTER 8
U.S. NAVY

INTRODUCTION

Legislative History

The United States Navy, like its companion service, the United States Marine Corps, claims origins from the second Continental Congress of 1775. Its traditional role/mission was not changed in the National Security Act of 1947, despite the advent of nuclear warfare and the creation of the Department of the Air Force.

Title 10, United States Code, Section 5012, provides the legal basis for the Navy:

(a) The Navy, within the Department of the Navy, includes in general, naval combat and service forces and such aviation as may be organized therein. The Navy shall be organized, trained, and equipped primarily for prompt and sustained combat incident to operations at sea. It is responsible for the preparation of naval forces necessary for the effective prosecution of war except as otherwise assigned and is generally responsible for naval reconnaissance, antisubmarine warfare, and protection of shipping.

(b) All naval aviation shall be integrated with the naval service as part thereof within the Department of the Navy. Naval aviation consists of combat and service and training forces and includes land-based naval aviation, air transport essential for naval operations, air-weapons and air techniques involved in the operations and activities of the Navy, and the entire remainder of the aeronautical organization of the Navy, together with the personnel necessary therefor.

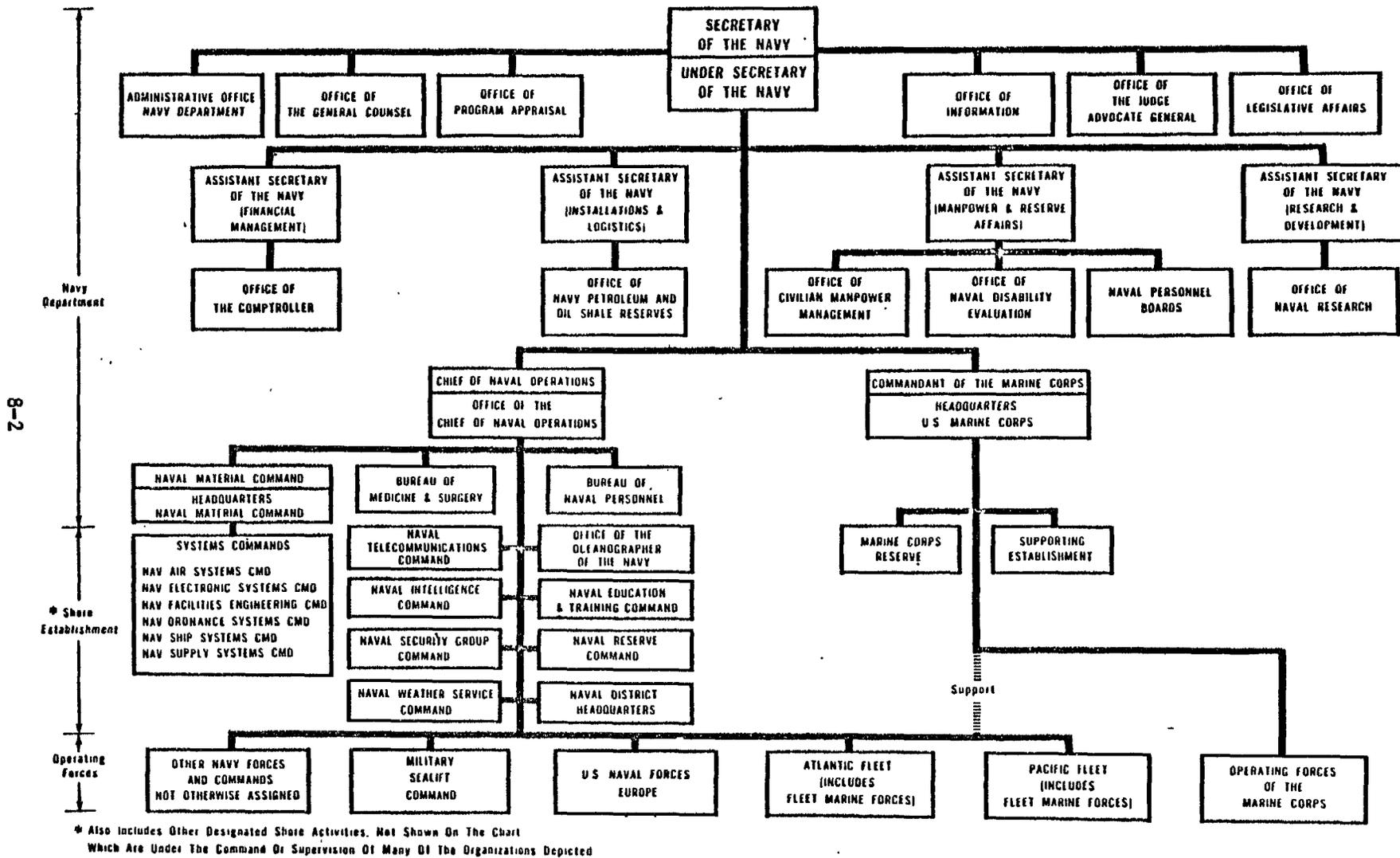


Figure 8-1

(c) The Navy shall develop aircraft, weapons, tactics, techniques, organization, and equipment of naval combat and service elements. Matters of joint concern to these functions shall be coordinated between the Army, the Air Force, and the Navy.

(d) The Navy is responsible, in accordance with integrated joint mobilization plans, for the expansion of the peacetime components of the Navy to meet the needs of war. (See Fig. 8-1.)

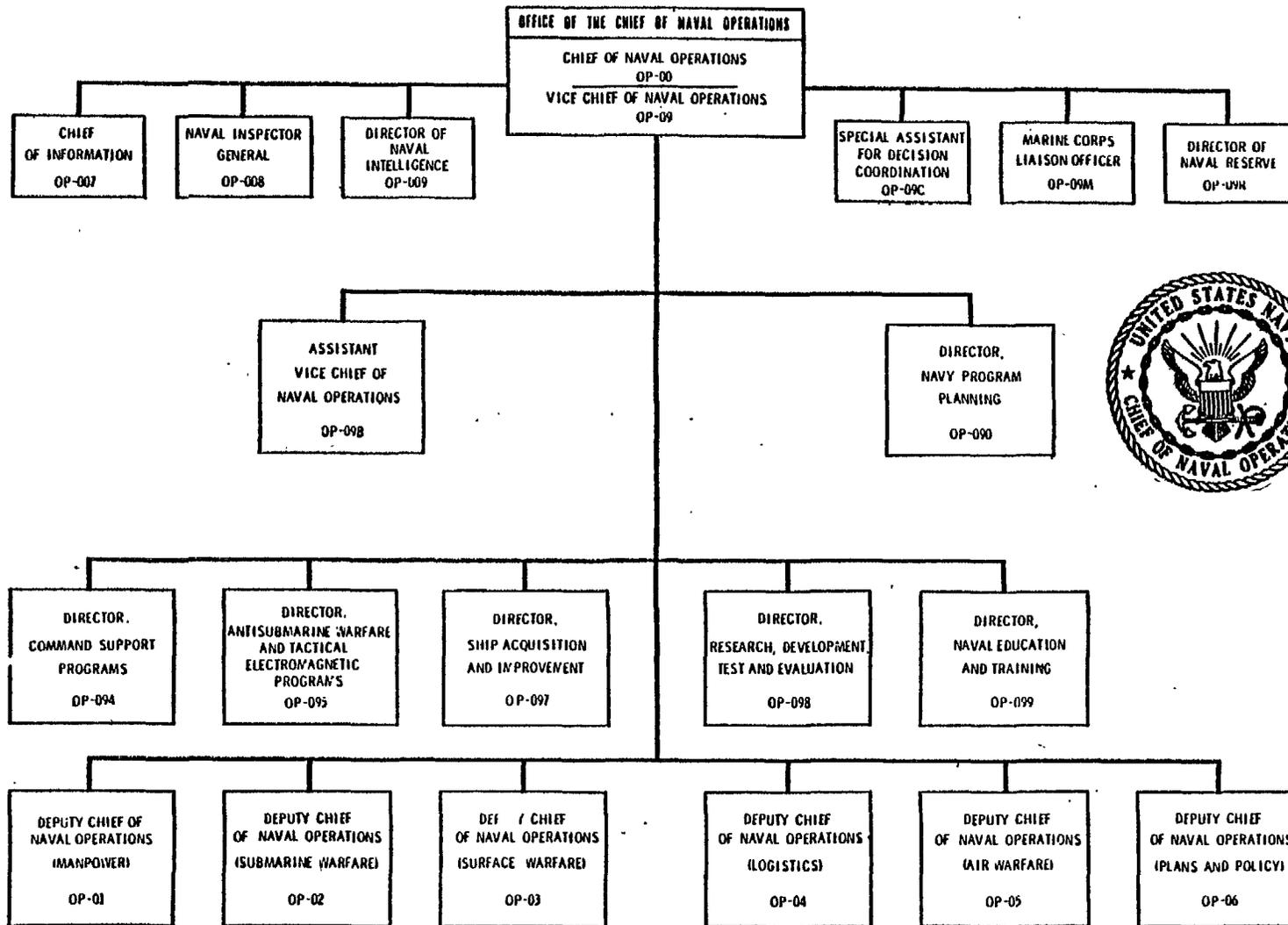
To carry out its statutory responsibility in accomplishing the assigned role/mission, the Navy subdivides its operations internally into forces, functions, and warfare areas and mission areas. Organizing and equipping forces for operations at sea are dependent on the development of weapon systems implied by the tactics and techniques the Navy has developed and which are evolving to support the doctrine for the warfare areas. The men, material and money for the organization and training of these forces are provided to the Department of Defense (DOD) through the budgetary process and the resource management system of the DOD known as the Planning-Programming-Budgeting System (PPBS) is supported by and impacts on the needs and requirements process of the Navy. The approval for funding is discussed later in this chapter.

The doctrine, strategy, tactics, techniques and dual responsibility for the prosecution of Amphibious Warfare, a part of the Surface Warfare area and force require the Deputy Chief of Naval Operations for Surface Warfare to coordinate closely with, and involve the Marine Corps in the requirements process. The appropriation arrangements for the Navy and

NAVY ROLE/MISSION

DOD FORCE MISSIONS (FYDP)	NAVY FORCES & FUNCTIONS	NAVY WARFARE AREAS
PROGRAM 2- GENERAL PURPOSE FORCES (NAVY)	SURFACE WARFARE	SURFACE WARFARE (SUW)
		AMPHIBIOUS WARFARE (AMW)
		MINE WARFARE (MIW)
		ANTI-SUBMARINE WARFARE (ASW)
		SPECIAL WARFARE (SPW)
PROGRAM 1- STRATEGIC FORCES, OFFENSIVE, MISSILE PROGRAM 2- GENERAL PURPOSE FORCES (NAVY)	SUBMARINE WARFARE	SUBMARINE WARFARE (SUW)
PROGRAM 2- GENERAL PURPOSE FORCES (NAVY)	AIR WARFARE	AIR WARFARE (ARW)
		ANTI-AIR WARFARE (AAW)
PROGRAM 4- AIRLIFT/SEALIFT PROGRAM 5- GUARD AND RESERVE FORCES	COMMAND SUPPORT	COMMAND AND CONTROL (CAC)
		FLEET SUPPORT OPERATIONS (FSO)
		MOBILITY (MOB)
		CONSTRUCTION (CON)
		NONCOMBAT OPERATIONS (NCO)

Figure 8-2



721
150
14
150

Figure 8-4

Marine Corps establish the role of the Office of the Deputy Chief of Naval Operations for Air Warfare as that of supporting both Navy and Marine Corps aviation requirements and the Deputy Chief of Staff for Aviation of the United States Marine Corps is the Assistant Deputy Chief of Naval Operations for Air Warfare. (See Chapter 9)

The Navy mission areas (figure 8-2) are identified in the annual initial guidance from the Chief of Naval Operations on development of the Program Guidance Memorandum (POM). The full details of the responsibilities of the mission sponsors is contained in the Office of the Chief of Naval Operations Organization Manual (OPNAVINST 5430.4). The Department of Defense programs are explained in Book 1, Volume I, Five Year Defense Program Structure (7045.7 Handbook).

Magnitude of Acquisitions

As of June 30, 1973, the Department of the Navy was involved in about 53 major acquisitions^{1/} meeting the DOD criteria of \$50/\$200 million (Figure 8-3). Each of these weapon systems is supposed to contribute to the operational capability of the Navy in one or more of its force, functions, warfare, or mission areas. Whether these systems are Deployed, in Production, in Full-Scale Development, or in Validation, their position in the life cycle attests to the fact that they were specifically authorized by and money was appropriated for them by the Congress.

^{1/} In October of each year the Major Acquisitions Subdivision obtains an inventory of Department of Defense Major Acquisitions as of the previous June 30. These inventories are maintained in the classified files area.

NAVY/MARINE CORPS INVENTORY AND COST ESTIMATE^{1/}
 OF NEW SYSTEM ACQUISITIONS^{2/}
 (AS OF JUNE 30, 1973 IN FY 73-FY77 DOLLARS)

<u>SYSTEM</u>		COST ESTIMATE FOR <u>CURRENT PROGRAM</u>	<u>SYSTEM</u>	COST ESTIMATE FOR <u>CURRENT PROGRAM</u>
A-4M	Attack Aircraft	353.0 Million	POSEIDON	Subsurface to Surface Missile 4782.7
A-6E	Attack Aircraft	1,718.6	TRIDENT	Subsurface to Surface Missile 11,892.5
A-7E	Attack Aircraft	2,796.4	MK48-	
AV-8A	Vertical Takeoff Attack Aircraft	511.9	MODI	Torpedo 1,499.3
V/STOL-SCS	Vertical Short Takeoff Aircraft	155.7	SSN-688	Nuclear Attack Submarine 8,303.9
CH-53E	Heavy Lift Helicopter	570.4	DD-963	Destroyer 2,805.1
E-2C	ECM Aircraft	876.7	DLGN-38	Nuclear Guided Missile Frigate 834.4
EA-6B	ECM Aircraft	1500.9	LHA	Amphibious Assault Ship 1,139.2
F-14A	Fighter Aircraft	5994.4	CVAN-68	Class Nuclear Aircraft Carrier 2,309.8
P-3C	Patrol Aircraft	2550.8	PF	Patrol Frigate 3,244.5
S-3A	ASW Aircraft	3294.4	PHM	Patrol Hydrofoil Missile Ship 727.1
T-2C	Trainer Aircraft	227.8	PHALANX	
UH-IN	Utility Helicopter	249.8	CIW	Anti Ship Missile Defense 543.5
AEGIS	Anti-Aircraft Missile	484.1	SCS	Sea Control Ship 1,054.5
AGILE	Air to Air Missile	298.0	SES	Surface Effects Ship 497.8
PHOENIX	Air to Air Missile(AIM-54)	1113.1	ENCAP HARPOON	Surface to Surface Missile 44.3
SIDE-			SLCM	Surface to Surface Missile 909.2
WINDER	Air to Air Missile(AIM-9L)	311.0	STANDARD ER	Surface to Air Missile 484.2
SPARROW-			STANDARD MR	Surface to Air Missile 346.6
(IIIF)	Air to Air Missile(AIM-7)	1086.7	AD	Destroyer Tender 620.5
AN/BQQ-5	Sonar	857.5	AO	Fleet Oiler 460.1
LAMPS(MKIII)	ASW Helicopter	1,370.2	AS	Submarine Tender 502.6
LAMPS(MKI)	ASW Helicopter	268.3	Amphibious	Assault Vehicle 273.5
VAST-247	Variable Avionics Shop		DLG AAW MOD	Guided Missile Destroyer 990.1
	Test System	415.6	CAPTOR	ASW Moored Mine 343.3
HARM	Air to Surface Missile	227.8	CAESER	ASW Detection 1,582.1
CONDOR	Air to Surface Missile(AGM-53)	523.4	DIFAR	Airborne ASW Sonobuoy 245.8
HARPOON	Surface to Surface Missile	1094.7	Fleet Sattelite	Communications System 333.6
			High Energy	LASER 155.6
			SANGUINE	337.5
				76,083.7

^{1/} Program Cost: RDT&E, Procurement and MILCON Appropriations

^{2/} Source: ASD/Comptroller, Directorate for Information Operations,
 Nov. 1, 1973

Figure 8-3

To have been included in the ongoing FY 1974 budget expenditures, the Secretary of Defense had approved the Department of the Navy's Program Objective (POM) for fiscal years 1974-1978 and included its contents in the Department of Defense's Five Year Defense Program (FYDP) for the same period.

Not all of these are new systems and not all of them followed exactly the same path in justification, development and acquisition. Many factors impact on the theoretical cycle this chapter attempts to describe.

IDENTIFYING THE NEED

Like the Army and the Air Force, the Navy and Marine Corps headquarters staffs do the planning for their service missions in coordination with the Joint Chiefs of Staff, and programming in coordination with the Office of the Secretary of the Navy and the Office of the Secretary of Defense. The needs and requirements of the Navy are intrinsically tied to the legislated role/mission of the Navy. The Chief of Naval Operations (CNO) is responsible for identifying operational needs, determining characteristics, and generating requirements to meet Navy needs. Therefore, the organization of the Office of the Chief of Naval Operations (OPNAV) attempts to counterpart both the role of Navy as naval personnel see it, as well as the Department of Defense program structure to which the Offices of the Secretary of the Navy and the Secretary of Defense must be responsive in the budgeting process.

The Navy sees its operating environment as a sphere whose surface area is 70% water. The doctrine calls for control of the seas, control of the area below the sea, and air superiority over the fleet. There

is, therefore, a Deputy Chief of Naval Operations for Surface Warfare (OP-03), Submarine Warfare (OP-02) and Air Warfare (OP-05). These forces have several common elements which are centralized for management under a collective function called Command Support Programs (OP-094) headed by a Director. These common elements are communications, operations security, reconnaissance and surveillance, operational information, cryptology, and environmental services. Together these four offices represent the users of weapon systems and are responsible for assessing the net threat, identifying operational needs, advising the Chief of Naval Operations on establishing requirements, and improving operational capability in their respective force/function areas (Figure 8-4).

The Chief of Naval Operations, through these and other offices identifies needs and establishes requirements.

The major acquisitions which satisfy Navy needs are usually thought of and referred to as "new capabilities" but new is a matter of interpretation. Actually many new weapon systems are replacements for existing systems or additions of modified or improved systems to the inventory. Some of them are truly needed and any price will be paid, while others are merely desired capabilities which must compete for available resources with other desirable operational capability improvements. There are many things which motivate a service to seek a major acquisition. Some of them are categorized in the research and development community as pushing the requirement and others as pulling the requirements. The continuous advancement of the technology base by science, the technological breakthroughs by industry, and the Department of Defense's contribution

to support of the national economy push the generation of requirements. More familiar would be those things which pull the need -- the enemy threat, old age or obsolescence of existing systems, and the doctrine and tactics developed by each service to maintain the status quo or enlarge its role/mission.

Threat Assessment

Five periodic JCS documents provided to the services are the annual signal for an update and review of their needs and requirements. The JCS provide four intelligence documents:

1. Defense Intelligence Projections for Planning (Soviet Russia)
2. Defense Intelligence Projections for Planning (PRC)
3. Defense Intelligence Estimates for Joint Planning
- 4a. Joint Intelligence Estimate for Planning (Short Range)
- 4b. Joint Intelligence Estimate for Planning (Mid-Range)

and one strategic planning document:

Joint Strategic Objectives Plan, Volume I, Strategy .

When these have been received by May of each year, the Chief of Naval Operations has net assessments made of the implications to each mission and warfare area in relation to the current JCS operational tasking of Navy forces assigned to unified commands. This tasking is reflected in the current year's Joint Strategic Capabilities Plan and the implementing Operational and Contingency Plans of the forces involved. The implications to each mission and warfare area proceed from the legislated role/mission of the Navy.

Net Assessment --

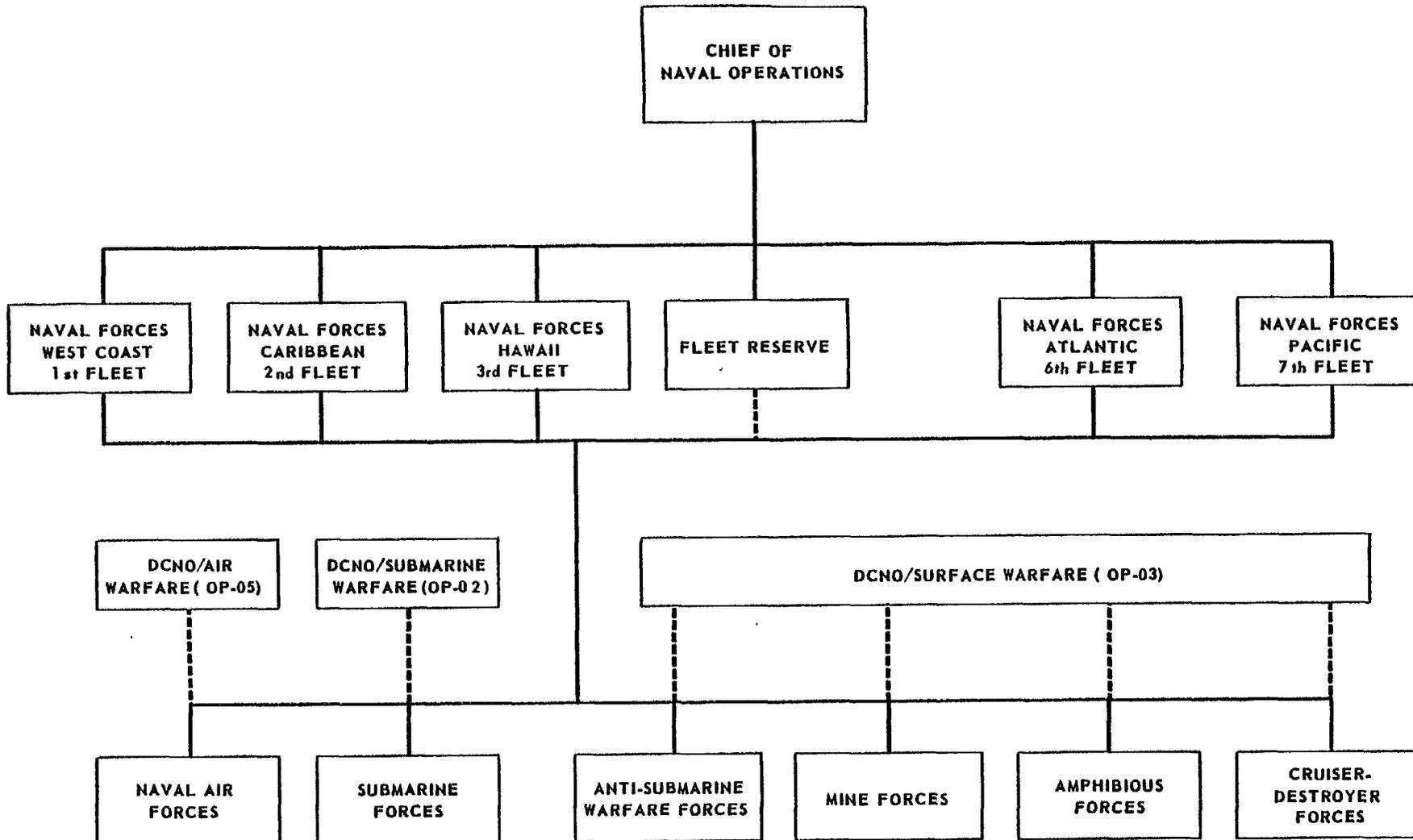
The needs process begins with assessment of the threat of potential enemies. The product of the intelligence community are provided to

using commands and to mission and warfare area sponsors by the Director of Naval Intelligence. The users, through analysis and study integrate these intelligence products with Joint and Service plans, producing net assessments related to their area of interest whether that be ships, submarines, or airplanes, the tasks of sea control, or ocean escort, or the mission of anti-submarine warfare. The result of these procedures is a conclusion that one year, 10 years, or 20 years in the future, a potential enemy will have a certain size force level of such sophistication that Navy forces will be too small, too old, or too primitive to successfully engage the enemy. It may be that he is projected to fly higher, launch missiles farther away, or have a quieter submarine which will be much more difficult to detect. Threat considerations will appear in all requirements decisions, whether before or after the fact.

Old Age/Obsolescence --

A rifle is an example of a relatively simple weapon system which can be used until it breaks or the rifling in the barrel wears out. A new barrel may double its usable life. An airplane is like the rifle in that its life is extended by periodic replacement of the engine, the weakest link in its chain. But engines can't be replaced indefinitely because the airplane is constructed differently and metal fatigue will occur at some point due to the stress of the operational environment and patterns of use. The exact point when it is unsafe for use can't be accurately determined and therefore a factor for operational safety is predetermined and included to compute the retirement age of an airplane.

NAVY OPERATING FORCES - THE USERS



8-12

Figure 8-5

Within its legitimate life span, other components will be replaced and subsystems such as avionics and weaponry can improve performance and versatility. All ships in the Navy are also assigned a span of life at birth based on a combination of factors like metal fatigue, corrosion and the exorbitant cost of replacing power plant. The Navy maintains a constant inventory of the age of the fleet and projects required replacement dates from this report.

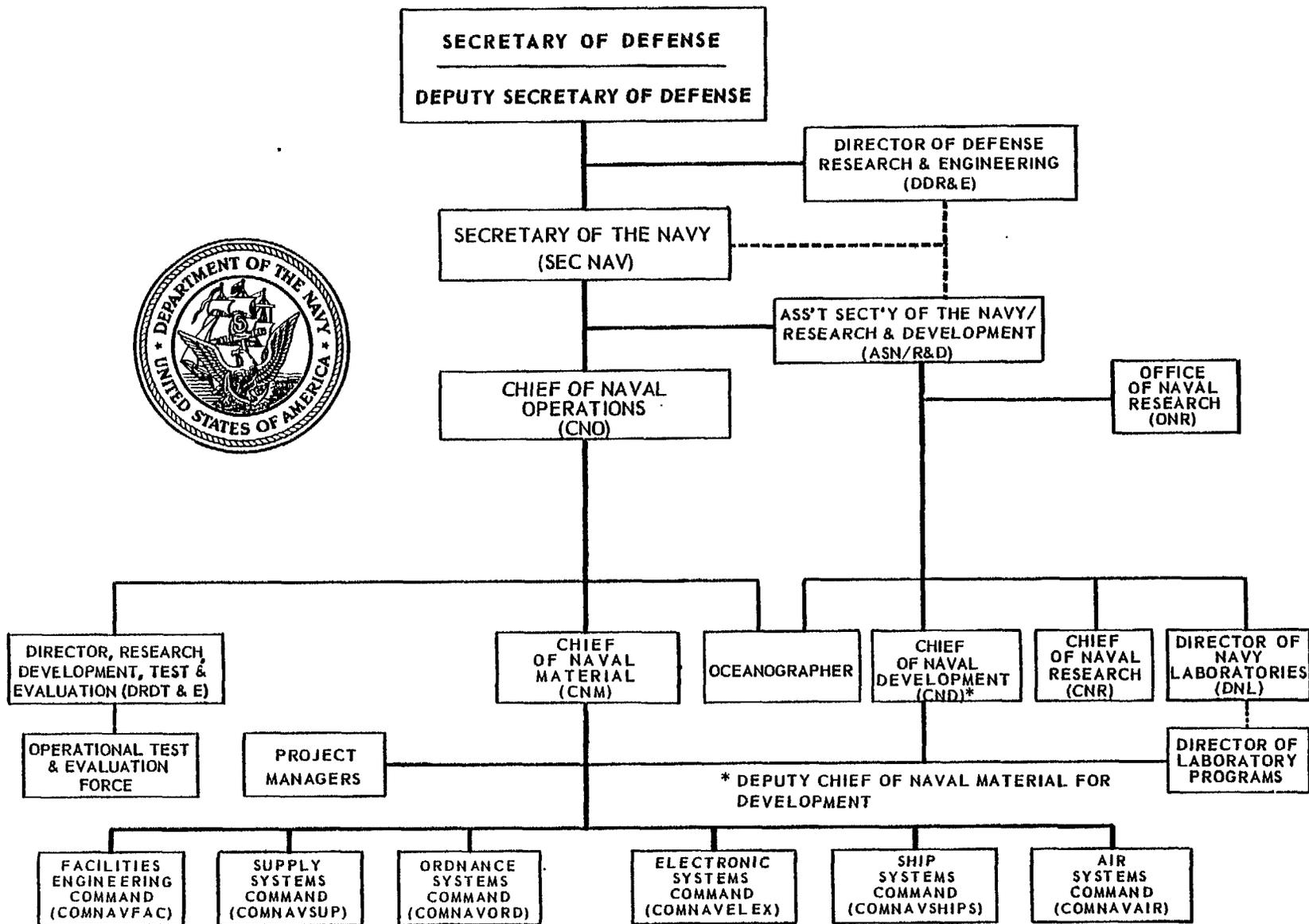
Material Readiness --

Information on the effectiveness of deployed systems is provided under the Material Maintenance Management (3M) system which feeds back data on system readiness, system and subsystem failures, supply consumption, and trends in force capability. The output of this material readiness system will impact on the validity of life usage estimates for a system. The Service Life Extension Program (SLEP), product improvements, major alterations or conversions (modifications) of weapon systems or in some cases, the actual design of a new system can all result from 3M feedback.

Doctrine and Tactics --

All active naval forces are committed to and under the operational control of unified commands of the Joint Chiefs of Staff. These naval forces (figure 8-5) are the users of major acquisitions. Training is continuously conducted so that personnel become and remain proficient in tactics and the use of their weapon systems. Much of this training is made up of daily operating activity. Periodic exercises, however, are also conducted, at least annually, to verify the capability to accomplish the tasks assigned by operations and contingency plans.

NAVY RESEARCH AND DEVELOPMENT ORGANIZATION



8-14

Figure 8-6

In a peacetime environment (the U.S. not engaged in a shooting conflict) the activity is covered by operating plans directed by the Joint Chiefs of Staff through the Joint Operational Planning System (JOPS). This planning system generates current and contingency plans for what is to be done with what is currently available as spelled out in the annual Joint Strategic Capabilities Plan covering the short term (1 year). How it is done is contained in Naval doctrine covering naval warfare. This doctrine and the tactics to support it are the basis for Navy missions and warfare areas.

Technology Base --

The research and development program (Program 6 in the PPBS structure) is funded by the Research, Development, Test, and Evaluation (RDT&E) appropriation. A significant portion of this effort is maintaining and advancing the store of knowledge by research (6.1) and exploratory development (6.2). Each Service has the charter to develop the weapon systems to support its role/mission. Therefore, each service's Research and Development organization (Figure 8-6) has the mandate to advance the technology base and has a share of the in-house laboratories of the Department of Defense to accomplish this, including the authority to fund a part of the Independent Research and Development (IR&D) efforts of selected contractors in various industries. These activities provide technical knowledge from which future military weapons and equipment may emerge as a ship with stronger armor or an airplane with lighter and more rugged electronics. In general, the technology base

NAVY MISSIONS

D O D PROGRAMS	MISSION	SPONSOR
1. STRATEGIC FORCES (Force Mission)	Strategic	Deputy Chief of Naval Operations, Plans and Policy (OP-06)
2. GENERAL PURPOSE FORCES (Force Mission)	Sea Control	Director of Anti-Submarine Warfare and Tactical Electromagnetic Programs (OP-095)
	Carrier/Air Strike Forces	Deputy Chief of Naval Operations, Air Warfare (OP-05)
	Amphibious	Deputy Chief of Naval Operations, Surface Warfare (OP-03)
	Underway Replenishment and Support	Deputy Chief of Naval Operations, Surface Warfare (OP-03)
	Mobility Forces	Deputy Chief of Naval Operations, Logistics (OP-04)
3. INTELLIGENCE AND COMMUNICATIONS	Intelligence	Director of Naval Intelligence (OP-009)
	Fleet Command and Communications	Director of Command Support Programs (OP-094)
	Consolidated Cryptologic Program	Director of Command Support Programs (OP-094)
4. AIRLIFT/SEALIFT (Force Mission)	General Support and Logistics - Support and Logistics	Deputy Chief of Naval Operations, Logistics (OP-94)
5. GUARD AND RESERVE FORCES (Force Mission)	Manpower and Training - Training	Director of Naval Education and Training (OP-099)
6. RESEARCH AND DEVELOPMENT	General Support and Logistics - Research and Development Support	Director of Research, Development, Test, and Evaluation (OP-098)
7. CENTRAL SUPPLY AND MAINTENANCE	General Support and Logistics - Support and Logistics	Deputy Chief of Naval Operations, Logistics (OP-04)
8. TRAINING, MEDICAL, AND GENERAL PERSONNEL ACTIVITIES	Manpower and Training - Individual Support	Deputy Chief of Naval Operations, Manpower (OP-01)
9. ADMINISTRATION	General Support and Logistics - Shore Command	Assistant Vice Chief of Naval Operations (OP-09B)
10. SUPPORT TO OTHER NATIONS	General Support and Logistics - Support to Other Nations	Deputy Chief of Naval Operations, Plans and Policy (OP-06)

8-16

Figure 8-7

effort is self perpetuating in that there is always something new to learn even if constrained to military relevancy. Ongoing advanced development effort feeds-back to the gaps in knowledge and provides a basis for redirecting research and exploratory development.

Sources --

A major weapon system is the required solution selected to fill a validated need. It may have been the only requirement which could achieve the desired results or it may have been one of several alternatives. What is selected to satisfy a need is influenced by the variety of sources of needs.

Sponsors - Office of the Chief of Naval Operations (OPNAV)

The Service's must meet the needs identified in their role/mission. For the Navy this means that they must have aircraft carriers, airplanes, submarines, cruisers, destroyers, and the appropriate subsystems which are their weaponry and which increase delivery speed, range and accuracy. Verbalization of these needs is delegated to the force, function, mission and warfare area sponsors. The results of prior GAO work tend to document the fact that in the Navy scheme of things, the headquarters is so organized that it counterparts the forces, missions, and warfare areas of the field users. Therefore, there is little formal responsibility for need identification in the fleet. (Figure 8-7)

Sponsors - Forces Afloat

Forces afloat make their own net assessments and determination of operational deficiencies which are routinely reported to OPNAV by Type Commanders (e.g., Submarine Force) and Fleet Commanders (e.g., 2nd Fleet).

These Commanders may also submit draft Specific Operational Requirements to the Director of Research, Development, Test and Development (OP-098) or to the Chief of Naval Development (CND). When they do so, OP-098 will provide the originator with a status report on the action taken or planned.

Industry

Many documents, among them the General Operational Requirements (GOR), Research and Development Planning Summaries (DD Form 1634), Advanced Development Objectives (ADO), Tentative Specific Operational Requirements (TSOR) and Specific Operational Requirements (SOR) are routinely made available to industry at the Navy Research and Development Information Center (NARDIC). This center is part of the Information Branch of the Program Management Office of Headquarters, Naval Material Command. The release of these documents to industry helps them aid in solving problems through the push of the technological innovation from their independent research and development efforts. The needs expressed or implied in the documents help to channel the efforts of industry and are the motivation of many unsolicited proposals.

The planning process in the Navy parallels planning in the Joint Chiefs of Staff (JCS) and the Marine Corps. The Navy planning documents, as in the Marine Corps and the JCS, deal with the short-range, mid-range and long-range periods. The principle Navy planning documents are the Navy Strategic Study (NSS) and the Navy Capabilities Plan (NCP). The NSS contains in Annexes A, Navy Long-Range Guidance (NLRG) for

10-20 years and B, the Navy Mid-Range Guidance (NMRG) which covers 5-10 years. Figure 8-8 shows the interrelationship of Navy, JCS & Marine Corps documents. Analyses and studies conducted by the Navy provide some input to these planning documents.

Analyses and Studies --

To study means to apply the mind to the acquisition of knowledge. To analyze means to examine critically to bring out the essential elements of something. Every manager does this work constantly and there is a host of formal analyses and studies within each component of the Department of Defense. They are of all types such as cost analysis, cost benefit/effectiveness studies, operations research, and systems analysis performed throughout the Service continuously. These can all be applied to problems of varying scope. However, one of the most important facets of the requirements process is that part of DOD's Program 6 (Research and Development) funded under the Management and Support line item (6.5 funds) within the Research, Development, Test, and Evaluation appropriation, identified as Studies and Analyses. They are at the heart of the Needs/Requirements area and, while funded out of RDT&E, are a part of the functional responsibility of the Director of Navy Program Planning (OP-090). (Figure 8-9)

The number, complexity, and cost of modern weapon systems have precluded exclusive reliance on the professional judgment of one or a few men even though ultimate decisions are made by a single manager.

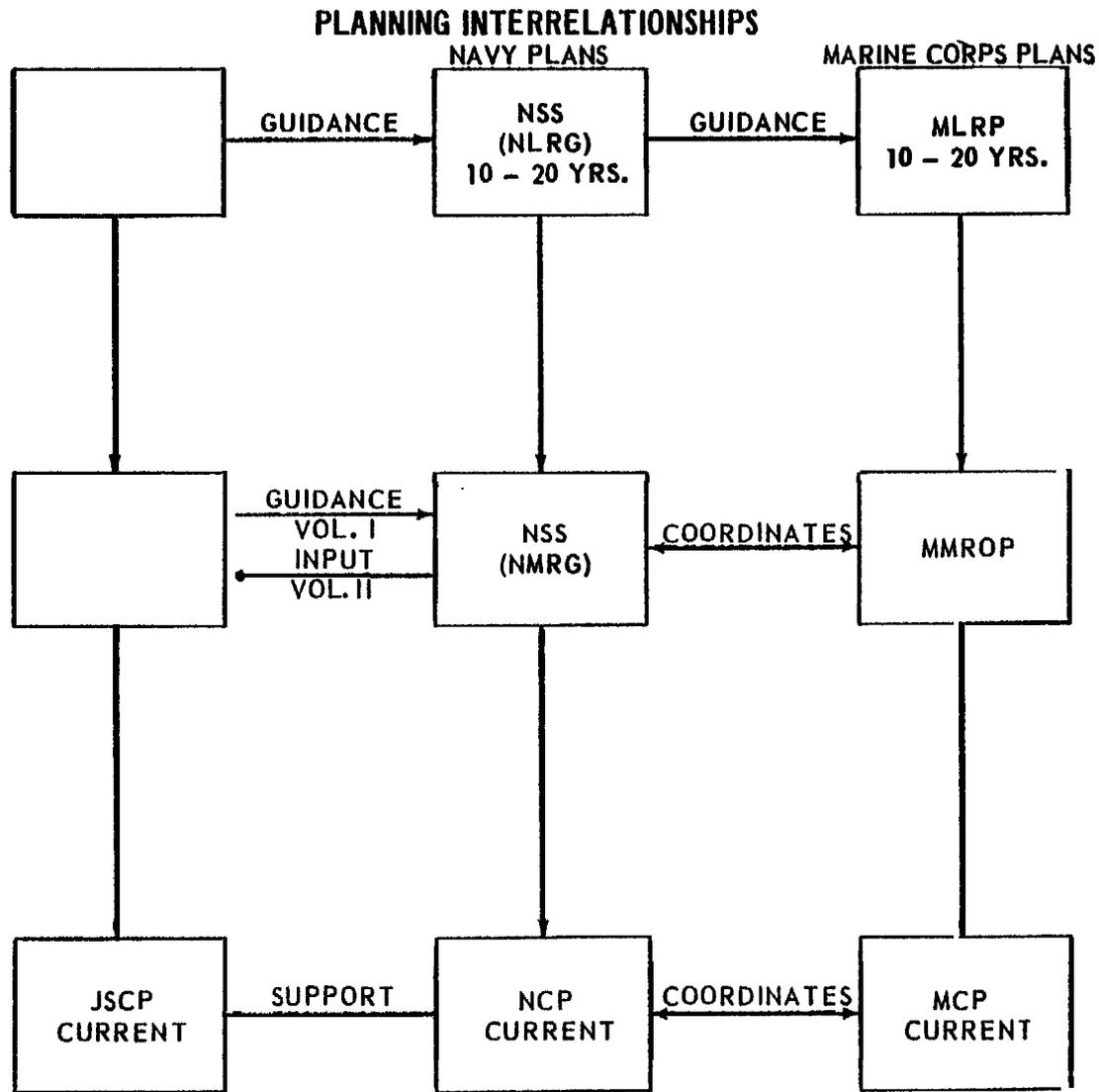


FIGURE 8 - 8

IDENTIFYING THE NEED

8-21

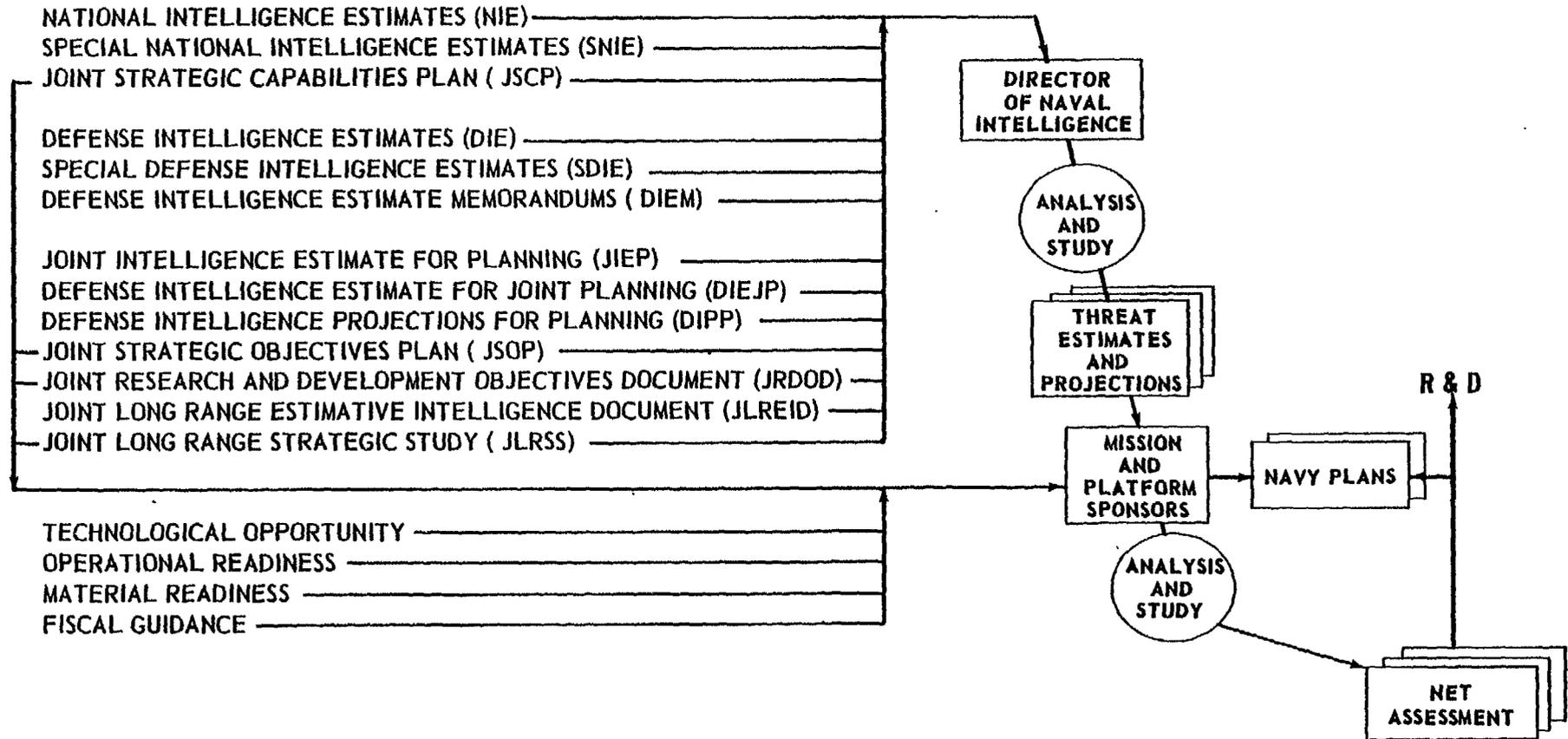


Figure 8-9

The masses of data necessary to logically consider alternatives demands the synthesizing of these data into analyses and studies. Because the concepts are so broad, the ability to conduct these studies usually exceeds the capability of a single sponsor office. The Navy has a formalized procedure called the Chief of Naval Operations Study Program (outlined in OPNAVINST 5000.30) which is coordinated by the Studies Management Group (OP-966). The program covers all three planning time frames. The short range is the actual collection and evaluation of proposals for inclusion in the budget for the next fiscal year. For this reason, the short range planning coincides with the budget cycle. Each February OP-966 solicits recommendations for issues needing formal study from sponsors, includes fallout from the preparation of the current Program Objectives Memorandum (POM), reviews them in light of existing resources (e.g., availability of OP-090 analysts and expected funds available for use with industry, in-house laboratories, and the Center for Naval Analyses (CNA)^{1/}) and issues the study list for July starts.

