(3)

AD672175

Department of the Navy RDT&E Management Guide

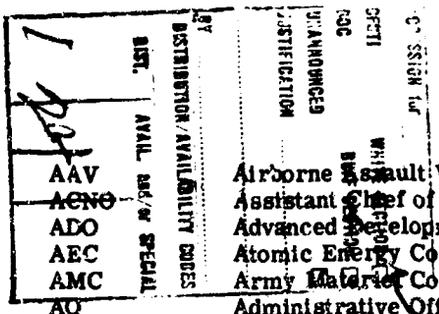
1 July 1967

DDC
ARCHIVE COPY

NAVSO P-2457 (Rev. 7-67)

Reproduced by the
CLEARINGHOUSE
for Federal Scientific & Technical
Information Springfield Va 22151

395.



ABBREVIATIONS

AAV	Airborne Assault Vehicle
ACNO	Assistant Chief of Naval Operations
ADO	Advanced Development Objective
AEC	Atomic Energy Commission
AMC	Army Materiel Command
AO	Administrative Office, Navy Department
APL	Applied Physics Laboratory
APP	Advanced Procurement Plan
ARPA	Advanced Research Projects Agency
ARPN	Aircraft and Related Procurement (Navy)
ASD	Assistant Secretary of Defense
ASL	Applied Scientific Laboratory
ASN(I&L)	Assistant Secretary of the Navy (Installations and Logistics)
ASN(R&D)	Assistant Secretary of the Navy (Research and Development)
ASPR	Armed Services Procurement Regulation
ATDS	Airborne Tactical Data System
BA	Budget Activity
BIS	Board of Inspection and Survey
BNEP	Basic Naval Establishment Plan
BuMed	Bureau of Medicine and Surgery
BuPers	Bureau of Naval Personnel
CAB	CNO Advisory Board
CD	Contract Definition
CDC	Combat Developments Command
CF	Concept Formulation
CFE	Contractor Furnished Equipment
CHINFO	Chief of Naval Information
CIP	Class Improvement Plan
CINCEUR	Commander in Chief, Europe
CMC	Commandant, Marine Corps
CNA	Center for Naval Analyses
CND	Chief of Naval Development
CNM	Chief of Naval Material
CNO	Chief of Naval Operations
CNP	Chief of Naval Personnel
CNR	Chief of Naval Research
COOPLANS	Continuity of Operations Plans
CPFF	Cost Plus Fixed Fee Contracts
CPIF	Cost Plus Incentive Fee Contracts
CSR	Contract Status Report
CTS	Contractor Technical Service
DASA	Defense Atomic Support Agency
DCA	Defense Communications Agency
DCNM(P&FM)	Deputy Chief of Naval Material (Programs and Financial Management)
DCNM(D)	Deputy Chief of Naval Material (Development)
DCNM(M&F)	Deputy Chief of Naval Material (Material and Facilities)
DCNO(P&R)	Deputy Chief of Naval Operations (Personnel and Naval Reserve) (Op-01)
DCNO(R)	Deputy Chief of Naval Operations (Readiness) (Op-03)
DCNO(AIR)	Deputy Chief of Naval Operations (Air) (Op-05)
DCNO(L)	Deputy Chief of Naval Operations (Logistics) (Op-04)
DCNO(P&P)	Deputy Chief of Naval Operations (Plans and Policy) (Op-06)
DCNO(D)	Deputy Chief of Naval Operations (Development) (Op-07)
DCRP	Disaster Control Recovery Plans
DCS	Defense Communications System
DD 1498	DOD Research and Technology Resume
DDR&E	Director of Defense Research and Engineering
D&F	Determination and Finding
DDC	Defense Documentation Center
DIA	Defense Intelligence Agency
DLP	Directory of Laboratory Programs
DNC	Director Naval Communications
DNL	Director of Naval Laboratories
DNPP	Director, Navy Program Planning
DOD	Department of Defense
DSA	Defense Supply Agency
DSB	Defense Science Board
ECP	Engineering Change Proposal
EDR	Exploratory Development Requirement
FAC	Fleet Activities Command
FIP	Fleet Introduction Program
FMF	Fleet Marine Force
FPF	Fixed-Price-Firm Contract
FPE	Fixed-Price-Escalation Contract
FPR	Fixed-Price-Redeterminable Contract
FPI	Fixed-Price-Incentive Contract
FR/IED	Foundational Research/Independent Exploratory Development
FY	Fiscal Year
FYDP	Five Year Defense Program
GAO	General Accounting Office
GFE	Government Furnished Equipment
GO5	General Order Number 5
GOR	General Operational Requirement
IDA	Institute of Defense Analysis
ILCEP	Independent Laboratory Committee on Editing and Publishing
JAG	Judge Advocate General (Office of)
JCS	Joint Chiefs of Staff
JLRSS	Joint Long-Range Strategic
JSCP	Joint Strategic Capabilities Plan
JSOP	Joint Strategic Objectives Plan
MAAG	Military Assistance Advisory Group
MCL	Master Configuration List
MCON	Military Construction
MFI	Major Force Issue
MILSTRIP	Military Standard Requisitioning and Issue Procedure
MIS	Material Inspection Service
MLC	Military Liaison Committee
MMROP	Marine Corps Mid-Range Objectives Plans

(List of abbreviations continued on inside back cover)

MOBCON	Mobilization Construction Plan
MSTS	Military Sea Transportation Service
MTBF	Mean Time Between Failures
MTDS	Marine Tactical Data System
NADC	Naval Air Development Center
NAEC	Naval Air Engineering Center
NARAD	Navy Research and Development Briefing Report (from CNR)
NARDIS	Navy Automated Research and Development Information System
NARF	Naval Aerospace Recovery Facility
NARF	Naval Arctic Research Facility
NASL	Naval Applied Science Laboratory
NATC	Naval Air Test Center
NATF(SI)	Naval Test Facility (Ship Installations)
NATTS	Naval Air Turbine Test Station
NAVAIR	Naval Air Systems Command
NAVCOSSACT	Navy Command Systems Support Activity
NAVELEX	Naval Electronic Systems Command
NAVEXOS	Executive Office of the Secretary, Department of the Navy
NAVFAC	Naval Facilities Engineering Command
NAVMAT	Naval Material Command
NAVORD	Naval Ordnance Systems Command
NAVPECO	Navy Production Equipment Control Office
NAVSHIPS	Naval Ship Systems Command
NAVSTRIP	Navy Standard Requisitioning and Issue Procedure
NAVSUP	Navy Supply Systems Command
NAVWAG	Naval Warfare Analyses Group
NBL	Naval Biological Laboratory
NCEL	Navy Civil Engineering Laboratory
NCIS	Navy Cost Information System
NCP	Navy Capabilities Plan
NDPIC	Navy Department Program Information Center
NEL	Navy Electronics Laboratory
NEODF	Navy Explosive Ordnance Disposal Facility
NIF	Navy Industrial Fund
NLCP	Navy Logistics Capabilities Plan
NMC	Naval Material Command
NMDL	Navy Mine Defense Laboratory
NMS	Navy Missile Range Study
NOA	New Obligational Authority
NOL	Naval Ordnance Laboratory
NOTS	Naval Ordnance Test Station
NOU	Naval Ordnance Unit
NPE	Navy Preliminary Evaluation
NPPO	Navy Program Planning Office
NPPC	CNO Program Planning Council
NPPS	Navy Publications and Printing Service
NRAC	Naval Research Advisory Committee
NRDL	Naval Radiological Defense Laboratory
NRL	Naval Research Laboratory
NRR	Navy Research Requirements
NSRDC	Naval Ship Research and Development Center
NSA	National Security Agency
NSC	National Security Council
NSF	National Science Foundation
NSS	Navy Strategic Study
NTDS	Naval Tactical Data System
NUSL	Navy Underwater Sound Laboratory
NUWRES	Naval Underwater Weapons Research and Engineering Station
NWEF	Naval Weapons Evaluation Facility
NWL	Naval Weapons Laboratory
NWSA	Naval Weapons Support Activity
OLA	Office of Legislative Affairs
ONM	Office of Naval Material
ONR	Office of Naval Research
OPA	Office of Program Appraisal
OPNAV	Office of the Chief of Naval Operations
O&MN	Operation and Maintenance, Navy
OPEVAL	Operational Evaluation
OPTEVFOR	Operational Test and Evaluation
OSD	Office of Secretary of Defense
PCCS	Program Change Control System
PCR	Program Change Request
PERT	Program Evaluation and Review Technique
PESD	Program Element Summary Data
PJ	Procurement Justification
PMP	Program Management Plan Project Master Plan
PMR	Pacific Missile Range
PO-FY	Program Objectives, Department of the Navy
PR	Procurement Request
PSAC	Presidents Scientific Advisory Committee
PTA	Proposed Technical Approach
PTDP	Preliminary Technical Development Plan
R&D	Research and Development
RFP	Request for Proposal
RAN	Request for Authority to Negotiate
RDT&E	Research, Development, Test and Evaluation
RDT&EN	Appropriation RDT&E Navy
SAPST	Special Assistant to President for Science and Technology
SASN	The Special Assistant to the Secretary of the Navy
SCB	Ship Characteristics Board
SCN	Ships and Conversion, Navy
SECDEF	Secretary of Defense
SECNAV	Secretary of Navy
SNDL	Standard Navy Distribution List
SOR	Specific Operational Requirement
SP	Special Projects (Code or Office)
STINFO	Scientific and Technical Information
TAB	Technical Abstract Bulletin
TDP	Technical Development Plan
TECHEVAL	Technical Evaluation
TOA	Total Obligational Authority
TSOR	Tentative Specific Operational Requirement
VTOL	Vertical Take-Off and Landing
WSEG	Weapons Systems Evaluation Group

Notes: 1. A listing of Office abbreviations appears in the front of the DOD telephone directory.
2. Additional abbreviations listed in Appendix A (Glossary).

THE ASSISTANT SECRETARY OF THE NAVY
(RESEARCH AND DEVELOPMENT)
WASHINGTON, D.C. 20350

1 July 1967

MEMORANDUM FOR DISTRIBUTION LIST

Subj: RDT&E Management Guide Revision; promulgation of

Encl: (1) Dept of the Navy RDT&E Management Guide, Revision of 1 July 1967

Purpose. The Department of the Navy RDT&E Management Guide, NAVSO P-2457, has been revised to reflect recent organizational changes, as well as policy and procedural changes, and is being distributed for information and comment. Additional copies are available for official use from USNSD, Philadelphia. Contractors or non-military users may purchase the Guide through the office of the Superintendent of Documents, U. S. Government Printing Office.

Background. a. The Guide is designed to meet two needs:

(1) Facilitate orientation of service and civilian personnel newly assigned RDT&E responsibilities by providing a summary overview of Department of the Navy RDT&E management "machinery".

(2) Provide a handy source of general information concerning RDT&E organization and procedures and references to official sources for specific details.

b. The Guide is designed to facilitate understanding of the RDT&E "system" defined by the totality of all official directives. It is not in itself a directive and cannot be cited as authority for official actions.

Action. Addressees are requested to review the enclosed Guide and send comments to the command listed in the Introduction to the Guide. Comments should cover the following points:

a. Changes or deletions recommended in the interest of accuracy.

b. Additional coverage recommended for subsequent changes.

ROBERT A. FROSCH

WEPTU PROJECT 032

This edition is a revision of the edition dated 1 July 1965 and was prepared by Naval Reserve Officers under the supervision of Naval Air Systems Command, Naval Air Reserve Training Unit, WEPTU 663(665), Naval Air Facility, Andrews, Washington, D.C., 20390 for the Assistant Secretary of the Navy (Research and Development), Project Sponsor.

For sale by the Superintendent of Documents, U.S. Government Printing Office
Washington, D.C., 20402 - Price $1.75

TABLE OF CONTENTS

Letter of Promulgation i

Introduction xix

Abstracts of Chapters and Appendixes xxi

Note Regarding Directive Numbers xxiii

CHAPTER I
ORGANIZATION FOR RDT&E

0100 OBJECTIVES OF THE DEPARTMENT OF THE NAVY 1-1

0110 RDT&E Responsibilities at the Department of Defense Level 1-1
0111 Secretary of Defense 1-1
0112 Director of Defense Research & Engineering 1-2
0113 Joint Chiefs of Staff 1-2

0120 RDT&E Responsibilities at Secretary of Navy Level 1-2

0121 Secretary of the Navy 1-2
0122 Assistant Secretary of the Navy (R&D) 1-2
0123 Technical Staff Assistance for ASN (R&D) 1-4

0130 Operating Relationships 1-4

0140 Major Military Assistants to the Secretary 1-5

0141 The Chief of Naval Operations 1-5
0142 The Commandant of the Marine Corps 1-5
0143 The Chief of Naval Material 1-6
0144 The Deputy Chief of Naval Material (Development) 1-6
0145 The Chief of Naval Personnel 1-7
0146 Chief, Bureau of Medicine & Surgery 1-7
0147 The Oceanographer of the Navy 1-7

0150 The Chief of Naval Research 1-7

0151 Scientific & Technical Information (STINFO) Program of the Navy Department 1-7

0160 Committees and Boards 1-8

0170 Navy Laboratories 1-8

0180 Navy Oceanographic R&D Groups 1-8

Annotated Reference List 1-9

CHAPTER II
PLANNING

0200 THE NAVY PLANNING SYSTEM 2-1

0201 Navy Planning System Concept 2-1
0202 The Navy Planning System Intra-Relationships 2-1
0203 Relationships Between Navy Plans and Joint Plans 2-1
0204 Joint Program for Planning 2-1

0210 Documents of the Navy Planning System 2-2

0211 The Navy Strategic Study (NSS) 2-2
0212 Navy Mid-Range Guidance (NMRG) - Annex A to NSS 2-2
0213 Navy Long-Range Guidance (NLRG) - Annex B to NSS 2-2
0214 The Mid-Range Objectives (MRO) 2-2
0215 The Department of the Navy Program Objective (PO) 2-2
0216 Department of the Navy Five-Year Program (DNFYP) 2-4

0220 Need for Planning in RDT&E 2-4

0230 Some Characteristics of the RDT&E Planning Process 2-4

0231 The "Contract" Nature of User Producer Relationship 2-4
0232 Necessity of Choice 2-4
0233 Importance of Unfettered Information Flow 2-5
0234 Influence of Uncertainty 2-5
0235 Iteration in RDT&E Planning 2-5

0240 The Formal RDT&E Planning Procedures 2-5

0241 General Operational Requirements (GOR) 2-5
0242 Naval Research Requirements (NRR) 2-8
0243 Exploratory Development Requirements (EDR) 2-8
0243a Exploratory Development Goals (EDG) 2-8
0244 Tentative Specific Operational Requirements (TSOR) 2-8
0245 Proposed Technical Approaches 2-12
0246 Advanced Development Objectives (ADO) 2-12
0247 Specific Operational Requirements (SOR) 2-13
0248 Technical Development Plan (TDP) 2-13
0249 Contract Definition (CD) 2-14

0250 Project Master Plan (PMP) 2-15

0251 DD Form 1498 2-15

0260 Marine Corps Research & Development Planning 2-15

0261 Marine Corps Mid-Range Objectives Plan (MMROP) 2-15
0262 MMROP R&D Annex 2-18
0263 Marine Corps Development Actions 2-18
0264 Marine Corps Research & Development Program Document 2-18
0265 Marine Corps Development Cycle 2-18

0270 Cooperation with Allies in R[illegible]fense Equipment 2-20

Annotated Reference List 2-20

CHAPTER III
DEPARTMENT OF DEFENSE PROGRAMMING SYSTEM

0300 OBJECTIVES AND UNDERLYING ASSUMPTIONS 3-1

0301 Goals of the DOD Programming System 3-1
0302 Assumptions Underlying the System 3-2

0310 Five-Year Defense Program (FYDD) 3-2

0311 Program Element 3-2
0312 Program 3-2
0313 Resource Categories 3-3
0314 Material and Construction Annexes 3-4
0315 Program Element Costs 3-5

0320 Program Change Process 3-5

0321 Occasions for Initiation of Program Change Requests 3-6
0322 Thresholds 3-6
0323 Documents Required in the Program Change Process 3-7
0324 Internal Department of the Navy Processing of PCR's 3-7
0325 Processing of Service PCR's in OSD 3-7
0327 Other Changes to the FYDP 3-9
0328 Below Threshold Change to FYDP 3-9

0330 Program Review & Changes 3-9

0331 Annual Comprehensive Program Review 3-9
0332 Advancing the FYDP One Year 3-10
0333 Repricing 3-10

0340 DOD Programming System and the Department of the Navy 3-10

0341 Program Objectives (PO) 3-10
0342 Approved Process for Inclusion in PO 3-10
0343 Navy Cost-Effectiveness Study Capability 3-11
0344 Continued Evolution of the Programming System 3-11
0345 Relations Between the Programming Process and Budget Process 3-11
0346 RDT&E Program Downward Bias 3-11

Annotated Reference List 3-12

CHAPTER IV
PREPARATION AND JUSTIFICATION OF THE BUDGET

0400 PLACE AND IMPORTANCE OF BUDGETING IN THE MANAGEMENT PROCESS . 4-1

0401 Relation Between Programming and Budgeting Processes 4-1
0402 Importance of the Budgetary Process 4-1

0410 Budgeting Terms and Concept 4-2

0420 Budgetary Structure 4-2

0421 Appropriations 4-2
0422 Budget Activities 4-2
0423 Purpose of Appropriation Structure 4-2
0424 Conversion Problems 4-3

0430 The Budgetary Process 4-3

0431 Concept of the "Balanced Budget" 4-3
0432 Justification 4-3
0433 Function and Source of Guidance 4-4
0434 Project PRIME 4-4

0440 Supra-Navy Participants in the RDT&E Budgetary Process 4-4

0441 Congress 4-4
0442 The President 4-5
0443 Bureau of the Budget 4-5
0444 Secretary of Defense 4-5
0445 Director of Defense Research and Engineering (DDR&E) 4-5
0446 Assistant Secretary of Defense (Comptroller) 4-5
0447 Assistant Secretary of Defense (System Analysis) 4-5

0450 Department of the Navy Participants in RDT&E Budget Process 4-6

0451 Secretary of the Navy 4-6
0452 Comptroller of the Navy (NAVCOMPT) 4-6
0453 Assistant Secretary of the Navy (Research & Development) 4-6
0454 Chief of Naval Operations 4-7
0455 Commandant of the Marine Corps (CMC) 4-7
0456 Chief of Naval Material (CNM) 4-7

0460 Development and Justification of the Budget 4-8

0470 Justification of the Budget Before Congressional Committees 4-8

0471 General Procedures 4-8
0472 Guidelines for Witnesses Before Congressional Committees 4-8
0473 Preparation for Hearings 4-11
0474 Conduct of Hearings 4-11
0475 Review and Editing of the Transcript 4-12

Annotated Reference List 4-12

CHAPTER V
EXECUTION OF RDT&E BUDGET

0500 APPORTIONMENT AND ALLOCATION OF FUNDS 5-1

0501 Apportionment Request 5-1
0502 Apportionment Hearings 5-2
0503 Apportionment Request - DD Form 1105 5-2
0504 Budget Activity Allocations 5-3
0505 Allotments and Suballotments 5-3
0506 Approved and Deferred Schedules 5-3