These studies cover major program planning concepts such as force levels, force mixes (Hi-Lo mix) and strategic and operational concepts. They are not conceptual effort for a specific weapon system, but rather are a bridge between planning and programming. Their range is anywhere from 2 to 20 years in the future, and integrates the contribution of academia and industry to the technology base, the tactical expertise of mission sponsors, official Navy doctrine, and nationally agreed intelligence estimates and projections.

^{1/} One of four Navy sponsored Federal Contract Research Centers (FCRC).

After the current study list is approved and published, a Project Officer is appointed--usually from within OP-96, but the study sponsor may choose to fill this job position. His first job is to write a study directive listing the objectives, guidance, assumptions and constraints. This is coordinated with the sponsor, Naval Material Command (NMC) if appropriate, and the head of OP-96. When finalized it is signed by the Director of Navy Program Planning (OP-090).

The Project Officer now becomes the Study Director and writes the Study Plan for the approval of the Study Force, Function, Mission, Warfare Area, or Platform Study Advisory Committee appointed for each approved Study Directive to be accomplished in-house. The committee role is advice, guidance, consultation, and approval of the work of the Study Group under the Study Director. The Study Group consists of appropriate specialists from all appropriate sponsor areas who are detached from their primary duty to the study group. In the case of studies to be performed by the Center for Naval Analyses or other reimbursable performer, the study directive is essentially a request for proposal or quotation, i.e., do they think the approach is feasible, and at what cost? The advisory committee approves and signs the Study Plan.

Using agreed national intelligence, the first job of the study Group is to assess the net threat and define any deviations or additions to their conclusion which will become assumptions for the study. Periodically, in the study when questions or problems arise, the committee is convened to answer questions or redirect the effort. When completed, the study is circulated widely for comment. The group incorporates or notes the

RELATIONSHIP OF NAVY DOCUMENTS TO
JOINT CHIEFS OF STAFF AND SECRETARY OF DEFENSE DOCUMENTS

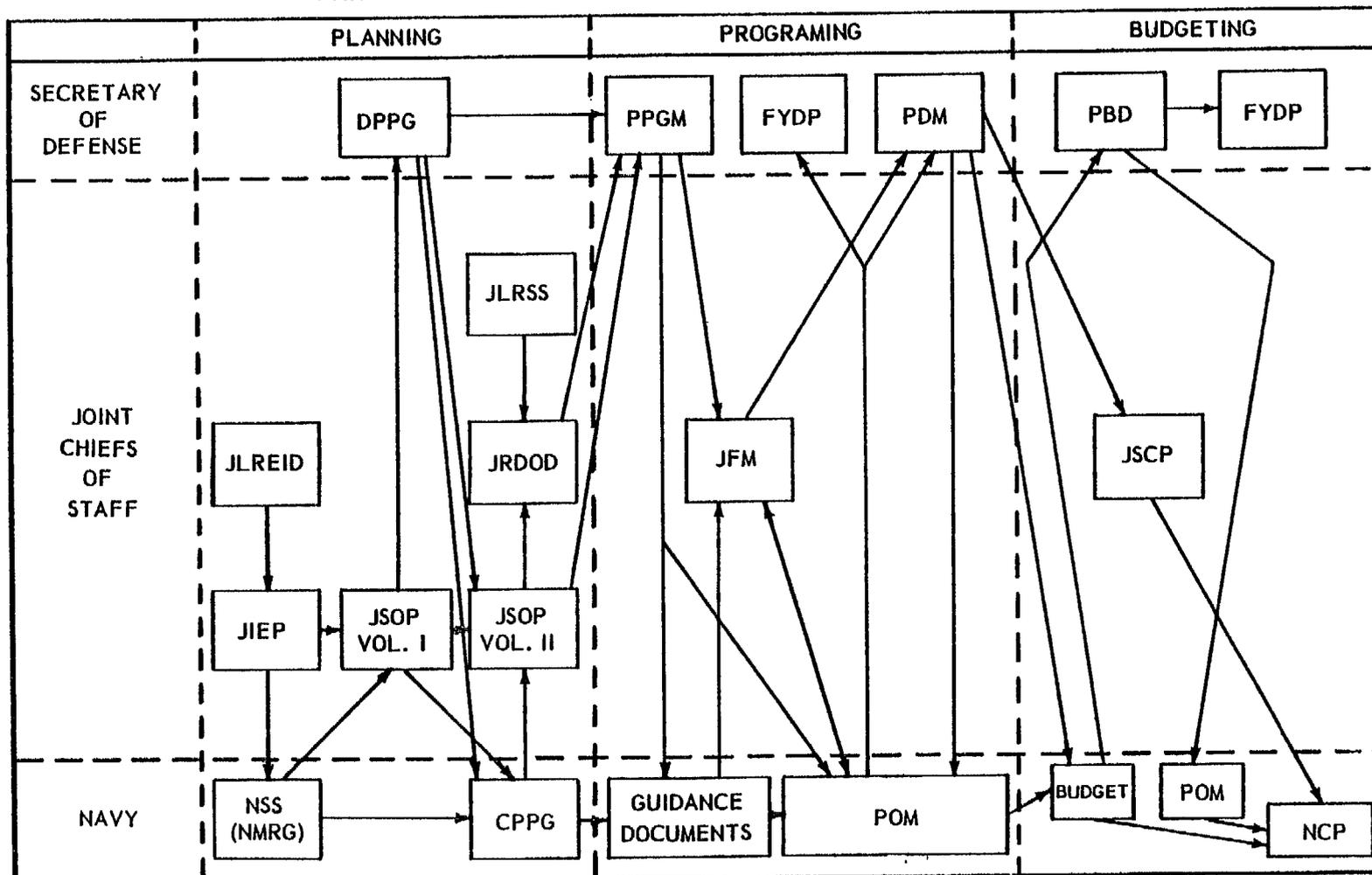


FIGURE 8 - 10

comments, appraises the committee of the result and, if satisfactory, finalizes the study which is signed by the committee chairman and addressed to the Chief of Naval Operations.

There is a close analogy in the functions of the Office of the Assistant Secretary of Defense for Program Analysis and Evaluation (ASD/PA&E), and the Directorate of Navy Program Planning (OP-090). Because of the refinement of ASD/PA&E's role and the scope of their effort, the Chief of Naval Operations Study Program sometimes includes Selected Analysis Topics directed by the Secretary of Defense such as the 10 year Extended Planning Annex for the FY75 budget preparation.

Titles of fiscal year 1973 studies are included as appendix 1.

Planning Documents

The Navy Strategic Study (NSS) provides concepts and philosophy concerning future naval contributions to national defense and provides basic guidance for Navy long-range and mid-range planning. It appraises the world situation for these periods, outlines the potential threats, and the national and military policy, objectives, and strategy. It also summarizes the Navy's roles and tasks. The NSS is supposed to be issued annually on 1 January, covering the period five to twenty years in the future from the end of the current fiscal year.

Annex A to NSS is the Navy Mid-Range Guidance (NMRG) which projects qualitative force and research and development guidance for a five-year period commencing 1 July, five years after the end of the fiscal year in which approved. It provides a basis for the development of research and development interests. (Figure 8-10)

Annex B to NSS is the Navy Long-Range Guidance (NLRG) which provides long range R&D guidance for a 10-year period commencing 1 July, ten years after the end of the fiscal year in which approved.

General Operational Requirement (GOR)

Based on the information and guidance provided by the Joint Long Range Strategic Study (JLRSS) the awareness gained in preparation of Annex B of the Navy Strategic Study (NSS) and other studies and analysis the first recognition of a future need would result in a General Operational Requirement (GOR) or the revision of an existing GOR . These are forecasts of operational capabilities which will be required in major warfare or support areas to counter predicted threats (intelligence projections) or to satisfy anticipated operational objectives that will be needed in the time frame 10-20 years in the future. The objective of GORs is to stimulate research that will foster inventions for use in naval warfare systems, encourage innovations, and provide guidance to developing agencies for the formulation of Naval research projects, exploratory development projects, and Advanced Systems Concepts (ASC).

The General Operational Requirements are the bridge between the Navy Planning and Programming System and the Navy RDT&E Planning System (See NAVSO P-2457). As such they serve to translate the broad capability and objective goals forecast by the Navy Strategic Study (NSS) into requirements for advanced operating capability in a specific warfare, or support area. Past experience indicates that it normally requires about 14 years from the inception of a naval warfare system concept (ships predominantly) until its initial operational capability (IOC). The GOR is aimed at the research community to give proper orientation

and impetus for technological research which should be started now.

Navy Technological Projections (NTP)

The first follow-on to a General Operational Requirement (GOR) would be Navy Technological Projections (NTP). These projections are formal producer documents designed to provide users with the best judgment available concerning the capabilities believed to be possible if the user is willing to pay the price and place his order in time. It is not intended to be a forecast of the future or to predict what will actually happen, but rather to outline alternative future capabilities believed to be attainable if focused effort is applied to selected objectives. The projections comprise the primary formal means for informing users of the expected technological base anticipated by the producers (developers). A technological projection is defined as a prediction, with a stated level of confidence, of technical developments within a given time frame with a specified level of effort.

The NTP includes:

- Part I, Scientific Opportunities
- Part II, Technological Opportunities
- Part III, Advanced Systems Concepts (ASC)

This is a joint publication of the Chief of Naval Research (CNR) and the Chief of Naval Material (CNM), and shows the early push influence of the R&D community on the specific requirement to satisfy an operational need.

TASK AREA PLAN (TAP)

The next link in the chain, still within the R&D community, is the Task Area Plan (TAP). These plans are developed through a formalized dialogue between the organization proposing to carry through the plan and the Chief of Naval Development (CND). A plan consists of a Department of Defense Research and Development Planning Summary (DD Form 1634) and a Funding Profile and Relevancy Code Sheet (NAVMAT Form 391011) for each task area to be considered in formulating the exploratory development program. The plans show what is being done and why it is being done, in terms of both technological possibilities and operational problems expected to be solved. Upon acceptance of a plan by the Chief of Naval Development, the plan becomes a "contract" between the CNO and Navy R&D. This process provides an important mechanism for allocating resources in a manner which attempts to produce the greatest contribution to Navy operational capabilities.

ESTABLISHING THE REQUIREMENT

Considering the various push and pull motivations behind needs and the many sources of needs identification, a GOR is prepared covering a 20 year period. If you accept the Navy's experience of 14 years from the start of development to initial operational capability, theoretically a maximum of six years are available for annual revalidation of the need and consideration of alternative ways of satisfying the need. These six years of pre-conceptual effect are conducted within the research and development program and its formal documentation. Once a need has been identified, conceptualized and formally solidified during this pre-conceptual effort, a requirement to satisfy the need must be established.

Assume now that in 1968 the Joint Long Range Strategic Study (JLRSS) and Annex B of the Navy Strategic Study (NSS) both contained a conclusion, based on threat assessment in appropriate intelligence projections, that a certain operational capability would be needed by 1988. The GOR states this need. Navy Technological Projections (NTP) have assessed the state-of-the-art in the pertinent areas of technology and reported that the desired capability was attainable. A Task Area Plan (TAP) was issued to govern the funding and level of effort to be devoted to the sciences and technology. Five years have now passed and in each subsequent year, intelligence has provided the basis for net assessments which confirm, with five years greater validity, the fact that the operational capability is indeed still needed in 1988. These threat assessments and the progress of the R&D community toward a solution have been constantly reviewed and included in studies and analyses by the appropriate mission or warfare sponsor and the office recognizes that an initial operational capability is demanded in 15 years.

Tentative Specific Operational Requirement (TSOR)

At this point in time, at least, the requirement would be stated in more finite terms in a Tentative Specific Operational Requirement (TSOR). The formal document which signals the conception of a new capability may be initiated either by the Chief of Naval Operations (or the Commandant of the Marine Corps - See Chapter 9) as user. If the Chief of Naval Material opens the formal dialogue it will be done with the "advertising", sort of an unsolicited in-house proposal, of an Advanced System Concept in Part III

of the Navy Technological Projections. If the Chief of Naval Operations initiates the action it will be by way of a Tentative Specific Operational Requirement (TSOR). This requirement document is a formal request from the Chief of Naval Operations (CNO) to the Chief of Naval Material for information necessary to define the scope of effort and resources necessary to achieve the particular capability it describes. The TSOR does not establish a firm requirement and does not authorize commencement of a new development program. It does establish formally the task of investigating the feasibility of providing capabilities which should be considered for further development. Proposed Technical Approaches (PTA) are usually initiated on the basis of the TSOR.

While the TSOR is signed by the Director of RDT&E (OP-098), it is prepared by the mission or warfare area sponsor. It is coordinated with those other offices, services, and Government agencies having any interest in the development. The function of the TSOR is to: (a) identify formally a specific operational need, (b) establish the operational capabilities necessary to satisfy that need; and (c) request an investigation of the technical feasibility, financial acceptability, and military usefulness of the development together with alternative approaches to obtaining this required operational capability.

Proposed Technical Approaches (PTA)

The response to the Tentative Specific Operational Requirement (TSOR) is the Proposed Technical Approaches (PTA). Proposed Technical Approaches are prepared for the Chief of Naval Operations (CNO) by the appropriate Systems Command of the Naval Material Command (Figure 8-11), or the Bureau or Office concerned, outlining technical approaches by which a capability

**NAVAL MATERIAL
COMMAND**

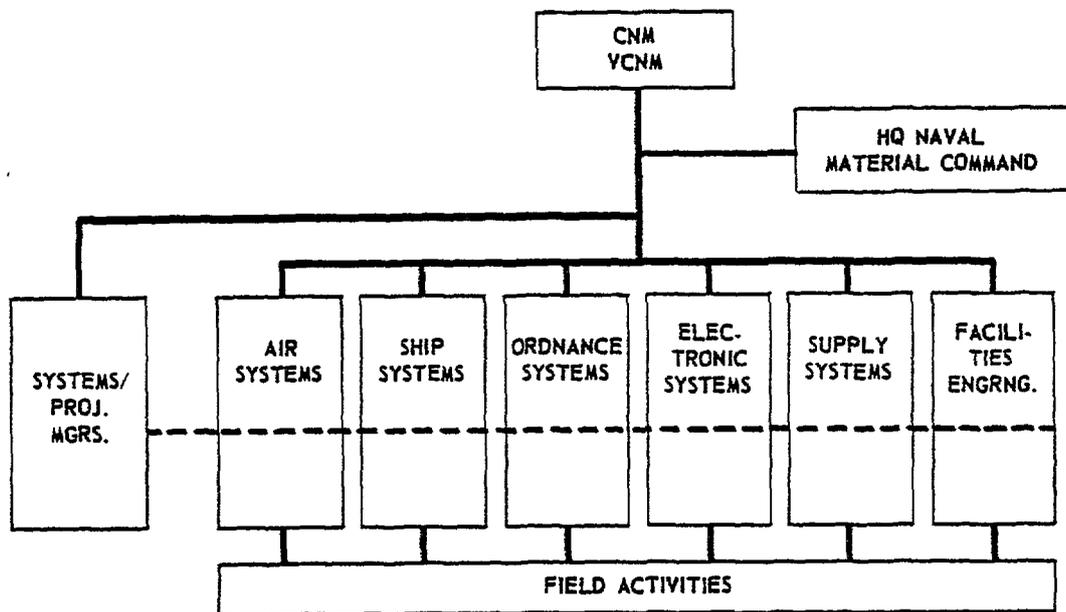


Figure 8-11

described in a TSOR may be achieved. This document normally outlines alternative means of attaining the required capability (ies) and thus the plural "approaches" of the title. They may be submitted as unsolicited proposals (again the subtle Push of the R&D community), but they are required in response to a TSOR. Proposed Technical Approaches provide a major source of the financial and technical information which is necessary early in the process in order for the Chief of Naval Operations to decide whether to begin a program. One of the major and significant section of the PTA is the estimate of the degree of risk involved for each approach. The PTA provides the initial estimate of development (RDT&E appropriation) and production (Procurement appropriation) costs. If one of the PTAs is acceptable to the Chief of Naval Operations (CNO), the mission or warfare sponsor prepares either an Advanced Development Objective (ADO) or a Specific Operational Requirement (SOR).

Advanced Development Objective (ADO)

The Tentative Specific Operational Requirement (TSOR) will be a part of forecasting for requirements in the long-range, as well as the start of generating requirements for the mid-range timeframe if the need has just been recognized or if the development time is shorter, as in the case of altering or converting an existing system. However, if the PTA create any doubt as to the military usefulness of any proposed solution, the Advanced Development Objective (ADO) is the next document used in the requirement process. The purpose of an ADO is to initiate the process of innovation or the initial application of new technology to a naval warfare system. An ADO outlines a requirement for an experimental development which is not yet assured as to military usefulness, technical feasibility, and financial acceptability. This is normally a necessary step in the transition from exploratory development (6.2 funds) to engineering development (6.4 funds). In major weapon systems development the ADO is necessary in order to minimize high risk areas, achieve more accurate estimates, and insure that the prerequisites for engineering development have been met. The prime result of the effort is proof of design rather than the development of hardware for service use, and this provides information to support the decision to pursue the potential development toward evaluation for fleet use.

The ADO is prepared by the Director of Research, Development, Test, and Evaluation (OP-098), coordinated with the mission or warfare sponsor, and sent by the Chief of Naval Operations (CNO) via the Chief of Naval Material (CNM) to a CNM designated development agency. The response to the ADO is a Technical Development Plan. It should be noted that the Navy

Advanced Prototyping Program is an organized part of the advanced development program so that any prototypes should be covered by an Advanced Development Objective (ADO).

Specific Operational Requirement

If the PTA did not disclose high risk areas, or if the urgency of the requirement is of a high priority because of a newly recognized need, the Specific Operational Requirement (SOR) is issued. Through the SOR, the Chief of Naval Operations (or the Commandant of the Marine Corps) states a need for a particular new or improved capability to counter a specific threat or to satisfy an operational deficiency, and outlines the measures of effectiveness and performance goals which describe what capability is to be achieved. The Specific Operational Requirement (SOR) is the decision document which establishes a firm requirement and authorizes engineering development. Approval of a SOR is a key decision point since it may mean curtailment or cancellation of work already in progress which may also offer promise of military worth. The SOR is prepared and coordinated by the sponsor with other interested mission/warfare offices and other services to insure that a product acceptable to the operating forces will be obtained.

1/ Expenditure of 6.4000N funds rather than entry into the Full-Scale Development Phase of the acquisition cycle.

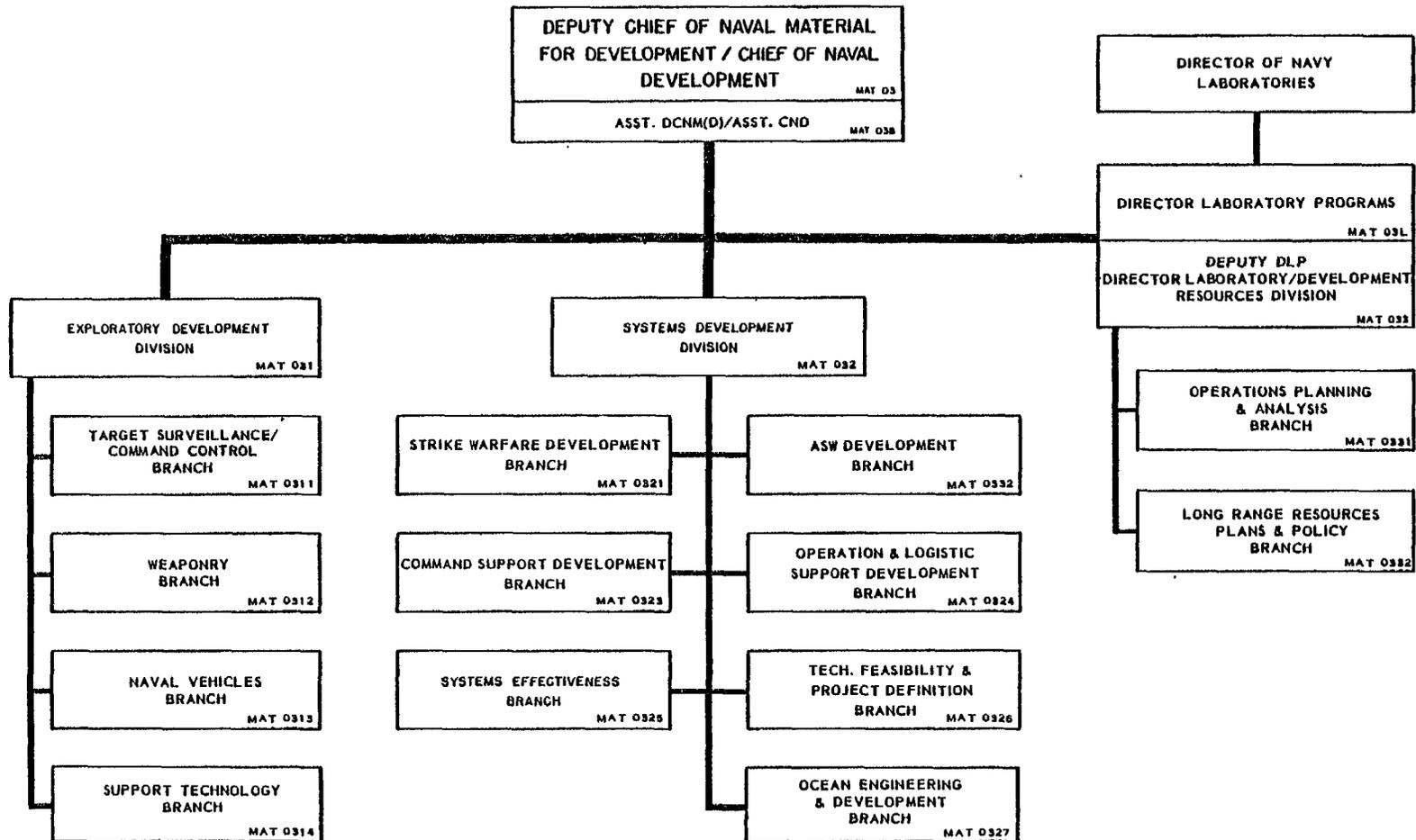


Figure 8-12

Technical Development Plan

The Technical Development Plan (TDP) is the normal response to a specific operational requirement and it is prepared by the Principal Development Activity (FDA). It documents those actions, procedures and resources necessary to achieve the required capability and serves as a living record of plans and decisions, as well as a vehicle for management review. For major acquisitions the plan is presented to the Chief of Naval Material for approval of the project after considering alternatives, trade-offs, and budgetary implications. The Chief of Naval Operations receives a copy and would intervene only on an exception basis. The TDP may be waived and a Research and Development Planning Summary (DD 1634) substituted with OPNAV permission.

Requirements Documentation

By and large, this is the way the requirements process works and is documented in the Navy. That is not to say that all of these documents flow in a straight line from one to the other, that they are all used in every case, or even that they are prepared before the actions they cover are initiated. Sometimes they are not applicable, sometimes they overlap, and at other times they are prepared after the fact because of the urgency of the situation, the serendipitous transfer of technology, or the manner of procurement. For any major acquisition in the Navy, the professional staff should theoretically be able to identify a pertinent SOR, no matter when written, and track all the way to the GOR and threat assessment which inspired it. On the other hand, there are many systems which

have no traceable history in the planning documentation as outlined above. For instance, some programs/projects are initiated to fill well-known operational needs with known systems; others are initiated in response to direction from higher authority.^{1/} In these cases, the Development Concept Paper (DCP) or the Program Memorandum (PM) is the justifying documentation, and the planning documents, serving no real purpose, are not created.

The final requirement document, the SOR, may be originated in the Office of the Secretary of the Navy^{1/}, in the staff of the Office of the Chief of Naval Operations, in the shore establishment, or by the operating forces afloat. Naval directives are unclear on who outside of the Pentagon actually originates the Specific Operational Requirement (SOR) but generally it is a draft and would be signed by the Type or Fleet Commander of the unit of the originator and proceed through normal command channels addressed to the Chief of Naval Operations for approval. (Figure 8-12) In accordance with standard administrative procedure it would first go to the mission or warfare sponsor for review and comment and then be brought to the attention of the Chief of Naval Operations to determine his interest in having it processed through the system. In any case, OP-098 would monitor the status of the document and advise the originator of the action taken or planned.

^{1/} National Military Systems, e.g., TRIDENT.

OPNAV - NAVMAT INTERACTION

STRATEGY

FISCAL GUIDANCE



OPNAV - DECIDE WHAT TO ACQUIRE.

- STRATEGY OPTIONS
- RESPONSE TO THREATS
- BUDGET ALLOCATION
- MISSION CAPABILITIES
- FORCE STRUCTURE
- SYSTEM CHARACTERISTICS

THREATS



REQUEST
FOR
ALTERNATIVES



NARROWED
RANGE OF
ALTERNATIVES



DEFINITION
OF
CHARACTERISTICS
AND
THRESHOLDS



ALTERNATIVES
(PERFORMANCE
AND COST)



REFINED
ALTERNATIVES



NAVMAT - ACQUIRE IT.

- TECHNOLOGY PROJECTION
- TECHNOLOGY APPLICATION
- SYSTEM DESIGN
- SYSTEM CAPABILITY
- SYSTEM COST
- PROCUREMENT



Figure 8-13

Concept Formulation Dialogue

This chapter thus far describes a far-reaching complex procedural system for identifying and bringing operational needs to the surface and of establishing sound and valid requirements. As this process of definition moves closer to the initiation of development programs of major proportions, the reality of optimizing within a total Navy program becomes even more acute. While each potential system, if left to its own natural growth pattern, would strive to take on more rather than less capability, it is recognized that a greater synergistic effect can be developed through the careful structuring of forces based on combinations of more cost effective systems. To achieve the selection, design, and development of more cost effective systems the Navy relies on a wide-open, rapid response dialogue between OPNAV and NAVMAT during the early concept formulation phase. This dialogue, depicted in Figure 8-13, is closely monitored by OP-96 (Systems Analysis Division OP-96 is further described in Chapter 12) with major decisions made directly by the CNO in the CEB. The main purpose of this dialogue is to pare down the tendency to overload a system with expensive capabilities.

OBTAINING SECDEF APPROVAL

Approval of the Services's Total Program

The total Navy program is made up in a large part by the individual line item requirement discussed throughout this chapter. The process of gaining Secretary of Defense approval for the total program prior to sending it forth for congressional authorization and appropriation

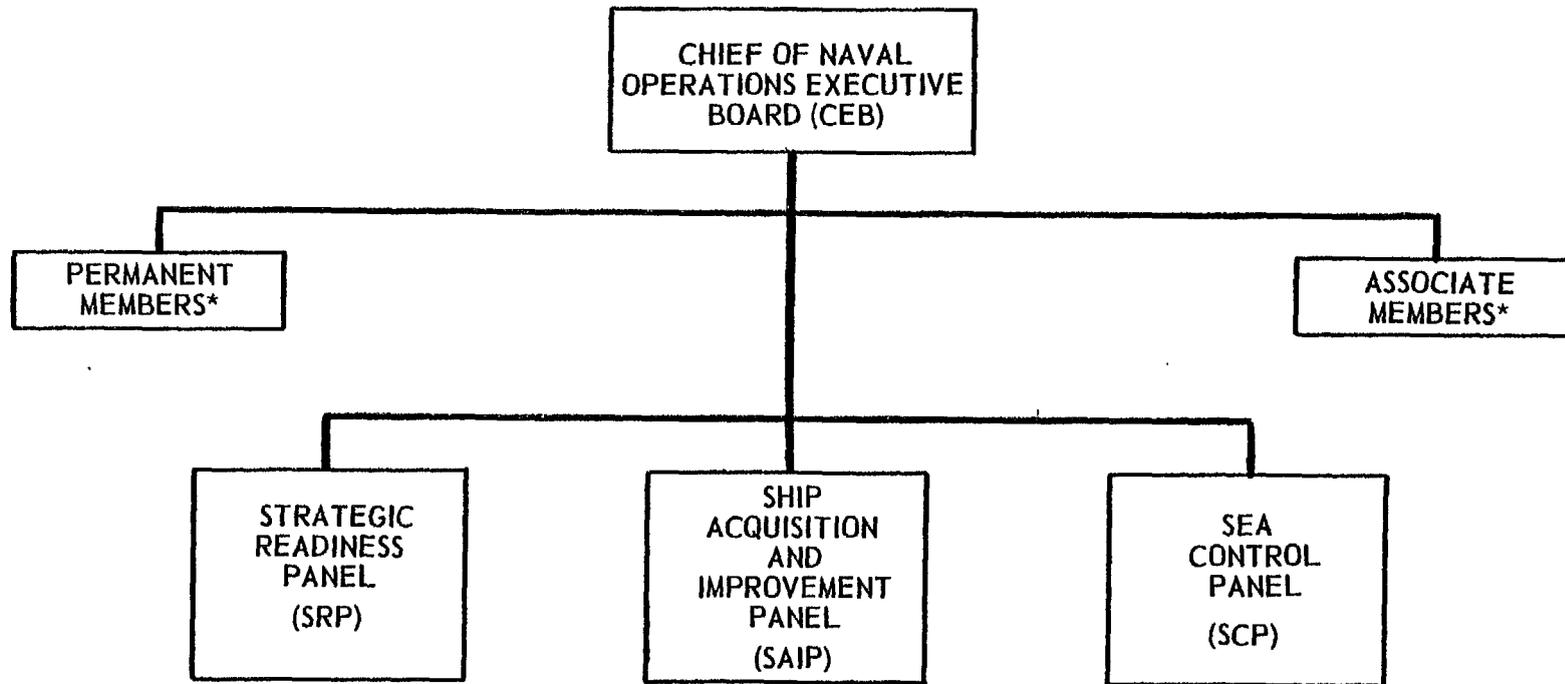
action is based on an elaborate Planning-Programming-Budgeting System (PPBS) which pulls all requirements (weapon systems as well as others) together in what is hoped is an optimum mix within each service and the Department of Defense overall in support of the total DOD budget.

Individual system projects or requirements can be incremented or decremented and whole programs deleted or new requirements added during this process. The annual optimization effort of building a DOD budget is therefore critical to the success and survivability of a development program.

The actions identified by short, mid, and long-range planning are reflected as funding estimates in the annual budget requests of the services via the programming portion of the Planning-Programming-Budgeting System (see Chapter 11). The funds identified in the first year of the finalized Five Year Defense Program (FYDP) is updated to reflect the Secretary of Defense's decisions as reflected in Program Decision Memoranda (PDM). The Services budget requests are developed through the preparation of their individual Program Objectives Semorandum (POM). The FYDP is again updated in January to reflect the impact of the Secretary of Defense's Program Budget Decisions (PBDs) (discussed later) on the POMs. The POM itself is dependent on and consistent with the fiscally constrained Joint Forces Memorandum of the Joint Chiefs of Staff which is itself paced by the fiscal constraints of the SECDEF's Planning and Programming Guidance Memorandum (PPGM).

In addition to decentralizing programming responsibility to the Military Services, Secretary Laird also added three months to the front of the budgeting cycle. Once the Navy had reorganized itself into the

CHIEF OF NAVAL OPERATIONS EXECUTIVE BOARD



SPECIAL PANELS (STANDING COMMITTEES) FOR RECURRING MATTERS

*REFERENCE: OPNAVINST 5420.2J

8-40

Figure 8-14

OSD pattern, it also added time to the front of the budgeting cycle so that in the Navy the 15 months or the fiscal year 1971 cycle have grown to 20 months counting from the submission of the Joint Strategic Objectives Plan, Volume 1 until budget presentation to the Congress in January.

In October 1973, four months prior to receipt of the final strategic and fiscal guidance from the SECDEF, the navy began its POM preparation for fiscal years 1976-1980. Navy POM preparation begins with the issuance of Chief of Naval Operations Policy and Planning Guidance (CPPG) and Issue Papers. The preliminary program guidance is based on the Defense Policy and Planning Guidance (DPPG) issued by the Secretary of Defense in September, and outlines and amplifies the naval implications of the strategy contained in the DPPG. The Chief of Naval Operations also identifies his high priority programs.

In November, the CNO's Executive Board (CEB) figure 8-14 translates this CPPG into Program Guidance (PG) and Fiscal Guidance (FG).

In December, sponsors throughout the Navy submit Sponsor Program Projections (SPP) and review issue papers.

The process of developing the Navy's Program Objectives Memorandum (POM) is intended to insure maximum participation on the part of Mission, Force, Function, Support, and Appropriation Sponsors. The Mission Sponsor is assigned lead responsibility in program development. It is significant to note that the Marine Corps, although it may be a sponsor, has absolutely no sponsor assignment of any kind. (Sponsors are shown in figure 8-7)

In October also, the Director of Navy Program Planning (OP-090) distributes Tentative Chief of Naval Operations Program Analysis Memorandums (T-CPAM) which consolidate relevant information to be used in the decision making process for individual mission areas. They are issued in loose leaf format and should comprise a file of all issues and alternatives within the mission areas. They consist of:

- Specific Chief of Naval Operations Guidance
- Priorities
- Issue Papers
- Program Shortfalls
- New Initiatives
- Sponsors Program Priorities

The Tentative CNO Program Analysis Memoranda (T-CPAM) provides the entire data base from which the PAM's/CPAM's will be derived. Program Analysis Memoranda (PAM's) are prepared in four General Purpose Force areas:

- TACAIR
- Amphibious
- Underway Replenishment/Support and Mobility Forces
- Sea Control

These PAMs will be drawn together in the General Purpose Forces CPAM.

CNO program Analysis Memoranda (CPAM's) are developed to present the CEB with an overview of current Navy programs and possible alternatives thereto. Each CPAM will describe the FYDP program, identify major issues and discuss alternatives which should be considered in order to develop the POM. Planned CPAMs are:

- Strategic Forces
- General Purpose Forces
- Command, Control, Communications
- General Support and Logistics
- Manpower, Training and Reserves
- Summary CPAM

After CEB review, the CPAMs will form the basis for CNO major program decisions and subsequent detailed POM development.

Once the POM has been prepared and approved by the CNO, the entire package is forwarded to the SECNAV and to OSD. By August 1974, POM-76 will be finalized by SECDEF Program Decision Memorandum (PDM's) and the FYDP updated to reflect these decisions. In January 1975, the DOD portion of the President's budget request will include the amount of funds required for fiscal year 1976, the first year of FYDP 76-80.

Recommendation For Approval From DSARC

The SECDEF is the approving authority for an acquisition's development and funding if the acquisition meets DOD's thresholds. To obtain this approval the proposed weapon system must go through the Defense Systems Acquisitions Review Council's (DSARC) review where a recommendation is made to approve or disapprove the system's development and movement to the Validation Phase. This approval includes the SECDEF approval to fund the program within stipulated thresholds with money that has been or will be justified in the POM/FYDP review. A Development Concept Paper (DCP) for the proposed weapon system is prepared by OPNAV in coordination with the Director, Defense Research and Engineering (DDR&E) to be presented to DSARC for the review.

Before going to DSARC, however, the SECNAV must approve the action. This is accomplished through the Department of the Navy Systems Acquisition Review Council Procedures as referred to in SECNAVINST 5420.172, May 2, 1973. (Figure 8-15)

WEAPON SYSTEM ACQUISITION MANAGEMENT

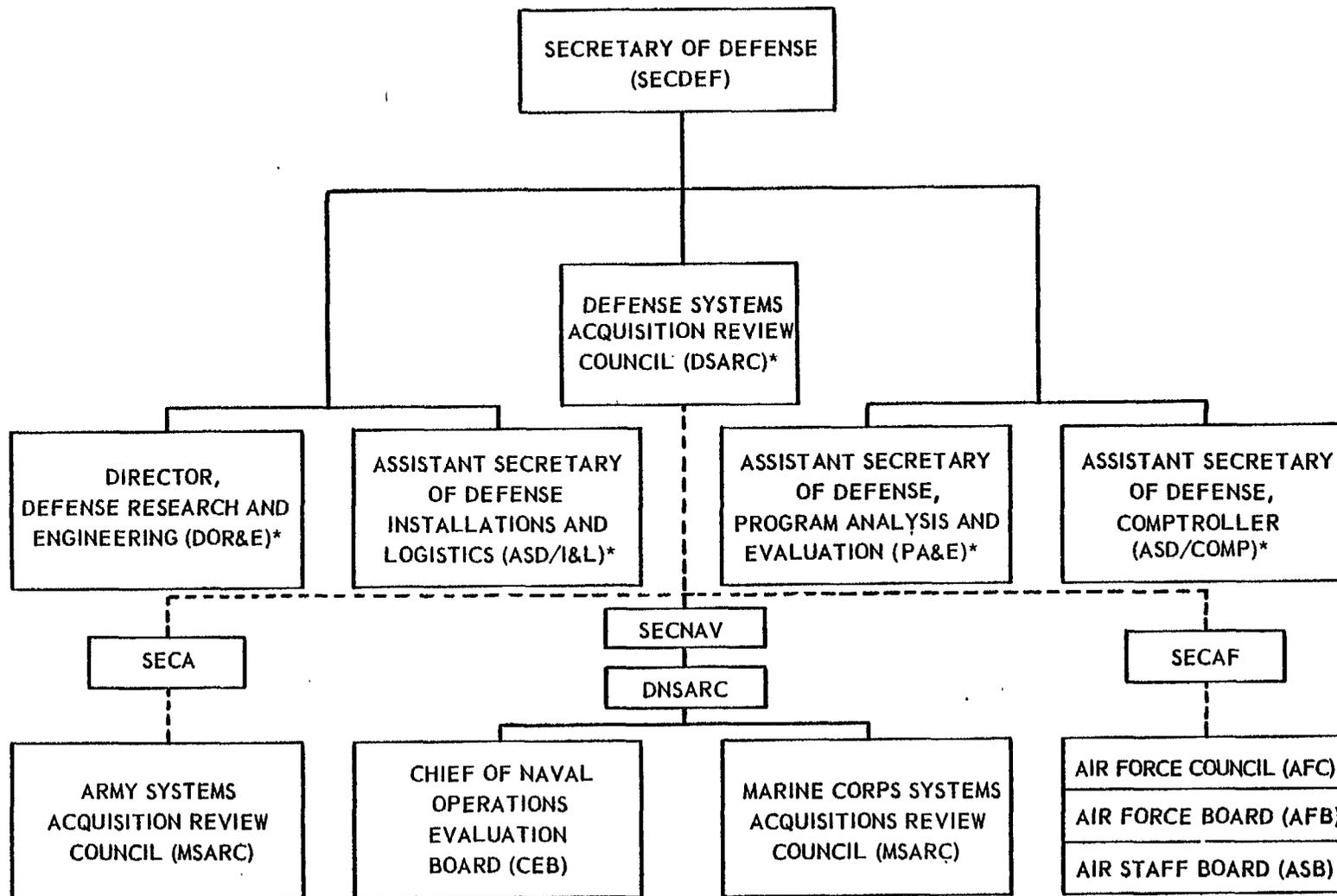


FIGURE 8 - 15

8-44

Based on the recommendations of the Chief of Naval Operations Executive Board (CEB), figure 8-13, approval of a major acquisition for the Navy by the Chief of Naval Operation leads to the preparation of the DCP for presentation to DSARC. Several months before the DSARC review, the Program Coordinator in the Office of the Chief of Naval Operations (OPNAV) will insure that the draft DCP is properly prepared by the Program Sponsor, staffed through the Naval Material Command and OPNAV, and coordinated within the Directorate of Research, Development, Test, and Evaluation (OP-098) for the RDT&E aspects.

Three months (for a new program) or two months (for an ongoing program) prior to the DSARC review or DNSARC review, the program coordinator and project manager will present the weapons system program, as reflected in the draft DCP, to the CEB. This presentation is not intended to be a preview of the DSARC presentation, but instead, to concentrate on Navy program issues and alternatives.

After the Board's recommendations have been approved or disapproved by the CNO, the Program Coordinator will revise the draft DCP to reflect CNO decisions and forward it to the Secretary of the Navy (SECNAV). If issues require resolution between the Chief of Naval Operations and the Secretary of the Navy, the DNSARC may be scheduled at the option of the Secretary. The agreed upon Navy draft DCP is then sent to appropriate mission area divisions in the Office of the Director or Defense Research and Engineering for comment, and returned. The preparation of the final version of the DCP for DSARC Decision I is a joint DOD/Service effort

and the primary purpose of the DSARC-I DCP for a new development is to present alternatives to the Secretary of Defense (SECDEF) so he can make a rational choice on the commitment of national resources for major program development. The purpose of follow-on DCPs (II, IIa if appropriate, and III) is to support the SECDEF decision process at successive DSARC milestones in the program.

Two weeks prior to the scheduled DSARC review the final version of the DCP is sent to the Office of the Secretary of Defense. At the same time, the Navy's Cost Analysis Group (OP-96D) presents its independent parametric cost estimate to the DOD Cost Analysis Improvement Group (CAIG). Concurrently, the program coordinator and project manager will give a preview DSARC presentation to a Flag level review committee where potential problem issues will be identified. Members of this review are:

(1) Standing Members:

Director, Navy Program Planning (OP-090)

Vice Chief of Naval Material (MAT-09)

Director, Research, Development, Test, and Evaluation (OP-098)

Director, General Planning and Programming Division (OP-90)

Director, Systems Analysis Division (OP-96)

Director, Office of Program Appraisal (OPA)

Commander, Operational Test and Evaluation Force (COMOPTEVFOR)

(2) AdHoc members:

DCNO/or Director, Major Staff Office (program/platform sponsor)

DCNO/or Director, Major Staff Office (appropriation account sponsor)

One week prior to the DSARC review, the Secretary of the Navy and the Chief of Naval Operations will participate in a joint review of the presentation, along with all the Navy principals who will be in attendance at the DSARC meeting.

If favorably recommended by the DSARC and subsequently approved by the Secretary of Defense, the proposed weapon system is identified as a program and either forwarded by the service as a Program Change Request (PCR) to the Five Year Defense Program (FYDP) or included in the POM submitted for the next annual budget cycle. Sufficient planning should have been accomplished among the principals concerned to permit orderly pursuit of the program once the Secretary of Defense approves the DCP. Such agreements constitute a Navy position with respect to the maximum amount of funding which can be made available within the Navy, versus that amount required to be financed through reallocation within DOD, use of OSD Reserves, or New Obligational Authority (NOA).

Budget Preparation

Once a specific operational requirement to satisfy a recognized and validated operational need is approved by the CNO, the SECNAV and the SECDEF, it is included in the Navy Program Objectives Memorandum (POM) and the Five Year Defense Program (FYDP) and thus is qualified to run the budget guantlet.

Under standard directions issued by the Assistant Secretary of Defense, Comptroller, in the Department of Defense Budget Guidance Manual (DOD 7110-1-M), the Department of the Navy Comptroller prepares the budget request of the Navy and Marine Corps which essentially converts

the Program Objectives Memorandum (POM) into Five Year Defense Program (FYDP) financial format, accounting for all appropriation titles and program element numbers. Each staff of the Office of the Secretary of Defense reviews the budget but primary action is in the Office of the Director of Defense Research and Engineering because new acquisition began with R&D.

Concurrently the Office of Management and Budget (OMB) reviews the budget and may raise issues with the Department. If the principals cannot resolve them the President is the final arbiter. Based on this joint review and analysis the Secretary of Defense publishes a series of Program Budget Decisions (PBD) related to the appropriation title and budget activity structure. These are transmitted to the Military Departments and Defense Agencies to be inserted as changes into the Five Year Defense Program (FYDP). If the head of the component considers the impact to be sufficiently serious to warrant the personal reconsideration by the Secretary he may submit a budgetary appeal statement. The Secretary of Defense will direct a staff review of all statements and will issue a specific decision for each appeal.

STUDIES IN FY-73 CNO STUDIES AND ANALYSES PROGRAM
CONTINUING INTO FY-74

I. STRATEGIC FORCES

MIRV Footprint Theory Study
Footprint Requirements for Advanced SLBM Systems Study
Strategic Cruise Missile Mission Analysis Study (SCM-MA)
Air Defense Penetration Study
SLBM Posture Study
Strategic Force Mix Study
SALT Issues Study

II. SEA CONTROL FORCES

Carrier Task Force ASW Effectiveness Study
Non-Nuclear Ordnance Inventory Objectives Study
ASW Ordnance Inventory Objectives
ASW Surveillance Systems Study
A Naval High Speed Ship Analysis, Particularly as
Applied to 2000-3000 Ton SES (HISPAN)
Defensive Equipping of Merchant Ships (DEMS)
VP Readiness Study
Future Submarine Forces
ASW Methodology and Forces (AM&F)
Countering the Anti-Ship Missile (CAM)
Hydrofoil Study
Naval Gunnery Study

III. AMPHIBIOUS FORCES

Naval Inshore Warfare Study
Organizational and Operational Concepts for a Seaborne Mobile
Logistic System (SMLS)

IV. TACTICAL AIR FORCES

Tactical Air Armament Study, Fiscal Year-72 (TAAS-72)
Carrier Mission Effectiveness Study (CMES)
TACAIR Readiness Study
Tactical Air Basing Study (TABS)
Naval Air Technology

V. MOBILITY AND SUPPORT

Navy Airlift Study

VI. GENERAL SUPPORT AND LOGISTICS

Ship Overhaul and Maintenance Study (SOAMS)
Ship Supply Support Study (S4)
Ship Overhaul Cost Estimating Relationship Study (SOCER)

Aircraft Depot Level Maintenance Study
Aviation Logistics Study (VAST/ATE)

VII. CS AND INTELLIGENCE

Navy Strategic Communications Study (STRAT-C)
Ocean Surveillance Study (OSS)

VIII. MANPOWER, PERSONNEL AND TRAINING

Officer Fitness Report Study
Manpower and Personnel Study

IX. RESERVE FORCES

Zero Base Study of the Naval Reserve

X. NET ASSESSMENT

Development of Conceptual Analysis Capability
Development of Research Assistance in Program/Planning
Tactical Electromagnetic Systems (TESS)
Soviet Naval Operations (SNO)
Total Allied Force for Mediterranean Conflict (TALLFORM)
Navy Resources Study
Plans and Policies Program (P3)

CHAPTER 9

UNITED STATES MARINE CORPS

INTRODUCTION

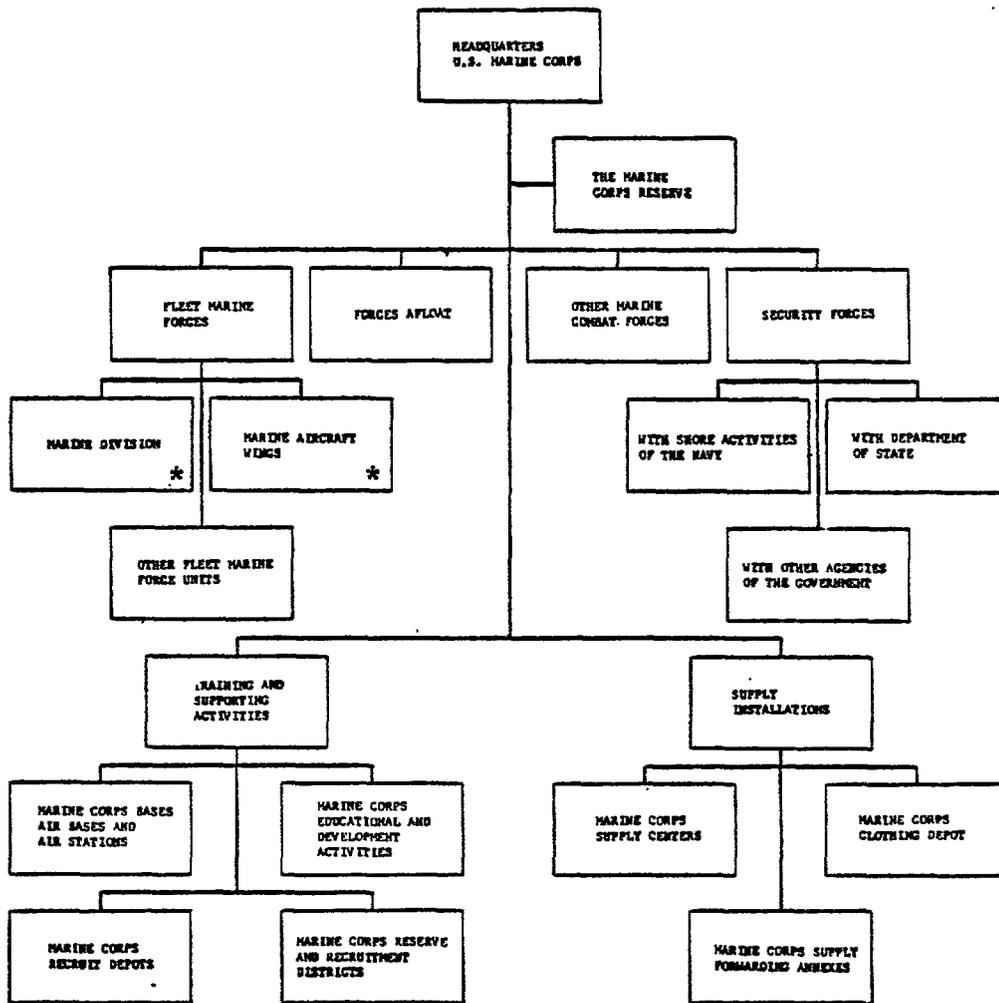
Legislative History

The Marine Corps (Figure 9-1) is one of two Military Services in the Department of the Navy and the Commandant of the Marine Corps (CMC) is on an equal basis with the Chief of Naval Operations (CNO) as the chief of a service. The Marine Corps' legislative charter is described in Title 10, United States Code, Section 5013:

(a) The Marine Corps, within the Department of the Navy, shall be so organized as to include not less than three combat divisions and three air wings, and such other land combat, aviation, and other services as may be organized therein. The Marines shall be organized, trained, and equipped to provide fleet marine forces of combined arms, together with supporting air components, for service with the fleet in the seizure or defense of advanced naval bases and for the conduct of such land operations as may be essential to the prosecution of a naval campaign. In addition, the Marine Corps shall provide detachments and organizations for service on armed vessels of the Navy, shall provide security detachments for the protection of naval property at naval stations and bases, and shall perform such other duties as the President may direct. However, these additional duties may not detract from or interfere with the operations for which the Marine Corps is primarily organized.

(b) The Marine Corps shall develop, in coordination with the Army and the Air Force, those phases of amphibious operations that pertain to the tactics, techniques, and equipment used by landing forces.

UNITED STATES MARINE CORPS



* The Joint Strategic Capabilities Plan (JSCP) assigns these operational combat units to unified Commands (See p. 9-14).

Figure 9-1

(c) The Marine Corps is responsible, in accordance with integrated joint mobilizations, for the expansion of peacetime components of the Marine Corps to meet the needs of War.

In October, 1973, the Marine Corps carried out the first major reorganization of its Headquarters (HQMC) since 1952. The new organization is structured along functional lines which permits better staff coordination with the office of the Secretary of Defense and with the other Services. The new organizational chart is shown in Figure 9-2.

Magnitude of Acquisitions

In the Marine Corps an item or systems is defined as a major acquisition if \$5 million or more will be spent for research and development or if \$20 million or more will be spent for procurement. The following chapter will discuss the formal processes involved in identifying needs and establishing requirements for major acquisitions in the Marine Corps. That only the formal process will be discussed must be emphasized. There are a multitude of informal ways that a requirement can be established; each weapon or system acquired has gone through a unique process.

Some of the major acquisitions that the Marine Corps is actively involved in at present are:

<u>System</u>	<u>Developer</u>
M60A3 Tank	Army
F-14A Tomcat	Navy
AV-8A Harrier	U.K.
A-4M	Navy
M-561 Gama Goat	Army
F-4J	Navy
EA-6B	Navy
CH-53E	Navy
UH-1H	Army
AGILE	Navy
PHOENIX	Navy
SIDEWINDER	Joint

HEADQUARTERS, UNITED STATES MARINE CORPS

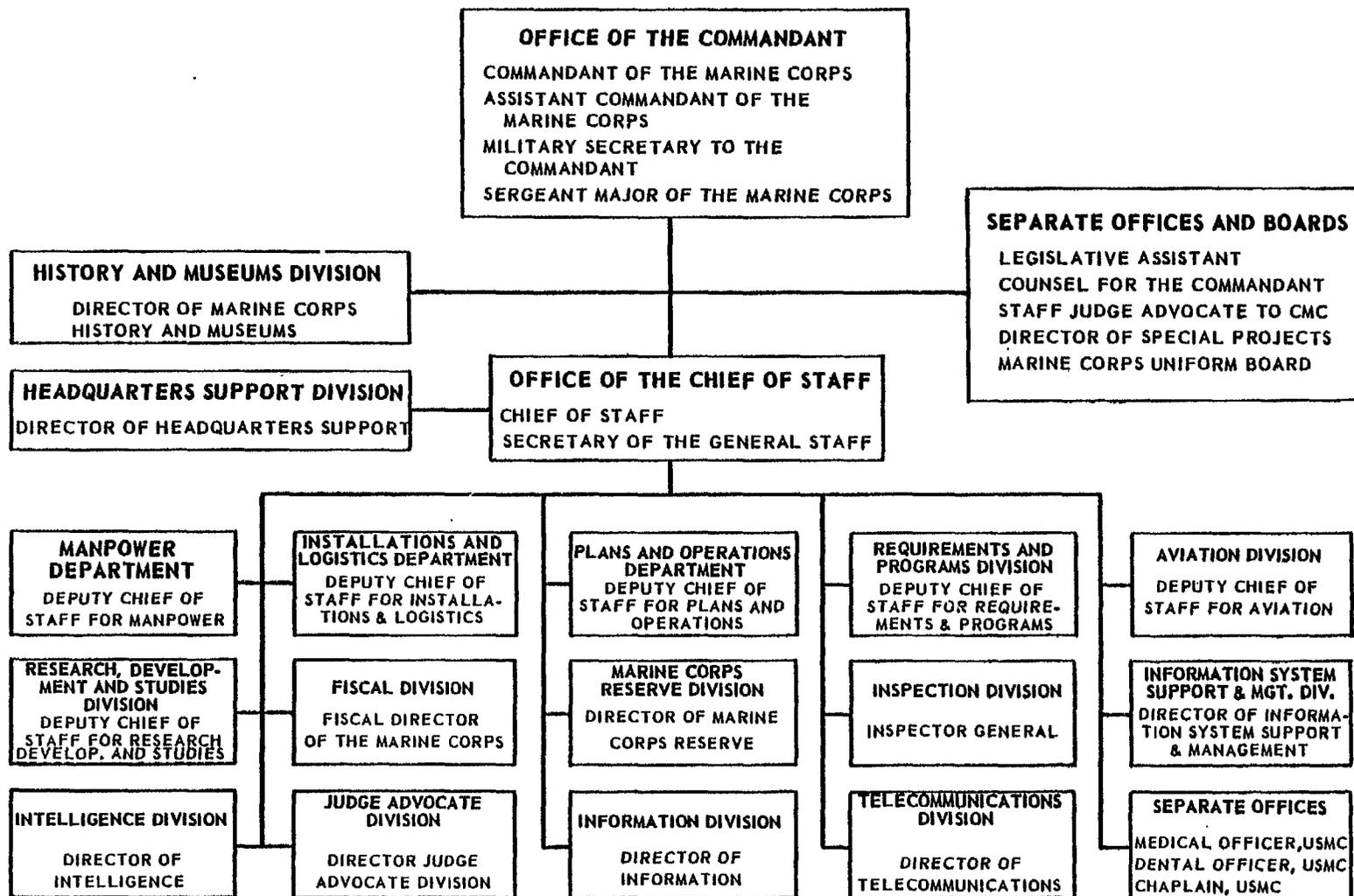


FIGURE 9 - 2

<u>System</u>	<u>Developer</u>
SPARROW	Joint
LHA	Navy
Amphibious Assault Vehicle	Marine Corps

IDENTIFYING THE NEED

Mission

Within the thirteen warfare areas identified for naval forces in Chapter 8, the Marine Corps has primary cognizance over Amphibious Warfare (AMW) in accordance with its legislated role/mission. Because of the Marine Corps' role/mission, it must work closely with the Navy.

The Marine Corps must achieve and maintain certain operational capabilities to fulfill its mission and to meet the threat, strategic, doctrinal, and tactical assessments, and plans as established in Joint Chiefs of Staff and Department of Defense planning documents.

The needs for achieving these operational capabilities may be met by modifying existing systems and equipment or by developing new systems and equipment. For hardware needs, this entails the procurement of both major or non-major systems.

The identification of these needs may come from a variety of sources. An organization or command within the Marine Corps may detect a need for an improved system because of a specific operational deficiency, old age, or obsolescence. Threat assessment provided by the intelligence community may spur the need for a new capability. New scientific discoveries and technological advances may be presented by industry who seek out opportunities to present their ideas to the military community. Some studies and analyses may identify needs in the course of addressing Marine Corps problems.

Intelligence - Threat Assessment

Major threats are, perhaps, the most important drivers in identifying the need for a new weapons system. The Intelligence Division of the Marine Corps differs slightly in function from the Intelligence staffs of other Services because the Marine Corps Intelligence Division has no separate intelligence collection organization. Rather Marine Corps personnel comprise about 15% of the staff of the Navy's intelligence collection activities.

The Marine Corps relies on products of the intelligence community such as the JIEP, DIPP, DIEJP, NIEs and SNIEs for its initial intelligence information. The Joint Chiefs of Staff (JCS) intelligence documents are sent to the Marine Corps via the Joint Control Officer under the Deputy Chief of Staff for the Plans and Operations Department (DC/S P&O). He routes them to the Intelligence Division and to the Plans Division within the P&O Department. NIEs are received directly by the Intelligence Division. Analysts within the division review the documents and relay important information to other Headquarters staff. The analysts prepare intelligence analyses for the Plans and Operations Department which specifically relate to Marine Corps needs. These net assessments are incorporated in Marine Corps planning documents, and they complement or contradict the threat assessment contained in JCS plans.

Material Readiness

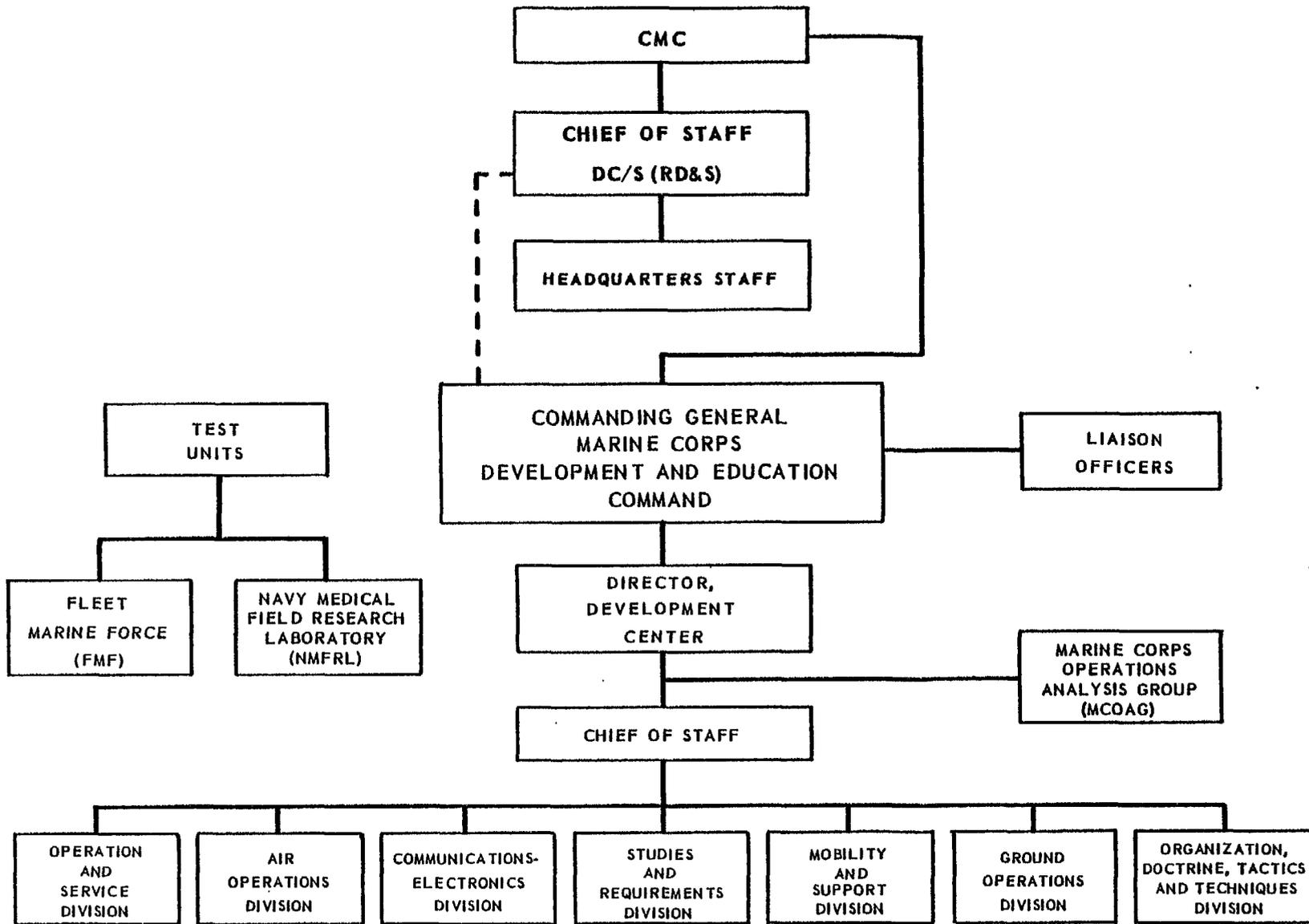
The material readiness of deployed systems is continually assessed by the Marine Corps through the Integrated Maintenance Management System (MIMMS) for all weapons systems except aircraft which are monitored

through the Navy's Material Maintenance Management (3M) system. These information systems provide daily data on availability of systems, their reliability, failures, supply consumption, and trends in operational readiness. The output of the information systems influence the life usage of a weapons system and therefore the need for new systems.

The Planning System

The planning process in the Marine Corps parallels planning in the Navy and the Joint Chiefs of Staff. The planning documents in the Marine Corps, as in the Navy and the JCS, deal with the short-range, mid-range, and long-range periods (See chapter 5). The CMC delegates responsibility for directing all phases of planning to the Chief of Staff assisted by the Deputy Chief of Staff, Plans and Operations Department. He, in turn, delegates responsibility for execution to the Services Plans Branch and to the Joint Planning Group. The Chief of Staff's Committee acts as the overall coordinating and decision point. Its functions are to hear presentations of plans and programs and to develop recommendations for the Commandant concerning these plans and programs. Members of the Committee are: the Chief of Staff; the DC/S (P&O); the DC/S (Requirements and Programs Division); the DC/S (Research, Development and Studies Division); the DC/S (Manpower Department); the DC/S (Aviation Division); the DC/S (Installations and Logistics Department); the Fiscal Director of the Marine Corps; Director, Marine Corps Reserve; Director, Intelligence Division; Director, Information System Support and Management; Director, Telecommunications; and a representative for the Commanding General of MCDEC, the Marine Corps Development and Education Command (MCDEC). (Figure 9-3)

MARINE CORPS DEVELOPMENT AND EDUCATION COMMAND



8-5

Figure 9-3

The Plans and Operations Department (P&O), Plans Division, is the focal point for planning strategy and tactics for the Marine Corps, for analyzing, reviewing, and processing actions of a joint strategic nature, and for formulating policy and doctrine. The Operations Division, P&O, is the focal point for meeting operational needs and capabilities for the landing forces in amphibious operations and for coordinating military policy for the Marine Corps as it relates to deployment, force readiness and the acquisition of weapons systems. Thus, the P&O Department has prime responsibility for the Marine Corps planning system and documents therein.

The planning system within the Marine Corps is responsive to and provides information to the Joint Strategic Planning System (JSPS) which includes Service planning documents as well as JCS planning Documents and to the Joint Operational Planning System (JOPS).

The Principle Marine Corps planning documents are the Marine Corps Long Range Plan (MLRP), the Marine Corps Mid-Range Objectives Plan (MMROP) and the Marine Corps Capabilities Plan (MCP) for the short-range period.

The MLRP is a document whose purpose is to describe the operational, organizational and material concepts which the Marine Corps needs to achieve in order to carry out its roles and missions projected for a 10-20 year period. It treats qualitative goals rather than resource requirements. The MLRP is reviewed and updated every year by the Services Plans Branch, Plans Division, Plans and Operations Department,

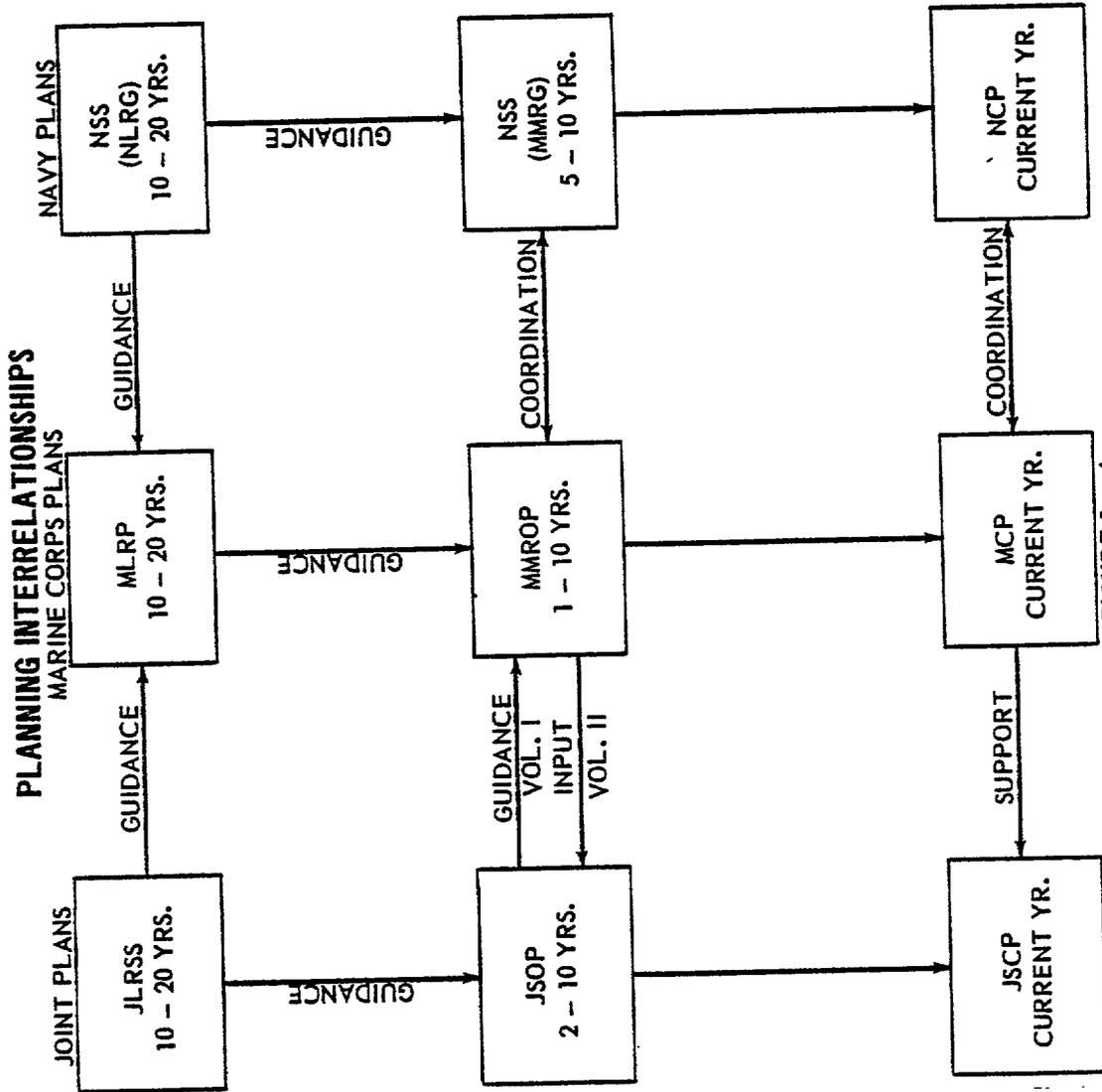


FIGURE 9 - 4

in the fourth quarter of the fiscal year. However, every five years, through the efforts of the Development Center, MCDEC, and the Long Range Study Panel there, an extensive Long Range Study is conducted which becomes the source for the Marine Corps Long-Range Plan after it has been reviewed at HQMC. MCDEC uses both Joint Chiefs of Staff guidance, such as the Joint Long Range Strategic Study (JLRSS) and Naval guidance such as the Navy Strategic Study (NSS) in planning Marine Corps strategy and tactics. (See Figure 9-4)

The Marine Corps Mid-Range Objectives Plan (MMROP) is a document that translates the long-range plans into more definitive goals and objectives which provide the basic guidance for Marine Corps programming and provide some Marine Corps input to JSOP Volume II. The MMROP is based on the mission of the Marine Corps and the worldwide strategic situation for a 10 year period beginning one fiscal year after the fiscal year of publication. The Service Plans Branch, Plans Division, P&O Department, prepares the MMROP using JSOP Volume I, the DPPG and the JIEP as sources of strategy and threat guidance. The Headquarters staff and MCDEC review the MMROP and recommend changes to the Services Plans Branch. Other cognizant personnel, both at Headquarters and in the field review the plan and send their comments to the Services Plans Branch. They then publish the MMROP no later than the end of March. (Figure 9-5)

The Marine Corps Capabilities Plan (MCP) is a short-range plan supporting the Joint Strategic Capabilities Plan (JSCP) which states the Marine Corps' capability to accomplish its role/mission and tasks during the current fiscal year. This document states that the Marine Corps can do now as opposed to next year. It provides planning information and

MARINE CORPS PLANNING SEQUENCE

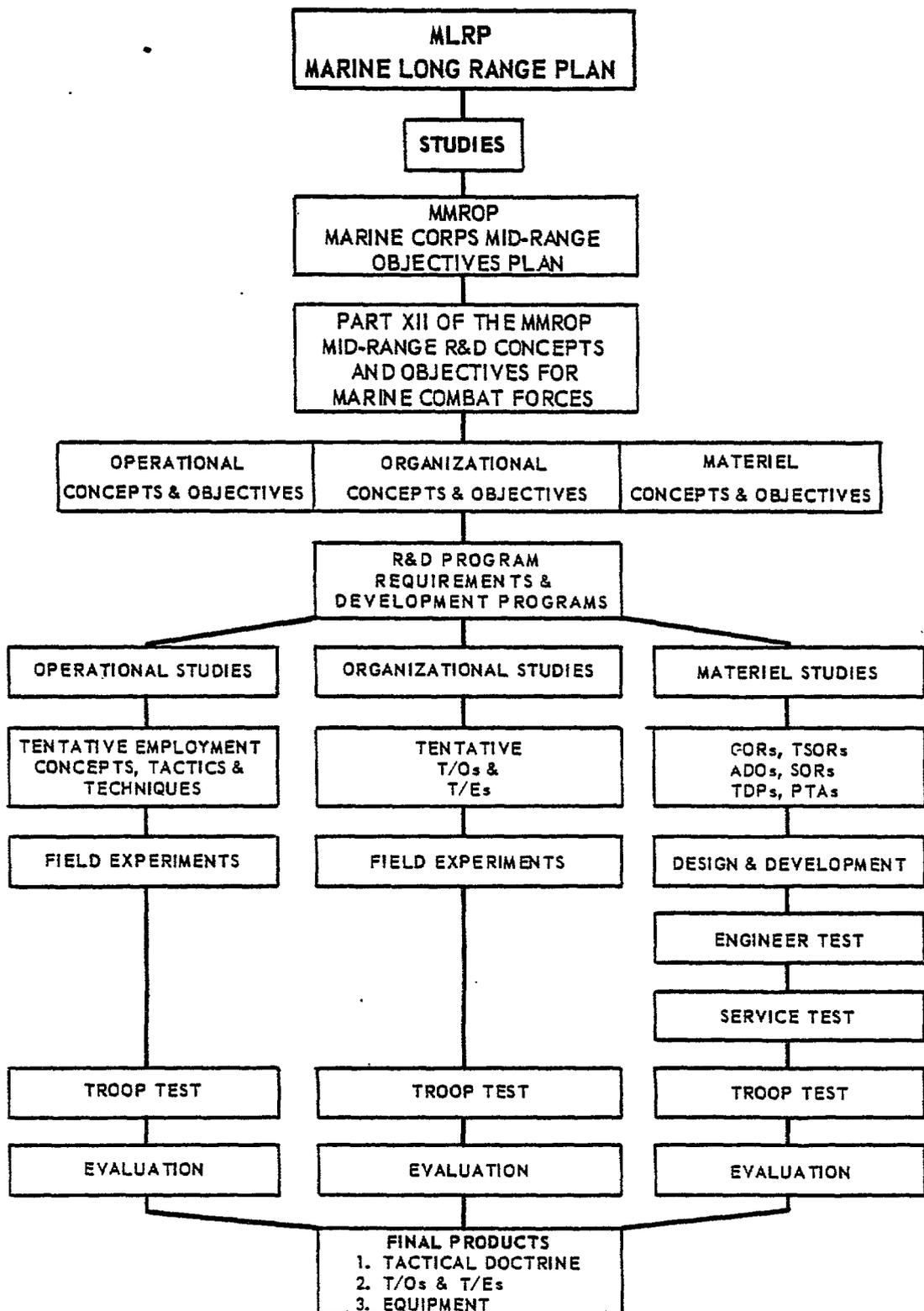


Figure 9-5
9-12

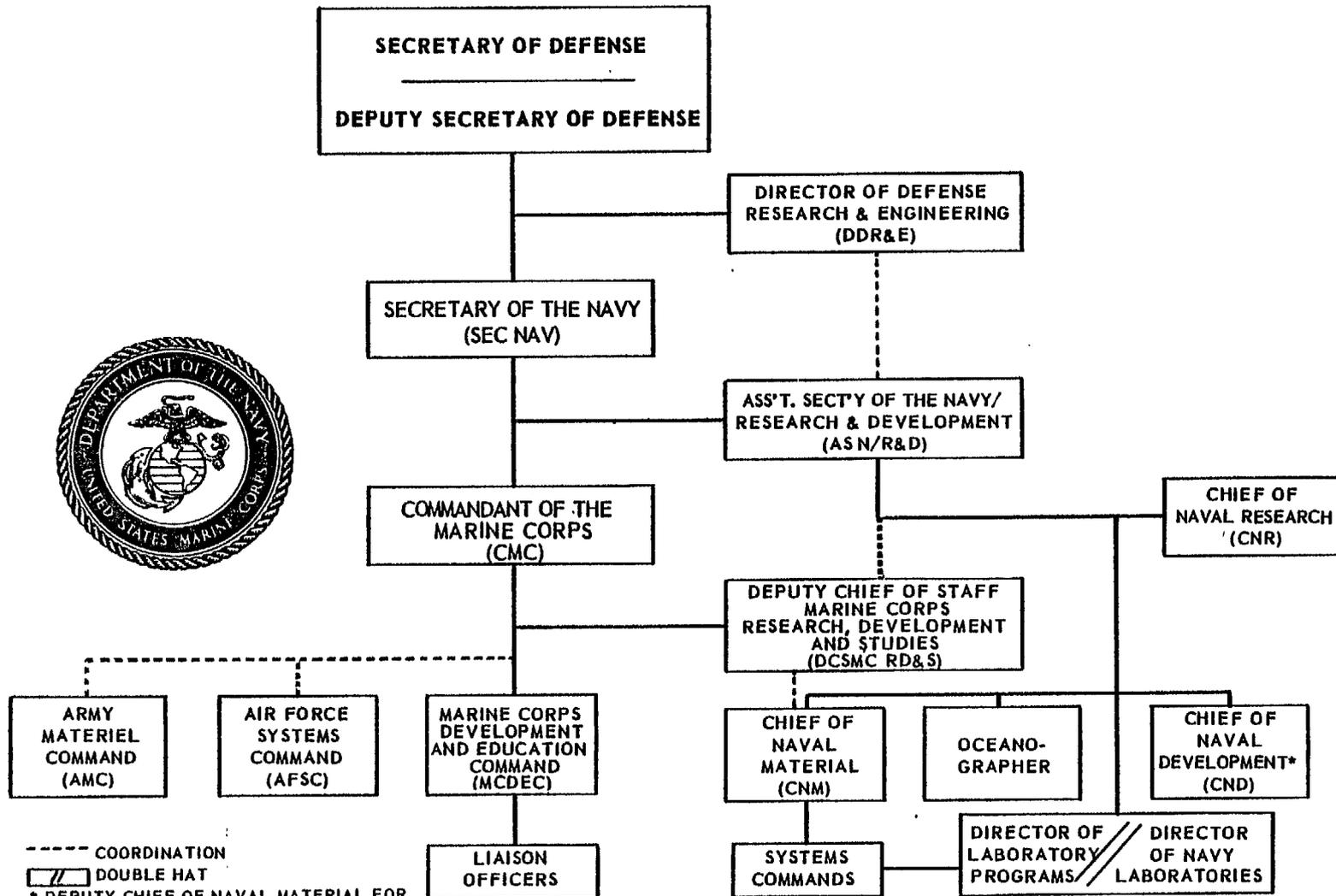
guidance to Marine Corps subordinate commands for accomplishment of their assigned duties. The MCP reflects force assignments made to unified commands in the JSCP. It is updated at least once a year by the Deputy Chief of Staff for Plans and Operations.

Studies and Analyses

Marine Corps studies and analyses play a vital role in the planning process. The Study Program is a formal program on a five year cycle funded from 6.5 management support dollars. Starting next year, the time frame of the Study Program will coincide with the schedule for preparing the Marine Corps input to the Department of the Navy Program Objective Memorandum (POM) so that the Study Program will be included in the POM. Studies cover much more than the development of hardware. They are conducted to analyze the development of doctrine, tactics, techniques or concepts; to analyze questions of force level, structure, and organization; to analyze technological and operational feasibility related to new items of material; to analyze the development of new items of material; and to analyze forecasts, projections and threat.

The sources of recommendations for study areas are the entire Headquarters Marine Corps (HQMC) staff and the field commands such as Fleet Marine Force Pacific (FMFPAC) or Fleet Marine Force Atlantic (FMFLANT). Recommendations are sent first to the cognizant sponsor in HQMC who reviews them and undertakes HQMC sponsorship. Study requirements are forwarded to the Studies Branch of the Deputy Chief of Staff for Research, Development and Studies (Figure (9-6) which coordinates development of a study program with the Development Center, MCDEC

MARINE CORPS RESEARCH AND DEVELOPMENT ORGANIZATION



----- COORDINATION
 // DOUBLE HAT
 * DEPUTY CHIEF OF NAVAL MATERIAL FOR DEVELOPMENT

FIGURE 9 - 6

There the Plans and Studies Division looks at the list of recommendations (or study requirements as they are called), identifies and clarifies issues, and sets up a proposed formal program considering the available resources and personnel. Studies can be on any subject and MCDEC may delete suggestions it has received and/or add its own.

After MCDEC has reviewed the list and made its recommendations concerning the Study Program, RD&S sends the proposed studies programs out for general staffing to Headquarters staff. These offices provide comments back to RD&S who then sets up a Review Panel to discuss the studies. This Review Panel resolves staff differences and recommends which studies should be approved for initiation. This decision is reviewed by the Chief of Staff's Committee and its decision is forwarded to the CMC for final approval.

Once the Study Program has been approved, each study sponsor, who is head of a Department, Division, or Office which has prime responsibility over the subject under study, prepares a study directive. A study advisory committee, chaired by the Sponsor, is set up to review this study directive prior to forwarding to MCDEC and to review the study as it progresses. Those interested in the study, as determined by the study sponsor and the Studies Branch, are members of the committee.

A complete study plan is prepared at MCDEC for the approval of the Commandant. Upon approval, MCDEC is directed to execute the study. MCDEC is asked to execute it although a commercial contractor, the Naval Research Laboratory, or an FCRC may carry out the study. Some examples

of current Marine Corps studies are "Containerization Requirements for the Fleet Marine Force (1973-82)", sponsored by DC/S (I&L); "Marine Aviation Requirements", sponsored by DC/S (Aviation); "Seaborne Mobile Logistics Systems" sponsored by DC/S (I&L); and "Assault Anti-tank Weapons Systems," sponsored by DC/S (P&O).

Once a study is completed and has been approved by the Commandant, the approved recommendations are implemented. These may result in internal Marine Corps program changes, changes in force structure, revised doctrine and tactics, or in the establishment of requirements. For example, the study may recommend that a General Operational Requirement (GOR) be revised, that a Tentative Specific Operational Requirement (TSOR) be prepared, or that ARPA conduct 6.1 research.

The DC/S for RD&S, HQMC directs and coordinates all Marine Corps RDT&E activities, reviews and issues requirements documents and assembles the Marine Corps' annual RDT&E program submission to the ASN (R&D) and to the Chief of Naval Operations (CNO) for inclusion in the Department of the Navy program/project listing of RDT&E programs. This includes preparation of the annual fundings program. The Studies Branch is responsible for all Marine Corps study efforts although it does not recommend or sponsor studies. It is also responsible for the annual work plan for the Marine Corps Operations Analysis Group (MCOAG) which is a part of the Center for Naval Analysis (CNA), a Federal Contract Research Center. MCOAG has three functions - (1) it provides operations research and operations analysis for the Marine Corps, (2) it performs the test and evaluation program as required, (3) it provides the field detachment for MCDEC's studies and for the Fleet Marine Forces.

The Marine Corps Development and Education Command (MCDEC) is the field command where most development efforts are monitored. The Development Center is the activity at MCDEC that is responsible for these efforts. The preparation of requirements documents for Headquarters Marine Corps is done at MCDEC. Long-range studies are also conducted there by the Long-Range Study Panel. The Plans and Studies Division at the Development Center prepares the Marine Corps Study Programs. They may get help from the Mobility and Logistics Division or other MCDEC staff or from MCOAG. MCDEC is also responsible for monitoring the Marine Corps'

MARINE CORPS LIAISON OFFICERS

MCLnO, USA, Training and Doctrine Command, Ft. Monroe, Virginia

MCLnO, USA Combat Developments Experimentation Command,
Ft. Ord, California

MCLnO, USA Test and Evaluation Command, Aberdeen Proving Ground, Maryland

MCLnO, USA Air Defense Board, Ft. Bliss, Texas

MCLnO, USA Electronics Proving Ground, Ft. Huachuca,
Arizona

MCLnO, USA Artillery Board, Ft. Sill, Oklahoma

MCLnO, USA Armor Board, Ft. Knox, Kentucky

MCLnO, USA Electronics Command, Ft. Monmouth, New Jersey

MCLnO, USA Airborne Electronics and Special Warfare Board,
Ft. Bragg, North Carolina

MCLnO/Advisor for Military Application, Naval Weapons Laboratory,
Dahlgren, Virginia

MCLnO, USA Infantry Board, Ft. Benning, Georgia

MCLnO, USA Aviation Board, Ft. Rucker, Alabama

Deputy Systems Program Director, Tactical Information Processing
Interpretation-System Office (TIPI-SPO), Wright Patterson AFB,
Dayton, Ohio

MCLnO, Naval Medical Field Research Laboratory
Camp Lejeune, North Carolina

Headquarters, USMC Logistics Section also sponsors a liaison
officer for both Logistics and RDT&E liaison at:

MCLnO, USA Armaments Command, Picatinny Arsenal,
New Jersey

Figure 9-7

exploratory development effort so they also follow closely the research, development, testing, and studies of other Services and Agencies. MCDEC sponsors Marine Corps Liaison Officers (MCLNO) at other Service commands (Figure 9-7).

General Operational Requirements

Threat assessment, planning documents, and analyses and studies help determine what is needed by the Marine Corps to fulfill its role/mission. These needs are identified in the General Operational Requirement (GOR). The MLRP and the MMROP provide guidance and direction to the development of GORs. The GOR is a broad statement of goals or objectives for future operational capabilities required to meet the estimated threat of the 10-20 year period (long-range planning period). A GOR is a statement of Marine Corps needs for improved equipment, systems, material or techniques. GORs are established for each GOR category identified in section XI of the MMROP and classified under an R&D planning area in section XII of the MMROP. These categories are:

<u>GOR CATEGORIES</u>	<u>R&D PLANNING AREAS</u>
Training Personnel	Manpower
Command, Control and Communication	Command, Control and Com- munication
Infantry systems Supporting arms Anti-air systems Nuclear and Chemical Warfare and Biological defense	Firepower
Logistics	Logistics
Mobility	Mobility
Intelligence	Intelligence

MCDEC develops the proposed GORs which are promulgated by DC/S (RD&S) for the Commandant. The Service Plans Branch, Plans Division, Plans and Operations Department, also reviews GORs to insure that they are compatible with Marine Corps objectives as stated in planning documents. The Operations Division, P&O Department also reviews GORs.

The Intelligence Division, the Installations and Logistics Department, the Manpower Department, and the field commands also review GORs. The DC/S (for Aviation) has staff responsibility for GORs involving aviation.

Research and Development Planning

The Marine Corps is responsible for achieving certain operational capabilities which may require the development of major new systems or items of hardware. However, resources available to the Marine Corps for its RDT&E efforts historically have been very limited. The problem then becomes one of efficient allocation of scarce dollars across a wide range of proposed and on-going projects of varying funding levels. One way the Marine Corps faces its demands on resources is to rely on the large R&D budgets of the other Services and the projects they develop which are directly applicable to the Marine Corps.

The Navy designates approximately 1.2% of its RDT&E funds to the Marine Corps RDT&E budget in the 6.3, 6.4, and 6.5 funding categories. Thus, "blue" dollars are converted to "green" dollars. (A full discussion of the relationship between Navy ("blue") dollars and Marine Corps ("green") dollars follows later in this chapter).

The Marine Corps has no basic research funds (6.1 monies). The Chief of Naval Research conducts a program of research which is designed to produce results which satisfy the acknowledged requirements of both the Marine Corps and the Navy.

The Chief of Naval Material manages and funds for a program of exploratory development (6.2 monies) in support of the Marine Corps. Within the Marine Corps, the Development Center at MCDEC is the point of contact on Marine Corps exploratory development matters.

In other categories of development, the Marine Corps adopts other-service items directly whenever possible. For example, while the Marine Corps may fund a study of the employment of various aircraft it does not invest any of its R&D money in the development of aircraft. Such activity is completely funded by the Navy. The Deputy Chief of Staff for Aviation acts in a dual capacity sponsoring Marine Corps aviation R&D activities both as a member of the CMC staff and as Assistant Deputy CNO for Aviation. Further, most of the Marine Corps' motor transport vehicles are developed by the Army. Joint Army-Marine Corps programs develop other items required by both Services. Through a process of "management by influence", the Marine Corps often buys into another service program so that it can have a voice in the development either to change the characteristics of a system or to add capabilities to make sure that the item is operable in the amphibious warfare environment.

The Marine Corps will not normally undertake developmental action when equipment being developed by other services will meet its requirements. The Marine Corps will undertake unilateral development action when:

(1) Development clearly falls within the Marine Corps responsibilities established by law (page 9-1).