0510 Obligations and Expenditures of Funds 5-3

0520 Financial Reporting 5-3

0530 Reprogramming 5-4

0531 Reprogramming Procedures 5-5
0532 Reprogramming Hearings 5-5
0533 Reprogramming Reports 5-5

0540 Tapping the Secretary of Defense Emergency Fund 5-5

0541 Eligibility Requirements 5-5
0542 Emergency Fund Request Procedure 5-5
0543 Transfer Authority Under Emergency Fund 5-6

0550 Audits and Review 5-6

0551 The General Accounting Office 5-6
0552 Internal Audit 5-6

Annotated Reference List 5-7

CHAPTER VI
APPRAISAL OF RDT&E EFFORT

0600 APPRAISAL OBJECTIVES AND AIDS 6-1

0601 Concept of "Management by Exception" 6-1
0602 Place of Information Reporting and Display Systems 6-1
0603 Verifying Continuing Validity of Plans and Requirements 6-1

0610 RDT&E Reports 6-1

0611 Technical Development Plan (TDP) 6-1
0612 Monthly Project Evaluation (MPE) 6-2
0613 HOTLINE Report 6-2
0614 DD Form 1498 6-4
0615 Research and Exploratory Development Highlights 6-4
0616 RDT&E Project Listing 6-4
0617 Resource Category Reports 6-4

0620 Evaluation Aids 6-4

0621 Monthly Summary Analysis 6-4
0622 Program Status Books 6-4
0623 Navy Automated Research and Development Information System (NARDIS) . 6-5

0630 DDR&E Review of On-Going Projects 6-5

0640 Testing and Evaluating Weapons and Weapons Systems 6-5

0641 Types of Test 6-5
0642 Organizations Performing Test and Evaluation 6-6

0643 Approval for Service Use 6-6
0644 Role of Operational Test and Evaluation Force (OPTEVFOR) 6-6
0645 Role of Marine Corps Landing Force Development Activities 6-6
0646 Obtaining Operational Services for RDT&E Projects 6-6
0647 Board of Inspection and Survey Trials 6-7

Annotated Reference List 6-7

CHAPTER VII
PROCUREMENT OF RDT&E EFFORT

0700 BACKGROUND AND GENERAL CONSIDERATIONS 7-1

0701 Past Problems in RDT&E Procurement 7-1
0702 Bell Report 7-1
0703 Recent Advances in RDT&E Procurement 7-2
0704 Importance of Good Work Statements 7-2
0705 RDT&E Procurement -- A Team Effort 7-2
0706 Types of Contracts 7-3

0710 Some Fundamental RDT&E Procurement Policies 7-3

0711 Government Responsibilities 7-3
0712 Choice of Implementing Institutions 7-3
0713 Avoidance of Conflict of Interest 7-4
0714 Bureau and Systems Command Relations with Industry 7-4
0715 The Place of the In-House Laboratories 7-4

0720 Categorization of RDT&E Effort 7-4

0730 Contracting for Research and Exploratory Development 7-5

0731 Grants 7-5
0732 Fixed-Price Type Contract 7-5
0733 Cost Contract 7-5
0734 Cost-Plus-a-Fixed-Fee Contract 7-6
0735 Full Disclosure Policy 7-6
0736 Government Equipment for Universities and Other Non-Profit Institutions 7-6

0740 Contracting for Systems Development 7-6

0741 Systems Effectiveness Concept 7-7
0742 Contracting Definition (CD) Concept and Objectives 7-8
0743 Concept Formulation (CF) 7-8
0744 Projects Subject to CD 7-9
0745 Trade Off Analysis in CD 7-9
0746 Performance Demonstration and Systems Effectiveness 7-9
0747 Types Contracts 7-10
0748 Structuring the Incentive Contract 7-10
0749 Contractor Performance Evaluation (CPE) 7-10

0750 Contracting with In-House Laboratories 7-11

0760 Contracts and Contract Provisions 7-11

0761 The FDT&E Contract 7-11
0762 Standard Contract Provisions 7-11
0763 Authority to Negotiate Contracts 7-12
0764 Patent Rights 7-13
0765 Data Acquisition and Data Rights 7-13
0766 Alternative Procurement Means 7-14

Annotated Reference List 7-14

Appendix A
Glossary

Appendix B
THE NAVY DIRECTIVES SYSTEM

B0100 SCOPE AND PURPOSE B-1

B0200 Directive Numbering B-1

B0210 Future Divisions B-2

B0300 Identifying and Obtaining Instructions B-2

B0310 Consolidated Subject Index B-3

B0400 DOD Directive System B-3

Annotated Reference List B-3

Appendix C
CLASSIFICATION SYSTEM

C0100 SOME THEORETICAL ASPECTS OF CLASSIFICATION SYSTEMS C-1

C0200 Coverage of Classification System Appendix C-2

C0300 Classification by Scientific Technical Center of Interest C-2

C0310 RDT&E Project Classification C-2
C0320 Naval Research Requirements (NRR) C-2

C0400 Classification by Functional Military Capabilities C-2

C0410 Exploratory Development Requirements (EDR) C-2
C0420 General Operational Requirements (GOR) C-3

C0500 Classification Used for Applications C-3

C0510 The DOD Budget Structure C-3
C0520 Budget and Expense Classification C-3

C0600 Classification Used in DOD Programming System C-3

C0610 DOD Five Year Defense Program C-3
C0620 Category C-4

C0630 Aggregations C-4
C0640 Program Element C-4

C0700 Relationship Between Programming and Appropriations Classification C-4

Annotated Reference List C-7

Appendix D
THE NATURE OF RDT&E EFFORT

D0100 NEED FOR CATEGORIZATION OF RDT&E EFFORT D-1

D0200 Categories of RDT&E Effort D-1

D0210 Naval Research D-1
D0220 Exploratory Development D-2
D0230 Advanced Development D-2
D0240 Engineering Development D-3
D0250 Management and Support D-3
D2060 Operational System Development D-3

Annotated Reference List D-3

Appendix E
ORGANIZATION

E0100 OFFICE OF SECRETARY OF DEFENSE E-1

E0110 Director of Defense Research and Engineering (DDR&E) E-1
E0111 Advanced Research Projects Agency (ARPA) E-3
E0112 Weapons Systems Evaluation Group (WSEG) E-5

E0130 Joint Agencies E-7

E0131 National Security E-7
E0132 Defense Atomic Support Agency E-7
E0133 Defense Documentation Center (DDC) E-8
E0134 Defense Communications Agency (DCA) E-9

E0200 OTHER GOVERNMENT SCIENTIFIC ORGANIZATIONS E-9

E0210 Atomic Energy Commission (AEC) E-9
E0220 The National Aeronautics and Space Administration (NASA) E-10
E0221 The Office of Advanced Research and Technology E-10
E0222 The Office of Manned Space Flights E-10
E0223 The Office of Space Science and Applications E-10
E0224 The Office of Tracking and Data Acquisition E-10
E0225 The Aeronautics and Astronautics Coordinating Board E-10

E0300 OFFICE OF SECRETARY OF THE NAVY E-10

E0310 Assistant Secretary of the Navy (Research & Development) (ASN-R&D) . . . E-10
E0311 Duties and Responsibilities E-10
E0312 Functions E-11
E0313 Relationships E-11
E0314 Organization E-11

E0330 Office of Program Appraisal (OPA) E-12

E0400 CHIEF OF NAVAL OPERATIONS (CNO) E-13

E0410 Director, Navy Program Planning (DNPP) (OP-090) E-13
E0411 Mission E-13
E0412 Functions (RDT&E) E-15

E0420 Deputy Chief of Naval Operations (Manpower and Naval Reserve) - (OP-01) E-16

E0421 Mission E-16
E0422 RDT&E Functions E-16

E0430 Deputy Chief of Naval Operations (Fleet Operations and Readiness) (OP-03) E-16

E0431 Mission E-16
E0432 RDT&E Functions E-16
E0433 Submarine Warfare Division (OP-31) (RDT&E Functions) E-16
E0434 Anti-Submarine Warfare and Ocean Surveillance Division (OP-32) (RDT&E Functions) E-16
E0435 Strike Warfare Division (OP-34) (RDT&E Functions) E-16
E0436 Electronic Warfare and Command Systems Division (OP-35) (RDT&E Functions) E-16
E0437 Ships Characteristics Division (OP-36) (RDT&E Functions) E-16

E0440 Deputy Chief of Naval Operations (Air) (OP-05) E-16

E0441 Mission E-16
E0442 RDT&E Functions E-16

E0450 Deputy Chief of Naval Operations (Development) (OP-07) E-17

E0451 Mission E-17
E0452 Organization E-17
E0453 Functions E-17
E0454 The Technical Analysis and Advisory Group's (OP-07T) E-19
E0455 Development Planning Division (OP-70) E-19
E0456 Undersea and Strategic Warfare Division (OP-71) E-19
E0457 Air, Surface and Electronic Warfare Division (OP-72) E-19
E0458 Atomic Energy Division (OP-75) E-19
E0459 Astronautics Division (OP-76) E-19

E0460 Assistant Chief of Naval Operations (Intelligence) (OP-92) E-19

E0461 Mission E-19
E0462 RDT&E Function E-20

E0470 Assistant Chief of Naval Operations (Communications) (OP-94) E-20

E0471 Mission E-20
E0472 RDT&E Function E-20

E0480 Director, Antisubmarine Warfare Programs (OP-95) E-20

E0481 Mission E-20
E0482 Functions E-20

E0490 Director Strategic Offensive and Defensive Systems (OP-97) E-20

E0491 Mission E-20
E0492 RDT&E Function E-20

E0500 Bureau of Naval Personnel. E-21

E0501 The Bureau of Naval Personnel. E-21

E0510 Research and Development Activities. E-21

E0520 Scientific Extramiral Education E-21

E0600 Bureau of Medicine and Surgery E-21

E0610 Mission E-21
E0620 Chief of Bureau (Surgeon General). E-22
E0630 Assistant Chief for Research and Military Medical Specialities E-22
E0640 The Research Division (Code 71). E-22
E0650 The Division Director E-22