(2) There is no other equipment available or under development by another Service or country which will meet stated requirements.

(3) Failure to take developmental action would adversely affect the military capabilities of the Marine Corps.

It should also be noted that the Marine Corps does not have any RDT&E laboratories per se. Thus, MCDEC, other DOD in-house organizations and private contractors perform the R&D tasks required by the Marine Corps.

ESTABLISHING THE REQUIREMENT

Through the planning system needs are identified and through studies and analyses requirements are generated for certain systems or items. The requirements process in the Marine Corps is a system unto itself. At the same time, it is part of the R&D effort since, in a circular process, the requirements process determines what research and development are called for.

Sources

An explanation is needed here to clarify how the Marine Corps acquires its systems or items. As stated earlier, the Marine Corps depends on other Services for its RDT&E needs. It follows, then, that it also depends upon the other Services for many of its acquisitions. The Marine Corps may purchase weapons from the Army, Air Force, or Navy, and if this purchase is an aircraft, the Marine Corps is dependent on the Navy because the Marine Corps has no appropriation for procurement of aircraft.

The Deputy Chief of Naval Operations for Air Warfare within the Department of the Navy, has cognizance over Marine Corps aviation

requirements as defined by the Commandant. If the Commandant determines that there is need for a new aircraft in the Marine Corps, MCDEC formulates and submits to DC/S (RD&S) the operational requirements for the system. The CMC approves them and sends them to the CNO. The Navy may develop or have available aircraft to meet the Marine Corps' requirements, or the Army or Air Force may have the aircraft. If not, the Marine Corps may purchase the needed aircraft elsewhere, such as the case of the British developed AV-8A Harrier. In any case, the funds to purchase the aircraft are provided in the Navy's procurement appropriation.

For land warfare weapons systems or items, the Marine Corps depends largely on the Army. With slight modifications, many Army systems can satisfy the requirements of the Marine Corps. Thus the Marine Corps may undertake some joint development with the Army by providing some funds for the Army's R&D effort and then by purchasing the system.

For that aspect of amphibious warfare for which the Marine Corps is responsible, it will procure the weapon systems it thinks are needed from the Navy or the Army or it may develop and produce the system on its own when the system is unique to the Marine Corps.

The Process

We will now return to the subject of establishing the requirement for a weapons system. A requirement, which may be established by any command or organization, is sent to HQMC where it is evaluated by the potential program sponsor or functional manager and then by the Requirements and Programs Division. However, it is possible that a requirement will be

sent from the field to the JCS and then will be sent on to HQMC. The R&P Division validates all requirements after the sponsor having staff cognizance over that specific area has reviewed the requirement. Validation means that R&P checks to see if the requirement is supported by available documents such as a GOR. The DC/S for R&P then recommends approval or disapproval to the Chief of Staff. Following this initial review, MCDEC prepares a draft of the appropriate document^{1/}. The operational capability requirements will be assigned priorities based on urgency and mission. This priority will be applicable to the assignment of personnel, training of personnel and units, research and development, analyses and studies, procurement, and other resources available to the Marine Corps.

Let us take a Specific Operational Requirement (SOR) as an example. After an initial review by HQMC, MCDEC prepares a draft of the SOR and forwards this for comments to field level agencies within the Marine Corps, to responsible staff in the Army, Navy and Air Force, to the R&P Division at HQMC, to the Research, Development and Studies Division at HQMC, to the sponsoring office and to other interested staff as the RD&S Division determines. After these organizations have commented on the draft, MCDEC makes revisions and prepares a "proposed" SOR for approval and promulgation by the CMC. Enclosed with this proposed SOR will be a summary of the comments received from other Services' field agencies and the Commanding

^{1/} Requirements documents as covered here only relate to hardware needs. These documents are not generated because of structural changes or manpower changes.

General's (CG, MCDEC) consideration thereof. Simultaneously, the CG, MCDEC, will send copies of the "proposed" documents to the RD&S Division, and to the other Service headquarters for comment. Upon receipt of the proposed document, RD&S will forward the document to the DC/S Requirements and Programs Division for internal staffing and review. The action division will receive any comments from the other Services pertaining to the proposed SOR. These comments first go through the RD&S Division.

Once the review of the SOR is complete, the DC/S for R&P will prepare the final document complete with a CMC promulgating letter and will forward it to the DC/S (RD&S) who will give the document to MCDEC for preparation of the smooth document. The DC/S (RD&S) will then present the smooth SOR to the Chief of Staff or his committee for review and approval. The flow of a SOR through the system is shown in Figure 9-8.

Requirements Documents

Requirements documents currently used by the Marine Corps are the Tentative Specific Operational Requirement (TSOR), the Specific Operational Requirement (SOR), the Proposed Technical Approaches (PTA), the Advanced Development Objective (ADO) and the Technical Development Plan (TDP). MCDEC is currently studying the requirements process and will present recommendations to the CMC in March, 1974. It is most likely that the number of documents will be reduced and that the names of the documents will change.

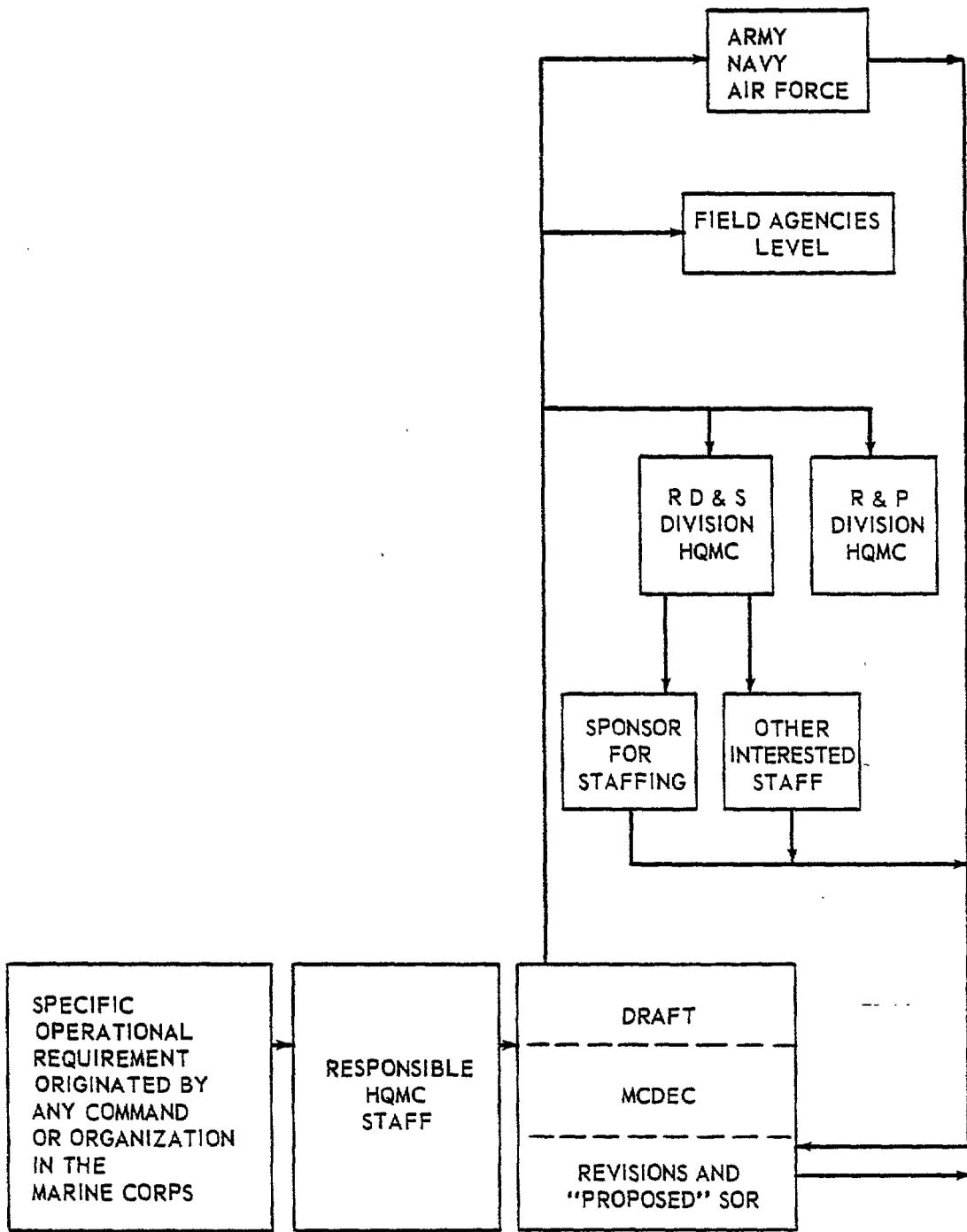


FIGURE 9 - 8

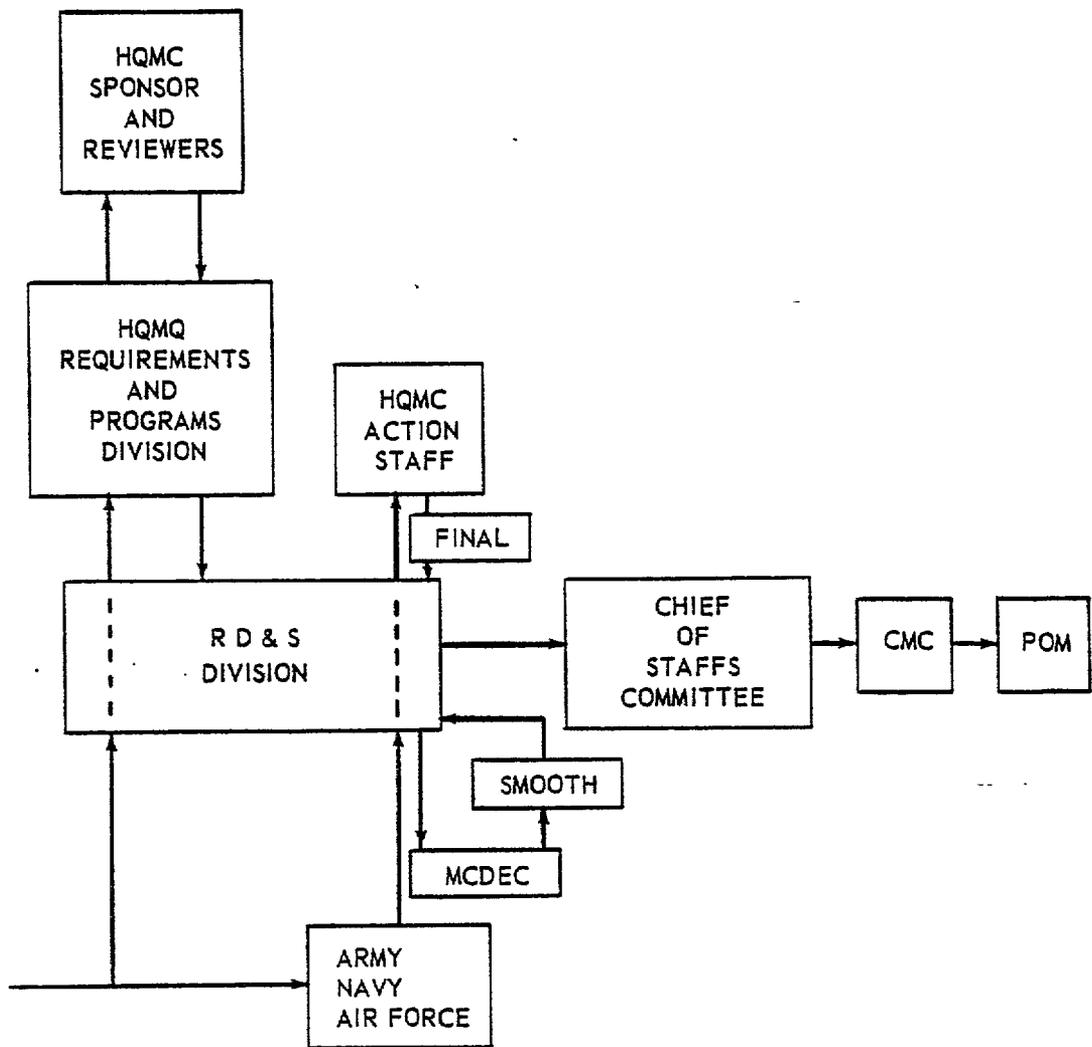


FIGURE 9 - 8

These documents are reviewed annually by the Development Center, MCDEC for relevance, needed changes and revisions. Documents are reviewed in monthly increments by GOR categories.

Tentative Specific Operational Requirement (TSOR)

The TSOR is a requirements document issued by the DC/S for the CMC as the initial step in the RDT&E planning system. It is the first document outlining a definition of an item or a system, its characteristics, functions and costs. It is drafted at MCDEC after the GOR has been approved by the CMC and has gone to the Chief of Naval Material (CNM) or other Service command for research and development. The TSOR tentatively states a requirement for a particular capability, identifies the anticipated threat, outlines the operational concept for its intended use, defines the performance characteristics which can be specified, and indicates the time period during which the capability is needed.

Proposed Technical Approaches (PTA)

PTA are prepared by the Naval Material Command or other developing agency outlining technical approaches in response to a TSOR or to call attention to possibilities for a system resulting from new technology. The PTA provides financial information in terms of initial estimates of development and production costs necessary to determine requirements for formal contract definition in the validation phase. The I&L Department analyzes and reviews the proposed technical approaches.

Advanced Development Objective (ADO)

An ADO states a need to conduct experimental studies, tests and development when the TSOR-PTA exchange indicates that technological,

financial or developmental risks exist or when the military usefulness of a particular proposed development has not been fully established. The ADO is prepared by MCDEC.

Specific Operational Requirement (SOR)

A SOR will follow the TSOR-PTA exchange if there are no unacceptable risks. The SOR defines the required capabilities in terms of mission requirements with estimates of the threat environment, operational concept, and performance constraints. The SOR delineates whether the development will replace an existing system, technique, or item, the limiting physical parameters of weight, speed, etc. and the concept of organizational employment. It is at the SOR stage that the preliminary decision regarding the necessity for contract definition will be made. The SOR is the final stage in the requirements documentation process and must contain definitive guidance for developing a Technical Development Plan (TDP).

The contents and organization index of the SOR include the following:

SECTION 1 - Abstract

SECTION 2 - Frame of Reference

SECTION 3 - The Operational Need - includes the threat utilizing intelligence such as NIE, the JIEP and the Operational Deficiency utilizing the GOR(s).

SECTION 4 - The Operational Concept - outlines the operational information which will influence the design and concepts for its use.

SECTION 5 - Capabilities Required - includes a system description, performance characteristics, quantity required, required fleet introduction date and additional considerations.

SECTION 6 - Operational Constraints - Contains physical, environmental manpower, & safety constraints, maintainability, a cost versus reliability/availability analysis, emission control, and emergency destruction information.

SECTION 7 - Integrated Logistic Support

SECTION 8 - Development Information

SECTION 9 - Recommended Marine Corps Development Action - whether the Marine Corps, Air Force, Army, or Navy will develop it.

The Telecommunications Division may sponsor SORs that deal with their field of responsibility. The DC/S (for Aviation) sponsors SORs such as the Light Armed Reconnaissance Aircraft, the Tactical Air Command Center, (TACC), and the Radar Data Relay System. He also has primary responsibility for many Navy requirements documents commented upon by the Marine Corps because many of these involve air weapons and systems. Some of these are the Bulldog, the Advanced Close Support System, the Heavy Lift Helicopter and the Advanced General Purpose Bomb.

Technical Development Plan (TDP)

A TDP comprises the development plan for the fulfillment of objectives stated in a SOR or an ADO. It is a complete description of the effort necessary to accomplish development plus a recommended funding schedule. It contains a financial plan and system description, production and delivery schedule, performance characteristics and program/project directives of requirements and tests.

OBTAINING SECDEF APPROVAL

Approval of the Services Total Program

Before the development a proposed weapon system can be funded, it must go through the programming and budgeting phases of PPBS. A program must appear in the Department of the Navy's Program Objective Memorandum (POM) and then in the budget.

Because approval for development both at the Service level and at the DoD level are not on a timetable to coincide with PPBS, Services will often submit their POMS and budgets to the SECDEF with programs and funding provided for development of a system which has not yet gone through the development approval process. The commencement of the program and expenditure of these funds are contingent upon Services and DoD approval.

The Department of the Navy submits only one POM to the SECDEF. This POM combines both Marine Corps and Navy programming. The Department of the Navy receives funds appropriated for both the Navy ("blue" dollars) and Marine Corps ("green" dollars) and distributes them accordingly.

Certain program funds are only "blue" dollars, meaning that there is no separate appropriation for the Marine Corps. RDT&E funds are an example. The Marine Corps receives no RDT&E funds of its own through an appropriation. Rather, the Navy designates approximately 1.2% of its funds to the Marine Corps for its RDT&E needs. Thus, some "blue" dollars appropriated to the Navy become "blue/green" dollars when used by Marine Corps. However, program element/project codes are such that "green" and "blue/green" dollars are readily identifiable therein. Even with that, there are no "green" or "blue/green" dollars for the

DEPARTMENT OF THE NAVY APPROPRIATIONS

BLUE DOLLARS	GREEN DOLLARS	BLUE/GREEN DOLLARS
MILITARY PERSONNEL, NAVY (MPN)	MILITARY PERSONNEL, MARINE CORPS (MPMC)	
RESERVE PERSONNEL, NAVY (RPN)	RESERVE PERSONNEL, MARINE CORPS (RPMC)	
OPERATION & MAINTENANCE, NAVY (O&MN)	OPERATION & MAINTENANCE MARINE CORPS (O&MMC)	
OPERATION & MAINTENANCE, NAVY RESERVE (O&MNR)	OPERATION & MAINTENANCE MARINE CORPS RESERVE (O&MMCR)	
PROCUREMENT C. AIRCRAFTS & MISSILES NAVY, (PAWN)		PROCUREMENT OF AIRCRAFT & MISSLES NAVY, (PAWN)
AIRCRAFT PROCUREMENT, NAVY		AIRCRAFT PROCUREMENT, NAVY
WEAPONS PROCUREMENT, NAVY		WEAPONS PROCUREMENT, NAVY
SHIPBUILDING & CONVERSION, NAVY (SCN)		
OTHER PROCUREMENT, NAVY (OPN)	PROCUREMENT, MARINE CORPS (PMC)	
RESEARCH, DEVELOPMENT, TEST & EVALUATION, NAVY (RDT&EN)		RESEARCH, DEVELOPMENT, TEST & EVALUATION, NAVY (RDT&EN)
MILITARY CONSTRUCTION, NAVY (MCON)		MILITARY CONSTRUCTION, NAVY (MCON)
MILITARY CONSTRUCTION, NAVY RESERVE (MCNR)		MILITARY CONSTRUCTION, NAVY RESERVE (MCNR)
FAMILY HOUSING, DEFENSE	FAMILY HOUSING, DEFENSE	
CLAIMS, DEFENSE	CLAIMS, DEFENSE	

Figure 9-9

program categories of basic research (6.1 funds) or exploratory development (6.2 funds). For these efforts the Marine Corps is dependent upon Navy expenditures.

The Marine Corps does receive "green" funds in other appropriation accounts such as Military Personnel, Reserve Personnel, Operation and Maintenance and Procurement. However, the CMC does not receive "green" dollars for Military Construction. In Department of the Navy matters relating to this area, the CNO acts as the executive agent. Appropriate Marine Corps responsibilities are carried out by the Installations and Logistics Department. In the Procurement appropriation, the DCNO for Air has responsibility for aircraft and missiles for the Marine Corps as well as the Navy. These funds are all "blue" dollars. Figure 9-10 has a list of the Navy and Marine Corps appropriations and those in which "blue" dollars become "blue/green" dollars through transfer of funds.

All programming and budgeting are based on the strategy, force level and structure, and support planned in JSOP Vol. I and II., the DPPG, PPGM, JFM, and the Services own planning documents. Figure 9-11 shows the relationship of Marine Corps documents to JCS and SECDEF documents in the PPBS.

In the Marine Corps, the Programming and Budget Branch of the Office of the DC/S for RD&S coordinates the preparation of the Marine Corps R&D portion of the Navy POM. The Programs Branch, R&P Division, is responsible for total Marine Corps input to the Navy POM. During formulation phase, increased emphasis is being placed on supporting documentation, incremental programming and possible MSARC involvement in various Marine Corps programs.

RELATIONSHIP OF MARINE CORPS DOCUMENTS TO
JOINT CHIEFS OF STAFF AND SECRETARY OF DEFENSE DOCUMENTS

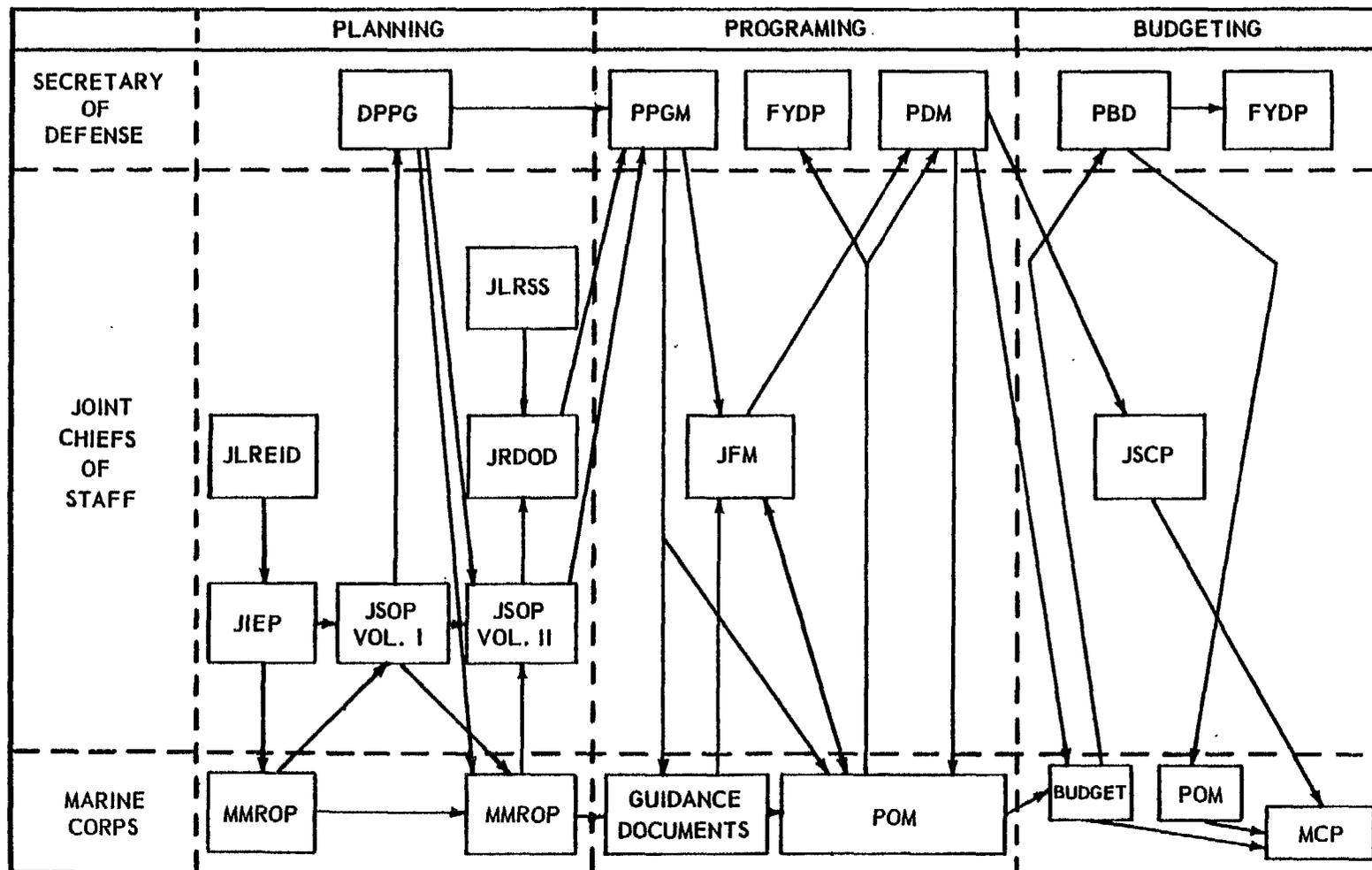


FIGURE 9 - 10

Following are the basic steps in the development of the Marine Corps RDT&E POM input for FY 76-FY80 (POM-76). While the time frames may vary slightly, the approximate periods cited are generally accurate. The DC/S for RD&S prepared a Tentative POM (TPOM) from about 15 November-1 January 1974. Acquisition sponsors were asked to submit their program requirements with resources estimates for each project proposed. If dollar requests represented increases over the established FYDP, such changes were supported by justification data sheets. If MSARC thresholds might be met in either R&D or PMC or both, such a level of activity had to be identified at the project or the task level as appropriate. The TPOM input was reviewed, a compilation of funding requirements was assembled, supporting pages were sorted and the entire fiscally unconstrained package was returned to Acquisition Sponsors, the DC/S for R&P, and the Development Center, MCDEC for reconsideration, especially in those fiscal years where staff requests were significantly above anticipated fiscal ceilings. By mid-February, DC/S for RD&S has seen the newly revised TPOM and has initiated actions to amend the Marine Corps R&D and other programs down to the FYDP level. The SECDEF fiscal guidance (PPGM) usually reaches the Marine Corps in March. If preceding efforts have been successful, the Marine Corps POM should be very near limits received. If it has become apparent that the Marine Corps cannot live with the guidance given, the DC/S for RD&S, for example, may choose to approach the Assistant Secretary of the Navy (ASN R&D) who manages RDT&E(N) Appropriations, for a larger percentage of the Navy R&D budget.

During April-June 1974, the DC/S for RD&S prepares justification for each project and forwards this to the R&D Programming Division under the Director, RDT&E for the Navy. This division (OP-098) consolidates the total RDT&E Navy Program request. Subsequently, CNO reviews his portion of the POM and the entire package is then forwarded to the ASN (R&D), SECNAV and DDR&E. SECNAV is the decision point where the TPOM actually becomes the POM. ASN (R&D), SECNAV and DDR&E critically examine the Marine Corps elements of the Navy R&D budget.

By August 1974, POM-76 has been finalized by Program Decision Memorandums (PDMs). Based on these PDMs, the Services estimate their budgets which enter a series of hearings. Hearings within the Department of the Navy are held by the Navy Comptroller (acting as a review agent for the Secretary of the Navy); the DDR&E and the Office of the Secretary of Defense (Comptroller) and OMB also hold hearings. The decisions resulting from the OSD and OMB hearings are tentative Program Budget Decisions (PBDs). PBDs may be appealed. Final PBDs, however, are printed in the January update of the FYDP and become the President's Budget. The Planning, Programming and Budgeting System in DOD culminates with the presentation of the President's Budget to the Congress in January.

Obtaining Recommendation for Approval from MSARC

Once a requirement has been established and included in the POM it must be approved for development by the Marine Corps. Under the reorganization, the Marine Corps has created the Marine Corps Systems

Acquisition Review Council (MSARC). MSARC will review all stages of a major acquisition program whether the acquisition's development is one unique to the Marine Corps, developed by the Navy or the Army, or jointly developed. MSARC I will review appropriate program initiation going into advanced development. At this time it may review such documents as a GOR. MSARC II will review a program when it is ready for full-scale development. Alternatives to the system or item detailed in the SOR as well as cost/benefit analyses and test and evaluation will fall within the scope of the MSARC review. MSARC III will review the acquisition process when the system is ready for production/procurement. Members of the MSARC are the Chief of Staff, the Deputy Chiefs of Staff, the Fiscal Director and the CG, MCDEC. The Commandant has final decision-making authority and may reject MSARC recommendations.

Obtaining Recommendation for Approval from DNSARC

If a proposed Marine Corps weapons system meets the DoD thresholds for a major acquisition and will therefore go to the Defense Systems Acquisition Review Council (DSARC), the Department of the Navy's Systems Acquisition Review Council (DNSARC) will review the proposed system. DNSARC review is not limited to this, however. If the Secretary of the Navy shows an interest in any proposed Marine Corps acquisition, he may request a DNSARC review. The CMC and the CNO are members of DNSARC.

Obtaining Recommendation for Approval from DSARC

Once a requirement that meets DoD's criteria for a major acquisition has been established and approved for development by the Commandant and the Secretary of the Navy, the proposed system must be approved by the

Secretary of Defense (SECDEF). This requires review of the proposed system by DSARC. To prepare for this, the Marine Corps, in coordination with SECNAV, formulates a draft Development Concept Paper (DCP) which is forwarded to OSD where the Director for Defense Research and Engineering (DDR&E) and Assistant Secretaries will review it. The DCP is then finalized by the Marine Corps and the Department of the Navy, and is presented to the DSARC for review. Following DSARC's decision, the proposal goes to the SECDEF for final approval.

This process seldom happens with Marine Corps weapon systems because the level of R&D and/or level of procurement seldom reaches DoD monetary thresholds. However, because of the Marine Corps' interest in other Services' systems, Marine Corps staff will attend DSARC reviews of those systems that the Marine Corps plans to buy such as Navy aircraft or Army tanks.

CONCLUSION

The Marine Corps identifies needs and establishes requirements for its role/mission as do other Services but it does little research and development. Also, the Marine Corps has few acquisitions needs that meet DoD's dollar definition of a major acquisition. Thus most of the Marine Corps' requirements do not have to go through the formal DoD system of a DSARC review at the various stages of development. However an internal review system has been established. The Marine Corps does not see itself in the major acquisition business and though the Marines do establish the requirement for some major hardware, they depend upon other Services for the development and production of these items. Thus the impact of the Marine Corps is mainly felt in the quantity on contract and the resultant price impact.

CHAPTER 10

UNITED STATES AIR FORCE

INTRODUCTION

This study is an endeavor to provide a roadmap that can be used by the GAO auditor in examining the processes followed by the AF in establishing a requirement for a new weapon system. We discuss ways in which the AF discovers it needs a new weapon system, the procedures for coordinating and proposing the requirement, and the steps followed to bring the proposal to the attention of key personnel who either approve or disapprove development of the system. We discuss the relationship of the AF planning, programming, and budgeting system to the weapon system acquisition process and present other material pertinent to study of the requirement process.

The material presented was obtained through the use of questionnaires answered by Hdq. USAF staff personnel; interviews with selected members of the Air Staff having knowledge of policy and procedures; and review of Hdq. USAF and DOD directives on weapon system acquisition. We used workpapers prepared by Regional Offices in their review of the ROC process at selected major air commands, and previous assignment accomplished in 1972 under Code 952002.

Air Force Mission and Authority

The legal foundation and mission of the United States Air Force are found in the National Security Act of 1947, as amended, which established the Department of the Air Force as a statutory agency within the Department of Defense.

The specifics of the law are set forth in Sections 8011 to 8079, Title 10, U. S. Code.

Section 8062 reads:

"(a) It is the intent of Congress to provide an Air Force that is capable, in conjunction with the other armed forces, of

(1) preserving the peace and security, and providing for the defense, of the United States, the Territories, Commonwealths, and possessions, and any areas occupied by the United States;

(2) supporting the national policies;

(3) implementing the national objectives; and

(4) overcoming any nations responsible for aggressive acts that imperil the peace and security of the United States.

"(b) There is a United States Air Force within the Department of the Air Force."

Subsequent subparagraphs of Section 8062 deal with the composition of the Air Force and its number of authorized aircraft.

Title 10 of the U.S. Code further specifies that: "The Secretary is the head of the Department of the Air Force."

"(b) The Secretary is responsible for and has the authority necessary to conduct all affairs of the Department of the Air Force, including -

(1) functions necessary or appropriate for the training, operations, administration, logistical support and maintenance, welfare, preparedness, and effectiveness of the Air Force, including research and development; and

(2) such other activities as may be prescribed by the president or the Secretary of Defense as authorized by law.

He shall perform such other duties relating to Air Force affairs and conduct the business of the Department in such manner, as the President or the Secretary of Defense may prescribe. The Secretary is responsible to the Secretary of Defense for the operation and efficiency of the Department." (10 U.S.C., Sec. 8012).

DOD and Air Force Policy

Department of Defense Directive 5000.1 identifies policy for major defense system acquisition. This directive states "the DOD components are responsible for identifying needs and defining, developing and producing systems to satisfy those needs." The Air Force implements these instructions in AFR 800-2 which says, among other things, that the responsibilities of Headquarters USAF are:

- to establish and verify requirements for AF acquisition programs funded under RDT&E and procurement appropriations
- to issue program management directives which initiate, approve, change, modify or terminate programs.

AFR's 57-1 and 57-5 further implement the DOD directive in that they state Air Force policy, establish procedures, assign responsibilities, and outline documentation to identify and state needs for new and improved capabilities.

Mission Areas

The AF development planning process creates continuous internal discussion of planning concepts, force structure analysis, program and budget activities, and analyses of technologies and weapon systems. In accomplishing this iterative process, the AF has begun to use an ordering of standard mission areas. They are:

Air Force Mission Areas

Strategic Aerospace Operations	Counter Air
Aerospace Defense	Interdiction
Intelligence	Close Air Support
Training	Airlift
Search Rescue & Recovery	Special Air Warfare
Command and Control Communications	Reconnaissance and Surveillance
Mission Support	

The mission areas give recognition to the tasks assigned to the Air Force and provide a useful means of grouping RDT&E programs so that their total impact on AF tasks can be directly compared.

Magnitude of Air Force Major Acquisition

Figure 10-2 identifies and presents cost estimates for major weapons systems in the Major Acquisition Cycle.

AF INVENTORY AND COST ESTIMATE OF
NEW SYSTEM ACQUISITIONS¹
(As of June 30, 1973)

<u>System</u>	<u>Cost Estimate for Current Program*</u>
A-7D Close Air Support Aircraft	\$1416.5 Mil
A-10 Close Air Support Aircraft	2489.7
B-1 Bomber Aircraft	13327.8
C-5 Cargo Aircraft	4508.0
F-5E International Fighter	421.5
F-15 Air Superiority Fighter	7835.2
F-111 Aircraft	6933.7
AWAC Airborne Warning and Control System	2385.0
AABNCP Airborne Command Post Aircraft	467.8
MAVERICK Tactical Missile	480.6
MINUTEMAN II Strategic Missile	4857.0
MINUTEMAN III Strategic Missile	6089.9
SRAM Missile	1176.9
AMST Advanced Medium Short Takeoff Transport Aircraft	200.0
LIGHTWEIGHT FIGHTER Aircraft (Prototype Program)	114.2
OTH-B Over the Horizon Radar	144.7
UH-1H Helicopter	325.0
SHRIKE Missile	241.8
DSCS Defense Sattelite Communications System	264.4
DSP Defense Support Program	<u>1881.2</u>
	\$55,560.9 Mil

* Includes RDT&E, Procurement and Military Construction Costs.

¹ Source of data: DOD Comptroller Directorate for Information Operations, November 1, 1973

FIGURE 10-2

AF Planning, Programming and Budgeting

Our study of the weapon system acquisition at Hdq. USAF revealed a considerable number of the Air Staff concerned with AF planning, programming and budgeting programs. All weapon system proposals either result from or may become a part of these processes. AF planning, programming and budgeting provide the background against which the useful life of a system can be plotted and the need for its replacement formulated, evaluated and either approved or disapproved. The AF processes involved are directly related and responsive to the DOD Planning, Programming and Budgeting System and the Five Year Defense Plan.

Planning

The AF planning documents are developed at, or required by Hdq. USAF. They provide continuity in planning and the means by which the AF can direct its efforts toward achieving its objectives. AF plans are unilateral in origin, but for the most part are developed in response to the JCS Joint Strategic Planning System (JSPS) and the Joint Operational Planning System (JOPS).

AFM 28-3 provides basic guidance for developing AF plans. It describes the AF planning process and provides guidelines, formats and administrative procedures. HOI 28-3 establishes Air Staff responsibilities and procedures for developing the AF War and Mobilization plan and other unilateral AF plans.

The Deputy Director for Force Development, DCS Plans and Operations, Hdq. USAF is responsible for planning the Air Force forces for offense, defense and airlift operations. This directorate is divided into three divisions; Command Planning, Strategic Force, and Tactical and Airlift Forces. Each is concerned with developing the planning for its respective areas of military operations.

Planning Documents

Major planning documents prepared at Hdq. USAF which influence major weapon system development are:

- . USAF Planning Concepts, 0-15 years.
- . USAF Objective Force from 0-10 years.
- . USAF Program Objectives Memorandum, 0-5 years
- . USAF War and Mobilization Plan (WMP) from 0-5 years.

USAF Planning Concepts

The "Plan" is designed to provide a comprehensive assessment of Air Force roles, missions and capability requirements for the 15-year period following date of publication. The scope of the plan includes technological, political and economic factors, insofar as possible, in both the Communist and non-Communist world. Further, it translates this assessment into Air Force objectives and strategic concepts, together with broad guidance for attaining them. It is the primary document for disseminating Air Force capability, objectives and objective forces; and it is the basis for objectives planning by the Air Staff and AF Commands. It is also a source document for providing Air Force recommendations to the Joint Long-Range Strategic Study (JLRSS), the Joint Strategic Objectives Plan (JSOP) and the Joint Research and Development Objectives Document (JRDOD).

Command Objectives Planning

Each Major Command with a mission involving operational use of weapon systems must submit annually to Hdq. USAF a Command Objectives Plan (AFM 28-3) projecting operational capabilities required by the Command for the following 15 years. The plan considers future objectives and desired operational capabilities as seen by the commander. It is developed in cognizance of the concepts and strategies contained in USAF Planning Concepts issued by Hdq. USAF and necessitates an awareness of the weapon systems needed by the Command to perform its missions. The Command is expected to describe the status and priority it places on each system in being and its priorities on mid and long-range objectives/requirements. The plan alerts Hdq. USAF and Air Force Systems Command (AFSC) to the need for increased RDT&E generated by requirements for sophisticated weapons and their related equipment.

USAF Objective Force

Based upon the strategy of the Joint Chief of Staff's (JSOP Volume I) and the Department of Defense Policy and Planning Guidance, the Air Force prepares its objective forces. These force projections are consolidated with the Army and Navy forces by JCS and become the Joint Strategic Objectives Plan Volume II. The Services then work an exercise taking into account the OSD fiscal guidance (Policy, Programming Guidance Memorandum) and arrive at submissions to JCS for the Joint Force Memoranda. The AF designs its budget to support these forces. During this period, there is considerable work on the part of the Air Staff and particularly the Director of Plans (XOX) and the Force Structure Committee to build

a force that will meet the threat and at the same time stay within the fiscal guidance provided by the Secretary of Defense. Forces are generally looked at over a period of at least eight years of which only the first five years become a part of the Five Year Defense Plan.

USAF Program Objectives Memorandum (POM)

The POM is a balanced, total force and support program for the Air Force prepared within the constraints of OSD guidance and submitted each May. The Air Force may submit changes to the POM before the issuance in July of the Secretary of Defense Program Decision Memorandum in answer to the POM. The Air Force may submit reclamation to these decisions and the OSD issues decisions on the reclamation in July-August.

U.S. Air Force War and Mobilization Plan (WMP)

The WMP covers the time period of the USAF Five-Year Force & Financial Program (F&FP), is revised on a regulatory time-phased schedule, and is continuously in effect. It directly supports the Joint Strategic Capabilities Plan (JSCP) in the near time period (one year). It extends through the remaining 4 years of the F&FP and provides for continuity of planning and programming actions. The WMP provides the Air Staff and the U.S. Air Force commanders current policies, doctrine, concept and direction for the conduct and support of wartime operations. It includes mobilization readiness planning guidelines for the support of contingency operations involving the full combat use of the approved forces for an indefinite period, and encompasses all functions necessary to match facilities, manpower, and material resources with planned wartime activity.

Relationship of Air Force Plan to USAF Programs

Air Force wartime planning starts with the projected inventory position with respect to units, aircraft, missiles, personnel, installations, and other assets. These projected inventories are extracted from USAF Program Documents for the assumed D-dates and are the end result of the previous planning cycle. In this matter, peacetime planning provides a starting position for the development of D-day and post D-day activity. The projected wartime activities must, in turn, be supported in the programming/budgeting documents.

Air Force Programming

The Air Force portion of the DOD Five-Year Defense Program (FYDP) is the official Air Force program--the USAF Force and Financial Program (F&FP). All other programs and programming documents are essentially resource management or system program expressions of the basic DOD-approved USAF force program.

The F&FP is established by AFR 27-9, to meet the requirements of DOD Directive 7045.1. This program document, approved by the Secretary of Defense, is the Air Force portion of, and is consistent with, the approved DOD Five-Year Defense Program. In fact, any references to actions affecting the AF F&FP apply equally to the DOD FYDP since all changes are routinely reflected in both documents.

The F&FP projects force data 8 years and costs for 5 years beyond the current fiscal year. It does not, in itself, represent authority to

implement any programs or obligate any funds. This document presents the approved program by mission-oriented program elements. Designed primarily for decision-making, the F&FP is not concerned with the management of activities, resources, or research and development actions. The research and development portion of the F&FP is translated into System Package Programs, Development Plans, and Project Plans developed and managed by the Air Force Systems Command and the Office of Aerospace Research. Published in three sections for distribution to major commands, the F&FP is updated to reflect changes approved by the Office of the Secretary of Defense.

Program "P" Series Documents

The FYDP is supported at Air Force level by programming documents produced by the Air Staff (AFR 27-9). They change with changes in the FYDP. The Air Staff produces seven principal and ten supplementary program documents. The commands participate in the preparation and revision of Air Force programs through correspondence, personal liaison, and the annual Program War Plans Review Conference. The major commands base their financial and operating programs and budget submission on the "P" series documents.

Supplemental Program Data

During each program cycle, much additional program information is published to supplement the principal program documents. This information, called supplementary program data, generally covers the same time period as the principal program documents. In addition, it establishes programs for such things as specialized training and equipment which must be

accomplished or procured within the program period to insure attainment of the principal programs.

Budgeting

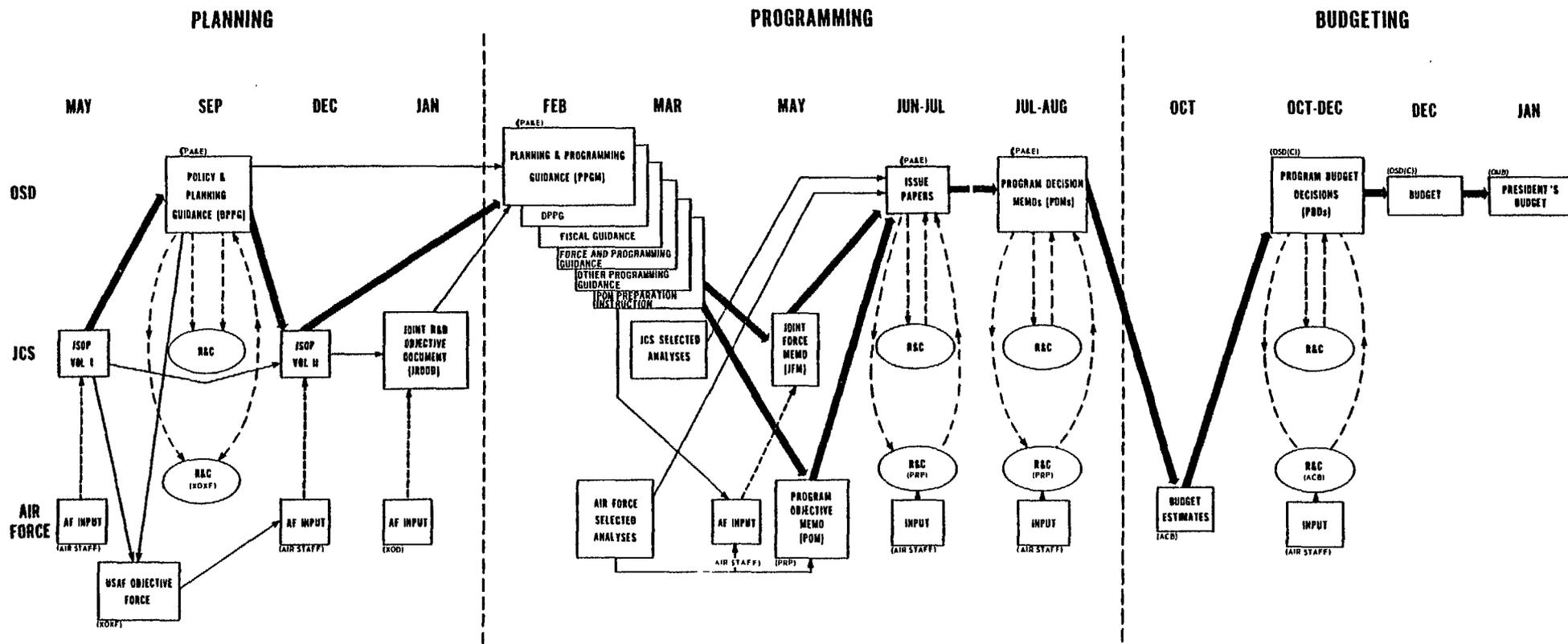
The AF budget process consists of a planning and formulation period lasting an approximate two years, 1 year budget execution and additional leadtime for receipt of long-lead resources for which money was obligated or reserved. The budget is put together primarily by the Air Staff at Hdq. USAF and represents a reconciliation between what the AF desired in the force objectives expressed earlier in the PPBS cycle (Figure 10-3) and what is possible considering the fiscal restraints being imposed by DOD, OMB, and the Congress.

The intensity in the budgeting process begins sometime in the August to October time period when budget estimates are prepared. This is followed by an interactive discussion between AF Staff, DOD and OMB personnel during which differences are reconciled. The reconciliations are generally completed by late December or January, and submitted to Congress as the President's budget request.

IDENTIFYING THE NEED

The Air Force's responsibility to be capable of accomplishing its defined missions imposes the responsibility to define needed capabilities and to develop weapon systems with which to provide the capabilities. Assigned missions together with awareness of broad national policies and objectives,

PLANNING, PROGRAMMING, & BUDGETING SYSTEM (PPBS)



ESTABLISHED BY DOD INSTRUCTION 7045.7, AND IMPLEMENTED BY HOI 27-1

- R&C** = REVIEW AND COMMENT
- JSOP** = JOINT STRATEGIC OBJECTIVES PLAN

- (XOD)** DIRECTOR OF DOCTRINE, CONCEPTS & OBJECTIVES, DC/S PLANS & OPERATIONS
- (PRP)** DIRECTOR OF AEROSPACE PROGRAMS, DC/S PROGRAMS & RESOURCES
- (ACB)** DIRECTOR OF BUDGET, COMPTROLLER OF THE AIR FORCE
- (XOXF)** DEPUTY DIRECTOR FOR FORCE DEVELOPMENT DC/S PLANS & OPERATIONS

FIGURE 10-3

awareness of the threat posed by foreign military forces, and the military policies and objectives supplied by the JCS provide the framework within which the AF must visualize its needs for today and tomorrow.

Information Reporting

Constant awareness of the current status of system reliability and operational capability is of paramount importance to the using commands, the supporting commands and to the Chief of Staff of the Air Force. The Air Force has extensive reporting systems operating continuously to provide operations and maintenance data¹ for study and analysis. Information extracted from these reporting systems, intelligence information on potential enemy capabilities information on opportunities presented by the state of the art and the results of studies and analysis of such data are available to AF personnel who influence and decide on the need for a new capability.

Intelligence Analysis

The Assistant Chief of Staff, Intelligence, Hdq. USAF, is responsible for providing the Secretary of the Air Force, the Chief of Staff, the Air Staff, and as required, Air Force commands and the Joint Staff with substantive intelligence support regarding the capabilities of potential enemies which impact on the Air Force. Major air commands have intelligence staffs which are assigned similar responsibilities for their command. Finished

¹Aerospace Vehicle Status Reporting (AFM 65-110), Maintenance Data Collection System (AFM 66-267), and Materiel Deficiency Reporting (Technical Order 00-35D-54) are examples.

intelligence data usable for this purpose generally comes from DIA, the central DOD source for military intelligence estimates and projections. DIA draws upon the military agencies for technical evaluation of weapon systems of foreign countries. Within the Air Force, these analyses are performed by the AFSC Foreign Technology Division and the results of its evaluations are fed directly to DIA. Further discussions of this area will be found in the part of this study which presents DOD intelligence operations.

Major Command Identification of Need

In 1972 GAO surveyed methods¹ employed by four major operating air commands to identify capabilities and process requirements for new or improved systems to provide the capabilities. The major commands--SAC, TAC, ADC and MAC, as internal AF organizations responsible for providing or directly supporting combat operations, are assigned and have a primary interest in determining ways to improve accomplishment of their assigned roles and missions.

Control over the operational need/requirement evaluation process generally falls within one staff office in each major command's headquarters, usually a DCS Plans and/or Operations Office. Special working groups and/or panels or sub-directorates may exist in some commands to assist in such deliberations. SAC, for instance, has directorates for: (1)

¹Study of Generation of Military Requirements by Major Using Command (Code 952082).

future systems, (2) astronautical requirements, (3) aeronautical requirements, and (4) future force structure study and evaluation.

Command Analysis

Our review found that command awareness of the need capabilities required for its mission is generally determined by analyses of (1) assigned missions, and (2) the threat to which the Command is to respond, (3) knowledge of the operational capabilities and deficiencies of its weapon systems and (4) in some instances awareness of weapon system improvements that can be obtained through application of technology.

Methods employed to identify the need for new capability may include:

- (1) Long Range Planning Studies
- (2) Internal Command conferences and briefings
- (3) Military operation
- (4) Operational testing
- (5) Contractor suggestions/proposals
- (6) Technological evaluation

Mission analyses is usually a continuous major effort within the command. SAC mission analysis involved the application of weapon systems to assigned missions and targets for simulation and analysis in response to postulated enemy plans. A product of such analysis is information concerning deficiencies in operational capabilities which may reveal the need to improve or replace an existing weapon system.

Intelligence information used in these analyses is received by the commands from DIA, Hdq. USAF or from JCS through the unified or specified command structure. Such intelligence would be "finished" intelligence ready for application by the command.

Technology

Command knowledge of advances in technology is obtained from sources such as contacts with defense contractors; information supplied by the Air Force Systems Command; technical reports; contact with other using commands; military organizations and installations; and participation in various Air Force/ AFSC/AFLC boards.

Military Exercises

Using the results of participation in military exercises to determine operational need seems to vary among the commands. MAC officials stated such exercises are intended to program the best use of available resources, not to identify equipment deficiencies. SAC indicated that exercises identify material deficiencies, some of which may be serious enough to request modification of existing equipment or new equipment. ADC pointed out that live firing exercise at its Air Defense Weapon Center in Florida is a prime source of determining ADC's operational requirements.

Coordination With Other Sources

Mission analyses and evaluation of operational capabilities may be supplemented in a variety of ways in order to identify needs. SAC maintains liaison with the Aerospace Defense Command (ADC), National Aeronautics and Space Administration (NASA), Atomic Energy Commission (AEC), and the Defense Nuclear Agency (DNA) to insure SAC receives comprehensive knowledge of advances in aerospace, nuclear and astronomical weapon systems. Contractors also provide information in briefings on their equipment or technology at SAC and contractor facilities.

Sources of New Weapon Proposals

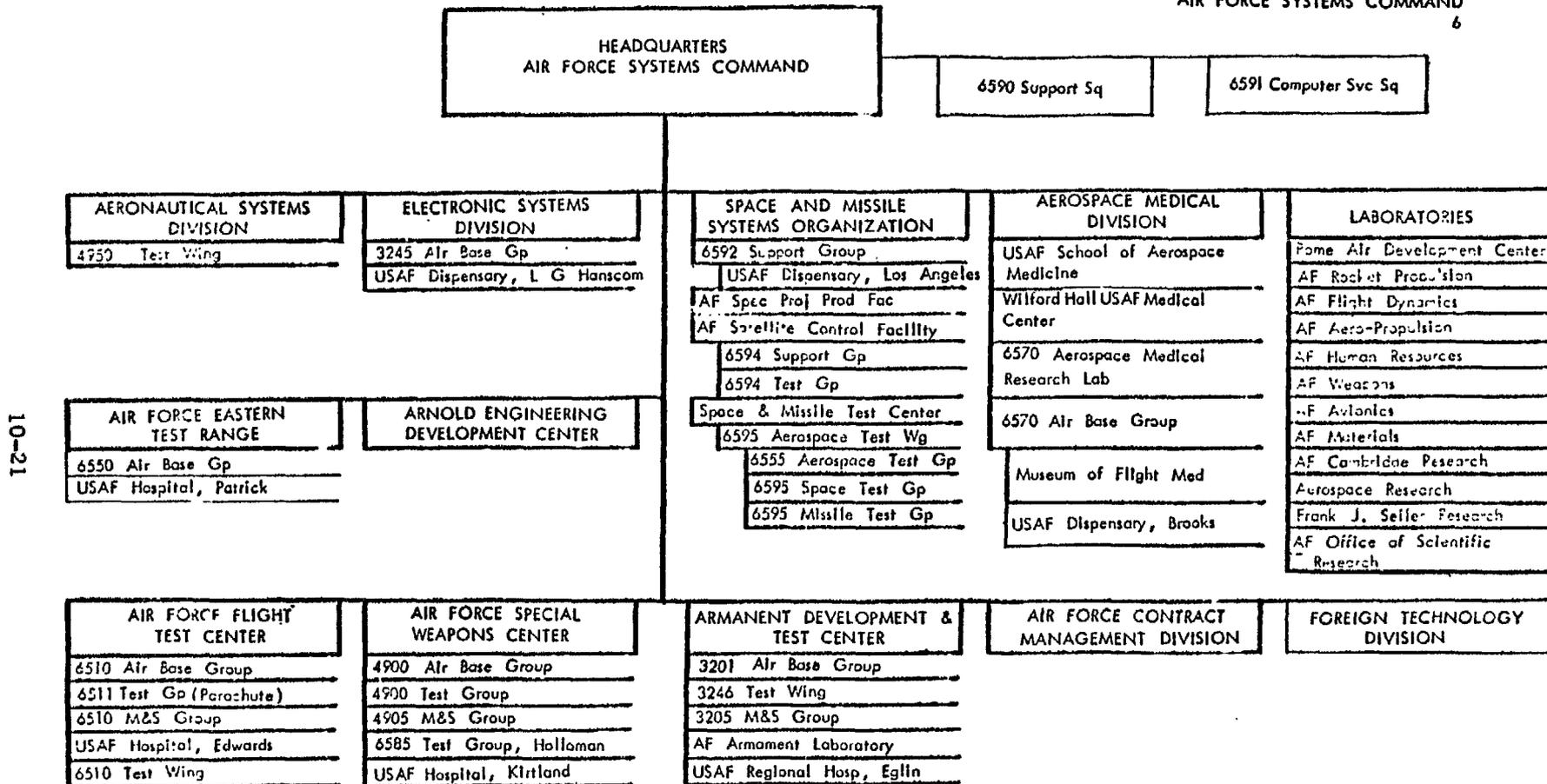
Major Air Commands are assigned responsibility by Air Force Directives to formulate requirements for new weapon systems which will improve existing operational capabilities. Major commands using weapon systems are charged with identifying operational deficiencies by continuously analyzing their assigned roles and missions, the threats posed by enemy capabilities, and their own operational capability.

Air Force Systems Command (AFSC)¹ in its role as the Air Force technology command is directed to conduct research and development programs which will discover and provide the technology to fulfill known and anticipated operational needs/requirements of the Air Force. AFSC is structured through the facilities of its laboratories (Figure 10-4) to build the technological and developmental base for military systems. Each year the Air Force assigns an Importance Category rating to declare the relative importance of each RDT&E program.²

The Air Force Scientific Advisory Board serves as a link between the Air Force and the nation's scientific community. The board evaluates long range R&D plans and recommends new scientific discoveries or techniques for practical application to weapon systems.

¹AFR 23-8

²AFR 80-1



10-21

FIGURE 10-4

The scientific community of the country is broadly based in colleges, universities, laboratories, and individual scientists and engineers. An AF program of study grants and contracts draws upon this source.

American industrial companies seek out opportunities to propose their ideas for new systems at various levels of the Air Force including using commands, the technology commands and Headquarters Air Force. The Air Force has provisions for providing information on operational systems to contractors for their evaluation. Industry's technological competence is solicited by the Air Force to provide predictions and estimates of the form of technological threats which can be expected.

Military study groups are set up from time to time to review AF needs in various mission areas. TAC 85, a recent study by the Tactical Air Command is an example. The participants attempted to reach opinions on the Tactical Air Forces which will be needed by 1985. Such studies can set the earlier stages of planning for new systems. The Assistant Chief of Staff for Systems Analysis may also perform studies to determine the need for a new system.

Contractual studies and analyses

The Air Force is also supported in developing studies by contract with companies such as the RAND Corporation which specialize in weapons and system analysis. The RAND Corporation conducted some 20-25 studies over five or six years which led to the Advanced Manned Strategic Aircraft (AMSA) which later became the B-1 aircraft proposal. Analytical Services Incorporated (ANSER) is under contract to assist DC/S R&D in systems analysis of AF problems and possible solutions.

Other sources

Other suggestions may come from anyone within the Department of Defense. Adoption of other Services' proposals may occur. The Air Staff and the JCS Unified Command Structure may submit proposals. AFR 80-21 provides instructions for USAF cooperation with other countries in R&D activities.

ESTABLISHING THE REQUIREMENT

Regardless of the source of the spark that originally conceived or recognized the desire for a new weapon system to satisfy a need, official recognition or the requirement begins with preparation and submission to Hdq. USAF of a Required Operational Capability (ROC) under the provisions of AF Regulation 57-1¹. Figure 10-5 outlines the AF requirements process. The ROC was adopted as format in 1966. Prior to that time, either a Qualitative Operational Requirement (QOR) or a Specific Operational Requirement (SOR) was used (figure 10-6).

Preparation of the Proposal

AF Regulation 57-1 states Air Force policy, establishes procedures, assigns certain responsibilities and outlines documentation to identify and state needs for new and improved operational capability. This regulation is entitled "Policies, Responsibilities, and Procedures for Obtaining New and Improved Operational Capabilities."

The regulation states that an operational requirement may be recognized, stated and forwarded by any echelon of the Air Force or Department of Defense. Air Force organizations recognizing an operational deficiency or need and proposing corrective action must coordinate a statement of the requirement with the other commands that ultimately either will use or be affected by the proposed capability. The ROC also must be distributed to the other three military services for their information.

Command review process

ROC's generally go through an elaborate review process within the command headquarters before approval and submission to Hdq. USAF. AFR 57-1 provides

¹Note that this is not an exclusive procedure. There are no ROC's at this time for either the A-10 or Lightweight Fighter aircraft although both are major weapon systems programs. AF explanation is that both programs were directed by the Air Staff and are prototype programs established to evaluate available technology and there is no assurance at this time that acquisition will occur.

USAF REQUIREMENTS PROCESS

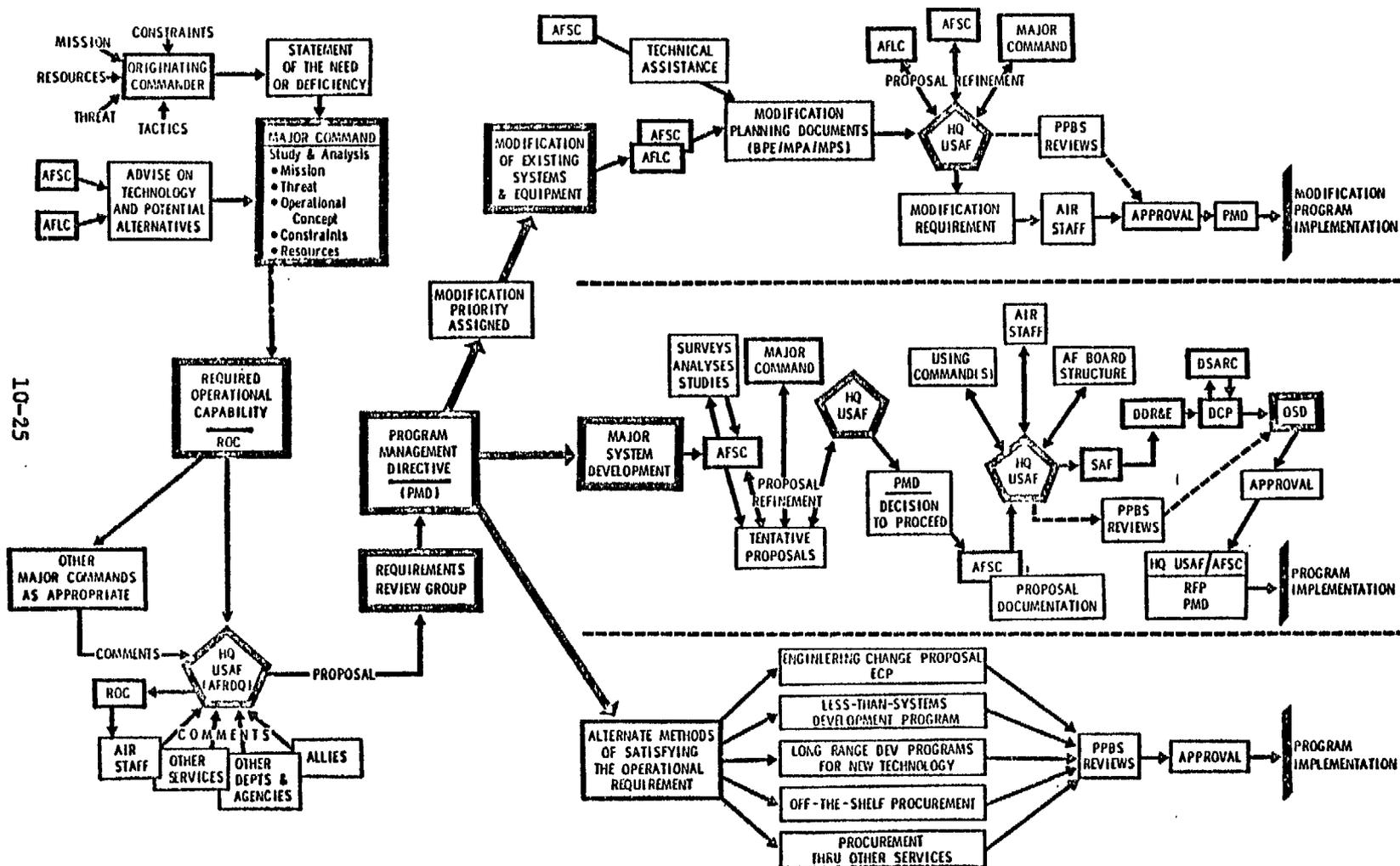


Figure 10-5

Original Requirements
Document Submitted
for AF Weapon Systems

<u>System</u>	<u>Requirement Directives Date</u>		<u>Remarks</u>
B-1 Aircraft	SAC ROC 3-66	11/4/66	
F-15 Aircraft	TAC ROC 9-68	2/1/68	
SCAD Missile	SAC ROC 1-68	1/19/68	
A-10 Aircraft	None		This is an Air Staff directed prototype program for which no ROC was prepared.
AWACS Aircraft	QOR	Oct. 1962	
	SOR 206	6/12/63	
OTH-B Radar	ADC ROC 10-71	July 1971	
Lightweight Fighter			This is an Air Staff directed prototype program for which no ROC was prepared.
AMST Aircraft	TAC ROC 52-69	5/6/70	
F-111 Aircraft	SOR 183	7/14/60	
AABNCP Aircraft	QOR	March 1964	
C-5 Aircraft	SOR 214	3/25/64	
SRAM Missile	QOR	11/23/63	
	SOR	3/18/64	

Figure 10-6

only basic guidance. It does not provide detailed instructions for preparation of a ROC or specify processing procedures within the headquarters of the submitting activity. It does, however, provide a sample format and guidelines. Implicit in the guidance for ROC preparation is that Hdq. USAF must receive information and supporting rationale which provides a thorough understanding of the deficiency (need) to be alleviated and the corrective action that is proposed. It leaves the major command ROC processing procedures for command determination.

Although individual persons and subordinate organizations may state a deficiency or need; the major using command headquarters will formalize and prepare the ROC submitted to Headquarters, USAF. ROC's originating within Hdq. USAF must be coordinated with the using command(s).

The GAO review of the four major air commands' control of the ROC process within their headquarters revealed responsibility for managing the ROC review process was assigned to a different staff office in each of the four headquarters. In each instance, however, there was an office assigned primary responsibility for controlling the processing and submission of ROC proposals. An action officer, whose actual title may differ among the various commands, is assigned responsibility for preparing the ROC is necessary, guiding it through the various reviews and evaluations by the headquarters staff, and incorporating pertinent decision matters into the final product.

Review within the command headquarters may consist of examination and evaluation of the proposal by working groups, panels and the staff of the regular command structure of the organization. Coordination is also effected with the numbered Air Forces and other organizations within the command structure.

At the time of our review at the Major Commands, we found SAC had no predetermined course of action, sequence of events or flow of documentation within the headquarters. Air Force representatives state this was caused by the heavy work load brought on by the war in SEA and it has since been corrected by SAC. MAC, on the other hand, had 12 permanent system working groups for the reviewing proposals, a Secretariat, and a Weapon System Panel which makes determination of the ROC acceptability. Subsequently, the MAC council, an executive advisory committee to the Commander MAC, evaluates and recommends a decision for the Commander MAC consideration. The Commander of each major command has the final authority within that command to approve a proposed ROC for submission to Headquarters USAF.

Coordination with other organizations

AFR 57-1 requires Commands submitting ROC's coordinate their proposals with other major commands having similar interest or equipment prior to submission to Headquarters USAF. They are also required, as appropriate, to consult with AFSC and AFLC prior to submission as well as Air Force Communications Service and USAF Security Service for certain requirements. Coordination is made with the other military services by sending to them copies of the ROC on any proposal that might be of value to them or impact upon their operations. Coordination on the final version of the ROC will be obtained from AFSC and/or AFLC prior forwarding to Hdqs. USAF.

Special arrangements exist between certain AF commands. For example, TAC, USAFE and PACAF are the commands responsible for tactical air operations. They coordinate all ROC proposals for systems or

equipment to be used in tactical operations. TAC serves as executive agent for the proposals. This tri-command arrangement was established as the result of a development of an unmanageable backlog of proposed modifications to USAF tactical weapon systems.

Signature on ROC's

AFR 57-1 requires that all ROC's will be signed by a general officer or Colonel occupying a general officer position and will be submitted to Headquarters USAF by the appropriate major command.

Specified and Unified Command Submission

In addition to within the Service submission of ROCs, Air Force combat commands assigned as components of Unified Commands (e.g., ADC-NORAD) may submit requirements for new operational requirements through the JCS Command structure to JCS, thence to the Service for final processing. JCS Pub. 2, C4 provides that "when responsibility for a particular weapon system or its component does not clearly fall exclusively within the functional area of a particular service, the commander of a Unified Command, after consultation with his component commander, will provide statements of qualitative and quantitative requirements to the Joint Chiefs of Staff." The command may also submit the same requirement directly to AF Hdq. in a duplicate effort under the provisions of AFR 57-1.

In compliance with these instructions NORAD, as a JCS unified command, has established NORAD Regulation 57-1 to provide policy and procedures for submission of NORAD Qualitative Requirements (NQR). NQR's are to be submitted only when significant operational benefits will accrue, and/or when NORAD emphasis is needed for support. Information was not available

at the time of our review at NORAD to document such submission; however, we were advised that NORAD prepared and submitted an NQR for the F-12 aircraft.

Quick Reaction Capability

AFR 57-5 entitled "Quick Reaction Capability" prescribes policies, procedures and responsibilities to satisfy urgent operational requirements for designated electronic warfare, reconnaissance and intelligence programs. Its purpose is to minimize the time interval between recognition of a new threat and the establishment of an operational or support capability to cope with this threat. The essence of the QRC program is one of timely evaluation and response to proposals. DC/S R&D Directorate of Reconnaissance and Electronic Warfare is responsible for administering the QRC program.

Processing ROC's at Headquarters Air Force

ROC's are received at Hdq. USAF by the Deputy Chief of Staff for Research and Development (DC/S R&D). The ROC Management Office (RDQLM), Development Plans and Analysis Group, Directorate of Operational Requirements and Development Plans, DC/S R&D, serves as the Air Staff Office of Record for receipt and control of ROC's. The ROC is expected to be fully self sufficient in explaining the requirement and is usually submitted without additional support documents to Hdq. USAF. A reply to the ROC by Hdq. USAF is to be made within 90 days.

Program Officer Assignment

After receipt of the ROC by RDQLM a program officer¹ is selected from one of the divisions within the DC/S R&D directorates for (1) Opera-

¹ Title established by DC/S R&D. Program Element Monitor (PEM) is assigned later when Program Element number is assigned to the acquisition program.

tional Requirement and Development, (2) Reconnaissance and Electronics Warfare, or (3) Space. As program officer, he is the responsible custodian or sponsor of the ROC while it is before the Hdq. USAF Air Staff for consideration. He must guide the proposal through Air Staff evaluation, review by the Requirements Review Group and the Air Force Board structure and to the Chief of Staff and Secretary of the Air Force. The Chief of Staff and the Secretary are the only persons at Hdq. USAF who have the authority to approve or disapprove a proposal for a new major system.

Documents Prepared by the Program Officer
During His Stewardship of the ROC Include:

1. AFHQ Form 79 Requirements Summary
2. Program and Budget Justification Briefings
3. Fact Sheets for Congressional Testimony
4. Form RD-5 Supporting Document for Budget Submission
5. Determination and Findings
6. Final Acquisition Approval
7. Program Management Directive
8. Issue Papers
9. Memorandums and Letters
10. Subject Summary Form

System Advocacy

A weapon system proposal may be under consideration for an extended time as efforts are made to obtain approval to pursue system development. During this time many influences may be at work attempting to shape what is to be the final product. Debate, advocacy and influence emanate from within the Air Staff, the technical and using Commands, the other Military Services, sometimes other Government agencies, OSD, Executive Office of the President or Congressional committee levels. It is the program officer's task to see that all of this is brought to the attention of the decision-makers.

Air Staff Evaluation

The first step is the Air Staff¹ evaluation of the ROC. This first requires thorough evaluation of the stated requirement by the Program Officer. His purpose is to develop a position regarding the proposal and defend its validity or recommend rejection or modification. He must decide which offices of the Air Staff should review the proposal and offer their opinions or recommendations as to its validity as an Air Force requirement or suggest modification or change. There is no formal check list; judgment is used in deciding the air staff coordination that is required because each proposal is sufficiently different so as to require individual management. Informal guidance is provided by RDQLM, however, considerations such as the mission area to which the ROC belongs, would help to determine the coordination required.

¹ Executive part of the Department of the Air Force.

Analyses and Studies

It is important to emphasize that numerous studies and analyses are made throughout the process of establishing a requirement for a new weapon system. The formulation of a specific proposal to satisfy an operational requirement is an interactive process of discussion between the Hdq. USAF, the using commands and the technical commands. When a significant development program will result, then key analyses and studies must be prepared to aid in determining the correct decisions. Key studies and analyses to look for are:

System Analysis

Studies related to weapon system proposals are made by the Office of the Assistant Chief of Staff for Studies and Analysis. Although studies are not routinely prepared on each weapon system proposed to Hdq. USAF, studies are usually prepared on each major weapon system proposal. Most of the work is laid on as an individual request by either DC/S Plans and Operations or DC/S Research and Development. The DC/S R&D requests are usually made to support submissions to the Defense Systems Acquisitions Review Council in OSD.

Mission Analysis

A mission analysis examines in depth a particular mission or function (such as night attack, strategic reconnaissance, surveillance, or test support), to identify new concepts for systems and equipment to correct existing operational deficiencies. The using command plays a primary role in the mission analysis by serving as the steering group chairman and participating with the study group.

Preliminary Design

Contractors and AFSC intermediate commands prepare preliminary designs of alternative solutions to the operational need. A primary objective of this effort is to compare all competing alternative system designs before

selection of the most desirable ones or the single design that best meets the need. The preliminary design data is also basic to all other efforts which are accomplished during this period such as risk assessment, cost estimates, and utility analyses. (This is a paper study only and does not include hardware assembly).

Cost and Schedule Estimates. Preliminary cost and schedule estimates are based on current techniques of estimation and are to be used for comparison of alternatives and providing preliminary costs and schedule information for the proposed program. Current, accurate, and complete cost-quantity data as well as physical and performance characteristics for all similar systems are needed as a basis for credible planning estimates. These estimates are later refined using results obtained during the Validation Phase.

Trade-Off Studies. Formal trade-off studies are performed to optimize design approaches considering performance, technical risk, cost, and schedule. The recognition of life-cycle cost as a principle design parameter necessitates the trade-off of operating requirements against engineering design. Technical risk is analyzed as a trade-off item which can reduce cost without reduction of effectiveness to an unacceptable level.

Depending upon the scope of the proposed major system other studies and analyses may be accomplished such as:

- a. Feasibility and Risk Assessment
- b. Production Feasibility Assessment
- c. Logistic Support Estimate
- d. Intelligence Estimate
- e. Preliminary Test Estimates
- f. Utility-Cost/Effectiveness Analysis
- g. Management and Procurement Analyses

Requirements Review Group Evaluation

After coordination with the Air Staff the program officer must submit and defend the ROC's validity before the Requirements Review Group (RRG). This is a General Officer coordinating group. The Chairman is the Director of Operational Requirements and Development Plans, DCS R&D. RRG membership consists of the chairman and the Hdq. USAF Directors of Operations, Maintenance, Engineering and Supply Programs, Development and Acquisitions, and Reconnaissance and Electronic Warfare.

REQUIREMENTS SUMMARY				KEY PUNCH DATA (Leave blank)		
REQUIREMENTS REVIEW GROUP		XOO PRIORITY REVIEW GROUP		ROC STATUS REPORT		
I. IDENTIFICATION DATA						
TITLE (Maximum of 40 spaces)				SYSTEM OR AIRCRAFT		DATE PREPARED
MAJCOM	ROC NO.	DATE OF ROC	MISSION AREA			
RD PROGRAM OFFICER (Typed name and grade)				OFFICE SYMBOL		EXTENSION
RDP COUNTERPART OFFICER (Typed name and grade)				OFFICE SYMBOL		EXTENSION
XOO COUNTERPART OFFICER (Typed name and grade)				OFFICE SYMBOL		EXTENSION
LGM COUNTERPART OFFICER (Typed name and grade)				OFFICE SYMBOL		EXTENSION
II. COST SUMMARY						
	FY	FY	FY	TOTAL	FUNDS ¹	TOTAL QUANTITY
TOTAL COST (Millions)					P-	
SOURCE AND DATE OF COST DATA:						
III. DESCRIPTION AND JUSTIFICATION/FACTS AND DISCUSSION/RECOMMENDATION AND NEXT ACTION						

Figure 10-7

¹ EXAMPLE: P-1100 for Aircraft; P-2100 for Missiles; P-5800 for Ground Equipment; etc.

The Program Office transmits the proposal to the RRG on AFHQ form 79 (Figure 10-7). This transmittal may be accompanied by a briefing on the proposal from the Program Officer. The members are of Brigadier and Major General officer (1 and 2 star) rank. The RRG reviews and evaluates the proposal and recommends the ROC either be validated, rejected or returned to the proposer for additional information. The group will not validate a ROC which proposes a major system; it will only recommend a course of action.

Air Force Board Structure Review

The RRG review is the first step in corporate review of the ROC at Hdq. USAF. The subsequent steps are through the Air Force Board Structure to the Chief of Staff and Secretary of the Air Force (see Figure 10-8). The Program Officer continues to be responsible for guiding the proposal through the Board Structure, gathering and providing supporting material and presenting briefings of the proposal to the boards for their consideration. (Our questionnaires indicated the Program Officer usually retains copies of the briefings and supporting material).

HOI 21-18 describes the Air Force Board Structure composition, responsibilities, and administrative procedures. The concept of the Board Structure is described as:

"The deliberative elements are corporate bodies formed to increase management effectiveness by applying the collective judgment and experience of senior Air Force officials to Air Force major program,s objectives and problems...."

THE AIR FORCE BOARD STRUCTURE

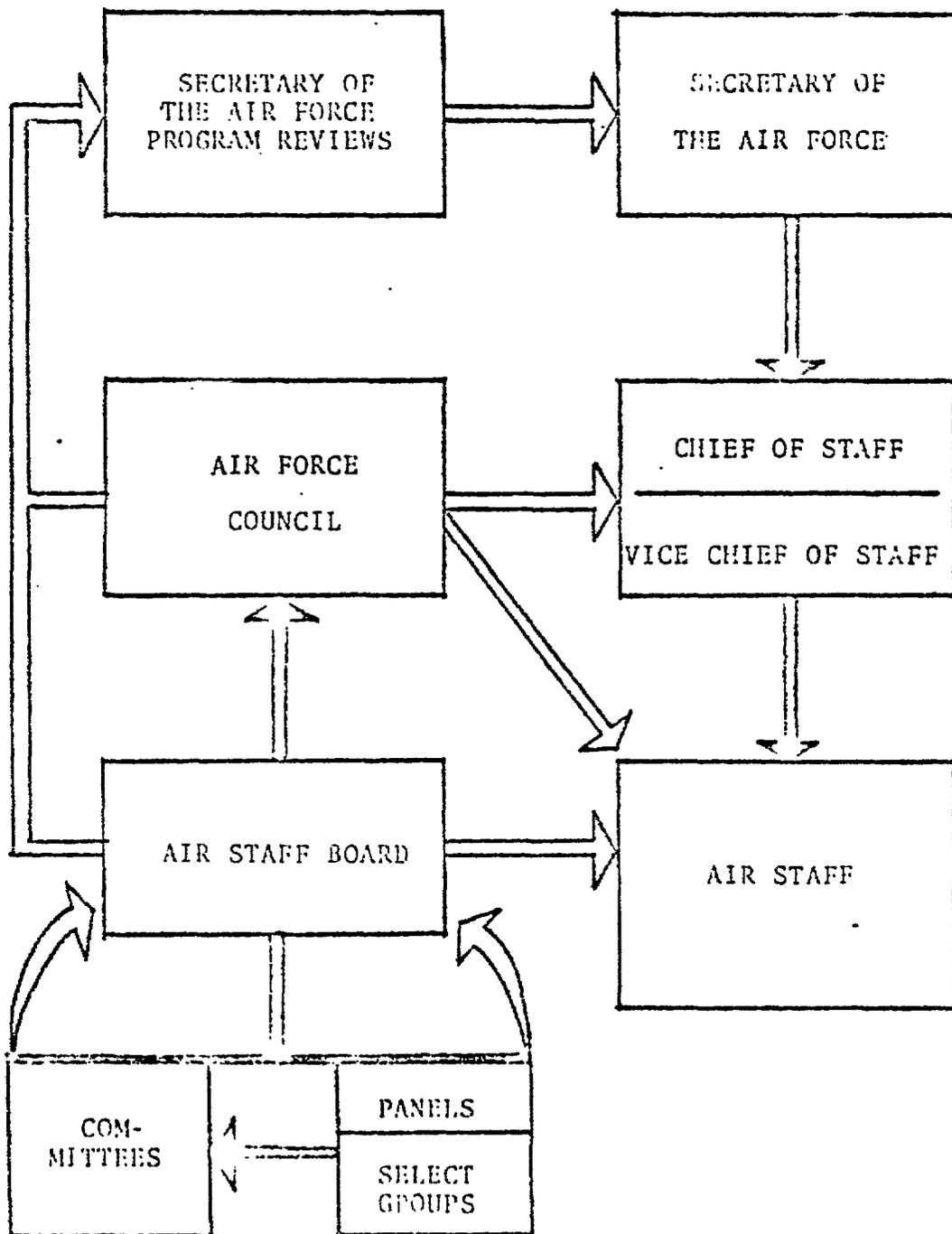


Figure 10-8

Air Staff Board

After the RRG review, the Program Officer presents the ROC proposal to the Air Staff Board (ASB). The ASB members are Director of Programs (Chairman), Director Budget, Director of Operational Requirements and Development Plans, Director of Personnel Planning, Director of Plans, Assistant Chiefs of Studies and Analysis, and Assistant for Logistics Planning. All are of Major General (2 star) rank.

The ASB has sub-elements (committees and panels) staffed by specialists to aid in carrying out its responsibilities.

The Committees are:

- (1) Force Structure, (2) Program Review and (3) Operational Test and Evaluation

The panels are:

- (1) Aerospace Defense, (2) Airlift, (3) Command Control and Communications, (4) Data Automation, (5) Electronic Warfare Penetration, (6) Reconnaissance/Intelligence, (7) Space, (8) Strategic, (9) Support, (10) Tactical, (11) Research and Development.

All subjects submitted for ASB consideration normally are reviewed first by the appropriate sub-element. The ASB then considers the sub-element's comments, and receives a briefing on the proposal from the Program Officer. The board then develops and submits its recommendation to the Air Force Vice Chief of Staff (VC/S). The VC/S is chairman of the Air Force Council which is the next higher step in the Board Structure.

Air Force Council

The Program Officer briefs the ROC proposal to the Air Force Council which consists of the Vice Chief of Staff, Assistant Vice Chief of Staff, Inspector General of the Air Force, Comptroller of the Air Force, and the Deputy Chiefs of Staff. The Vice Chief is a General (4 star rank) and the others are Lt. Generals (3 star rank). In its capacity as advisor to the Chief of Staff the Council considers the recommendations of the ASB and other recommendations; accepts them or suggests changes.

Chief of Staff Approval

The Council's recommendation is submitted by the Vice Chief of Staff to the Chief of Staff for his consideration. If he approves, the proposal is submitted to the Secretary of the Air Force for Departmental approval. Chief of Staff Decision and Guidance Memoranda are used exclusively to issue direction and guidance resulting from deliberations and recommendations of the Air Force Council. They are considered to be privileged documents by the AF with limited distribution.

Secretary of the Air Force Approval

The Secretary makes the final decision within the Air Force on the validity of the proposal. He may be assisted in this by the Under Secretary and Assistant Secretaries of the Air Force. The Secretary also has Secretary of the Air Force Program Reviews (SPR) which are used to provide him and his staff with in-depth evaluation and the means for making decisions on all aspects of major weapon systems. Decisions are formulated as Secretary of the Air Force Directives which are considered privileged documents by the Air Force with distribution limited to SPR members.

Obtaining Department of the Air Force approval of the requirement proposed in the ROC is only one of a two part process for program approval. The second part is gaining the approval of these same AF officials to request funding and programming by entering the proposal into the DOD Planning, Programming, and Budgeting System (PPBS). This is where the proposal must compete with other AF requirements for a priority which determines how quickly the proposal moves through the requirements process.

The two parts are inter-related and may occur almost simultaneously. In order to approve the need for the system proposed in the ROC, the reviewing authorities must have some concept of its contemplated cost. Budget approval by the same officials requires knowledge of the system's potential to fill its proposed role and the system's priority in relation to other AF requirements.

OBTAINING SECRETARY OF DEFENSE APPROVAL

Approval by the Secretary of the Air Force only establishes the proposal as an AF requirement. It does not become a DOD requirement or receive funding for development and acquisition until it has been approved by the Secretary of Defense (Figure 10-9).

As stated in Chapter 1 of this summary, the PPBS is the DOD's resource management system that matches needs/requirements with available and anticipated funds.

APPROVAL PROCESS FOR MAJOR DEFENSE SYSTEMS

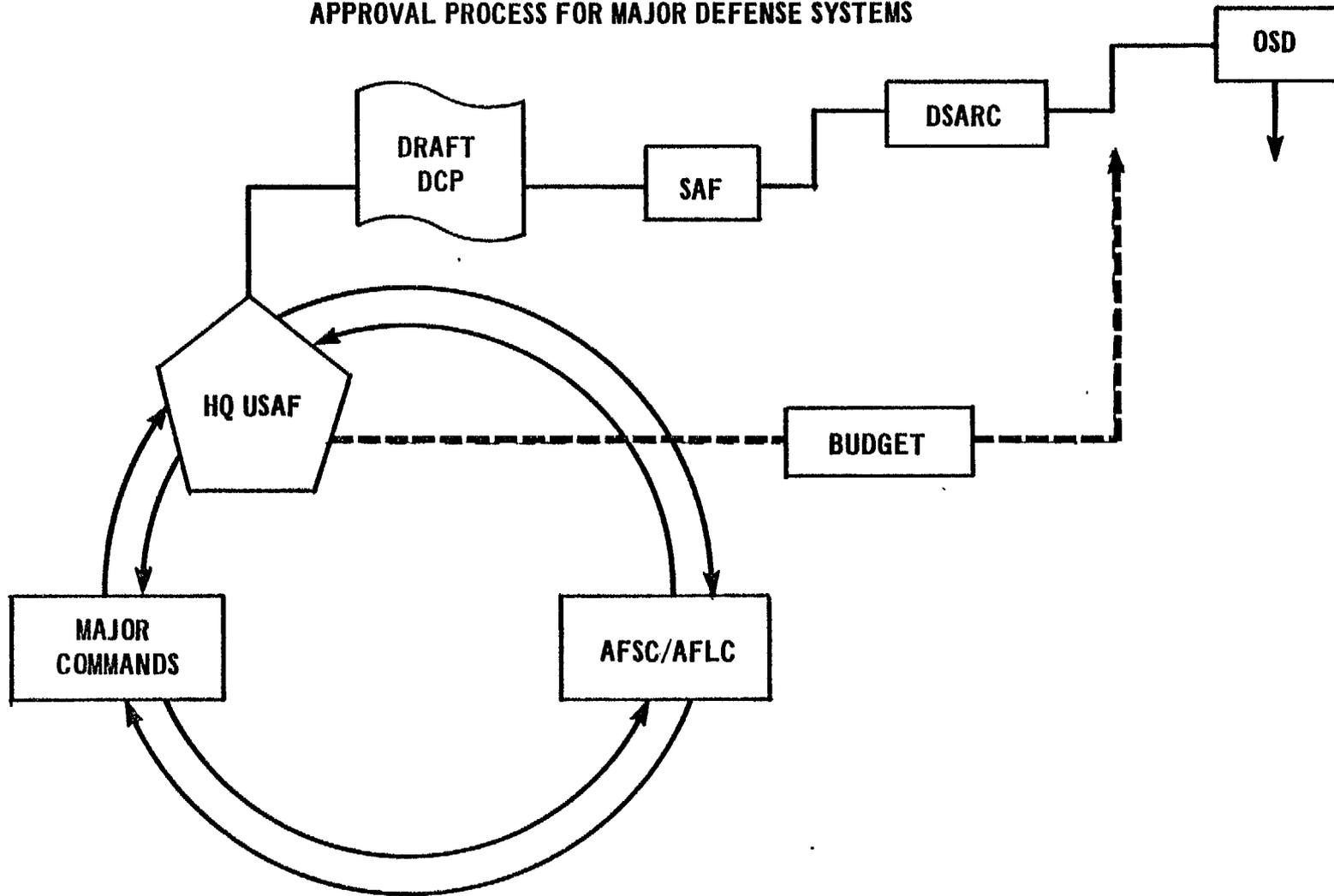


FIGURE 10-9

Each year OSD solicits AF programs to be entered in the PPBS. The Air Force responds with recommendations for the Joint Force Memorandums and provides its Program Objectives Memorandum (POM) to OSD. After review of the Air Force proposals, OSD issues Program Decision Memorandums which form the basis for the budget submission to Congress and subsequent updating of the DOD Five Year Defense Plan (FYDP).

Pre-design Development Funding

The first money spent on the proposal probably will be Pre-design Development Funds. Each year the Air Force receives a pre-design development fund (as an integral part of the Air Force RDT&E) to finance R&D studies and analyses. The funding requested is usually 6.1, 6.2, or 6.3 money and is not identifiable in the POM to any specific system. Its use is left to AF discretion. The Director of Operational Requirements in DC/S R&D, Hdq. USAF and the Director of Development Plans, Hdq. AFSC jointly decide where the funding will be applied. The ROC may have been an outgrowth of this type R&D effort.