E0700 THE CHIEF OF NAVAL MATERIAL (CNM) E-22

E0701 Responsibility and Authority. E-22

E0710 Headquarters, Naval Material Command. E-24

E0711 Vice Chief of Naval Material E-24
E0712 Deputy for Programs and Financial Management (DCNM-P&FM) E-26
E0713 Deputy for Development / Chief of Naval Development E-28
E0714 Deputy for Logistics Support E-30
E0715 Deputy for Management and Organization E-30
E0716 Deputy for Procurement E-30

E0720 Organization of the Staff of DCNM (D) /CND E-30

E0721 Exploratory Development Division (MAT 031) E-30
E0722 Systems Development Division (MAT 032). E-30
E0723 Director of Laboratory Programs (MAT 031) E-32
E0724 Laboratory/Development Resources Division (MAT 033). E-32

E0800 DUTIES AND RESPONSIBILITIES OF SYSTEMS COMMANDS IN THE NAVAL MATERIAL COMMAND. E-32

E0801 Naval Material Command. E-32
E0802 Authority Over Organizational Matters. E-33
E0803 Material Advisory Council E-34
E0804 Operating Relationships. E-34
E0805 Material Support Responsibilities of the Principal Subordinate Commands (System Commands) E-34
E0806 Project Management E-35
E0807 Work for Other Departments, Agencies and Governments E-35
E0808 Procurement of Material and Services E-35
E0809 Coordination and Conduct of Research E-35

E0810 Coordination of Exploratory Development and Laboratories E-35

E0811 Administrative and Technical Guidance and Assistance E-36
E0812 Personnel; Officer Specialists and Corps E-36
E0813 Personnel and Training Support E-36

E0820 Naval Air Systems Command E-36

E0821 Material Support Responsibilities E-36
E0822 Air Systems Integration Responsibility. E-36
E0823 Technical Guidance and Assistance E-36
E0824 Assistant Commander for Research and Technology E-38
E0825 Technology Administrators E-38

E0830 Naval Electronic Systems Command E-39

E0831 Material Support Responsibilities E-39
E0832 Technical Authority, Guidance and Assistance E-41
E0833 Research and Technology Directorate E-41

E0840 Naval Facilities Engineering Command E-41

E0841 General Duties and Responsibilities. E-41
E0842 Technical Guidance and Assistance E-44
E0843 Assistant Commander for Research and Development E-44

E0850 Naval Ordnance Systems Command E-45

E0851 Material Support Responsibilities E-45
E0852 Ordnance Systems Integration. E-47
E0853 Technical Authority, Guidance and Assistance E-47
E0854 Research and Technology Directorate E-47

E0860 Naval Ship Systems Command. E-48

E0861 Material Support Responsibilities E-48
E0862 Ship Systems Integration and Coordination E-50
E0863 Technical Guidance and Assistance E-50
E0864 Coordination of Shipbuilding, Conversion and Repair. E-50
E0865 Deputy Commander for Research and Development. E-51
E0866 Naval Nuclear Propulsion E-53

E0870 Naval Supply Systems Command E-53

E0871 General Duties and Responsibilities. E-53
E0872 Procurement Responsibilities. E-55
E0873 Technical Guidance and Assistance E-55
E0874 Deputy Commander, Planning and Policy (06) E-56

E0900 COMMANDANT OF THE MARINE CORPS (CMC). E-56

E0910 Deputy Chief of Staff, Research Development and Studies (RD&S). E-56
E0920 Coordinator, Marine Corps Landing Force Development Activities E-56

E1000 CHIEF OF NAVAL RESEARCH (CNR) E-58

E1001 Functions E-58
E1002 Navy Automated Research and Development Information System (NARDIS) E-60

E1010 Office of Naval Research (ONR) (Code 100) (Section I). E-62

E1011 Mission E-62
E1012 Staff Assistance for CNR E-62

E1020 Assistant Chief for Research E-62

E1021 Research Director E-65

E1030 Office of Technical Support E-65

E1040 Director Ocean Science and Technology Group. E-66

E1050 Naval Research Group, Division Directors E-67

E1051 Branch Heads, Naval Research Group Divisions. E-67

E1060 Director, Naval Applications and Analysis Group E-67

E1061 Technical Director for Naval Application E-68
E1062 Technical Director for Naval Analysis E-68

E1070 Office of Assistant Chief of Naval Research for Patents (Code 300) (Section VII) E-69

E1080 Office of the Comptroller (Code 500) E-69

E1081 Mission E-69
E1082 Functions E-69
E1083 Organization E-71

E1090 Scientific and Technical Information (STINFO) Program E-71

E1100 COMMITTEES. E-76

E1110 The President's Science Advisory Committee E-76

E1120 The Defense Science Board E-77

E1121 DOD Council on Technical Data and Standardization Policy E-77

E1130 Naval Research Advisory Committee E-78

E1140 Chief of Naval Operations Advisory Board (CAB) E-79

E1150 Chief of Naval Operations Program Planning Council (NPPC). E-80

E1160 Ship Characteristics Board E-81

E1200 TEST ORGANIZATIONS E-83

E1210 Operational Test and Evaluation Force. E-83
E1211 Mission E-83
E1212 Organization E-83
E1213 Operating Principles. E-86

Annotated Reference List. E-86

Appendix F
RDT&E ACTIVITIES

F0100 The Role of the In-House RDT&E Field Activities F-1

F0110 From the "Bell Report". F-2

F0120 From DDR&E F-2

F0130 From ASN (R&D). F-2

F0200 Management of Navy In-House RDT&E Field Activities F-3

F0210 Organizational Relationships of the Director of Navy Laboratories (DNL). F-3

F0220 Duties Authority and Responsibilities of the Director of Navy Laboratories (DNL) . . F-3

F0300 Listing of U.S. Navy RDT&E Field Activities. F-5

F0310 Activities Reporting to the Chief of Naval Operations F-5

F0311 U. S. Navy Observatory F-5
F0312 U. S. Naval Oceanographic Office F-5
F0313 Naval Command Systems Support Activity (NAVCOSSACT). F-5
F0314 Fleet Numerical Weather Facility F-5
F0315 Navy Weather Research Facility F-5

F0320 Activities Reporting to Chief of Naval Research. F-5

F0321 U. S. Naval Research Laboratory F-5
F0322 U. S. Naval Training Device Center F-6
F0323 U. S. Naval Biological Laboratory F-6
F0324 Hudson Laboratories, Columbia University F-6
F0325 Marine Physical Laboratory, Scripps Institute of Oceanography F-6
F0326 U. S. Naval Arctic Research Laboratory. F-7

F0330 Activities Reporting to the Chief of Naval Material. F-7

F0331 U. S. Naval Air Development Center F-7
F0332 U. S. Naval Air Engineering Center F-7
F0333 U. S. Naval Applied Science Laboratory F-9
F0334 U. S. Naval Civil Engineering Laboratory F-9
F0335 U. S. Naval Ship Research and Development Center F-9
F0336 U. S. Navy Electronics Laboratory F-10
F0337 U. S. Navy Mine Defense Laboratory F-10
F0338 U. S. Naval Ordnance Laboratory (Calif.) F-10
F0339 U. S. Naval Ordnance Laboratory (Md.) F-10

F0340 Field Activities Reporting to the Chief of Naval Material (cont.) F-11

F0341 U. S. Naval Ordnance Test Station F-11
F0342 U. S. Naval Radiological Defense Laboratory. F-11
F0343 U. S. Navy Underwater Sound Laboratory F-11
F0344 U. S. Naval Weapons Laboratory F-11
F0345 U. S. Naval Underwater Weapons Research and Engineering Station. F-12

F0350 Activities Reporting to the Commander, Naval Air Systems Command F-12

F0351 U. S. Naval Aerospace Recovery Facility F-12
F0352 U. S. Naval Air Test Center F-12
F0353 U. S. Naval Air Test Facility (Ship Installation) F-12
F0354 U. S. Naval Air Turbine Test Station F-13
F0355 U. S. Naval Missile Center F-13
F0356 U. S. Naval Weapons Evaluation Facility F-13
F0357 Other Naval Air Systems Command Activities F-13

F0360 Activities Reporting to the Commander Naval Ordnance System Command F-13

F0361 Applied Physics Laboratory (Md.) F-13
F0362 Applied Physics Laboratory (Wash.) F-13
F0363 U. S. Naval Explosive Ordnance Disposal Facility F-14
F0364 U. S. Naval Ordnance Missile Test Facility F-14
F0365 U. S. Naval Ordnance Unit F-14
F0366 Ordnance Aerophysics Laboratory F-14
F0367 Ordnance Research Laboratory F-14

F0370 Activities Reporting to the Chief, Bureau of Medicine and Surgery F-15

F0371 Naval Medical Field Research Laboratory F-15
F0372 U. S. Navy Medical Neuropsychiatric Unit F-15
F0373 Naval Medical Research Institute F-15
F0374 Naval Submarine Medical Research Laboratory F-15
F0375 Naval Medical Research Units F-15
F0376 U. S. Naval Aerospace Medical Institute F-16
F0377 U. S. Navy Toxicology Unit F-16

F0380 Activities Reporting to the Chief of Naval Personnel F-16

F0381 U. S. Naval Personnel Research Activity F-16

F0390 Activities Reporting to the Commander, Naval Supply Systems Command F-16

F0391 Navy Clothing and Textile Research Unit F-16

Annotated Reference List F-17

Appendix G
(RESERVED)

Appendix H
PROMOTING EFFECTIVENESS AND ECONOMY

H0100 Introduction H-1

H0110 Management Responsibility H-1
H0120 Economy in Defense H-2

H0200 DOD Navy Cost Reduction Program H-5

H0210 Purpose H-5
H0220 Applicability H-6
H0230 Reporting Requirements H-6

H0300 Navy Work Simplification Program H-6

H0310 Purpose H-6
H0320 Techniques H-6
H0321 Work Distribution Analysis H-6
H0322 Work Count Analysis H-7
H0323 The Flow Process Analysis H-7
H0324 Motion Analysis H-7
H0325 Layout Analysis H-7

H0400 Value Engineering H-7

H0410 Definition H-7
H0420 Purpose H-7
H0430 Applicability H-7

H0500 Navy Paperwork Management Program H-7

H0510 Purpose H-7
H0520 Techniques H-8
H0521 Reports Management H-8
H0522 Directive System H-8
H0523 Correspondence Management H-8
H0524 Record System H-8
H0525 Record Disposition H-8
H0526 Microphotography H-8
H0527 Office Equipment Management H-8

H0600 Beneficial Suggestion Program H-8

H0610 Purpose H-8
H0620 Program Support H-8
H0630 Establishment and Operation H-8
H0640 Cost of Awards H-9
H0650 Coordination with Other Management Programs H-9

H0700 Management Assistance H-9

H0710 Sources H-9
H0711 District Management Assistance Office (DMAO) H-9
H0712 Local Activity Management Staff H-9
H0713 Navy Management Review H-9
H0720 Use H-9
H0730 Cost H-10
H0740 Support H-10

H0800 Systems Analysis H-10

H0810 Introduction H-10
H0820 Elements of an Economic Analysis H-10
H0821 An Objective or Objectives H-10
H0822 Alternatives H-10
H0823 Costs or Resources Used H-10
H0824 A Model or Models H-10
H0825 A Criterion H-11
H0830 "A Way of Looking at Problems" H-11

Annotated Reference List H-11

Appendix I
CHARTS

1. Major Steps in the Budget Process I-1

2. Formulation at Executive Budget. I-2

3. Congressional Action on Appropriations, January - July I-3

4. Execution of Enacted Budget. I-4

5 RDT&E Cycle I-5

6. Systems Planning I-7

7. Documentation of Requirements for Development Effort I-8

Appendix J
OCEANOGRAPHIC PROGRAM

J0100 Oceanographer of the Navy. J-1

J0110 Mission J-1

J0200 Naval Oceanographic Program J-1

J0210 Definition J-1
J0211 Ocean Science J-1
J0212 Ocean Engineering and Development J-1
J0213 Oceanographic Operations J-1

J0300 Program Relationship J-1

Annotated Reference List. J-1

INDEX Index-1

User Comment Return Forms

Distribution List

INTRODUCTION

The Department of the Navy RDT&E Management Guide was developed to aid both newcomers to RDT&E management and practicing "journeymen." For newcomers the Guide provides the means for rapid orientation in the Department of the Navy system for managing its RDT&E effort. For practicing RDT&E managers the Guide is a quick source of general information and leads to directives containing detailed guidance.

This manual is a "guide," not a directive. It cannot be cited as authority for action. It supplements directives by helping the user perceive the overall "system" defined by the totality of all directives and find those applicable to a particular problem. Consult the latest version of directives for official guidance on policies and procedures.

Content and Organization of the Guide

Chapters I-VII provide an overview of organization for RDT&E and procedures for planning, programming, budgeting, appraisal, and procurement. These chapters are written as an integrated account to be read in sequence as in a book. The Appendices (A-J) are a collection of official information brought together for reference. Information on specific topics can be gained by use of the Index.

Several aids for finding material in the Guide are provided: a table of contents; a short abstract for each chapter and appendix; and a comprehensive index.

Each paragraph and major section is identified by a four digit number. The first two digits of the paragraph numbers of the numbered chapters identify the applicable chapter, i.e., 0433 is in Chapter IV. In the Appendices, paragraph numbers are preceded by the letter identification of the appendix containing the paragraph, i.e., paragraph E0420 is in Appendix E.

The newcomer to RDT&E management, the reader for whom the Guide is primarily intended, can expect some difficulty with the numerous abbreviations — TDP, BIS, FYDP, etc. Such abbreviations were used not only to save space but also because they are part of the language of RDT&E management communications. Each time a new abbreviation is introduced, the full expression is given first, followed by the abbreviation in parentheses.

Official information sources are identified in manual discussion and an annotated reference list of directives follows each chapter.

Revision, Growth, and "User Comment Return Form"

The RDT&E Management Guide is designed to be a living document — constantly responding to changes in RDT&E management structure and processes; constantly improving in content and presentation. Responsibility for the maintenance and expansion of the Guide has been assigned, under the supervision of the Special Assistant for Surface to ASN(R&D), to a Naval Air Reserve Training Unit, (WEPTU 665), NARTU, Naval Air Facility, Washington, D.C. 20390.

Revisions to the Guide will be effected by use of page changes. As the Guide is published in loose-leaf form, changes may easily be made by the removal of an old page and the insertion of a new, revised page. The Guide thus may be maintained in a current status at all times.

Using commands and individuals are encouraged to submit proposed new chapters, appendices, sections, or paragraph. Less extensive feedback — even mere indications that specified sections are judged to be weak — is useful and solicited. Feedback may be forwarded directly by individuals to:

CAPT J. Edward Snyder, Jr., USN
Office of the Assistant Secretary of the Navy (R&D)
Navy Department
Washington, D.C. 20350

Suggested changes in policy, procedure or organization are also invited. However, these

suggestions should be sent officially to appropriate authority, not to the Guide project. It is the function of the Guide merely to reflect accurately existing policy. The Guide is not intended to be a policy document.

Material sent directly to the Guide project, and judged to require coordination, will be forwarded to appropriate commands for review prior to publication. Handy forms for short user-feedback are provided immediately following the Introduction. Forms are addressed on the back so that when properly folded and taped, they are ready for mailing.

ABSTRACTS

Chapter I - Organization for RDT&E

A broad overview of organization for RDT&E is provided with emphasis on responsibilities of major officials and working relationships between them. Detailed information on the organization of activities involved in RDT&E management can be found in Appendix E.

Chapter II - Planning

The Navy Planning System is briefly outlined and procedures and responsibilities in planning of RDT&E effort is covered in greater detail. The evolution of RDT&E plans is traced from their genesis in the interaction of scientific and technological possibilities with long-range military capability needs, to their definitive expression through Contract Definition. Marine Corps planning for RDT&E is also covered.

Chapter III - Department of Defense Programming System

The Department of Defense Programming System and its implementation in the Department of the Navy are covered. In addition to the mechanisms of the Five-Year Defense Program (FYDP) and Program Change Control System, theoretical aspects of the system are also discussed.

Chapter IV - Preparation and Justification of the Budget

The eighteen-month process of the development, presentation and justification of the RDT&E budget, from the development of the Program Objectives to passage of the Appropriation Act by the Congress, is presented. The objectives and mechanisms of the budgetary process, and responsibilities or organizations and officials in that process, are covered.

Chapter V - Execution of the Budget

The execution of the RDT&E program is described from the budgetary standpoint. Subjects covered include apportionment and allocation of funds, reprogramming, the operation of the Secretary of Defense Emergency Fund and audits and review.

Chapter VI - Appraisal of RDT&E Effort

The execution of the RDT&E program is discussed from the viewpoint of the appraisal of ongoing effort which provides the occasion for management action. Focus is on organization, procedures and practices at the supra-bureau level. The theory of management by exception and the place of planning, reporting, and appraisal in its implementation are discussed. The chapter also covers DDR&E continuing review of ongoing projects and the physical evaluation of equipment, weapons and weapon system by the Operating Forces.

Chapter VII - Procurement of RDT&E Effort

The chapter deals with the process of arranging for the implementation of RDT&E effort, whether performed by in-house laboratory or under contract by a non-profit institution or private industry. RDT&E procurement policies and contracting procedures for each major category of RDT&E effort are discussed, as well as the more technical aspects of contracting procedures and requirements.

Appendix A - Glossary

The Glossary is a collection of definitions of terms used in RDT&E management. Even though definitions were culled from official directives and manuals, few have been prescribed for general use. The source of each term is identified. A reference list of sources and other glossaries is provided.

Appendix B - The Navy Directives System

The organization of the Navy Directives System is explained along with information on available aids for identifying directives applicable to particular subjects.

Appendix C - Classification Systems

Several classification systems employed in RDT&E management are presented, including those for NRRs, EDRs, GORs, materials R&D, the DOD Programming System and the appropriation system. The relationship between programming and appropriation classification in the RDT&E area is explained and illustrated.

Appendix D - The Nature of RDT&E Effort

The categorization of RDT&E effort into Research, Exploratory Development, Advanced Development, Engineering Development and Operational Systems Development is explained and definitions of these categories are provided.

Appendix E - Organizations

This appendix represents an attempt to provide relatively detailed information on all major organizations, except laboratories, which are involved in the management of Department of the Navy RDT&E effort. In addition to the organization of the elements of the Department of the Navy, the organization of ODDR&E, ARPA, WSEG, Joint Agencies and other Government agencies involved in RDT&E are covered. The chapter also includes information on major RDT&E boards and advisory groups and test organizations.

Appendix F - Laboratories

Background information on the function of the Navy's in-house laboratories is provided along with briefs on each institution. These briefs include a statement of laboratory mission and information on the value of the plant, number of personnel and approximate budget.

Appendix G - (Reserved)

Appendix H - Promoting Effectiveness and Economy

Information on management concepts, techniques and programs currently in use by the Department of Defense and the Navy to improve the utilization of funds and effectiveness and economy of operations is provided. The appendix also provides information on obtaining advice and assistance for improving the cost-effectiveness of operations.

Appendix I - Charts

This section contains both charts collected from official Government sources, and original charts developed for the Guide. If feedback from users indicates these later charts are useful, additional ones will be developed for subsequent editions of the Guide.