At some point during ROC processing at Hdq. USAF, depending upon the nature of the proposal, the Program Officer will need studies and analyses of the proposed system's potential cost and technical feasibility. In some instances a number of studies may be required (as witness the 20-25 studies made on the AMSA p. 10-22). The Program Officer will request Pre-design Development funding be authorized to permit AFSC to develop the studies and analyses. If approved, the Program Officer issues a Program Management Directive to instruct AFSC on the use of the funds. The resulting studies and analyses produced are

considered by the AF Board Structure, Chief of Staff and Secretary of the AF in assessing the proposal and may be used to support its subsequent submission to DOD.

Weapon System Development Funding

Subsequent to receiving Chief of Staff and Secretary of the Air Force approval of the requirement proposed in ROC or commensurate with its movement through the Hdq. USAF approval process if approval seems assured, the Program Officer will request entry of the proposed program into the POM. The submission is made using a "Program Element Summary" sheet upon which is listed the program element number description, and cost projected over the life of the development program. The summary sheet is submitted to DC/S R&D Assistant for RDA program. After review and adjustment to fit the overall AF RDT&E programming needs, the requirement as a part of the AF POM is approved by the DC/s R&D and submitted to the Director of Programs, DC/S Plans and Resources. He is responsible for guiding the POM through review by the AF Board Structure, Chief of Staff and Secretary of the Air Force approval process. After approval by the SAF, the POM and the SECDEF Program Decision Memorandums are used by the AF to prepare its budget request.

After final approval by the Department of the Air Force, the budget is transmitted to the Assistant Secretary DOD Comptroller, at the appropriate time during the DOD PPBS cycle. He arranges for a joint review by the Office of Management and Budget, DOD and Air Force. Based upon the result of the review the Secretary of Defense makes his formal recommendation on the budget to the Office of Management and Budget.

Obtaining Recommendation for
Approval from DSARC

Although the PPBS is the primary method of control exercised over weapon system proposals by DOD, the DSARC review process serves as an overlay wherein the Secretary of Defense can assure program review at major decision points in the acquisition cycle. The first DSARC review and recommendation to the Secretary of Defense on a new major weapon system occurs in the Service's request to move the proposal through the validation phase.

The selected proposal for the new defense system is formulated as a draft Development Concept Paper (DCP) and forwarded to the Office of the Secretary of Defense (OSD) (see HOI 11-16 and HOI 800-1). The DCP represents USAF's desire to proceed into the Validation Phase. This step requires review of the proposal by the Defense System Acquisition Review Council (DSARC) and approval of the Secretary of Defense. The DCP contains primary program information, decision rationale and decision-review thresholds.

Prior to DCP review by the DSARC:

1. The Assistant Chief of Staff, Studies and Analysis may be requested to develop a Quantitative Analysis of the proposal to illuminate trade offs and/or other issues bearing on program decisions.

2. AFSC must prepare and submit an Independent Cost Analysis (ICA) of the proposal for the DSARC's review. Before DSARC review, the AF Cost Analysis and Improvement Group (AF CAIG) and an OSD CAIG must review and evaluate the ICA.

3. An issues book is established by the Directorate responsible for the program to present statements of issues, opposing views and the AF position.

4. Other material such as a logistics support review and questions of a provocative nature that might be asked and their answers are prepared by the Program Officer.

5. AFSC or AFLC as the technical commands which are to provide the eventual program manager prepare the following documents before DSARC reviews the proposal:

- a. Request for Proposal (RFP)
- b. Cost Information Report Data Plan
- c. Procurement Plan
- d. Source Selection Plan
- e. Renewal Properties Facilities Plan
- f. Test Plan
- g. Logistics Support Plan
- h. Production Plan

6. Approximately 7 workdays before the formal DSARC review, the SAF/CSAF reviews the AF proposal.

The Director of Defense Research and Engineering (DDR&E) is the office of primary responsibility (OPR) for preparing the DCP on proposed programs. The DCP is accomplished with the assistance and coordination of the Air Force. The draft DCP is reviewed by DDR&E and the Assistant Secretaries of Defense prior to review by the DSARC. The presentation to the DSARC consists of a Program Presentation, Operational Requirements, ICA and other supporting analyses. It is made by the Program Officer.

The DSARC reviews the proposed program by considering such things as the need, threat, system alternatives, special logistic requirements, development costs estimates, life cycle cost estimates and potential benefits in context with overall Department of Defense (DOD) strategy and fiscal guidance. The DSARC makes recommendations to the Secretary of Defense on developing the system.

If the Secretary of Defense approves the proposal, he signs the DCP and provides comments and guidance for the next phase. The signed DCP completes the program decision and the weapon system acquisition program is funded¹ and directed to proceed to the Validation Phase. The Program Officer incorporates the DCP contents and guidelines into a Program Management Directive (PMD) and forwards it to AFSC which puts the proposal in the form of a Request for Proposal (RFP). The RFP is then released to industry with replies required by a certain date.

Program Management Directive

The Program Management Directive (PMD)² is the primary document used by Hdq. USAF to direct subordinate activities in the acquisition process and to satisfy documentation requirements. It can be issued at any appropriate time in the process and a number of PMD's may be issued over the life of the program. PMD's are issued by Hdq. USAF anytime during the entire acquisition cycle to state requirements and request studies as well as to initiate, approve, change, transition, modify or terminate programs. The content of each PMD is tailored to the needs of each individual program. The PMD replaces the former Requirements Action

¹See page 10-45

²AFR 800-2 - March 1972.

Directive (RAD), Development Directive (DD), System Management Directive (SMD), and Modification Program Directive (MPD).

Program Management Plan

Hdq. AFSC, in response to the PMD which initiates a weapon system program, appoints a program manager selected from within the headquarters or subordinate commands or laboratories or system project officer of AFSC (Figure 10-4) by issuing AFSC Form 56 entitled, AFSC Program Directive. The program manager issues a Program Management Plan (PMP)¹ in consonance with the PMD and implementing command instructions, to provide all participating organizations with program objectives, requirements and their responsibilities, tasks, and time-phased actions to be accomplished.

¹ AFSC Supplement 1 to AFR 800-2 and AFSC Pamphlet 800-3.

CHAPTER 11

OFFICE OF THE SECRETARY OF DEFENSE

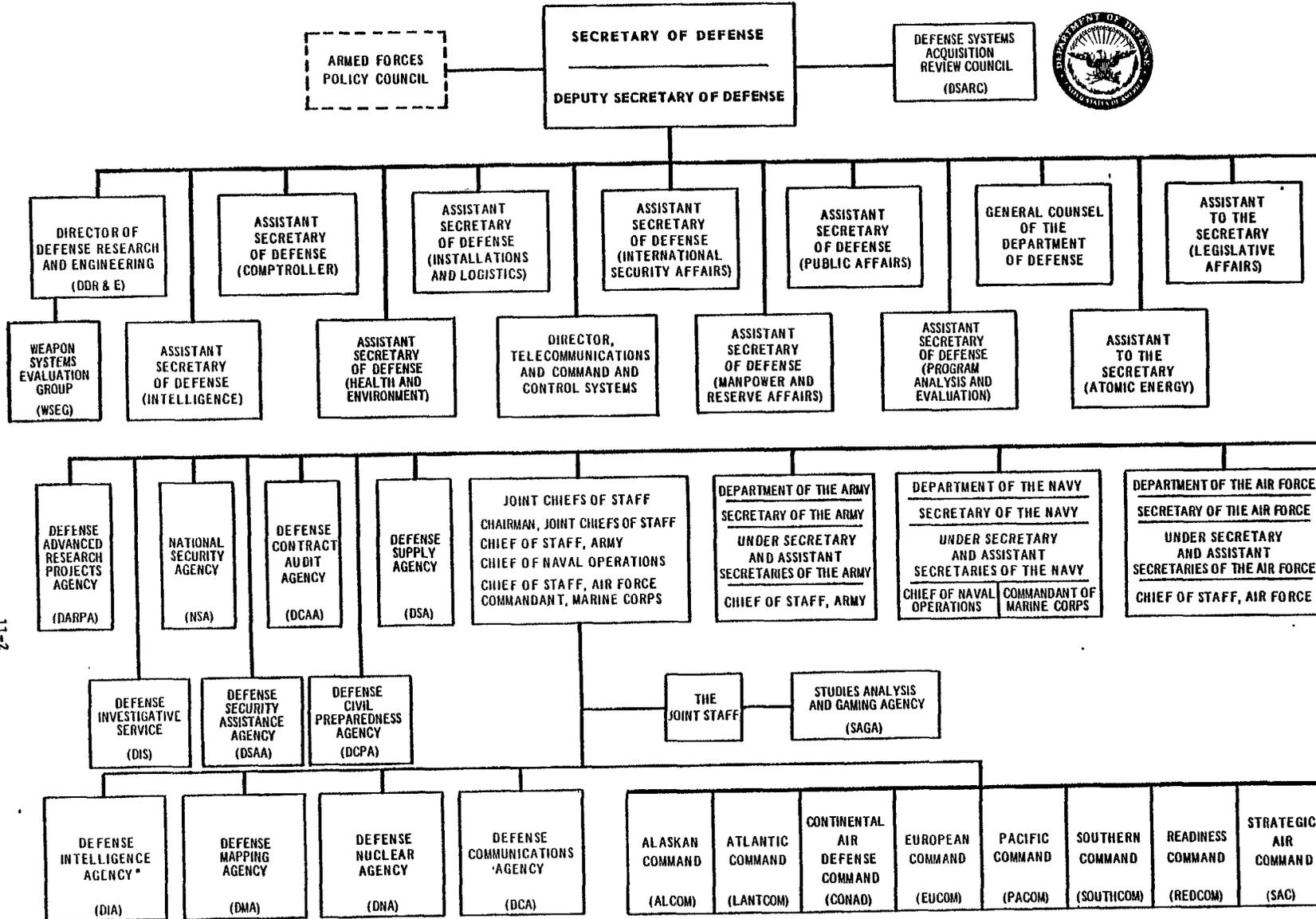
The Department of Defense is administered by the Secretary of Defense who is the principal assistant to the President for all defense matters. He is assisted by the Deputy Secretary of Defense and the staff of the Office of the Secretary of Defense (OSD) - see Figure 11-1.

In varying degrees, each of these offices has an influence on the needs/requirements process for major acquisitions. The officials who comprise the Defense Systems Acquisition Review Council, however, are the most influential. They are:

- DDR&E - Director, Defense Research and Engineering
- ASD (I&L) - Assistant Secretary of Defense (Installations & Logistics)
- ASD(C) - Assistant Secretary of Defense (Comptroller)
- ASD(PA&E) - Assistant Secretary of Defense (Program Analysis & Evaluation)

The Assistant to the Secretary of Defense for Atomic Energy, the Assistant Secretaries for International Security Affairs and Intelligence, and the Director, Telecommunications and Command and Control Systems influence the needs/requirements process only when a proposed major acquisition concerns their area of responsibility. Because of this, we will not address their functions as a part of this summary. Reviews conducted by GAO should consider, however, the necessity of including these offices within the "Pentagon" not discussed in this summary should also be considered as appropriate. It is not possible to address each "player on the team" in this summary. Instead, we address only the "regulars".

DEPARTMENT OF DEFENSE



11-2

* Functions as J-2 of the Joint Staff.

Figure 11-1

FEBRUARY 1974

Within the DoD, the PPBS is the resource management system by which needs and requirements are matched with available and anticipated funds. The OSD reviews the individual Service's POM's as a part of the PPBS. While the purpose of the POM reviews are emphasized as being budgetary, service conflict situations, material on requirement redundancies, and system adequacies are also scrutinized. By way of the PPBS, the individual Service's total program is reviewed in relation to JCS planning and objective force levels and is approved each year by the Secretary of Defense.

As a supplement to the PPBS, the Defense Systems Acquisition Review Council (DSARC) was conceived in 1969 to review individual weapon systems programs proposed by the services for development and/or acquisition. The DSARC overlaps the PPBS reviews and provides the Secretary of Defense with recommendations at key milestones concerning the status and readiness of an individual weapon system to enter or continue in the acquisition cycle.

OBTAINING APPROVAL OF THE
SERVICE'S TOTAL PROGRAM

As stated above, the PPBS is the resource management system by which the service's total program (POM) is approved by the Secretary of Defense. All of the Secretary of Defense's staff offices are involved in the PPBS cycle. The interactions of the various planning, programming, and budgeting documents as well as a brief description of PPBS is provided as an appendix to this summary. Department of Defense Directive 7045.7, "The Planning, Programming, and Budgeting System," is also included as an appendix to this chapter.

OBTAINING RECOMMENDATION FOR
APPROVAL FROM DSARC

As previously stated, the DSARC provides the Secretary of Defense with recommendations at key milestones concerning the status and readiness of individual systems to enter or continue in the acquisition cycle.

The Defense Systems Acquisition Review Council (DSARC) was established in May 1969, to provide a mechanism to advise the Deputy Secretary of Defense of the status and readiness of each major system to proceed with the next phase in its acquisition life cycle.

Department of Defense Directive 5000.1 (see Appendix to Chapter 2) establishes policy for major defense system acquisitions. This directive positions the Development Concept Paper and the Defense Systems Acquisition Review Council as direct support to the Secretary of Defense in making approval/disapproval decisions on proposed major weapon system acquisitions.

Development Concept Paper (DCP)

The DCP is a brief (10-20 pages) management and decision paper prepared for the Secretary of Defense to control the direction of major programs and the investment appropriate to meet defense needs. New proposed programs are described and presented to the Secretary of Defense by means of the DCP. The DCP define the program issues, including logistic problems, investment levels, program objectives, program plans, performance parameters, areas of major risk, management structure system alternatives , and acquisition strategy. It sets milestone decision points and thresholds in performance, schedule and cost. It evaluates the risks involved, including actions and schedules needed to minimize or eliminate those risks. It also includes the test and evaluation actions to be undertaken to resolve potential risks.

Although DCP's are drafted by the cognizant Military Department, an individual within the Office of the Director of Defense Research and Engineering (or the Assistant Secretary of Defense for Installation and Logistics at DSARC III) is responsible for controlling the preparation and review of the paper, as most systems interface with missions and functions outside the individual Military Department or Service.

The DCP is reviewed by the DSARC and, when approved by the Secretary of Defense, becomes a contract with the DOD Component for the development of a system including limits of authority and performance thresholds.

Defense Systems Acquisition Review Council (DSARC)

DSARC reviews are conceived to cover DCP issues, program thresholds and other matters normally treated in DCP's. If DCP established thresholds are to be breached, the service must formally notify the OSD. In these circumstances a special DSARC may be scheduled to review the program and establish new guidance.

The DSARC meetings are attended by the Military Department Secretaries, their Deputies, representatives of the Joint Chiefs of Staff and other program-related personnel as appropriate. Reviews are limited to major and important programs.

In the early stages of a program (prior to the transition from Development to Production), the Director, Defense Research & Engineering, is the Chairman of the Defense Systems Acquisition Review Council (DSARC). The Council is chaired by the Assistant Secretary of Defense (Installations and Logistics) when the decision to enter Production is to be considered.

The DSARC review at the end of the Conceptual Phase (DSARC I) represents the first formal recognition of a major acquisition, an identifiable weapon system by the Office of the Secretary of Defense. The DSARC reviews the DCP as prepared by the cognizant DOD Component with DDR&E guidance.

Project Management Directives (PM)

The PM is a DCP equivalent management and decision paper prepared in ODDR&E for the Secretary of Defense to monitor and control the direction of weapon system acquisitions which had passed the production milestone decision by 1969; are perhaps entering the acquisition requiring only a production decision; are prototype programs for research and development; or for some other reason are not designated as major acquisitions under the criteria of DOD Directive 5000.1. Each of the members of the DSARC comes to the reviews with background information available from his own staff. In this regard, we believe the following documents deserve special attention. They are Mission Area Summaries and Mission Concept Papers prepared by the DDR&E, and Issue Papers prepared by DPA&E.

Mission Area Summaries

Initially, within the Office of the Director, Defense Research and Engineering, the Mission Area Summary document was prepared to assist the Director in carrying out his responsibilities as an overseer of DOD research and development activities. The Mission Area Summary idea was initiated in 1970 by the Director of Defense Research and Engineering. We believe these Summaries deserve special attention even though they are currently categorized as "unofficial". They represent what appears

to be only source, currently in existence, for common classifications of mission areas regardless of the individual Services' roles and missions.

A preliminary set of Mission Area Summaries were published in February 1973 and an updated version in October 1973. This book represents all RDT&E funded activities of the DOD without regard to individual Department/Service roles and missions. It is classified SECRET. For purposes of providing a summary analysis, evaluation, and assessment, each mission area is described in twelve categories of information. Twelve additional categories of information related to technology areas are also provided. The categories of information for each mission/technology area are shown in the following table:

<u>Mission Area Outline</u>	<u>Related Technology Outline</u>
1. Overall Mission Objective	1. Overall Technological Objectives
2. Compared Level of Effort	2. Compared Level of Effort
3. Assessed U.S. Deficiencies	3. Assessed U.S. Deficiencies
4. U.S. Allied Posture vs Communist Bloc	4. U.S. Allied Posture vs Communist Bloc
5. Soviet Progress	5. Soviet Progress
6. Critical Intelligence Needed	6. Critical Intelligence Needed
7. Overall Program Plans	7. Overall Program Plans
8. Plans for Next Fiscal Year	8. Plans for Next Fiscal Year
9. Progress Last Fiscal Year	9. Progress Last Fiscal Year
10. RDT&E Funding Profile	10. RDT&E Funding Profile
11. Critical Technology Needed	11. Critical Technology Needed
12. Design to Cost	12. Cost Reduction

All major DOD weapon systems (that is those already in the inventory, in production, or being developed) and related technology for each mission area are included in the individual Mission Area Summaries. RDT&E funding projections are currently included for the budget year plus 6 additional years. A 15-year extended planning annex is also under consideration and for the fiscal year 1975 PPBS cycle the Military Departments have been directed to prepare initial drafts.

The Mission Area Summaries have been informally coordinated with the JCS's Joint Research and Development Objectives Document (JRDO). Furthermore, the summaries are recognized by the individual DoD Components even though they might not totally agree with the categorizations of weapon systems and/or technology. Weapon systems are listed and profiles of RDT&E funding related to the applicable mission area are indicated. They are also shown with respect to their collateral mission areas.

Mission Concept Papers

Mission Area Summaries should not be confused with Mission Concept Papers - three of the latter are being developed by the Office of the Director, Defense Research and Engineering with assistance from the services and OSD agencies. The Mission Concept Papers (MCP's) were recommended by the "Little Four"^{1/} in their report on Weapons Systems Costs dated December 19, 1972.

The Mission Concept Papers are an attempt to aggregate the already existing Mission Area Summaries and to increase the scope and detail analysis of inter-related factors affecting the acquisition process. Three MCP's are being developed as "trial balloons" since experience with Area Coordinating Papers showed that problems arise when formal, narrative presentations of activities that are common to more than one Service are attempted. The three pilot MCP's will address:

1. Strategic Offensive
2. Continental Air Defense
3. Theater Defense

^{1/} Consisted of the principal deputies of the DSARC membership

Issue Papers

Issue Papers are prepared each year by the Office of the Assistant Secretary of Defense (Program Analysis and Evaluation) for the Secretary of Defense, based upon a review of the Joint Force Memorandum and the Program Objectives Memorandums. These Issue Papers represent an independent view of these documents, and together with the Memorandums become the basis for the Secretary of Defense's Program Decision Memoranda (PDM) which are discussed in Chapter 1. The Issue Papers for fiscal year 1975 covered the following fiscal guidance and functional categories:

<u>Category</u>	<u>Originating Office</u>
1. Strategic Forces (Offensive and Defensive)	ASD(PA&E)
2. General Purpose Forces (Land, Naval, and Tactical Air Forces)	ASD(PA&E)
3. Military Assistance	ASD(ISA)
4. Research and Development	ODDR&E
5. Intelligence	ASD(I)
6. Telecommunications	ASD(T&CCS)

Issue papers of a different level and more restricted scope are also written by other DOD Components. These, however, are usually prepared in response to specific requests and not as a routine procedure.

Planning, Programming, Budgeting System

The funding of a major acquisition is obtained through the Planning-Programming-Budgeting System (PPBS) process. The interactions of the various planning, programming, and budgeting documents as well as a brief description of PPBS is provided as an appendix to this summary. Department of Defense Directive 7045.7, "The Planning, Programming, and Budgeting System," is also included as an appendix to this chapter.

PLANNING, PROGRAMMING, BUDGETING SYSTEM

NOTE This is an abridged version of an extract from "Fiscal and Life Cycles of the Defense Systems," General Dynamics, September, 1973

PLANNING, PROGRAMMING AND BUDGETING SYSTEM

The Planning, Programming, and Budgeting System (PPBS) can be summarized in a few words. The strategy is developed in consideration of the threat. Force requirements are developed to support the strategy. Programs are developed to provide, on an orderly basis, ships, aircraft, weapons systems and manpower over a period of time, with due consideration of the total cost to the nation. Lastly, funds must be budgeted in such a manner as to obtain the required forces and weapons systems within the resources that the nation provides.

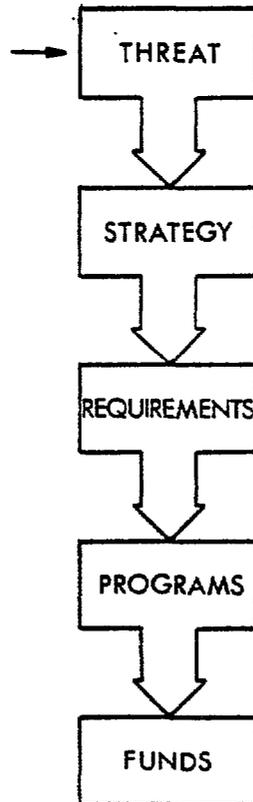


Figure 11-2
11-10

PLANNING, PROGRAMMING, BUDGETING SYSTEM

Implicit in the process outlined so briefly are the development of mid-range objectives, the conduct of special studies, and research and development of weapons systems and their support. In fact, all the resources of the services are drawn upon to formulate their plans, programs, and budgets.

Decisions pertaining to the planning, programming and budgeting process are made by the Secretary of Defense under the authority granted by the Defense Reorganization Act of 1958. This legislation gave the Secretary, under the policy guidance and direction of the President and the National Security Council, two distinct lines of authority. A direct line of command was established through the Joint Chiefs of Staff (JCS) to the unified and specified combat commands. A line for administrative control of the military departments and for management of support of military forces was established through the Secretaries of the Military Departments. Through the command line of authority, the Secretary issues decisions regarding threat appraisal, strategy and force structure. Through the administrative or management line of authority, he issues decisions regarding programming of resources to support the force structure and budgeting of annual funds to support programs.

The PPBS's organization and procedures are embodied in DOD instruction 7045.7. Its 1½ year cycle involves the following basic steps, the schedule for which is established each year by the Secretary of Defense (SECDEF).

- 1....JCS submit their strategy to SECDEF
- 2....SECDEF issues strategic guidance
- 3....JCS submit their forces plan to SECDEF based on the strategic guidance. This plan is not fiscally constrained but presents what is needed and what can be attained.
- 4....SECDEF issues fiscal guidance to the services and DOD Agencies by major force and support categories for each service and DOD Agency for each of the five program years.
- 5 ...JCS submit joint force recommendations, rationale and risk assessments, fiscally constrained consistent with SECDEF fiscal guidance.

PLANNING, PROGRAMMING, BUDGETING SYSTEM

- 6....Services and DOD Agencies submit their program objectives to SECDEF including forces and support, with rationale and risk assessment. These are also fiscally constrained consistent with SECDEF fiscal guidance.
- 7....SECDEF issues final program decisions after draft decisions have been commented on by the services and DOD Agencies.
- 8....Services and DOD Agencies submit their budget estimates for the fiscal year.
- 9....SecDef issues revised Program Budget Decisions, after the Services and DOD agencies have had an opportunity for reclamation.
- 10....SECDEF submits the DOD budget to the President through OMB, after joint meetings with JCS and Service Secretaries to discuss major unresolved budget issues.

PLANNING

Planning, the first phase of the PPBS, sets the pattern for the entire process. Planning starts with the assessment of the threat to the security of the United States and culminates with the projection of force objectives to assure the security of the United States. The projection of force objectives is limited only to feasibility of forces in being and capabilities of research and production to obtain forces in the future.

The major portion of the planning effort is accomplished within the Joint Chiefs of Staff area. The civilian officials of the Military Departments have no assigned or assumed responsibility in the planning phase of the PPBS.

The planning concept is to assess the world situation (friend and foe) at prescribed future time periods, technical capabilities required, military strategy to counter threats to the national security, and to state force objectives to satisfy the national strategy.

PROGRAMMING

The purpose of the programming phase is to translate the approved concepts and objectives, prepared during the planning phase, into a definitive structure expressed in terms of time-phased resource requirements including men, monies, and materiel. This is accomplished through systematic approval procedures that "cost out" force objectives for financial and manpower resources five years into the future, while at the same time displaying forces for an additional three years. This gives the Secretary of Defense, the Congress and the President an idea of the impact that present day decisions have on the future defense posture.

PLANNING, PROGRAMMING, BUDGETING SYSTEM

BUDGETING

The budget process is the final phase in the Planning - Programming - Budgeting cycle. The annual budget expresses the financial requirements necessary to support the approved forces and programs set forth under the first program year of the FYDP. While derived from the FYDP, budgets are expressed in greater refinement and detail than FYDP programs. The approved programs are those which evolve from incorporating all decision documents received through a pre-determined date announced by the annual Program/Budget review schedule memorandum. It is through the budget that planning and programming are translated into annual funding requirements. Each year's budget estimate, therefore, sets forth precisely what the DOD expects to accomplish with the resources requested for that year.

The budget process is divided into three phases:

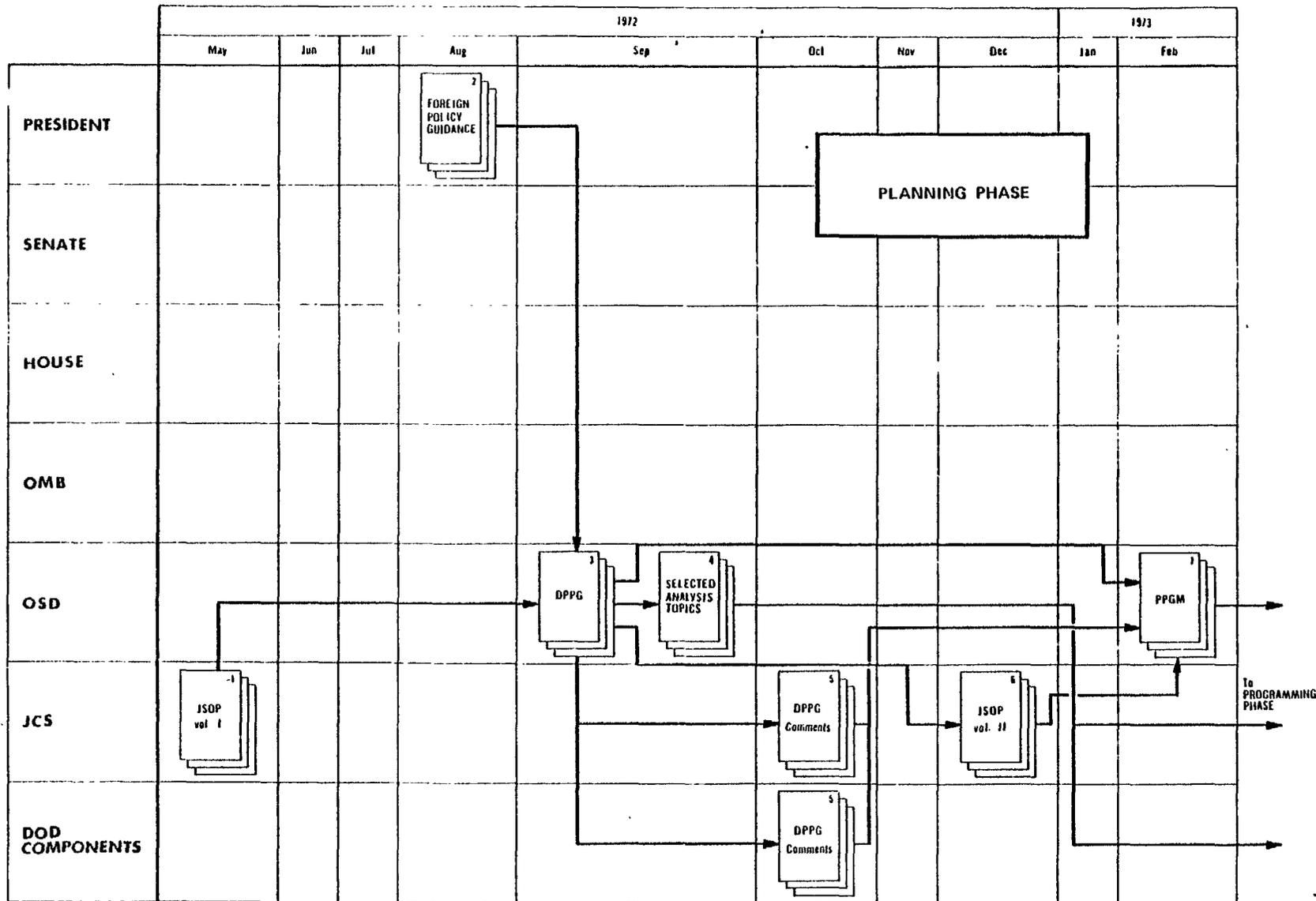
FORMULATION - planning and developing the budget for the fiscal year. The formulation phase begins when a call is issued for budget estimates to the defense components. This call is based on guidance from the Assistant Secretary of Defense (Comptroller). The formulation phase continues with review, modification, and with amendment, and final approval by SECDEF, the Office of Management and Budget (OMB) and the President.

JUSTIFICATION - presenting and justifying to the Congress the budget for the fiscal year which begins on the next 1 July.

EXECUTION - obligating and expending Congressionally appropriated funds for the current and prior fiscal years.

Budgets are formulated, justified and executed on the basis of appropriations. Appropriations are subdivided into budget activities, sub-heads, programs, projects, etc. The format and structure of the various appropriations are controlled by Congress and represent the manner in which Congress desires the agencies and departments to express requirements for funds.

**FISCAL CYCLE
FY 1975**



11-14

Figure 11-3

PLANNING PHASE

PLANNING PHASE (FIGURE 11-13)

(1) The Planning Phase starts in May each year with the issuance by JCS of Volume I of the JSOP (see page 5).

(2) In August the President normally issues his annual Foreign Policy Guidance.

(3) In September the SECDEF issues strategy guidance, called the Defense Policy and Planning Guidance (DPPG). The purpose of the DPPG is to provide in one document the definitive policy and planning guidance on which Defense planning and programming are to be based. It provides those essential national security policies, established or confirmed by the Administration, which guide the Defense program. It elaborates on those policies in force planning terms regarding the missions and tasks U.S. forces must be prepared to perform and the assumptions to be made in sizing forces and allocating resources. This guidance is based upon JSOP, Volume I, as amended to reflect decisions made by the President or those of SECDEF. All Defense planning and programming whether dealing specifically with PPBS cycle or not, is carried out in conformity with this guidance. In short, this is SECDEF's answer to JSOP Volume I.

(4) The Selected Analysis Topics are also issued in September by OSD. The studies required are assigned to the JCS and DOD Components and include such topics as:

- Army
 - Ammunition Production
 - Depot Maintenance
 - Peacetime Manning
- Navy
 - ASW Surveillance
 - Sortie Rate
- Air Force
 - Theater Air Defense
 - Sea Lane Defense
 - Tactical Support Jamming
- JCS
 - Capabilities of Lines of Communication
 - EMP Vulnerability

(5) In October OSD provides the JCS and the DOD Components an opportunity to comment upon the DPPG in the event that there are major differences in military objectives or in threat appraisals.

(6) In December, JCS issues JSOP Volume II (See page 6).

**FISCAL CYCLE
FY 1975**

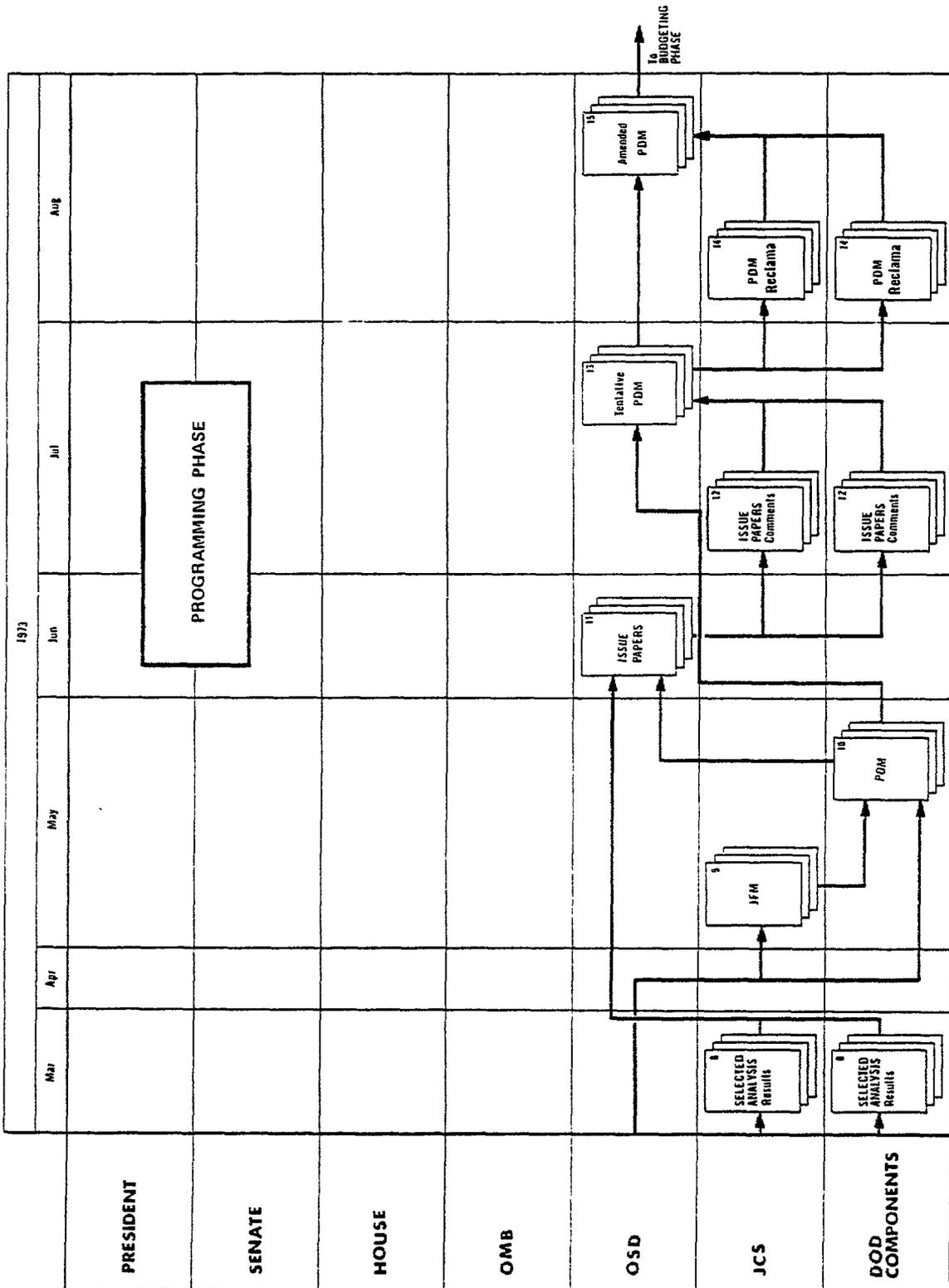


Figure 11-4

PROGRAMMING PHASE

(7) In February or early March SECDEF issues the Planning and Programming Guidance Memorandum (PPGM). The PPGM provides overall guidance for program development and contains five sections, namely;

- Defense Policy and Force Planning Guidance
- Fiscal Guidance
- Planning Guidance for Strategic and General Purpose Forces
- Materiel Support Planning Guidance
- POM Format Guidance

The first section is an update of the earlier issued DPPG.

The second section Fiscal Guidance, specifies the allocation of the resources which may be assumed to be available for the Defense Program. It provides Total Obligational Authority (TOA) limits for each of the DOD Components. Similarly, TOA limits are specified for each in the categories of Strategic Offensive Forces, Intelligence and Security, Support to Other Nations, CHAMPUS, Hospital Investment and total RDT&E. The third section is an elaboration of section one for strategic and General Purpose Forces. The section, Materiel Support Planning Guidance, ensures, within the Fiscal Guidance constraints, a reasonable balance between combat forces and materiel support capability (particularly for munitions) for U.S. forces and those of selected allies. It further requires an efficient allocation of resources between new procurement and maintenance of existing assets.

The fifth section Guidance for POM Preparation, is designed to ensure that the Program Objective Memoranda (POMs) provide an adequate description of the proposed programs and forces, the rationale for proposing these forces and programs, the readiness of those forces and their capabilities to support U.S. strategy, together with an assessment of the risks involved. The Joint Chiefs of Staff, and the DOD Components who have the initiative to propose programs, explain clearly why they are recommending these programs in terms of this Planning and Programming Guidance.

With the issuance of the PPGM, the Planning Phase is complete.

PROGRAMMING PHASE (Figure 11-4)

(8) The first action by the JCS and DOD Components is to submit, in March, the results of the studies they performed in reply to any Selected Analysis Topics assigned to each during the Planning Phase.

(9) In May the JCS submits the JFM (See page 5-18).

(10) The JFM is followed almost immediately by the individual DOD Components' Program Objective Memorandum (POM). The POM is the recommendation to the SECDEF for the detailed application of resources.

PROGRAMMING PHASE

The POM is developed within the constraints imposed by the PPGM, and the boundaries of the planning data presented by the JFM, to satisfy all assigned functions and responsibilities during the period of the FYDP. It is also the primary means of requesting revision to approved programs as published in the FYDP. Thus, new or revised programs no longer compete Defense-wide for the assignment of resources. Instead, they compete for inclusion within the POM under the overall fiscal constraints of the PPGM.

The POM is structured by the Major Mission and Support Categories and special program aggregations within the PPGM. It represents a comprehensive and detailed expression of the total resource requirements associated with the total commitment of a service.

Differences between the JFM and POM must be addressed including economic analysis, assessment of risks, and military advantages of the proposed programs as measured against the PPGM. Individual Major Mission and Support Category Summaries provide similar analysis of proposed programs as measured against those currently approved in the FYDP. Supporting detail is prepared in Program Element (PE) terms except that procurement listings structured by Major Mission and Support Categories. The POM is forwarded to SECDEF as a total package, and, upon submission, included programs are considered "locked". Changes are permitted only if they are timely enough to be considered with the initial submission, contribute significantly to effectiveness, and identify equal cost tradeoffs within previously submitted programs. The POM forms the basis for SECDEF's Program Decision Memorandum (PDM).

(11) The next step, in June, is the preparation by the ASD (Program Analysis and Evaluation) of the Issue Papers which analyze the Service Proposals, define the issues, usually cost, list the alternatives, and evaluate the capabilities, and costs of those alternatives.

(12) The Issue Papers are circulated to the JCS and DOD Components for comments before being submitted for decision to the SECDEF and Deputy SECDEF.

(13) After the SECDEF has reviewed both the POM's and the Issue Papers, he issues a series of tentative Program Decision Memoranda (PDM) for review and comment. These are distributed to the JCS and Heads of DOD Components for review and comment. These comments are appraised, and the differences between the SECDEF decisions and the objectives of the JCS and DOD Components are identified. Within the annual PFBS schedule, a date is scheduled for the discussion and resolution of these differences of objectives. Following these discussions those PDMs will be reissued in which a change has been agreed to by the SECDEF.

BUDGETING PHASE

The PDMs are prepared in the office of the Director of Defense Program Analysis and Evaluation (DDPAE) except for Research and Development and the Consolidated Defense Intelligence Program (CDIP) which are prepared in the office of the Director of Defense Research and Engineering (DDR&E) and the Assistant Secretary of Defense Intelligence (ASD(I)) respectively. The PDMs are presented to the Deputy SECDEF for review and tentative approval.

(14) The review comments provided by the JCS and DOD Components are appraised by the Deputy SECDEF and his staff, following which each PDM is forwarded to SECDEF for final approval.

(15) The issuing of the Amended PDM's by SECDEF completes the Programming Phase.

BUDGETING PHASE (Figure 11-5)

(16) & (17) Based on Budget Policies established by the President, the Office of Management and Budget (OMB) provides to the SECDEF budget guidance.

(18) This in turn is used to establish the Budget Guidance issued by the SECDEF to the DOD Components in August of each year.

(19) The DOD Components then have until October to submit their Proposed Budgets to SECDEF.

(20) Following this submittal and an analysis by the OSD a series of Budget Hearings are held attended by OSD, OMB and DOD Component Heads for resolution of problem areas.

(21) Based on the submitted Proposed Budgets and the Budget Hearing the SECDEF issues in late October, a series of Program Budget Decisions (PBD). The PBD is used to announce all budget decisions incident to the annual review of the Proposed Budget.

(22) Between October and December, the DOD Components and JCS have an opportunity to reclaim the PBD's.

(23) SECDEF then issues as necessary, revised PBD's.

(24) Any unresolved budget items remaining at this time are discussed in joint meetings between SECDEF, JCS and DOD Component Heads.

BUDGETING PHASE

(25) The SECDEF makes his final decisions and submits the proposed DOD budget to the OMB.

(26) The OMB combines it with all other Federal Budgets and presents it to the President for final review and approval.

(27) After approval by the President,

(28) the National Budget is formally submitted to the Congress in January, by the President, accompanied by his annual Budget Message, completing the Budget Phase.