Appendix J - Oceanography

This appendix defines and describes the mission and functions of the Oceanographer of the Navy in the management of the Naval Oceanographic Program. Brief descriptions are provided for the major functional program areas, including Ocean Science, Ocean Engineering and Development, and Oceanographic Operations.

NOTE REGARDING DIRECTIVE NUMBERS

The directive numbers referenced in this guide will not, in all cases, reflect the latest revision suffix. When obtaining or referring to directives, the current (latest) revision should be obtained.

NavPubInst 5215.3 Consolidated Check List, which is published annually (June), with quarterly supplements, is useful in determining recent revision status of directives.

NavPubInst 5215.4, Consolidated Subject Index of Unclassified Instructions, which is published annually (June), with quarterly supplements, is useful in identifying departmentally originated instructions, and determining current revision status by subject.

CHAPTER I

ORGANIZATION FOR RDT&E

In this chapter, organization for RDT&E is discussed in a summary fashion from a somewhat special viewpoint. Emphasis here is on the fundamental responsibilities of officials and agencies, and on interrelationships — how they work together in RDT&E matters.

The information in this chapter, the smallest of the seven chapters of the Department of the Navy RDT&E Management Guide, is but a small part of the total information provided by the Guide on the subject of organization for RDT&E. In a real sense the entire Guide is on that subject, since each chapter is devoted, at least in part, to "who does what" in carrying out various functions. In addition, major sections provide information on individual organizations, i.e., Appendix E, "Organizations," Appendix F, "Navy Laboratories," and Appendix J, "The Naval Oceanographic Program."

0100 OBJECTIVES OF THE DEPARTMENT OF THE NAVY

Organization for RDT&E can be discussed meaningfully only in terms of the purpose of the RDT&E effort — providing maximum support to the ability of the Department of the Navy to carry out its mission — and in context with other organizational elements contributing to that same end. The fundamental objectives of the Department of the Navy, as stated in General Order No. 5 are

a. to organize, train, equip, prepare, and maintain the readiness of Navy and Marine forces for the performance of military missions as directed by the President or the Secretary of Defense, and

b. to support Navy and Marine forces, including the support of such forces and the forces of other military departments, as directed by the Secretary of Defense, which are assigned to unified or specified commands. Support, as here used, includes administrative, personnel, material, and fiscal support, and technological support through research and development.

0110 RDT&E Responsibilities at the Department of Defense Level

0111 Secretary of Defense. Functions of the Department of Defense and its component agencies are performed under the direction, authority, and control of the Secretary of Defense. He functions under the direction of the President, who, as Commander-in-Chief of the Armed Forces, is responsible for final decisions on broad military problems.

The responsibilities and authorities of the Secretary of Defense are spelled out in the National Security Act of 1947 as amended. The Act makes clear Congressional intent that the Secretary of Defense should be in an authoritative position in relation to the affairs of each of the Military Departments, particularly for RDT&E. These basic policies are reflected in the following quotation from the Act:

In enacting this legislation, it is the intent of Congress to provide a comprehensive program for the future security of the United States; to provide for the establishment of integrated policies and procedures for the departments, agencies, and function of the Government relating to national security; to provide a Department of Defense, including the three military departments of the Army, the Navy (including naval aviation and the United States Marine Corps), and the Air Force under the direction, authority, and control of the Secretary of Defense; to provide that each military department shall be separately organized under its own Secretary and shall function under the direction, authority, and control of the Secretary of Defense...to eliminate unnecessary duplication in the Department of Defense, and particularly in the field of research and engineering by vesting its overall direction and control in the Secretary of Defense...

0112 Director of Defense Research and Engineering. The Office of the Director Defense Research and Engineering was established by Congress through passage of the Department of Defense Reorganization Act of 1958. As an indication of the importance Congress attached to the responsibilities of this official, the law specifies that he shall rank ahead of all other assistant secretaries of defense. Responsibilities of the Director of Defense Research and Engineering (DDR&E), as set forth in the Defense Reorganization Act of 1958, include the following:

The Director performs such duties with respect to research and engineering as the Secretary of Defense may prescribe, including, but not limited to, the following: (1) to be the principal adviser to the Secretary of Defense on scientific and technical matters; (2) to supervise all research and engineering activities in the Department of Defense; and (3) to direct and control (including their assignment or reassignment) research and engineering activities that the Secretary of Defense deems to require centralized management.

To enable DDR&E to fulfill these responsibilities, the Secretary of Defense has delegated — via DOD Directive 5129.1, "Director of Defense Research and Engineering" — authority to:

Approve, modify or disapprove programs and projects of the military departments and other Department of Defense agencies in his (DDR&E's) assigned fields to eliminate unpromising or unnecessarily duplicative programs, and initiate or support promising ones for research and development.

0113 Joint Chiefs of Staff. The Joint Chiefs of Staff have responsibilities toward the RDT&E programs of the Services which are spelled out in DOD Directive 5100.1 (SECNAV 5410.85), under "Functions of the Department of Defense and its Major Components."

15. To advise and assist the Secretary of Defense in research and engineering matters by preparing: (a) statements of broad strategic guidance to be used in the preparation of an integrated Department of Defense program; (b) statements of overall military requirements; (c) statements of the relative military importance of development activities to meet the needs of the unified and specified commanders; and (d) recommendations for the assignment of specific new weapons to the armed forces

0120 RDT&E Responsibilities at the Secretary of the Navy Level

0121 The Secretary of the Navy. The Secretary of the Navy heads the Department of the Navy under the direction, authority, and control of the Secretary of Defense. He is responsible for the policies and control of the Department of the Navy, including its organization, administration, operation, and efficiency. Current Department of the Navy organization is depicted in Figure 1-1.

The Secretary of the Navy apportioned responsibility and authority among his major subordinates in General Order Number 5 of 29 April 1966, "Assignment and Distribution of Authority and Responsibility for the Administration of the Department of the Navy." This document is so broad in its coverage, and so all-pervasive in its implications, that all officials of the Department of the Navy, military and civilian, should study it with care.

The Secretary has assigned Department-wide responsibilities for areas, essential to the efficient administration of the Department of the Navy, to and among his Civilian Executive Assistants. The Civilian Executive Assistants include the Under Secretary of the Navy and the Assistant Secretaries and the Special Assistant to the Secretary. The responsibilities of the Assistant Secretary for Research and Development are discussed below and at greater length in paragraph E0310.

RDT&E responsibilities of senior military line officials reporting to the Secretary are discussed in section 0140 below.

0122 Assistant Secretary of the Navy (Research and Development). In SECNAV Instruction 5430.7G, the Secretary of the Navy assigned responsibilities to the Assistant Secretary of the Navy (Research and Development) [ASN(R&D)] and his other Civilian Executive Assistants. Amplification of ASN(R&D)'s responsibilities is contained in his charter, SECNAV Instruction 5430.66.

Through this latter instruction, the Secretary of the Navy authorized and directed ASN(R&D) to act for the Secretary in his area of responsibilities. He is responsible for coordinating and directing the efforts of the Office of the Chief of Naval Operations, Headquarters, Marine Corps, the Naval Material Command and other commands and offices in the performance of the research, development, engineering, test and evaluation programs.

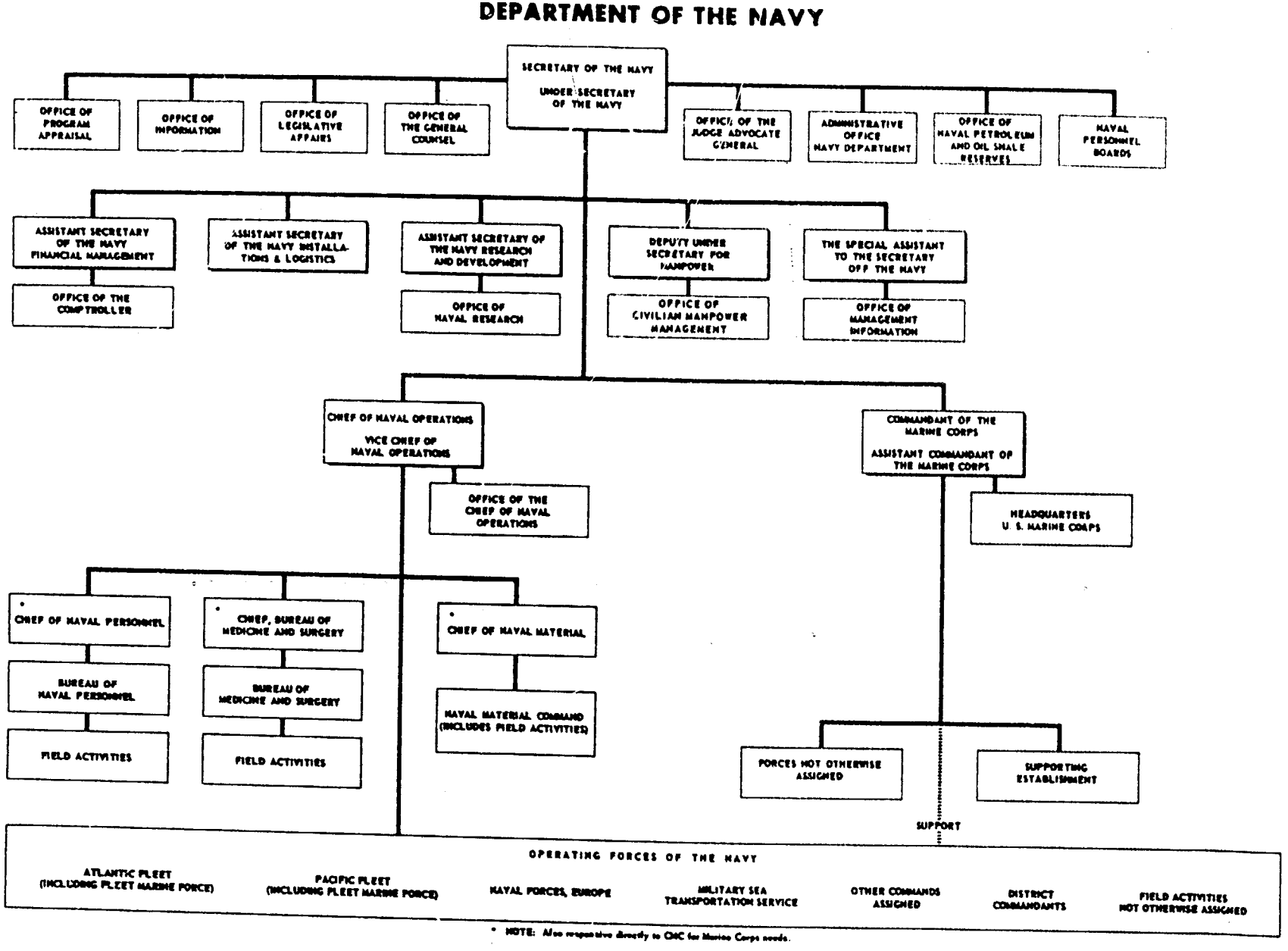

DEPARTMENT OF THE NAVY
SECRETARY OF THE NAVY
UNDER SECRETARY OF THE NAVY
OFFICE OF PROGRAM APPRAISAL
OFFICE OF INFORMATION
OFFICE OF LEGISLATIVE AFFAIRS
OFFICE OF THE GENERAL COUNSEL
OFFICE OF THE JUDGE ADVOCATE GENERAL
ADMINISTRATIVE OFFICE NAVY DEPARTMENT
OFFICE OF NAVAL PETROLEUM AND OIL SHALE RESERVES
NAVAL PERSONNEL BOARDS
ASSISTANT SECRETARY OF THE NAVY FINANCIAL MANAGEMENT
OFFICE OF THE COMPTROLLER
ASSISTANT SECRETARY OF THE NAVY INSTALLATIONS & LOGISTICS
ASSISTANT SECRETARY OF THE NAVY RESEARCH AND DEVELOPMENT
OFFICE OF NAVAL RESEARCH
DEPUTY UNDER SECRETARY FOR MANPOWER
OFFICE OF CIVILIAN MANPOWER MANAGEMENT
THE SPECIAL ASSISTANT TO THE SECRETARY OFF THE NAVY
OFFICE OF MANAGEMENT INFORMATION
CHIEF OF NAVAL OPERATIONS
VICE CHIEF OF NAVAL OPERATIONS
OFFICE OF THE CHIEF OF NAVAL OPERATIONS
COMMANDANT OF THE MARINE CORPS
ASSISTANT COMMANDANT OF THE MARINE CORPS
HEADQUARTERS U. S. MARINE CORPS
CHIEF OF NAVAL PERSONNEL
BUREAU OF NAVAL PERSONNEL
FIELD ACTIVITIES
CHIEF, BUREAU OF MEDICINE AND SURGERY
BUREAU OF MEDICINE AND SURGERY
FIELD ACTIVITIES
CHIEF OF NAVAL MATERIAL
NAVAL MATERIAL COMMAND (INCLUDES FIELD ACTIVITIES)
FORCES NOT OTHERWISE ASSIGNED
SUPPORTING ESTABLISHMENT
SUPPORT
OPERATING FORCES OF THE NAVY
ATLANTIC FLEET (INCLUDING FLEET MARINE FORCE)
PACIFIC FLEET (INCLUDING FLEET MARINE FORCE)
NAVAL FORCES, EUROPE
MILITARY SEA TRANSPORTATION SERVICE
OTHER COMMANDS ASSIGNED
DISTRICT COMMANDANTS
FIELD ACTIVITIES NOT OTHERWISE ASSIGNED
* NOTE: Also responsive directly to CNC for Marine Corps needs.

Figure 1-1

in connection with this function his charter states that ASN(R&D) shall:

> Establish policy, exercise management and control of, direct, and supervise all Department of the Navy research, development, engineering, test and evaluation matters, including general management of the appropriation "Research, Development, Test and Evaluation, Navy." (Emphasis added.)

The ASN(R&D) is the only Civilian Executive Assistant currently assigned as manager of an appropriation. This responsibility gives him far more control over the Navy's RDT&E program and its execution than has, in the past, normally been exercised by officials at the secretarial level over their areas of functional responsibility. With this relationship to the Department of the Navy RDT&E program and budget, ASN(R&D) functions as an operating official as well as a policy official. He is to:

- Act as Chairman of the Research and Development Committee, Department of the Navy.
- Exercise immediate supervision of the Office of Naval Research.

The Assistant Secretary of the Navy (R&D) is also responsible for liaison with the Director of Defense Research and Engineering.

0123 Technical Staff Assistance for ASN (R&D). The ASN(R&D) has only a very small personal technical staff – military and civilian RDT&E professionals. For technical staff assistance in fulfillment of his Department-wide responsibility for policy supervision of all research, development, engineering, test, and evaluation efforts within the Department of the Navy, the ASN(R&D) looks to his principal advisors – the Deputy Chief of Naval Operations (Development), the Deputy Chief of Staff (R&D) Marine Corps, the Chief of Naval Development, and the Chief of Naval Research. The principal staff support responsibilities of these officials to the ASN(R&D) are set forth in SECNAV Instruction 5430.67, "Assignment of responsibilities for research development, test, and evaluation," as follows:

a. Deputy Chief of Naval Operations (Development) recommends standard procedures for planning, programming, and appraising the research and development effort of the Navy, and provides staff assistance for planning, programming and appraising for military worth the Navy research and development effort.

b. Deputy Chief of Staff (R&D) Marine Corps provides for the Marine Corps program services similar to those provided by DCNO(D) for the Navy.

c. Chief of Naval Development coordinates the Navy's Exploratory Development Program and provides staff assistance to ASN(R&D) with regard to technical, economic, and logistics appraisal of the Navy's development effort.

d. Chief of Naval Research coordinates the Naval Research Program; provides budgeting, accounting, and related reporting services required for ASN(R&D)'s management and control of the RDT&EN appropriation; and advises concerning actions within the Department of the Navy affecting the Department of the Navy's ability to perform research.

e. Director of Navy Laboratories is the principal civilian advisor on laboratory management and policy to the ASN(R&D). As the Director of Laboratory Programs under the Deputy Chief of Naval Material (Development), he also exercises authority over the Navy's in-house foundational research and exploratory development programs.

0130 Operating Relationships. The administration and execution of RDT&E is performed within the framework of the operating relationship set forth in paragraphs 12 and 13 of General Order No. 5, as follows:

> 12. Interchange of information and integration of actions among the members of the executive administration are essential to the effective functioning of the Department of the Navy. Accordingly, they are authorized direct communication and access to the Secretary of the Navy and to one another in their respective areas of responsibility, subject to keeping their respective superiors appropriately informed.
>
> 13. Formal operating relationships with respect to the efforts of determining needs and providing support between the Commandant of the Marine Corps and his organization and the Chief of Naval Material and his organization shall be governed by the following principles.
>
> a. The Commandant of the Marine Corps will express to the Chief of Naval Material those Marine Corps material needs which are to be provided by the Naval Material Command. With respect to the development of material items, the Commandant of the Marine Corps will specify the military performance required to meet Marine Corps needs.

b. The Chief of Naval Material will advise the Commandant of the Marine Corps as to the economic and technological feasibility of meeting such needs and will keep the Commandant informed of new capabilities to meet needs of the Marine Corps which may or may not have been previously expressed. With respect to the development of material items, the Chief of Naval Material will determine the technical effort to satisfy the specified requirement.

c. The Commandant of the Marine Corps will select the work to be done to satisfy the needs of the Marine Corps based upon feasibility data and current estimates of the worth of a particular need in relation to other desirable needs, including, where necessary, the curtailment or cancellation of work already in progress in favor of work which offers greater promise of work of greater military worth.

d. The Chief of Naval Material will exercise appropriate supervision over accomplishment of the work selected, and will insure that resources available to him are efficiently utilized in meeting Marine Corps needs.

e. Work being accomplished will be reviewed concurrently by the Commandant of the Marine Corps from the viewpoint of readiness and military worth, and by the Chief of Naval Material from the viewpoint of progress and the efficient utilization of resources available to him.

0140 Major Military Assistants to the Secretary

Five military officials constitute the principal line subordinates of the Secretary of the Navy. Each is responsible for administration of a major segment of the Department of the Navy.

0141 The Chief of Naval Operations. The Chief of Naval Operations is responsible for supervision and command of all functions and activities of the Operating Forces of the Navy. General Order 5 assigns him the following responsibilities directly related to RDT&E and the personnel who perform such work

To plan for and determine the material support needs of the Operating Forces of the Navy (less Fleet Marine Forces and other assigned Marine Forces) including equipment, weapons or weapons systems, materials, supplies, facilities, maintenance, and supporting services. This responsibility includes the determination of the naval characteristics of and priorities for things to be developed or procured, and the determination of the order in which ships, aircraft, surface craft, weapons or weapons systems, and facilities are to be acquired, constructed, maintained, altered, repaired, and overhauled.

To plan for and determine the present and future needs, both quantitative and qualitative, for personnel, including reserve personnel, of the United States Navy. This includes responsibility for leadership in maintaining a high degree of competence among Navy officers and enlisted personnel in necessary fields of specialization through education, training, and equal opportunities for personal advancement...

The RDT&E-related responsibilities of the CNO are set forth in detail in SECNAV Instruction 5430.67.

a. Deputy Chief of Naval Operations (Development). CNO's deputy for development (DCNO(D)) implements his responsibilities for the planning, programming and appraising of research, development, test and evaluation. DCNO(D)'s role in the various RDT&E management processes is discussed in each of the following chapters of the guide. Information on his responsibilities and relationships, and on the organization of his staff can be found in paragraph E0440.