FISCAL CYCLE
FY 1975

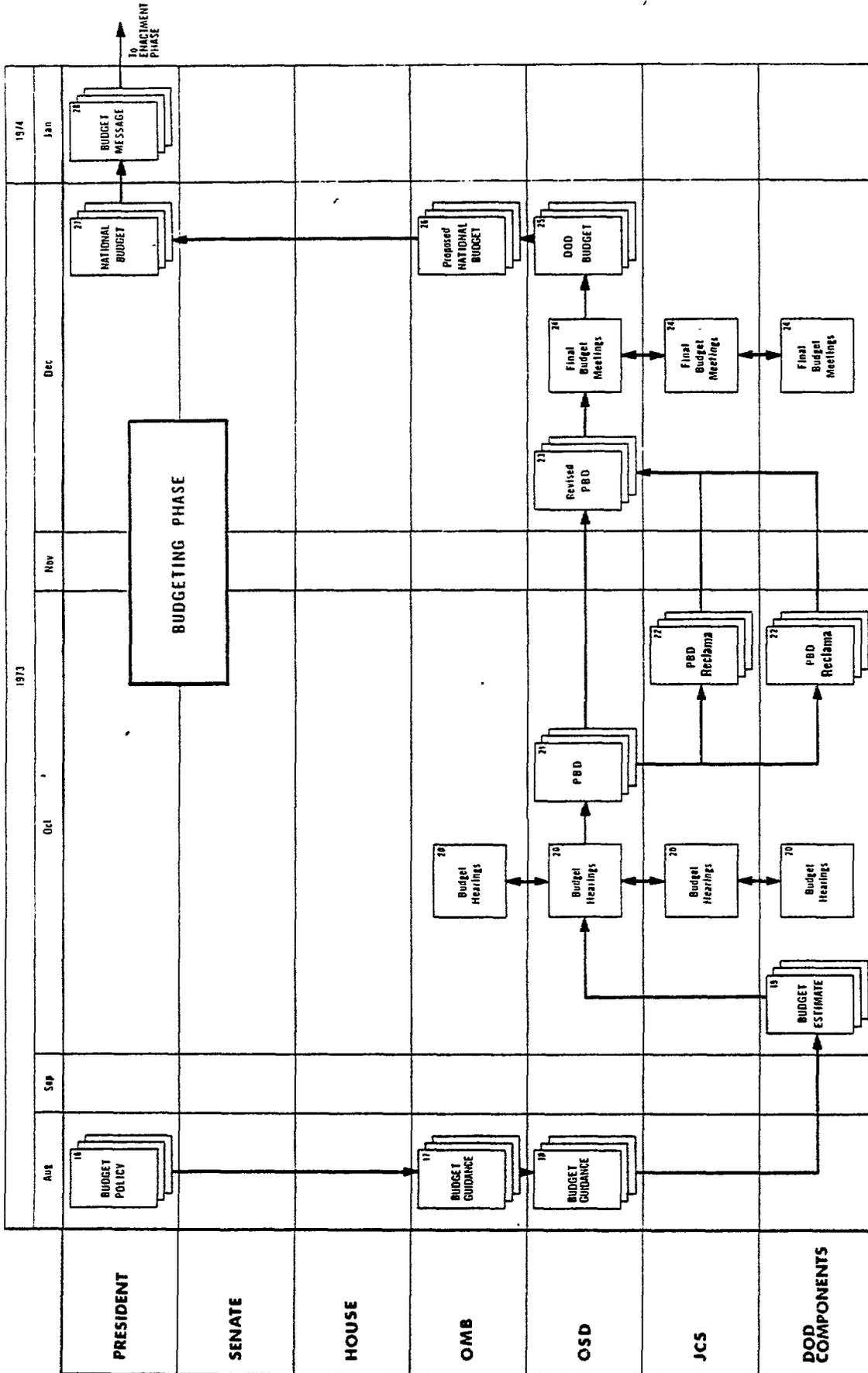


Figure 11-5

DEPARTMENT
OF
DEFENSE

DOD INSTRUCTION 7045.7

NUMBER 7045.7
DATE October 29, 1969

 Department of Defense Instruction

ASD(C)

SUBJECT The Planning, Programming, and Budgeting System

- Refs: (a) DoD Directive 7000.1, "Resource Management Systems of the Department of Defense," August 22, 1966
- (b) Sec Def Multiaddressed Memorandum, "Interim Operating Procedure (IOP) Number 1," June 21, 1969 (hereby cancelled)
- (c) DoD Instruction 7110.1, "Guidance for the Preparation of Budget Estimates, Budget Execution Programs and Apportionment Requests and Related Support Materials," August 23, 1968, and Manual (7110.1-M)
- (d) DoD Instruction 7060.2, "International Balance of Payments Program-Accounting, Reporting, Estimating and Establishing Targets," January 16, 1969
- (e) DoD Instruction 7041.3, "Economic Analysis of Proposed DoD Investments," February 26, 1969
- (f) DoD Instruction 7045.7, "Review and Approval of Changes to the Five Year Defense Program," December 22, 1967 (hereby cancelled)
- (g) DoD Instruction 7045.8, "Updating the Five Year Defense Program (FYDP)," May 23, 1968
- (h) DoD Instruction 7045.5, "Functional Reviews," August 31, 1965 (hereby cancelled)
- (i) DoD Instruction 7040.5, "Definition of Expenses and Investment Costs," September 1, 1966
- (j) DoD Directive 3200.__, "Development Concept Papers (DCP) System" (to be published)
- (k) DoD Instruction 7250.10, "Implementation of Reprogramming of Appropriated Funds," March 5, 1963

I. PURPOSE

This Instruction establishes procedural guidance for: (a) processing changes to the approved resources of the Five Year Defense Program (FYDP), (b) submission, analysis, review, and approval of new and revised Department of Defense programs and budgets, and (c) maintenance and updating of the FYDP structure. It authorizes the publication, maintenance, and review of the FYDP Codes and Definitions Handbook (7045.7-H) in support of reference (a).

II. APPLICABILITY AND SCOPE

- A. The provisions of this Instruction apply to all of the Department of Defense.

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- B. The scope of the Five Year Defense Program will include force, manpower and cost data and information covering the prior, current and succeeding fiscal years. The force structure will include data and information for the prior fiscal years, current fiscal year, budget year, and seven succeeding fiscal years. Cost and manpower data will be included for the prior fiscal years, current fiscal year, budget year, and the four succeeding fiscal years.

III. DEFINITIONS

- A. Approved Program - Resources (Forces, Manpower, Obligational Authority and Materiel) for individual program elements reflected in the FYDP, as modified by Secretary of Defense decisions.
- B. Budget Costs - Costing used in budget submissions as distinguished from costing used in programming documents, hereinafter referred to as programming costs. Budget costs represent the specific TOA requirements for funds in a particular fiscal period and generally represent a refinement of programming costs.
- C. Budget Year - That fiscal year arrived at by adding one to the current fiscal year. In fiscal year 1970, the budget year is fiscal year 1971.
- D. Program/Budget Review Schedule - An annual Secretary of Defense memorandum issued to announce the schedule of significant events impacting on the DoD decision-making cycle.
- E. Cost Category - One of three types of costs into which the total cost of a program element is divided: (1) research and development, (2) investment, and (3) operations. (See DoDI 7040.5, reference (i).)
- F. Development Concept Paper (DCP) - A document prepared by the Director of Defense Research and Engineering (DDR&E) and coordinated with key DoD officials providing a summary management document for the Secretary of Defense. DCPs reflect the Secretary of Defense decisions on important development and engineering modification programs. The document serves as a source of primary information and rationale and for updating the FYDP. (See reference (j).)
- G. Fiscal Guidance - Annual guidance issued by the Secretary of Defense which provides the fiscal constraints that must be observed by the JCS, the Military Departments, and Defense Agencies, in the formulation of force structures and Five Year Defense Programs, and by the Secretary of Defense staff in reviewing proposed programs.

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- H. Five Year Defense Program (FYDP) - The official program which summarizes the Secretary of Defense approved plans and programs for the Department of Defense. The FYDP is published at least once annually. The FYDP is also represented by a computer data base which is updated regularly to reflect decisions.
- I. Joint Force Memorandum (JFM) - A document prepared annually by the JCS and submitted to the Secretary of Defense which provides recommendations on the joint force program within the fiscal guidance issued by the Secretary of Defense.
- J. Joint Research and Development Objective Document (JRDOD) - A document prepared annually which provides the advice of the JCS to the Secretary of Defense concerning R&D objectives necessary to carry out the strategy and force recommendations in the JSOP.
- K. Joint Strategic Objectives Plan (JSOP) - A document prepared annually which provides the advice of the Joint Chiefs of Staff to the President and the Secretary of Defense on the military strategy and force objectives for attaining the national security objective of the United States. In addition to recommendations on major forces, it includes the rationale supporting the forces and assessment of risks associated therewith, costs and manpower estimates, and other supporting data. The JSOP is published in three volumes: I - Strategy, II - Analysis and Force Tabulations, and III - Free World Forces.
- L. Program - A combination of program elements designed to express the accomplishment of a definite objective or plan which is specified as to the time-phasing of what is to be done and the means proposed for its accomplishment. Programs are aggregations of program elements, and, in turn, aggregate to the total FYDP.
- M. Program Change Decision (PCD) - A Secretary of Defense decision, in prescribed format, authorizing changes to the Five Year Defense Program. (See Enclosure 3.) (Also see Program/Budget Decision (PBD).)
- N. Program Change Request (PCR) - Proposal in prescribed format for out-of-cycle changes to the approved data in the Five Year Defense Program. (See Enclosure 2.)
- O. Program Decision Memorandum (PDM) - A document which provides decisions of the Secretary of Defense on PDMs and the JFM.
- P. Program Element - A description of a mission by the identification of the organizational entities and resources needed to perform the assigned mission. Resources consist of forces, manpower, material quantities, and costs, as applicable. The program element is the basic building block of the FYDP.

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- Q. Planning/Programming/Budgeting System (PPBS) - An integrated system for the establishment, maintenance, and revision of the FYDP and the DoD budget.
- R. Program/Budget Decision (PBD) - A Secretary of Defense decision in prescribed format authorizing changes to a submitted budget estimate and the FYDP. (See Enclosure 3.)
- S. Programming Cost - Cost data for making program decisions. Programming costs are based on sets of factors which will provide consistent cost data under the same or similar circumstances, and which are directly related to the explicit elements of the program decision.
- T. Program Objective Memorandum (POM) - A memorandum in prescribed format submitted to the Secretary of Defense by the Secretary of a Military Department or the Director of a Defense Agency which recommends the total resource requirements within the parameters of the published Secretary of Defense fiscal guidance. (See Enclosure 1.)
- U. Program Year - A fiscal year in the Five Year Defense Program that ends not earlier than the second year beyond the current calendar year. Thus, during calendar year 1969, the first program year is FY 1971.
- V. Total Obligational Authority (TOA) - The total financial requirements of the Five Year Defense Program or any component thereof required to support the approved program of a given fiscal year.

IV. CANCELLATIONS

References (b), (f), and (h), are hereby cancelled.

V. PROGRAM/BUDGET REVIEW SCHEDULE

The Secretary of Defense will publish an annual memorandum providing a schedule of significant events for the current year. This memorandum will be issued prior to the submission of JSOP, Volume I, and will be revised as necessary. It will identify:

- A. The base program from which all proposed changes will be made by publication of "as of" date.
- B. The schedule for the submission of the Joint Strategic Objectives Plan (JSOP), the Joint Research and Development Objectives Document (JRDO), and the Joint Force Memorandum (JFM), by the Joint Chiefs of Staff.
- C. Specific dates for the submission of the Program Objectives Memoranda.

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- D. Schedules for the issuance of Secretary of Defense Strategic Guidance, Fiscal Guidance, Logistic Guidance, and Program Decision Memoranda.
- E. Dates for the submission of the DoD budget estimates.
- F. Identification of special reviews and studies to be conducted during the calendar cycle and identification of the primary action office.
- G. A date for the inclusion of an additional year to the FYDP.
- H. Date for the Major Budget Issue meetings between the Secretary of Defense, the Chairman of the Joint Chiefs of Staff, and the Military Department Secretaries. Date for similar meeting to discuss Major Force Issues will be announced by the Secretary of Defense as necessary by separate memorandum.
- I. Other items having an impact on the decision-making cycle.

VI. STRATEGIC OBJECTIVES

- A. The Joint Chiefs of Staff will prepare Volume I - Strategy, of the JSOP to be submitted to the Secretary of Defense. Volume I will provide the statement by the JCS of the national security objectives, based on decisions of the President, and the military objectives derived therefrom. It will include military strategic concepts and objectives on a world-wide and regional basis.
- B. The Secretary of Defense will review Volume I, JSOP, and will then issue appropriate guidance on strategic concepts for comment by the JCS. This guidance memorandum may update and/or enlarge upon the strategy in Volume I based on changes in national security objectives or commitments as provided by the President. When a change in national security objectives, commitments, or in strategy is indicated, the variation in risks, if any, will also be addressed. After review and consideration of the JCS comments, the Secretary of Defense will reissue the guidance memorandum which, along with Volume I, will serve as a planning document in the formulation of Volumes II and III, JSOP, the JFM, and the Program Objective Memoranda.

VII. FISCAL GUIDANCE

- A. Annually, the Secretary of Defense will issue tentative Five Year Fiscal Guidance to define the total financial constraints within which the DoD force structure will be developed and reviewed. The fiscal guidance will be by major mission and support category for each Military Department and Defense Agency. The first fiscal guidance will be issued for comment by the JCS, Military

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Departments and Defense Agencies, following the issuance of the final Strategic Guidance Memorandum. The Secretary of Defense will specify in the Fiscal Guidance the nature of the fiscal planning constraints, and the assumptions used in its preparation. After review of JSOP, Volume II, JRDOD, and comments on the general fiscal guidance, the Secretary of Defense will issue revised fiscal guidance. The Secretaries of the Military Departments will participate in the development of the revised fiscal guidance. In developing the revised fiscal guidance, consideration will also be given to the current budget, the FYDP, program deferrals, inflationary trends, gross national product estimates, and other economic considerations.

- B. For planning purposes, the totals of the fiscal guidance for each program year and each Military Department/Defense Agency will be considered firm. To insure increased flexibility in developing balanced programs, reallocations of funds are permitted between major mission and support categories unless specifically stated otherwise in the Secretary of Defense Fiscal Guidance Memorandum. Fiscal guidance will be used by the JCS in the formulation of the JFM and by each Military Department and Defense Agency in the formulation of their POMs.
- C. Fiscal guidance will normally identify specific major mission and support categories. On a selected basis additional program aggregations may be identified for separate visibility. These will be specifically identified in the Fiscal Guidance Memorandum. Representative examples of the major mission and support categories are: (1) Strategic Offensive and Defensive Forces, (2) Land Forces, (3) Tactical Air Forces, (4) R&D, and (5) Training.

VIII. PROGRAM OBJECTIVES

- A. Volume II - Analyses and Force Tabulations of the JSOP - will be published annually by the JCS with analysis, rationale, force tabulations, and program costs and associated manpower requirements as provided by the Services. Volume II will present the requirements and the recommendations for major forces for the mid-range period considered necessary to achieve the military objectives in support of the national security objective. It will be based on Volume I - Strategy - JSOP, and as may be modified by the guidance memorandum on strategic concepts issued by the Secretary of Defense. Also, Volume II will highlight major force issues which require decisions during the current year.
- B. Volume III - Free World Forces of the JSOP - will be published annually by the JCS in the same time-frame as Volume II. Volume III will provide advice on military objectives and guidelines for Free World Forces required, militarily, for the attainment of U.S. national security and military objectives. The analyses and recommendations presented in Volume III will be based on the

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strategic appraisals and regional concepts in Volume I and the Strategic Guidance Memorandum, and are designed to provide the basis for a U. S. position on military assistance.

- C. In addition to Volume II, the Joint Chiefs of Staff will develop and submit annually to the Secretary of Defense the Joint Force Memorandum. The JFM will present the recommended force levels and support programs, similar in format to Volume II, all developed within the parameters of the fiscal guidance issued by the Secretary of Defense. The JFM will include program costs and associated manpower requirements as provided by the Military Services. The JFM should be analyzed in accordance with reference (e) prior to submission. A summary will be included of analyses and assessment of risks associated with the forces as measured against the strategy and military objectives in Volume I and the Strategic Guidance Memorandum. Also, the JFM will highlight major force issues which require decisions during the current year. It will compare costs of the recommended forces and the support programs with the approved FYDP program baseline as stated in the annual Program/Budget Review Schedule. The JFM should be considered by the Military Departments and Defense Agencies to assist in the preparation of their POMs.
- D. The Joint Chiefs of Staff will develop and submit annually the Joint Research and Development Objectives Document (JRDOD) to the Secretary of Defense. The JRDOD will provide R&D objectives responsive to the strategy and force recommendations in the JSOP as well as long-range and technological objectives for capabilities expected to be needed in the 10-20 year period. Indicators of relative military importance and appropriate rationale will be included to assist in developing the DoD R&D program and in the preparation of Development Concept Papers (DCPs).
- E. Annually, each Military Department and Defense Agency will prepare and submit to the Secretary of Defense a Program Objective Memorandum (POM). POMs will be based on the Strategic Guidance as stated in the JSOP, Volume I, as modified by Secretary of Defense Strategic Guidance Memorandum. POMs will express total program requirements and should be analyzed and evaluated where applicable in accordance with DoDI 7041.3 (reference (e)). POMs must provide force, manpower cost and materiel recommendations, and rationale for proposed changes from the approved FYDP base and the JFM, and the risk assessment and military advantages to be gained. Costs will be programming costs within the scope of fiscal guidance issued by the Secretary of Defense. Supporting information for POMs will be in program element terms except

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that procurement for other than major weapons systems may be provided in form of procurement listings.

- F. POMs may be revised after submission when the originator believes that such a revision will result in a better balanced program. Recommended POM changes should be made only when the change may be completely processed to permit analysis with the originally submitted POM, that is, in advance of a Secretary of Defense decision on a POM. POM revisions will include an identification of equal cost trade-offs within annual Military Department/Defense Agency totals to preclude increases to the fiscal constraints. POM revisions will identify equal or greater effectiveness in addition to cost trade-offs.
- G. When changes cannot be processed in time to be included in a Secretary of Defense Program Decision Memorandum for a specific program, such changes will be processed to the Secretary of Defense using a PCR provided the change will increase military readiness significantly and is considered of such an urgent nature to require Secretary of Defense review out of cycle, or involve inter-Service functional transfers which create manpower authorization increases to end-year strengths. (See paragraph XII.B.2.)
- H. The Secretary of Defense will direct an annual staff review of Volumes II and III, JSOP, JRDOD, the JFM, and POMs. Based on the review, the Secretary will issue appropriate Program Decision Memoranda.
- I. The specific PDM issue dates will be announced by the Secretary of Defense in the revised annual Program/Budget Review Schedule memorandum. Each PDM and DCP will be supported by a "resource annex" which will provide a translation of resources to program elements in the FYDP. Decisions will be transmitted to the JCS, Military Departments and Defense Agencies as appropriate for analysis, the submission of comments, and updating of the FYDP.

IX. COMPONENT COMMENTS

- A. Within two weeks after receipt of each Program Decision Memorandum, the JCS, Military Departments and Defense Agencies, as appropriate, will submit comments to the Secretary of Defense. Comments should be basically narrative and will address each issue to insure that the views of the JCS, Service Secretaries, and Defense Agency Directors, are represented.
- B. Comments may be prepared in a manner prescribed by the submitting activity, but will present the extent of program impact that may be expected as a result of the decision. If a dissenting view is expressed, any additional or clarifying information or justification not stated in the POM should accompany the statement to allow a re-evaluation of the issue.

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- C. Comments submitted by the JCS will address the total DoD program balance as weighed against the Joint Force Memorandum. JCS would be expected to advise the Secretary of Defense with an assessment of the risks involved and inherent in the tentatively approved programs and provide an evaluation of any strategic implications resulting from the program if adopted.
- D. The Secretary of Defense will direct a staff review of all comments. Program Decision Memoranda will be modified by reissue of page changes to the original PDM to incorporate any new decision.

X. DECISION IMPLEMENTATION

- A. Secretary of Defense decision documents will provide the basis for the updating of the FYDP data file by the Military Departments and Defense Agencies. Military Departments and Defense Agencies will apply the approved forces, manpower and cost data to the FYDP data file, as stated by the decision, by program element. Decisions will be applied to the FYDP data base as outlined by paragraph VI.B of DoD Instruction 7045.8 (reference (g)), even though their comment to the Secretary of Defense may express a dissenting position.
- B. On an "as required" basis, the ASD(C) will issue a PCD which will direct FYDP updates to be submitted. PCD will include any special update and program structure changes necessary for the specific update. Military Departments and Defense Agencies will maintain their FYDP data files as prescribed by DoDI 7045.8 (reference (g)) to insure a rapid response to a specific update request.

XI. BUDGET ESTIMATES

- A. Annually, each Military Department and Defense Agency will submit its budget estimate to the Secretary of Defense in accordance with reference (c), DoDI 7110.1 and 7110.1-M. These budget estimates will include the budget year and the two prior fiscal years in accordance with currently established procedures. Budget estimates will be submitted based on the approved program resulting from incorporating the effects of all decision documents received through a predetermined date to be announced by the annual Program/Budget Review Schedule memorandum. Specific detailed instructions for the submission of budget estimates will be separately prescribed for each year.
- B. The Secretary of Defense will direct a staff review of the budget estimates received from the Military Departments and Defense Agencies. Based on the review and analysis of budgets, the Secretary of Defense will publish a series of Program/Budget Decisions. Budget decisions will address specific budgetary

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issues and be related to the appropriations and budget activity structure of the Department of Defense. PBDs will include the budget year and prior years as appropriate. The decision record of the PBD will also include an estimate of the impact of the PBD on the next program year.

- C. PBDs, including the decision record, will be transmitted to the Military Departments and Defense Agencies for insertion of the PBD and decision record into the FYDP. Reclama statements may be submitted to the Secretary of Defense but should be submitted only if the impact is considered to be sufficiently serious to warrant the personal reconsideration by the Secretary of Defense. Budgetary reclama statements must be concise, complete, and based on new facts or justification not previously submitted in order to provide a basis for a re-evaluation of the decision. The Secretary of Defense will direct a staff review of all budgetary reclama statements and will issue a specific decision for each reclama.
- D. In addition to the submission of reclama statements, Service Secretaries will identify major budget issues to the Secretary of Defense after completion of their review of the PBDs. Issues must be of sufficient priority in the opinion of a Service Secretary to warrant a personal Secretary of Defense and Service Secretary discussion. A Major Budget Issue meeting will be scheduled and announced in the Secretary of Defense Program/Budget Review Schedule memorandum. Decisions of the Secretary of Defense resulting from this meeting will be addressed in revisions to previously issued PBDs.

XII. APPROVED PROGRAM CHANGES

- A. The receipt of a PIM, DCP, PCD, PBD, DD Form 1415, or Secretary of Defense memorandum reflecting the decision of the Secretary of Defense will constitute a new approved program base when entered into the FYDP by the Military Departments and Defense Agencies. Changes to the approved base for the budget and program years will be made only by subsequent PIMs, PCDs, DCPs, or PBDs, or by Military Departments or Defense Agencies within the established thresholds of this Instruction. DCPs will be entered into the FYDP and data reviewed and approved by DDR&E. Data changes will be announced by DDR&E using PCDs or addressed in the R&D PIM.
- B. Subsequent to the receipt of a PIM and prior to the next Military Department or Defense Agency POM submission date, Secretaries of the Military Departments and Directors of Defense Agencies will be permitted to make changes to the FYDP without prior approval by the Secretary of Defense when such changes are confined within the following thresholds, and as further qualified by subparagraph C, below:

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1. Forces

Current Year - Only those changes within the approved TOA subject to the limitations imposed by DoDI 7250.10 (reference (k)).

Budget and Program Years - Any force change within or among elements within available inventory not requiring additional TOA or manpower. Forces will be identified as those forces approved by the current Secretary of Defense Program Decision Memorandum.

2. Manpower

Current Year - Only those changes within the total manpower end-year strengths. Includes the transfer of both military and civilian authorizations and drill pay among elements.

Budget and Program Years - Only those changes where the net effect will not increase the total military or civilian end-year strengths. Changes which are the result of inter-Service agreements for functional changes and authorizing manpower in excess of 100 military or 100 civilians for a gaining Military Department, or 25 military or 25 civilians for a gaining Defense Agency, OSD or JCS, will not be accomplished until a confirmation PCR has been submitted by the gaining activity, and the transfer is approved.

3. Costs

Current Year - Any change within the approved TOA subject to the limitations imposed by DoDI 7250.10 reprogramming actions.

Budget Year - During the period July through December changes may be made within the approved TOA by cost category unless such authority has been negated in the annual budget estimate submission instructions or by separate memorandum. During the period January through June, no changes will be made since the President's Budget will have been established and submitted.

Program Year - Except as outlined by specific R&D decision documents or negated by other OSD authority, changes may be made within the approved TOA by appropriation.

- C. FYDP changes for the budget and program years which are accomplished by the Secretaries of the Military Departments and Directors of Defense Agencies are permitted without explanation only when such changes for a program element remains below a cumulative total for a single fiscal year of ten million dollars or, in the case of

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manpower, below 300 military or civilian authorizations. Military Departments and Defense Agencies are required to submit a memorandum to OASD(C) to accompany the FYDP update in which the change is recorded explaining the changes which have exceeded the cumulative TOA or manpower change thresholds since the last explanatory memorandum.

XIII. LIMITATIONS

Approval of programs will not constitute authority to either commit or obligate funds.

XIV. FYDP HANDBOOK

The FYDP handbook authorized by this Instruction will be revised quarterly and revisions distributed by ASD(C). The handbook is the official presentation of the DoD Program Structure and will contain approved codes and titles used in updating the FYDP data file.

XV. IMPLEMENTATION AND EFFECTIVE DATE

This Instruction is effective January 1, 1970. Three copies of each Military Department's and Defense Agency's implementing documents will be forwarded to ASD(C) within ninety days after the effective date.

R. E. Moor

Assistant Secretary of Defense
(Comptroller)

CHAPTER 12

INFLUENCE OF OPERATIONS RESEARCH/SYSTEMS ANALYSIS

Planning the "needs and requirements" of the Defense Components, especially for the long term, necessitates the participation of systems analysis or operations research staffs. In regard to weapon systems, systems analysis is concerned with buying the best or most effective system for the money; whereas, operations research is usually associated with obtaining the most effective use of what is on-hand. ^{1/}

The influence of system analysis/operations research becomes increasingly important in view of GAO's interest in the process by which the Department of Defense identifies needs and establishes requirements for major weapon systems. In their role as advisors to defense planners, the systems analysis and operations research staffs can provide independent information upon which more sound decisions can be made. The discussion below deals with the systems analysis/operations research function and how it impacts on the needs and requirements area.

^{1/} A more detailed description of the role and purpose of systems analysis and operations research is included in Appendix 1 to this Chapter.

Cost-Effectiveness

The primary tool of systems analysis is the cost-effectiveness comparison of alternative systems to satisfy a need or set of requirements. In the past decade, the Department of Defense has made considerable use of cost-effectiveness studies in selecting and acquiring new weapon systems costing billions of dollars.

In the general sense, cost-effectiveness should include all factors that relate to the overall system cost and effectiveness. Cost should include operating as well as acquisition costs, and indirect as well as direct costs. Effectiveness should include system reliability, availability, responsiveness, performance and survivability. Cost-effectiveness comparisons are usually made between alternative systems designed to meet a set of operational requirements.

Previous GAO reports have pointed out that cost-effectiveness studies are subject to abuse or misuse. These reports claim that the cost-effectiveness studies for weapon systems reviewed by GAO appeared to be designed to support the position of the advocating service in that:

- Known alternatives were excluded
- Stated assumptions were too restrictive or were not completely valid
- Available data on alternatives were not considered, and, as a result, incomplete studies amounting to misleading information were furnished for decisionmaking purposes.

Rather than criticizing systems analysis for the abuses and misuses made of cost effectiveness studies, we feel that this discipline should be commended for helping to expose any defects in the logic used for justifying requirements.

The cost-effectiveness technique is of great value in illuminating the issues. It forces advocates of a proposed weapon system to examine and record the real need, the alternatives, the related costs, and the assumptions considered in making a proposal. Thus, it provides the DoD decisionmaker with a substantial amount of information which is helpful in reaching a decision at a very early phase of the acquisition process.

Models

The essence of operations research analysis and an important tool of systems analysis is the construction of a model to study and make predictions about the real world. A model abstracts the relevant features of the situation by means that may vary from a set of mathematical equations or a computer program to a purely verbal description of the situation in which intuition alone is used to predict the consequences of various choices.

Models are used to simulate, "game", or study complex problems or situations involving (1) performance of equipment or systems, (2) policies, strategies, and tactics, and (3) force structures, including the determination of optimum size and appropriate mixes of personnel and weapons. Their purpose is to provide decisionmakers with results that should present objective and statistically reliable bases for decisions in these areas.

Analysts Role In Needs/Requirements Process

There has been an evolution within the Defense Department from the primary use of Federal Contract Research Centers to perform systems analysis studies to the development of in-house systems analysis capability to reduce the Services' dependence on outside agencies. However, a good deal of systems analysis is still being done by FCRCs and other outside agencies that contributes either directly or indirectly to the needs/requirements process. These outside agencies should be considered when planning or doing a needs/requirements audit. ^{1/}

We found that systems or operations analysts contribute in three general ways to the requirements process. The first is in performing studies to provide guidance in defining the need for new capabilities whether they be a new type aircraft, support system or division organization. The second is in performing studies to assist in establishing requirements for specific weapon or support systems and in comparing candidates that meet the requirements. The third is in critical review of systems analysis studies and other data provided to justify the need for and the selection of a given system alternative to fill that need.

We found that both in-house and outside systems and operations analysts are generally employed in an advisory capacity and usually do not have a formally defined role in the needs/requirements process. The way in-house analysts are used, however, varies between services and DoD

^{1/} A list of current FCRCs is included as Appendix 2 to this Chapter.

agencies. Analysis groups are located at all levels and in all parts of the Services and DOD and their contribution to the requirements process is significant. In this survey, we looked only at the contributions of systems and operations analysis groups at the highest levels of decision-making within the Services and DOD. Of the groups included in our survey, the Assistant Secretary of Defense, Program Analysis and Evaluation (ASDPA&E) and Navy Systems Analysis Division (OP-96) appear to play the most direct role in the needs/requirements process. In another review,¹ GAO is looking at the contribution of analysts within various Service Laboratories to the needs/requirements process.

Systems Analysis Groups

The defense systems analysis community can be divided into six categories:

- (1) Defense Department In-House Groups
- (2) Federal Contract Research Centers (FCRC)
- (3) Independent Non-Profit Groups
- (4) Independent For-Profit Groups
- (5) Industry Groups

We have so far discussed only the first two categories: the In-House and FCRC groups. The independent non-profit and for-profit systems analysis groups perform studies on a contractual basis. Their role has evolved over the years from primarily performing cost-effectiveness comparisons of alternative systems to one of primarily developing analytic models (e.g. computer simulations) and inputs for In-House Defense group studies. The industry systems analysis groups also do

¹Analytical Activities at development centers relating to major weapon system acquisition, Code 951055, Survey Summary, December 1973.

studies on a contract basis for the Defense Department but most of the analytic work of these groups is in support of defining and selling hardware for their company.

In this survey, we concentrated on determining the influence of in-house systems and operations analysis groups on the requirements process. We identified and interviewed some of the key groups reporting to the Office of the Secretary of Defense and the Joint Chiefs of Staff, and other key groups reporting at the Department Secretary and Service Chief levels within the Army, Navy, and Air Force. The following is a list of the in-house systems analysis and operations research groups that were included in our survey:

1. Office of the Assistant Secretary of Defense for Program Analysis and Evaluation, Department of Defense.
2. Studies Analysis and Gaming Agency, Joint Chiefs of Staff
3. Office of the Deputy Under Secretary of the Army
(Operations Research)
4. Systems Analysis Division, Program Planning Office, Office of Chief of Naval Operations.
5. Office of the Air Force Assistant Chief of Staff - Studies and Analysis.

Figure 12-1 shows the relationship of these and other analysis groups to the Department of Defense. A discussion of our observations follows:

Department of Defense

The Office of the Assistant Secretary of Defense for Program Analysis and Evaluation is the successor to the Office of the Assistant Secretary

of Defense for Systems Analysis which, for a time in-between was the Office of the Director, Program Analysis and Evaluation. The Office is heavily involved in both "obtaining approval for the Service's total program and obtaining recommendation for approval from DSARC" as described in other chapters in this summary. In particular, it is involved in evaluating the completeness and validity of analysis performed by the Services in support of new program decisions and also in preparing independent analyses on needs and requirements for missions which cross Service lines.

Issue Paper Preparation

The defense budget is arrived at through a series of iterations in which ASD(PA&E) plays a key part as the analytic advisor to the Secretary of Defense. In April and May, as described in the Appendix to Chapter 11, the Joint Chiefs of Staff issues the Joint Force Memorandum (JFM) and the Services submit Program Objective Memoranda (POM) to the Secretary of Defense. During June thru August, the Office of the Assistant Secretary of Defense for Program Analysis and Evaluation writes Issue Papers to the Secretary of Defense as a result of reviewing the JFM and POMs.

These issue papers cover:

- (1) Strategic Forces (Offensive and Defensive) and
- (2) General Purpose Forces (Land, Naval and Tactical Air Forces).

The Office also coordinates the efforts for issue papers in the following mission areas:

- (1) Military Assistance
- (2) Research and Development

DOD AND OTHER SYSTEM ANALYSIS AGENCIES

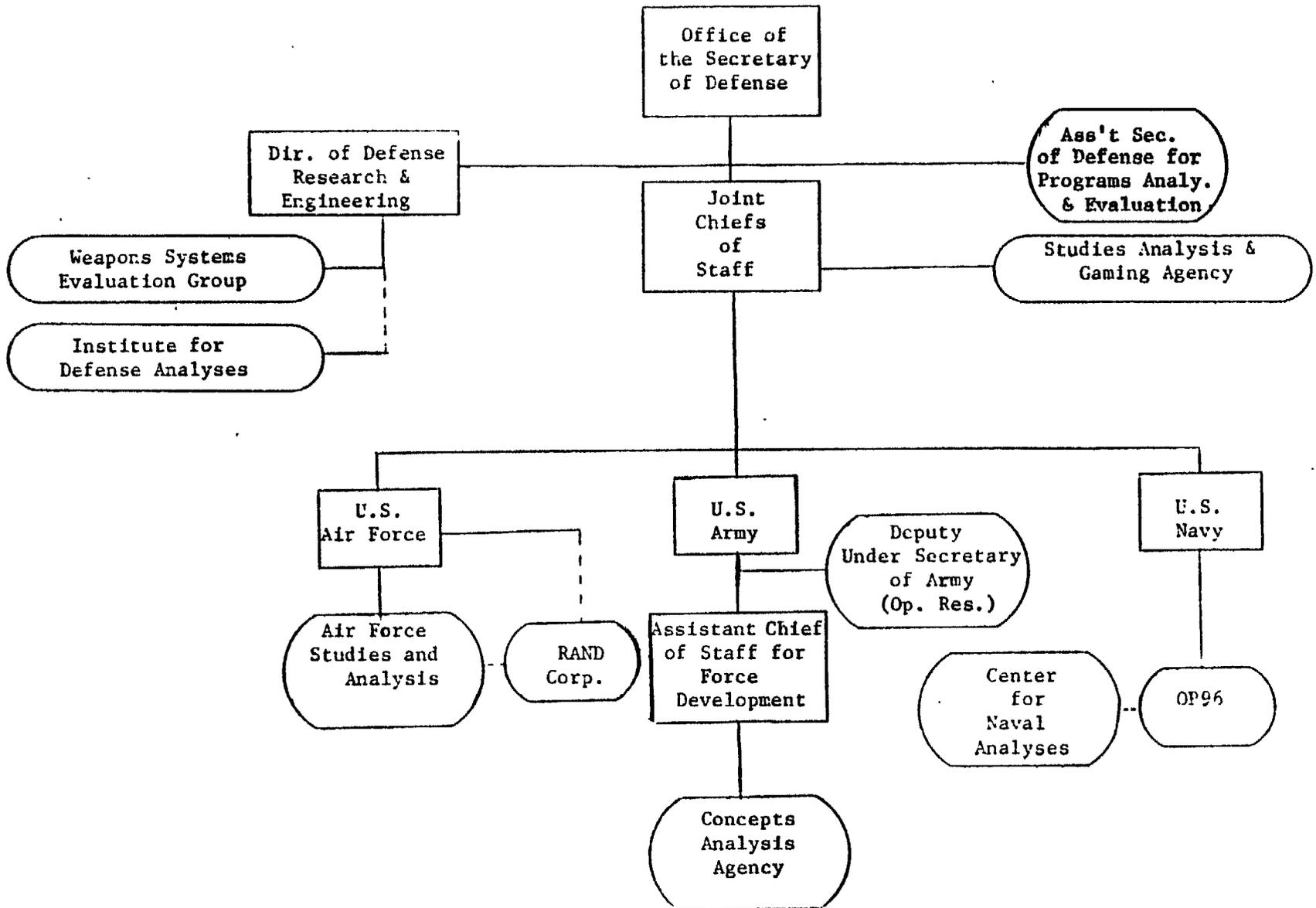


Figure 12-1

(3) Intelligence

(4) Telecommunications

In August and September, the Secretary of Defense issues Program Decision Memoranda (PDM) based on the JFM, POM, and ASD(PA&E) Issue Papers.

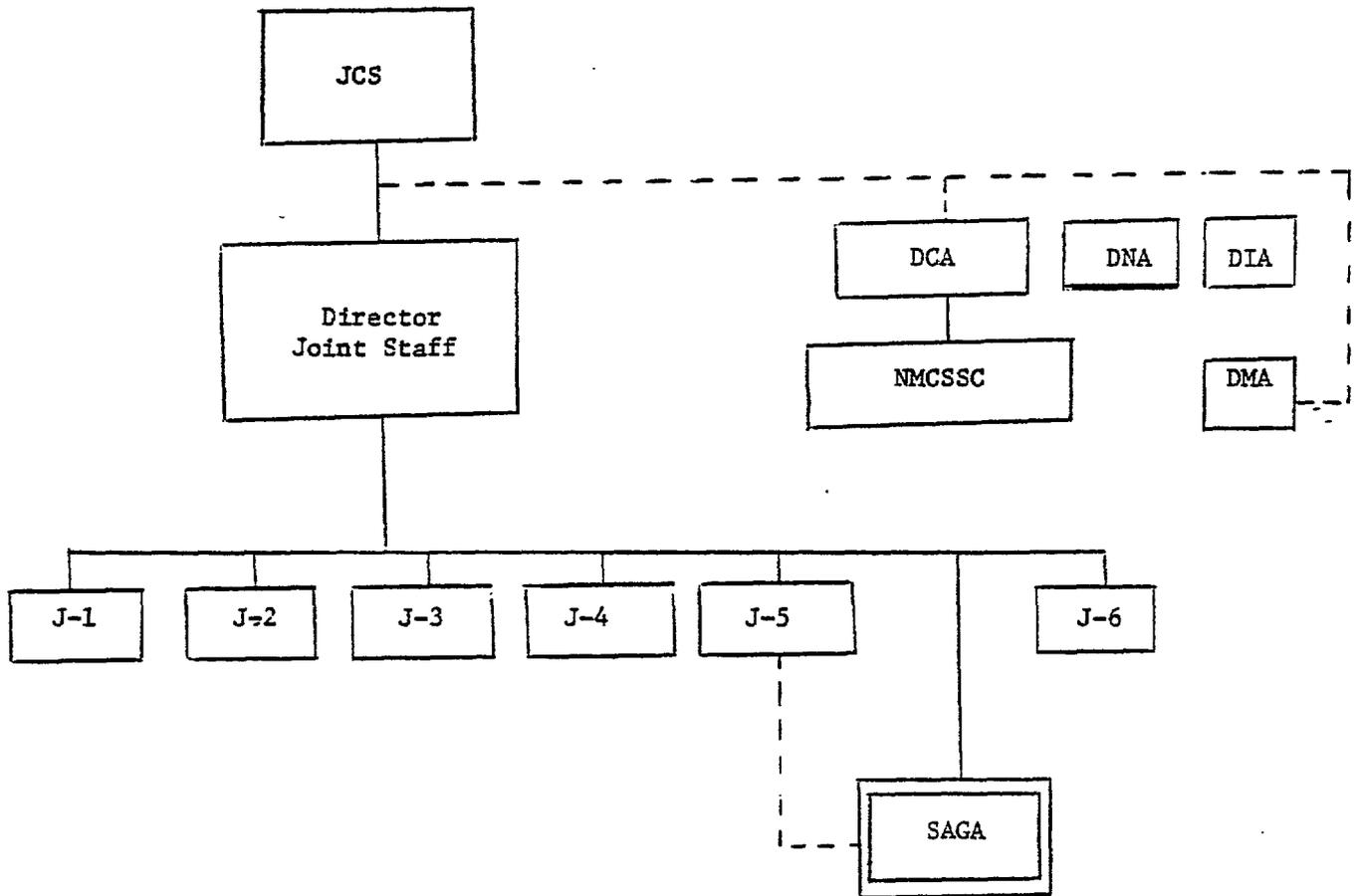
DSARC Membership

The Assistant Secretary of Defense for Program Analysis and Evaluation is a member of the DSARC, and in this capacity, he is to consider the need and cost of the proposed system. The biggest job of his office is to evaluate the information presented by the Services and others. The office gives particular attention to the analysis performed on all pertinent alternative solutions. It reviews the Services' analyses (i.e. models, games and simulations) and performs some limited analyses on its own. This includes checking the threats, scenarios, and assumptions used in the Services' analyses.

Other Activities

ASD(PA&E) works closely with the Office of Management and Budget (OMB) on various issues. His office addresses primarily the period out to 5 years. However, even though they consider it hard to forecast the threat much beyond 5 years, they are starting a program for extended planning annexes to the FYDP that goes as far out as 15 years in the future. This program is primarily to help R&D planning. In a Selected Analysis Topic this year the Secretary of Defense has requested each service to provide a 10-year extended annex to the 75-79 FYDP on both a fiscally and force size constrained basis. Thus the 1975-1979 FYDP would have an extended

JCS ORGANIZATION



- DCA --Defense Communications Agency
- DIA --Defense Intelligence Agency
- DNA --Defense Nuclear Agency
- JCS --Joint Chiefs of Staff
- NMCCSSC --National Military Command System Support Center
- SAGA --Studies, Analysis, and Gaming Agency
- DMA --Defense Mapping Agency

Figure 12-2

annex from 1980 to 1990. Since the normal development cycle of a new system is 6-10 years, the extended planning annexes provide a rough long-range view of the impact of proposed new systems on the future force structure.

ASD(PA&E) is working with the Studies Analysis and Gaming Agency (SAGA), Weapons Systems Evaluation Group (WSEG), and the Services to keep track of major models, and to develop and use a common data base for such things as threat scenarios, Allies, and force readiness.

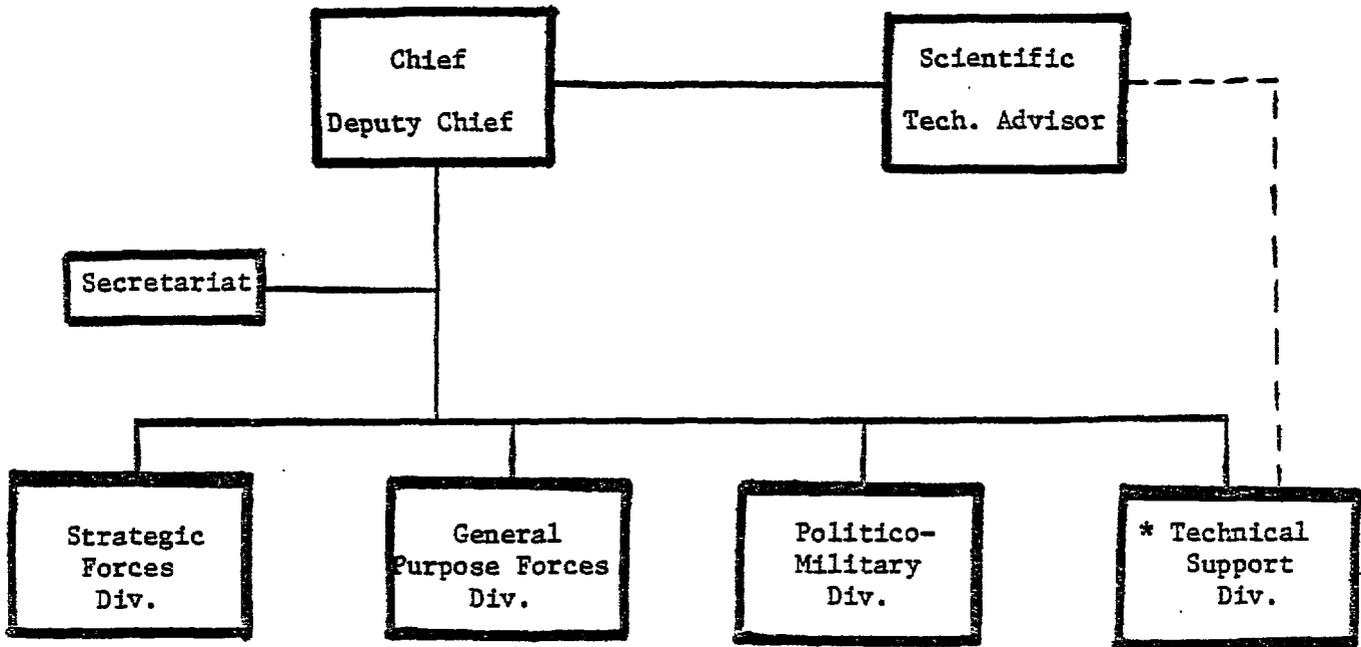
Joint Chiefs of Staff

The Studies, Analysis, and Gaming Agency, an internal DoD organization, performs studies by request for the Joint Chiefs of Staff (JCS) and others. The studies are primarily concerned with the near term (that is from the present to 5 years in the future). SAGA has about 65 professional analysts.

The mission of SAGA is to analyze potential problems using military judgement and such analytic tools as simulations. SAGA is the result of a 1970 merger between the Joint War Games Agency and the Chief of Staff Study Group. SAGA also inherited some of the work of the Joint Continental Defense Systems Integration Planning Staff (JSIPS) when it was dissolved over a year ago.

SAGA reports to the Director of the Joint Staff of JCS but performs most of its studies for J-5 (Plans and Policy). Figure 12-2 shows SAGA's position within the JCS organization. The National Military Command

SAGA ORGANIZATION



* Scientific Technical Advisor is double-hatted as head of the Technical Support Division

Figure 12-3

System Support Center (NMSSC) which reports to Defense Communications Agency (DCA) provides SAGA with computer support. Figure 12-3 gives the organization of SAGA.

The Strategic Forces Division of SAGA consists of the following four branches:

- (1) Current Forces Studies and Analysis Branch
- (2) Future Studies and Analysis Branch
- (3) Strategic Defense Evaluation Branch
- (4) Systems Support Branch

Recurring projects assigned to the Strategic Forces Division are:

- Generate RISOP (every 6 months)
- General War Plan Analysis (SIOP/RISOP) ^{1/}
- Provide JSOP/JFM Support (J-5)
- Offensive/Defensive Analysis
- Monitor Model Performance

Several non-recurring, classified title projects are also currently being performed by the division. In the studies, the threat is received from DIA and scenarios are provided by the study sponsors. SAGA attempts to do sensitivity and risk analysis around the threat, scenario and assumptions provided for each study.

The General Purpose Forces Division consists of the following four branches:

- (1) NATO Branch
- (2) Force Analysis Branch
- (3) Tactical Nuclear Branch
- (4) Systems Support Branch

^{1/} RISOP - Red Integrated Strategic Offensive Plan
SIOP - Single Integrated Operation Plan

The General Purpose Forces Division has no recurring projects. It performs studies and analyses of alternative strategies, force structures and weapons systems to support JCS and other agencies. Currently, the G.P. Division is studying Mutual and Balanced Force Reductions (MBFR) for the National Security Council, and Capabilities to Reinforce Europe and Effectiveness of TacAir in a Nuclear Conflict for the SECDEF. Several other tasks were mentioned that were also concerned with European defense.

The following list represents the types of simulation models that the General Purpose Forces Division keeps on hand for its studies. Improved simulations for air/ground interaction and land force weapon attrition are being developed.

- (1) Land Forces
- (2) Tactical Air
- (3) Merchant Ship Attrition
- (4) Reinforcement
- (5) Tactical Nuclear

The Politico-Military Division is also task-oriented with few recurring projects. It uses war gaming techniques to simulate high level decisionmaking during crisis situations. This involves Red and Blue teams plus a Control team. These teams are made up of cabinet level personnel, ambassadors, and others drawn from various U.S. government agencies. Participating agencies include:

- White House Staff
- State Department
- Defense Department
- Treasury
- Military Service
- Arms Control & Disarmament Agency
- CIA
- National Security Agency
- Unified & Specified Commands
- AID
- U.S. Information Agency

The purposes of the games are to:

- Identify potential world trouble spots
- Encourage original thinking and new concepts
- Identify issues, problems, and opportunities
- Reinforce contingency plans

The first Politico-Military Simulation was conducted in 1962. Since then, an average of 3 to 4 simulations have been performed each year. Geographical areas covered include Asia, Europe, Africa, SEA, and India. The subjects treated include strategic balance, tactical nuclear war, and disarmament.

The Technical Support Division consists of a Strategic Forces Technical Support Branch and a General Purpose Forces Technical Support Branch. The purpose of the new division is to fill SAGA's needs for a faster response in terms of analyses. Also, the Support Division will try to make better use of the computer state-of-the-art in SAGA studies and will provide the link to the following agencies that support SAGA:

- . Defense Communications Agency (NMCSSC) (Techniques, Computer, Contractor)
- . Weapons Systems Evaluation Group/Institute for Defense Analyses (Techniques & Research)
- . Defense Advanced Research Projects Agency (Research)
- . Defense Nuclear Agency (Research)
- . Defense Documentation Agency (Documents)
- . NAVY (SIOP-RISOP Simulation & Computer Support)

The following general observations were made about SAGA in response to GAO questions:

- . SAGA doesn't usually get into costs
- . SAGA works closely with NATO people (British & German through Shape Technical Center)
- . For study assumptions, SAGA tries to take the middle-of-the road and to provide some coverage of extremes.
- . Most of SAGA studies are available to the Services

Army

The Office of Deputy Under Secretary of the Army (Operations Research) has specific roles in the Army study program but only a broad advisory role in the requirements process. It does not have a counterpart in either the Navy or Air Force at the Secretary level. Although a small group (two military officers and five civilian analysts), the Office is active in the requirements process both as a reviewer and as a proponent of analytic models, studies, operational tests and field experiments, and new systems. About one-third of their efforts are applied to reviewing weapon systems hardware requirements, about one-third to

managing weapon systems acquisition, studies, testing and PPB (Planning Programming and Budgeting), and about one-third to evaluating forces and reserve components. Their involvement with weapon system hardware is primarily through ASARC and DSARC reviews.

The Office is a proponent for development of a large mathematical programming model to permit system tradeoffs for budget analyses. In the force requirements area, the Office is sponsoring Army participation in two Joint OSD/Service Studies. These are near-term reviews of the NATO requirements and capabilities. For one of these studies, the Army is using both the ATLAS model and the CONAF Evaluation Model. The former is an aggregated force model that cannot discriminate between different candidate weapons. The latter, however, is a more detailed model that does represent weapons and their repair and replacement. The other study is using a RAND ground model and an Air Force tactical air model.

The office maintains contacts with other Defense agencies and the Operations Research profession through attendance at technical conferences such as the Military Operations Research Society and the U.S. Army or Symposium meetings. The Deputy Under Secretary of the Army, Operations Research (DUSA OR) has also invited participation from the other Services, the Director, Defense Research and Engineering (DDR&E) and ASD(PA&E) in the Study Advisory Groups for major studies. Most of the Office contacts outside the Army are with the ASD(PA&E), the DDR&E (including Test and Evaluation), the Assistant Secretary of Defense (Installation and Logistics), and the Assistant Secretary of Defense (Comptroller).

In addition to the DUSA(OR) work in systems analyses, the Scientific Advisor to the Assistant Chief of Staff for Force Development currently undertakes significant Army Staff analytical effort relating to the Army requirement process.

To obtain a look at force requirements ten years ahead, the Army is conducting a study called Conceptual Design for the Army in the Field (CONAF). The Concepts Analysis Agency (which currently reports to the Army Assistant Chief of Staff for Force Development) is responsible for the study and the General Research Corporation is under contract to use a force model to simulate combat in Europe. The CONAF study is intended as a tool to assist the Army in preparing its Program Objective Memoranda.

To relate effectiveness of individual weapon systems to force effectiveness, the Army is funding the General Research Corporation on a Hierarchy of Models Study to develop means of using outputs from high resolution (battalion, brigade, division level) models as inputs into large force level models (corps and theater).

Navy

Under the present Chief of Naval Operations (CNO), the Systems Analysis Division (OP-96) plays a direct and key role in establishing Navy systems and force requirements. OP-96 does this primarily through the Budget Cycle Process by performing or directing critical analyses of alternative system/force postures.

The general direction of Navy force development under the present CNO was generated by Project 60. This project was initiated in September 1970. A number of Naval officers were brought together to look at all aspects of the Navy. They came up with the following general policies based on an anticipated era of lean defense budgets:

- (1) Hi-Lo Mix of Systems
- (2) Trade current forces for modernization
- (3) Focus R&D on new initiatives and potential breakthroughs
- (4) Attack support costs
- (5) Emphasize "Sea Control" instead of "Projection" mission

Some specific initiatives that grew out of or gained considerable impetus from Project 60 were the Surface-Effect-Ship, CAPTOR Mine and helicopter mine sweeping programs.

The Navy gets a running start on the PPB cycle by what they refer to as the CNO Program Appraisal Memorandum (CPAM) process. This process consists of generation of a number of CPAMs in advance of the Program and Planning Guidance Memorandum (PPGM) issued by the Secretary of Defense in February. The CPAMs are used in guiding development of Program Objective Memoranda (POM) that reply to the PPGM and are in agreement with the Joint Forces Memorandum (JFM) prepared by the Joint Chiefs of Staff.

The systems analysts in OP-96, with the support of the Center for Naval Analyses (CNA),^{1/} generate Issue Papers early in the CPAM process based on CNO Policy and Planning Guidance (CPPG). OP-96 analysts also participate in the sessions of the CNO Executive Board (CEB) where key decisions are made which translate the CPPG into Program and Fiscal Guidance for the Navy. They also assist the CNO Executive Board in reviewing program development proposals (PDP) from sponsors throughout the Navy for major missions, platforms and support systems. Finally, they provide analytic support to the CNO Executive Board in putting together CPAMs in the five Navy mission areas: Strategic, General Purpose Forces, Command Control and Communications, Support and Logistics, and Manpower and Training. The CPAMs include proposed force increments and decrements depending on the funding level and program priorities.

The CNO Executive Board is the basic forum used by the present CNO to discuss system and force requirements. Through the broad representation on the CEB and the analyses performed for CEB by OP-96 and CNA, requirements are defined iteratively in a series of CEB meetings. This approach assures that new systems are looked at in the context of total force effectiveness and that all viable alternatives are considered. This approach also assures that decisions on the main features (mission designation and performance characteristics) of any new requirements program respond to the guidance of the CNO and his key advisors. No formal minutes are kept of CEB meetings so that discussion will not be constrained.

Air Force

The Air Force Office of the Assistant Chief of Staff for Studies and Analysis consists primarily of the Directorate of Strategic Offensive and Defensive Studies and the Directorate of General Purpose and Airlift Studies. Both of the directorates perform those studies for which they are tasked or initiate studies in anticipation of an issue arising. Much of the work in the Strategic Studies Directorate is tasked by the Air Force Deputy Chief of Staff for Plans and Operations and the Air Force Deputy Chief of Staff for Research and Development. Primary customers for the General Purpose Studies Directorate include the Air Force Chief and Vice Chief of Staff in addition to the Deputies for Plans and Operations, and Research & Development and Systems and Logistics. Both Directorates are also tasked by the ASD(PA&D) and DDR&E. Most tasks are short term being laid on about 6 to 8 months in advance of issues.

Required Operations Capability (ROC) documents account for many of the Office studies. The response to a ROC study request may be either judgemental or analytical. The office also supports the Deputy for R&D in anticipation of forthcoming DSARCs by comparing the effectiveness of systems against requirements.

In the area of force analysis, the Office works with the Air Staff Force Structure Committee and the Space Committee. They compare alternative systems to determine the Objective Air Force for the POM and for each year of the FYDP.

The Office rarely does studies for the Major Air Force Commands (SAC, TAC, PACAF, AFSC, etc.) because these Commands have their own systems analysis groups to support them. Since there is no Systems Analysis group at the Secretary of the Air Force level, at times the Office performs analysis for the Secretary.

The Office occasionally gets involved in joint studies and frequently obtains other service inputs to their unilateral studies. The Office generally does not use RAND Corporation and other Air Force FCRCs to assist in their studies. However, the Assistant Chief of Staff for Studies and Analysis is a member of the Advisory Group for RAND and thus has a say as to what work RAND should perform. The Strategic and General Purpose Studies Directorates each have about 60 professional analysts. Most of these analysts are military officers.

ROLE AND PURPOSE OF SYSTEMS ANALYSIS AND OPERATIONS RESEARCH

The introduction of "Cost Considerations in Systems Analysis", by Gene H. Fisher, describes the role and purpose of systems analysis in government decisionmaking as follows:

"Modern governments have to devote considerable time and effort to planning for the future. Inevitably, since resources are limited, the central issues in most planning problems concern resource allocation decisions.

Making major resource allocation decisions is difficult for many reasons. Objectives are not always clear-cut, and, typically, numerous alternative ways may be possible for attaining a given set of objectives. Moreover, uncertainties are likely to be abundant and pervasive particularly in those cases where lead time--the time from program initiation to the beginning of operations--spans a number of years. In the Department of Defense, for example, the lead time for a new military capability can be as long as 10 or more years. Long lead times invariably make planning more difficult, mainly because uncertainties are compounded as time horizons extend farther into the future.

Ultimately, most major long-range planning decisions have to be made primarily on the basis of the experience and judgment of the decisionmakers. But resource allocation problems have become increasingly complex; and more and more it has come to be recognized that for decisionmakers to exercise their judgment effectively, ways must be found to assist them in dealing with complicated and interrelated issues. The result has been that attempts have been made to develop analytical concepts, methods, and skills to be used in generating information which will be useful in the planning process. One of the most important of these aids to decisionmaking is called systems analysis" ^{1/}

^{1/} RAND Corporation Report R-490-ASD, "Cost Considerations In Systems Analysis", Gene H. Fisher, December 1970.

We further borrow from Mr. Fisher for a comprehensive definition of systems analysis.

"Systems Analysis may be defined as inquiry to assist decisionmakers in choosing preferred future courses of action by (1) systematically examining and reexamining the relevant objectives and the alternative policies or strategies for achieving them; and (2) comparing quantitatively where possible the economic costs, effectiveness (benefits), and risks of the alternatives.

It is more a research strategy than a method or technique; and in its present state-of-development, it is more an art than a science, although scientific methods are utilized wherever possible. In sum, systems analysis may be viewed as an approach to, or way of looking at, complex problems of choice, usually under conditions of uncertainty." ^{1/}

There is a close relationship between systems analysis and operations analysis as is pointed out in "Systems Analysis and Policy Planning Applications in Defense" by E. S. Quade and W. I. Boucher.

"The difference between the various extensions of World War II operations analysis is largely a matter of terminology or emphasis. There are no differences in principle, and hence no clear lines of demarcation can be drawn.

The analyst who practices operations research is usually trying to use mathematics, or logical analysis, to help a client improve his efficiency in a situation in which everyone has a fairly good idea of what "more efficient" means. He rarely has to concern himself with discovering the purpose of the operation or how to tell whether it is successful or not. A major aim is to develop common structures (or "models") relevant to a wide variety of situations.

Someone has remarked that systems analysis is to operations research as strategy is to tactics. At the national policy level, this is certainly the case."

^{1/} IBID

". . .Systems Analysis. . .differs in scope from Operations Research in the conventional sense, and it is not performed exclusively or even primarily by people who might be identified as operational researchers. . .It is a discipline with a logic of its own, similar in many respects to that of Operations Research, but also different in some fundamental aspects.

Like operations research, this kind of analysis can and must be honest, in the sense that the quantitative factors are selected without bias, that the calculations are accurate, that alternatives are not arbitrarily suppressed, and the like. But it cannot be 'objective' in the sense of being independent of values. Value judgments are an integral part of the analysis; and it is the role of the analyst to bring to light for the policy-maker exactly how and where value judgments enter so that the latter can make his own value judgments in the light of as much relevant information as possible.

Again, analysis at this level cannot prove the optimality of any national security policy. I don't doubt for a moment that, given a specified set of ships and aircraft and equipment, and a particular task such as tracking down and killing submarines in a given area, operations analysis can indicate the optimal way to go about doing it. There, only one value judgment enters in. That is, that it is desirable to kill enemy submarines. You cannot do that at the national policy level. Rather, at that level, analysis can only trace out implications of alternative policies." 1/

1/ RAND Corporation Report R-439-PR, "Systems Analysis and Policy Planning: Applications in Defense," edited by E. S. Quade and W. I. Boucher, June 1968.

APPENDIX II

DOD SPONSORED FEDERAL CONTRACT RESEARCH CENTERS

<u>Abbreviations</u>	<u>Name & Location</u>	<u>DoD Principal Sponsor</u>	<u>Nature of Primary Work</u>
Aerospace	Aerospace Corp. El Segundo, CA and San Bernardino, CA	USAF	SETD ¹ responsive to the AF Space & Missile Systems Organization
ANSER	Analytic Services, Inc. Arlington, VA	USAF	Similar to RAND but engaged primarily in short-range studies concerned with opera- tional requirements
APL/JHU	Applied Physics Lab - The Johns Hopkins University Silver Spring, Maryland	USN	Research, development & test on surface-to- air missiles, navigational satellites, research in propulsion, electronics, physics, materials, etc.
APL/UW	Applied Physics Laboratory University of Washington	USN	Research and development and test of underwater weapons and equipment
CNA	Center for Naval Analyses University of Rochester Roslyn, Virginia	USN	Studies and analyses relating to conceptual and technological factors of importance to the Navy.
HumRRO	Human Resources Research Organization, Alexandria, Virginia	USA	Development of methods to improve the training of the soldier: research in motivation, leadership, and man/weapon systems analysis.
IDA	Institute for Defense Analyses Arlington, VA	DDR&E	Systems Analyses on pro- posed weapon systems; economic analysis, technical engineering studies

<u>Abbreviations</u>	<u>Name & Location</u>	<u>DoD Principal Sponsor</u>	<u>Nature of Primary Work</u>
Lincoln	Lincoln Laboratory Massachusetts Institute of Technology Cambridge, Massachusetts	USAF	Reentry technology; space communications; basic and applied studies in advanced electronics.
MITRE	MITRE Corporation Bedford, Massachusetts	USAF	Systems Engineering and Technical Direction concerned with command and control; air defense and early warning systems is responsive to Air Force Electronic Systems Division
ORL	Ordnance Research Lab Pennsylvania State U. University Park, PA	USN	Research and development of torpedoes, including control & guidance systems.
RAND	RAND Corporation Santa Monica, CA	USAF	Studies, analysis and planning in various areas

APPENDIX I

ABBREVIATIONS AND ACRONYMS

A-Army
 N-Navy
 M-Marine Corps
 F-Air Force

		<u>Military service</u>
AAI	Army Analysis of Intelligence (obsolete)	A
AAO	Authorized Acquisition Objective	A
AAW	Anti-Air Warfare	N
ACNO	Assistant Chief of Naval Operations	N
ACP	Area Coordinating Paper	
ACSFOR	Assistant Chief of Staff for Force Development	A
ADC	Aerospace Defense Command	F
ADO	Advanced Development Objective	M/N
ADG	Advanced Development Group	A
ADP	Advanced Development Plan (obsolete)	A
ADP	Advanced Development Proposal	N
AF	Air Force	F
AFBO	Approved Force Budget Objective	A/F
AFC	Air Force Council	F
AFDP	Army Force Development Plan (obsolete)	A
AFLC	Air Force Logistics Command	F
AFM	Air Force Manual	F
AFP	Army Force Program	A
AFSC	Air Force Systems Command	F

AL	Acquisition Logistician	N
ALCOM	Alaskan Command	N
ALRTF	Army Long Range Technological Forecast	A
AMC	United States Army Materiel Command	A
AMP	Army Materiel Plan	A
AMW	Amphibious Warfare	N
AMRAD	Air Munitions Requirements and Development Committee	N
ANEEG	Army-Navy Electronics Evaluation Group	A/N
AOB	Air Order of Battle	F
APD	Advanced Planning Document	A
APG	Aberdeen Proving Ground	A
APM	Army Program Memorandum	A
APP	Advanced Procurement Plan	N
AR	Army Regulation	A
ARADCOM	United States Army Air Defense Command	A/F
ARDIS	Army Research and Development System	A
ARO	United States Army Research Office	A
ARO-D	United States Army Research Office, Durham, North Carolina	A
ARO-E	United States Army Research and Development Group, Europe	A
ARO-FE	United States Army Research and Development Group, Far East	A
ARP	Army Research Plan	A

ARPA	Advanced Research Projects Agency	
ARW	Air Warfare	N
ASA	United States Army Security Agency	
ASAC	Army Study Advisory Committee	A
ASAF	Assistant Secretary of the Air Force	F
ASAP	Army Scientific Advisory Panel	A
ASARC	Army Systems Acquisition Review Council	A
ASA ()	Assistant Secretary of the Army	A
	(FM) Financial Management	
	(I&L) Installations & Logistics	
	(M&RA) Manpower & Reserve Affairs	
	(R&D) Research & Development	
ASB	Air Staff Board	F
ASC	Advanced Systems Concepts	N
ASCP	Army Strategic Capabilities Plan	A
ASD	Aviation Supply Depot	N
ASD ()	Assistant Secretary of Defense	
	(A) Administration	
	(C) Comptroller	
	(I&L) (Installations & Logistics)	
	(ISA) (International Security Affairs)	
	(INT) (Intelligence)	
	(PA) (Public Affairs)	
	(T) (Telecommunications)	

ASDIC	Armed Services Documents Intelligence Center	A/F
ASN ()	Assistant Secretary of the Navy (FM) Financial Management (I&L) Installations and Logistics (M&RA) Manpower and Reserve Affairs (R&D) Reserach and Development	N
ASOP	Army Strategic Objectives Plan (obsolete)	A
ASPI	Armed Service Procurement Instructions	
ASP	Army Strategic Plan (obsolete)	A
ASPR	Armed Service Procurement Regulations	
ASW	Anti-submarine Warfare	N
ATE	Automatic Test Equipment	N
AVSCOM	United States Army Aviation Systems Command	A
AWSCOM	Advance Weapons Support Command	A
BAMIRAC	Ballistic Missile Radiation Analysis Center	
BASE	Basic Army Strategic Estimate (obsolete)	A
BIS	Board of Inspection and Survey	N
BNEP	Basic Naval Establishment Plan	N
BOI	Basis of Issue	A
BY	Budget Year	
CAC	Command and Control	N
CARDS	Catalog of Approved Requirements	A
CB	Chemical-Biological	A/F
CBR	Chemical Biological and Radiological	A/F
CCP	Consolidated Cryptologic Program	N

CD	Combat Development	A
CDOG	Combat Development Objectives Guide (obsolete)	A
CDP	Contract Definition Phase (obsolete)	
CDS	Congressional Data Sheet	
CDT	Contract Development Test	A
CE	Chief of Engineers	A
CEB	Chief of Naval Operations Executive Board	N
CFAE	Contractor Furnished Aerospace Equipment	F
CFE	Contractor Furnished Equipment	A
CIA	Central Intelligence Agency	
CIP	Class Improvement Plan	N
CIR	Cost Information Reports	N
CMC	Commandant of the Marine Corps	M
CNA	Center for Naval Analyses	N
CND	Chief of Naval Development	N
CNM	Chief of Naval Material	N
CNO	Chief of Naval Operations	N
CNP	Chief of Naval Personnel	A/N
CNR	Chief of Naval Research	N
CO	Commanding Officer	A/F/N
COEA	Cost and Operational Effectiveness Analysis	A
COMNAVAIR	Commander, Naval Air Systems Command	N
COMNAVELEX	Commander, Naval Electronics Systems Command	N

COMNAVFAC	Commander, Naval Facilities Engineering Command	N
COMNAVORD	Commander, Naval Ordnance Systems Command	N
COMNAVSHIPS	Commander, Naval Ship Systems Command	N
COMNAVSUP	Commander, Naval Supply Systems Command	N
COMOPTEVFOR	Commander, Operational Test and Evaluation Force	N
CON	Construction	N
CONAD	Continental Air Defense Command	
CONUS	Continental United States	
COOPLANS	Continuity of Operations	N
CPAM	Chief of Naval Operations Program Analysis Memorandum	M/N
CPIA	Chemical Propulsion Information Agency	N
CPPG	Chief of Naval Operations Policy and Planning Guidance	N
CRD	Chief of Research and Development	A
DA	Developing Agency	N
DA	Department of the Army	A
DASA	Defense Atomic Support Agency (now DVA)	
DASO	Demonstration and Shakedown Operation	N
DASSO	Department of Army Systems Staff Officer	A
DCA	Defense Communications Agency	
DCSLOG	Deputy Chief of Staff for Logistics	A
DCNM ()	Deputy Chief of Naval Material (P&FM) Programs and Financial Management (D) Development	N

DCNO ()	Deputy Chief of Naval Operations (P&R) Personnel and Reserve Affairs (L) Logistics (R) Readiness (AIR) Air (P&P) Plans and Policy	N
DCOR	Department of Defense Committee on Research	
DCP	Development Concept Paper (may become Decision Coordinating Paper)	
DC/S	Deputy Chief of Staff (Aviation) Aviation Division (P&O) Plans and Operations Department (R D&S) Research, Development & Studies Division (R&P) Requirements and Programs Division (I&L) Installations and Logistics Department	M/F M M M M
DCS	Deputy Chief of Staff	A
DDC	Defense Documentation Center	
DDR&E	Director, Defense Research and Engineering	
DDSE	Design Disclosure for Systems and Equipment	
DCM	Defense Guidance Memorandum (obsolete)	
DIA	Defense Intelligence Agency	
DIE	Defense Intelligence Estimate	
DIP	Defense Intelligence Plan	

DIRNSA	Director, National Security Agency	
DLP	Director of Laboratory Programs	N
DLSC	Defense Logistics Service Center	A/F
DNA	Defense Nuclear Agency (formerly DASA)	
DNFYF	Department of the Navy Five Year Program	N
DNIAIC	Defense Nuclear Agency Information Analysis Center	
DNL	Director of Navy Laboratories	N
DNPP	Director, Navy Program Planning	N
DNSARC	Department of the Navy Systems Acquisition Review Council	N
DOD	Department of Defense	
DODD	Department of Defense Directive	
DODI	Department of Defense Instruction	
DODRE	Department of Defense Research and Engineering	
DPA&E	Director, Program Analysis and Evaluation	
DON	Department of the Navy	N
DONPIC	Department of the Navy Program Information Center	N
DPM	Draft Presidential Memorandum	
DPPC	Defense Policy and Planning Guidance	
DSA	Defense Supply Agency	
DSAA	Defense Security Assistance Agency	
DSARC	Defense Systems Acquisition Review Council	
DSB	Defense Science Board	N
DST	Development Suitability Test	A
DWSMC	Department of Defense Weapon Systems Management Center	N

ECAC	Electronic Compatibility Analysis Center	
ECCM	Electronic Counter Countermeasures	
ECM	Electronic Counter Measures	
ECOM	United States Army Electronics Command	
EDG	Exploratory Development Goal	N
EDP	Electronic Data Processing	N
EDP	Equipment Distribution Plan	N
EDP	Engineering Development Proposal	N
EDPS	Equipment Distribution Planning Studies	A
EDPS	Electronic Data Processing System	F
EDR	Exploratory Development Requirement	N
ELINT	Electronic Intelligence	A/F
ENSURE	Expedited Non Standard Urgent Requirements for Equipment	A
EPS	Engineering Performance Standards	N
ERDL	Engineer Research and Development Laboratories	A
ERO	European Research Office	A
EUCOM	European Command	
FCRC	Federal Contract Research Center	
FCSTI	Federal Clearing house for Scientific and Technical Information (now the National Technical Information Service)	
FDGC	Force Development Guidance Compendium	A
FDGM	Final Defense Guidance Memorandum	
FDPM	Final Dratt Presidential Memorandum	

FIP	Fleet Introduction Program	N
FMF	Fleet Marine Force	M
FSO	Fleet Support Operations	N
FTD	Foreign Technology Division	F
FY	Fiscal Year	
FYDP	Five Year Defense Program	
FYMP	Five Year Material Program	A
FYPB	Five Year Planning Base	A
FYPP	Five Year Procurement Program	A
GAO	General Accounting Office	
GOR	General Operational Requirement	M/N
Hdg. USAF	Headquarters, United States Air Force	F
HEIAS	Human Engineering Information and Analysis Service	A
HQMC	Headquarters Marine Corps	M
HUMRRO	Human Resources Research Office	A
IAC	Information Analysis Center	
I B OP	International Balance of Payments	
IC	Importance Category	F
ICBM	Intercontinental Ballistic Missile	
IDA	Institute for Defense Analyses	
IDEP	Inter-service Data Exchange Program	A
IDGM	Initial Defense Guidance Memorandum	
IDPM	Initial Draft Presidential Memorandum	
I&L	Installations and Logistics	M
ILS	Intergrated Logistic Support	N

ILSE	Interagency Life Sciences Supporting Space Reserach and Technology Exchange	
IMUA	Inter-service Material Utilization Agency	A
INS	Institute of Naval Studies	N
IP	Issue Paper	N
IPR	In Process Review	A
IR&D	Independent Reserach and Development	
IR/IED	Independent Reserach/Independent Ex- ploratory Development	N
ISSA	Interserice Support Agreement	
ITSA	Institute for Telecommunications Sciences and Aeronomy	A
JAMAC	Joint Aeronautical Materials Agency	A
JAN	Joint Army-Navy	A/N
JAIEG	Joint Atomic Intormation Exchange Group	
JANAIR	Joint Army-Navy Aeronautical Instru- ment Research	
JANAP	Joint Army-Navy-Air Force Publications	
JAWPB	Joint Aeronautical Weapons Publication Board	A
JCS	Joint Chiefs of Staff	
JCAE	Joint Committee on Atomic Energy	/A
JCCRG	Joint Command and Control Require- ments Group	/A
JFM	Joint Forces Memorandum	
JIEP	Joint Intelligence Estimate for Planning	
JLRSE	Joint Long Range Strategic Estimate	
JLRSS	Joint Long Range Strategic Study	

JRDOD	Joint Research and Development Ob- jective Document	
JSCP	Joint Strategic Capabilities Plan	
JSO	Joint Service Office	
JSOP	Joint Strategic Objectives Plan	
JTC	Joint Telecommunications Committee	F
JRC	Joint Technical Coordinating Group	
JTD	Joint Table of Distribution	A/F
JTF	Joint Task Force	A/F
LABP	Lethal Aid for Bomber Penetration	F
LANTCOM	Atlantic Command	
LASL	Los Alamos Scientific Laboratory	
LCSS	Land Combat Systems Study	A
LINCOLN	Lincoln Laboratory	
LOH	Light Observation Helicopter	A
LRG	Long Range Guidelines	N
MAC	Military Airlift Command	F
MAS	Military Agency for Standardization	A/F
MAS	Mission Area Summaries	
MCA	Military Construction, Army	A
MCAF	Military Construction, Air Force	F
MCDEC	Marine Corps Development and Education Command	M
MCLNO	Marine Corps Liaison Office (r)	M
MCO	Marine Corps Order	M
MCOAG	Marine Corps Operations Analysis Group	M

		<u>Military Service</u>
MCLNO	Marine Corps Liaison Office (τ)	M
MCO	Marine Corps Order	M
MCOAG	Marine Corps Operations Analysis Group	M/N
MCON	Military Construction, Navy	N
MCP	Marine Capabilities Plan	
MCP	Military Construction Program	
MCP	Mission Concept Papers (Proposed)	
MFI	Major Force Issues	A/N
MICOM	United States Army Missile Command	
MILCON	Military Construction	
MIP	Materiel Improvement Plan	N
MIPR	Military Inter-Departmental Purchase Request	
MIW	Mine Warfare	M
MLRP	Marine Long Range Plan	M
MMROP	Marine Corps Mid-Range Objectives Plan	N
MN	Materiel Need (Obsolete - now ROC)	A
MN (A)	Materiel Need (Abbreviated)	A
MN (ED)	Materiel Need (Engineering Development)	A
MN (P)	Materiel Need (Production)	A
MOB	Mobility	N
MOP	Memorandum of Policy	
MRDC	United States Army Medical Research and Development Command	
MRRC	Materiel Requirements Review Committee	A
MRO	Mid-Range Objectives	N

APPENDIX XIII

		<u>Military Service</u>
MSARC	Marine Corps Systems Acquisition Review or Council	
MSE	Materiel Status Evaluation	A
MSP	Maintenance Support Plan	A
MSTS	Military Sea Transportation Service (now MSC - Military Sealift Command)	
MUCOM	United States Army Munitions Command	A
MUL	Master Urgency List	
MWDP	Mutual Weapons Development Program	
- N -		
NAD	Naval Ammunition Depot	M/N
NADC	Naval Air Development Center	N
NAF	Naval Air Facility	M/N
NAF	Naval Aircraft Factory	M/N
NAF	Nonappropriated Funds	
NAMRU	Naval Medical Research Unit	N
NAMTC	Naval Air Missile Test Center	N/M
NAOTS	Naval Aviation Ordnance Testing Sta- tion	M/N
NARDIC	Navy Research and Development Information Center	N
NARDIS	Naval Automated Research and Develop- ment Information System	N
NARM	Navy Resource Model	N
NAS	Naval Air Station	
NASA	National Aeronautics and Space Admin- istration	

		<u>Military Service</u>
NATC	Naval Air Test Center	N
NATO	North Atlantic Treaty Organization	
NAVAIR	Naval Air Systems Command	N
NAVCOMPT	Office of the Comptroller of the Navy	N
NAVIC	Navy Information Center	N
NAVMAT	Naval Material Command	N
NAVORD	Naval Ordnance Systems Command	N
NAVPEP	Navy Program Evaluation Procedures	N
NAVSEC	Naval Ship Engineering Center	N
NAVSHIPS	Naval Ship Systems Command	N
NAVSUP	Naval Supply Systems Command	N
NAVWAG	Naval Warfare Analyses Group	N
NCIS	Navy Cost Information System	N
NCO	Noncombat Operations	N
NCP	Navy Capabilities Plan	N
NELC	Naval Electronics Laboratory Center	N
NET	New Equipment Training	A
NICRAD	Department of the Navy/Industry Co- operative R&D Program	N
NIE	National Intelligence Estimate	
NLRG	Navy Long-Range Guidelines	N
NLRO	Navy Long-Range Objectives	N
NLRSS	Navy Long Range Strategic Study	N
NMC	Naval Material Command	N

		<u>Military Service</u>
NMCSA	Naval Material Command Support Activity	N
NMS	Navy Mid-Range Study	N
NMRG	Navy Mid-Range Guidance	N
NMS	Navy Mid-Range Study (Obselete)	N
NNOR	Non-Nuclear Ordnance Requirements	N
NOCD	Non-Materiel Objectives Coordinating Document	A
NOL	Naval Ordnance Laboratory	N
NORAD	North American Air Defense Command	
NPE	Navy Preliminary Evaluation	N
NPM	Navy Programming Manual	M/N
NPP	National Policy Paper	A
NPPC	Chief of Naval Operations Program Planning Council	N
NPPO	Navy Program Planning Office	N
NPPR	Navy Program Progress Report	N
NQR	NORAD Qualitative Requirements	A
NRAC	Naval Research Advisory Committee	N
NRL	Naval Research Laboratory	N
NSA	National Security Agency	
NSAREF	National Security Agency Reference Center for Scientific and Technical Information	
NSC	National Security Council	
NSDM	National Security Decision Memorandum	
NSF	National Science Foundation	
NSG	Naval Security Group	

		<u>Military Service</u>
NSIA	National Security Industrial Association	
NSP	Navy Support Plan	N
NSRDC	Naval Ship Research and Development Center	N
NSS	National Stockpile Site	A/F
NSS	Navy Strategic Study	N
NSSM	National Security Study Memorandum	
NTDC	National Training Devices Center	N
NTIS	National Technical Information Service (formerly FCSTI)	
NTRC	Navy Training Requirement Council	N
NURDC	Naval Undersea Research and Development Center	N
NUSC	Naval Underwater Systems Center	N
NWC	Naval Weapons Center	M/N
NWEDS	Nuclear Weapons Engineering Data System	A
NWL	Naval Weapons Laboratory	M/N
NWP	Naval War Publication	M/N
NWP	Naval Weapons Plant	M/N
NWS	Naval Weapons Station	M/N
- 0 -		
OASD ()	Office of the Assistant Secretary of Defense (C) Comptroller (SA) Systems Analysis	
OCO	Operational Capability Objective	A
OCRD	Office of the Chief of Research and Development	A

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Military
Service

ODDR&E	Office of the Director, Defense Research and Engineering	
OEG	Operations Evaluation Group	N
OISPD	Office of Information Systems Planning and Development	N
OJCS	Office of the Joint Chiefs of Staff	
OLA	Office of Legislative Affairs	
O&M	Operation and Maintenance	
O&MA	Operation and Maintenance, Army	A
O&MN	Operation and Maintenance, Navy	N
OMB	Office of Management and Budget	
OMI	Office of Management Information	N
ONR	Office of Naval Research	N
OPA	Office of Program Appraisal	N
OPEVAL	Operational Evaluation	N
OPN	Other Procurement, Navy	N
OPNAV	Office of the Chief of Naval Operations	N
OPTEVFOR	Operational Test and Evaluation Force	N
OR	Operational Reliability	A
OR	Operationally Ready	F
ORA	Office of Research Analysis	F
ORA	Office of Research Analyst	A
ORL	Ordnance Research Laboratory	
OSA	Office of the Secretary of the Army	A
OSAF	Office of the Secretary of the Air Force	F

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Military
Service

OSD	Office of the Secretary of Defense	
OSIP	Operational Suitability Improvement Program (for Aircraft)	N
OSR	Office of Scientific Research	F
OT	Operational Test	A/N
OTE	Other Technical Effort	A/N
OTE	Operational Test and Evaluation	A
- P -		
PACAF	Pacific Air Forces	F
PACOM	Pacific Command	
PAMN	Procurement of Aircraft and Missiles, Navy	N
PAO	Primary Action Office	N
PAT	Production Acceptance Tests	
PAP	Product Assurance Plan	A
PBD	Program Budget Decision	
PCD	Program Change Decision	
PCO	Procurement Contracting Officer	
PCP	Program Change Proposal	
PCR	Program Change Request	
PDA	Principal Development Activity	N
PDM	Program Decision Memorandum	
PDP	Program Development Paper	N
PDP	Project Definition Plan	A
PDP	Project Definition Phase (Obselete)	F

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		<u>Military Service</u>
PDRC	Program Development Review Committee	N
PDWG	Program Development Working Group	N
PE	Program Element	
PEN	Program Element Number	
PESD	Program Element Summary Data Sheet	
PEM	Program Element Monitor	F
PEMA	Procurement of Equipment and Mis- siles, Army	A
PG	Proving Ground	
PIC	(Navy Department) Program Informa- tion Center	N
PIR	Program Information Report	N
PM	Project Manager	N/A
PMD	Program Management Directive	F
PMO	Project Management Office	A
PMP	Program Management Plan	F
PMP	Project Master Plan	A/N
PMR	Pacific Missile Range	
PO	Program Objectives	N
P&O	Plan & Operations	N
POCP	Program Objectives Change Proposal	N
POE	Projected Operational Environment	N
POI	Program of Instruction	N/A
POM	Program Objectives Memorandum	
PPBS	Planning - Programming - Budgeting System	
PPGM	Policy and Planning Guidance Memorandum	

		<u>Military Service</u>
PRIME	Priority Improved Management Effort	F
PRIME	Priority Management Effort	A/N/M
PRIME	Precession Recovery Including Maneuvering Entry	F
PSAC	President's Science Advisory Committee	
PSL	Primary Scientific Liaison	A
PTA	Proposed Technical Approaches	N
PTDP	Preliminary Technical Development Plan	N/F
PTDP	Proposed Technical Development Plan	F
- Q -		
QDRI	Qualitative Development Requirements Information	A
QMA	Qualitative Materiel Approach	A
QMDO	Qualitative Materiel Development Objective	A/N
QMO	Qualitative Materiel Objective	A
QMR	Qualitative Materiel Requirement (Obselete - now ROC)	A
QOR	Qualitative Operational Requirements (Air Force)	F
QOR	Qualitative Operational Requirements	A
QQPRI	Qualitative and Quantitative Personnel Requirement Information	A/F
QRC	Quick Reaction Capability	F

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Military
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- R -

RAD	Resource Allocation Display	N
RADON	Research and Development Operational Need	N
RAND	Rand Corporation	
R&D	Research and Development	
RD&S	Research, Development and Studies	M
RDC	Rapid Development Capability	N
R&D	Research and Development	
RDO	Research and Development Objectives (long-range)	F
RDOI	DCIS R&D Office Instructor	F
RDT&E	Research, Development, Test and Evaluation	
RDT&EN	Appropriation RDT&E, Navy	N
RFP	Request for Proposal	
RFQ	Request for Quotation	
RMS	Resource Management System	
ROC	Required Operational Capability	A/F
R&P	Requirements and Programs	M
RRG	Requirements Review Group	F

- S -

SA	Secretary of the Army	
SAB	Scientific Advisory Board	F
SAC	Strategic Air Command	
SAF	Secretary of the Air Force	
SAG	Study Advisory Group	A

		<u>Military Service</u>
SAIMS	Selected Acquisitions Information and Management System	F
SAM-D	Surface-to-Air Missile-Development	A
SAMSO	Space and Missile System Organization	F
SAMTEC	Space and Missile Test Center	F
SAR	Selected Acquisition Report	
SASN	The Special Assistant to the Secretary of the Navy	N
SAWS	Small Arms Weapons System	A
SBW	Submarine Warfare	N
SAR	Selected Acquisition Report	
SCB	Ship Characteristics Board	N
SCN	Shipbuilding and Conversion, Navy	N
SDD	Systems Definition Directive	A/F
SDP	Systems Development Plan	A
SDR	Small Development Requirements	A/N
SECDEF	Secretary of Defense	
SECNA	Secretary of the Navy (Instruction, etc.)	N
SECNAV	Secretary of the Navy	
SEG	Systems Evaluation Group	N
SIGINT	Signal Intelligence	A/N
SOC	Specific Operational Capability	F
SOR	Specific Operational Requirement	A/M/N
SOUTHCOM	Southern Command	
SPE	Systems Performance Effectiveness	N

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		<u>Military Service</u>
SPEED	Special Procedures for Expediting Equipment Development	N
SPIW	Special Purpose Individual Weapon	A
SPO	Systems Program Office	A/F
SPP	Sponsors Program Priorities	N
SPR	Secretary of the Air Force Program Review	F
SPR	Air Force Program Reviews	
SPW	Special Warfare	N
SRI	Stanford Research Institute	A
SRROPLAN	U.S. Air Force, Survival Recovery and Reconstruction Operational Plan	F
SSA	Source Selection Authority	F/A
SSAC	Source Selection Advisory Council	F
SSDR	Subsystem Development Requirement	F
SSE	System Status Evaluation	A
SSEB	Source Selection Evaluation Board	F
SSM	Surface-to-Surface Missile	A/F
SSO	System Staff Office	A
SSP	System Support Program	F
STINFO	Scientific and Technical Informa- tion	
SUW	Submarine Warfare	N
- T -		
T-CPAM,	Tentative Chief of Naval Operations Program Analysis Memorandum	M/N
TACOM	United States Army Tank-Automotive Command	

		<u>Military Service</u>
TACTEC	Tactical Technology Center	
TAP	Task Area Plan	N
TARC	The Army Research Council	A
TARS	Tactical Reconnaissance and Surveillance	A
TCP	Technology Coordinating Paper	
TDP	Technical Data Package	A
TDP	Technical Development Plan	
TECHEVAL	Technical Evaluation	N
TECOM	United States Army Test and Evaluation Command	
TEEL	Temporary Expedient Equipment List	A
TILO	Technical Information and Industry Liaison Office	A
TOA	Trade-off-Analysis	A
TOA	Total Obligational Authority	A
TOD	Trade-off-Determination	A
TOP	Test Outline Plan	A
TPD	Technology Planning Document	
TPO	Tentative Program Objectives	N
TSOR	Tentative Specific Operational Requirement	M/N
TTIC	The Technical Cooperation Committee	A
TTCP	The Technical Cooperation Plan	A
- U -		
USIB	United States Intelligence Board	A/F
USNS	United States Navy Ship	N

APPENDIX XIII

- V -

Military
Service

VCNM	Vice Chief of Naval Material	N
VCNO	Vice Chief of Naval Operations	N
V/STOL	Vertical/Short Take-off and Landing	A/F

- W -

WECOM	United States Army Weapons Command	
WET	Weapons Effectiveness Test	F
WGD	Working Group Director	N
WMP	USAF War and Mobilization Plan	F
WSEG	Weapons System Evaluation Group	
WSPO	Weapons System Project Office	

- X -

- Y -

- Z -

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