0142 The Commandant of the Marine Corps. The Commandant of the Marine Corps supervises and commands the United States Marine Corps. In addition to responsibilities analogous to those of the CNO set forth above, he is also assigned the following specific developmental responsibilities by General Order 5:

To develop, in coordination with other military services, the doctrines, tactics, techniques, and equipment employed by landing forces in amphibious operations.

As with the other military subordinates of the Secretary, the RDT&E responsibilities of the Commandant of the Marine Corps are set forth in detail in SECNAV Instruction 5430.67.

a. Deputy Chief of Staff (Research, Development, and Studies). The CMC is assisted in the performance of his RDT&E responsibilities by the Chief of Staff (Research, Development, and Studies) whose duties and relationships are covered in paragraph E0610. His role in Marine Corps RDT&E planning is also discussed in section 0250 of the next chapter.

0143 The Chief of Naval Material. The Chief of Naval Material is responsible for supervision and command of all functions and activities of the Naval Material Command. The NMC is made up of the Headquarters, Naval Material Command, Project Managers reporting to the Chief of Naval Material, the Naval Air Systems Command, the Naval Ship Systems Command, the Naval Electronics Systems Command, the Naval Ordnance Systems Command, the Naval Supply Systems Command, the Naval Facilities Engineering Command, Project Managers reporting to the Systems Commanders, and all shore activities reporting to the Systems Commanders or to the Chief of Naval Material. His RDT&E-related responsibilities, as set forth in paragraph 8 of General Order 5, include:

a. To meet material support needs of the Operating Forces of the Navy for equipment, weapons or weapons systems, materials, supplies, facilities, maintenance, and supporting services, including the development, acquisition, construction, maintenance, alteration, repair, and overhaul of ships, aircraft, surface craft, weapons or weapons systems, materials, and facilities; all consistent with approved programs. Inherently, this includes the responsibility to plan for and develop the resource capabilities and readiness of the Naval Material Command to meet the needs of the Operating Forces of the Navy as determined by the Chief of Naval Operations. It also includes the responsibility to provide the Chief of Naval Operations with timely and adequate technical and economic data concerning the feasibility of meeting needs, including new capabilities to meet needs.

b. To be responsive directly to the Commandant of the Marine Corps in meeting those particular material support needs of the United States Marine Corps which are required to be provided by the Naval Material Command.

c. To plan for the utilization of resources in the performance of the work of meeting those support needs of the Operating Forces of the Navy and of the Marine Corps which are provided by the Naval Material Command; and to distribute, direct, and supervise the performance of such work. Such work includes the development, procurement, acquisition, contracting, production, supply, maintenance, alteration, repair, overhaul, and disposal of naval material.

SECNAV Instruction 5430.67, "Assignment of responsibilities for research, development, test, and evaluation," amplified the above general duties by assigning to the Chief of Naval Material the following specific RDT&E responsibilities:

Provides direction and management coordination of the RDT&E Program of the Navy Material Command (NMC) in response to the requirements for material support established by CNO and CMC.

Performs analyses of concurrency in development, when appropriate, for all naval warfare systems in advanced stages for which accelerated fleet introduction is under consideration.

Conducts special studies as may be assigned from time to time.

Provides technical and fiscal inputs to Navy studies.

Advises CNO of the requirements for technical intelligence data required by the NMSE.

Maintains liaison with agencies engaged in research and development in order to achieve maximum benefit from efforts external to the Navy.

The Chief of Naval Material is assisted by a Vice Chief and five deputies whose duties are discussed in Appendix E. In addition to these officials, his immediate line subordinates include the Commanders of the six Systems Commands, and the Managers of Designated Projects whose charters require that they report directly to him (currently PM-1 through PM-12).

0144 Deputy Chief of Naval Material (Development). The Deputy Chief of Naval Material (Development) in the Office of Naval Material also acts as the Chief of Naval Development. (See subparagraph 0123 c, "Technical staff assistance for ASN(R&D)" for information on the role of CND. See also paragraph E0513.) DCNM(D) assists the Chief of Naval Material in the implementation of the RDT&E responsibilities set forth above. In general, he supervises the planning, execution and appraisal of development, test, and evaluation programs and provides over-all supervision of, and develops management policies concerning, the facilities resources available within the Naval Material Command for execution of the RDT&E Program.

The NMC RDT&E program is directly managed by the System Commands, each of which has an Assistant Commander responsible for RDT&E matters. Information on the RDT&E establishment of each of the system commands can be found in section E0600. Information

on the RDT&E laboratories of the Naval Material Command may be found in Appendix F.

0145 The Chief of Naval Personnel. Under the Chief of Naval Operations, the Chief of Naval Personnel supervises and commands all functions and activities of the Bureau of Naval Personnel including shore activities. His RDT&E responsibilities are spelled out in SECNAV Instruction 5430.67. He is assisted in the performance of his RDT&E functions by the Director, Personnel Research Division whose responsibilities and relationships are discussed in paragraph E0510. Information on personnel research field activities may be found in paragraph F0381.

0146 Chief, Bureau of Medicine and Surgery. The Chief of the Bureau of Medicine and Surgery, under the Chief of Naval Operations, supervises and commands all functions and activities of the Bureau of Medicine and Surgery, including shore activities. His RDT&E responsibilities are set forth in SECNAV Instruction 5430.67. He is assisted in these duties by the Assistant Chief BuMed (Research), whose responsibilities and relationships are covered in paragraph E0630.

0147 The Oceanographer of the Navy. Under the general policy direction of the Secretary of the Navy, through the Assistant Secretary of the Navy (R&D), the Oceanographer of the Navy, acting as commander of the Office of the Oceanographer and under administrative control of the Chief of Naval Operations, has the responsibility of exercising centralized authority, direction and control, including control of resources, in order to insure an integrated and effective Naval Oceanographic Program. His RDT&E responsibility is set forth in SECNAV Instruction 5430.79. He initiates the preparation of all oceanographic plans and objectives, including research, development, and operations, of the Naval Oceanographic Program within which Program he assigns priorities and issues plans and objectives.

0150 The Chief of Naval Research

The Chief of Naval Research (CNR) heads the Office of Naval Research (ONR). The Office of Naval Research was established as a separate activity within the Executive Office of the Secretary by Public Law 588, 79th Congress (10 U.S.C. 5150) of 1 August 1946. CNR is responsible to the Secretary of the Navy through the Assistant Secretary for Research and Development. The functions, duties and responsibilities of the Chief of Naval Research are set forth in SECNAV Instruction 5430.20A, "Office of Naval Research," and in SECNAV Instruction 5430.67, "Assignment of Responsibilities for Research, Development, Test, and Evaluation." Under these instructions CNR is assigned the following functions:

- Conduct research in augmentation of and in conjunction with the research and development conducted by the respective bureaus and other offices and activities of the Department of the Navy.
- Coordinate the Naval Research Program for ASN(R&D).
- Provide budgeting, accounting, and related reporting services for ASN(R&D) required for his management and control of the RDT&EN appropriation and the services required by CNO and CNM to fulfill their responsibilities in the planning and programming of the RDT&E program. The format for the annual RDT&E budget submittals will be prescribed by ASN(R&D). CNR consolidates and summarizes the annual RDT&E budget submittals of the development agencies.
- Supervise, administers, and controls all activities within or on behalf of the Department of the Navy relating to patents, inventions, trade-marks, copy-rights, royalty payments, and similar matters.
- Comment and make recommendations to ASN(R&D) prior to final action on all proposals within the Department of the Navy for establishment of, abolishment of, or significant changes in the capacity to perform research or development at any shore establishment of the Navy or any Government-owned, contractor-operated establishment.

0151 Scientific and Technical Information (STINFO) Program of the Navy Department. In 1946, Public Law 588 of the 79th Congress created the Office of Naval Research to provide within the Navy Department a single office to obtain, coordinate and make available to all commands and activities, by contract or otherwise, world-wide scientific information and necessary services for conducting specialized and imaginative research. Although certain aspects of the STINFO Program existed on a

small and informal basis prior to this, the program got its first impetus and formal beginning during ONR's first year with a contract to the Library of Congress. Under the direction of the Chief of Naval Research, the Navy STINFO Program has been instituted to provide maximum dissemination of useful scientific and technical information to potential users and other interested parties.

The Navy STINFO Program, designed primarily to meet the Navy needs, is also an integral component of the DOD Program.

Information elements and activities within the Naval Establishment are specifically assigned to function in major roles in the program, and to provide maximum contribution wherever possible to the national research and development effort. Whether they function as information analysis centers, research reports, photographic media, translation activities, contracts, patents, information research, gathering foreign research information, or printing facilities, these activities are intended to fulfill the specific needs of the parent or sponsoring organizations in the field of science and technology. The sum total of these efforts constitutes the Navy program. (See paragraph E0790 for further discussion of the major activities and elements.)

(See section E0700 for additional information on CNR.)

0160 Committees and Boards

Paragraph 12 of General Order 5 (see paragraph 0130) emphasizes the importance of a free flow of information. The exchange of information is the very lifeblood of science and technological advance. An organizational means for providing an information flow is the committee or board. Some committees are composed of experts in the same field who provide advice in their area of special competence. Other committees are composed of representatives of organizations with related programs. These groups provide a forum for the interchange of information. Several of the committees and boards most important to the Navy's RDT&E effort are covered in Section E0900.

0170 Navy Laboratories

The Navy laboratories provide a vital source of strength for the Department of the Navy RDT&E effort. These laboratories, over 50 in number, account for a share of the total Navy RDT&E effort approaching that performed by industrial contractors. In SECNAV Instruction 3900.13A, "Management of Navy Research and Development Laboratories," Navy policy in regard to its laboratories was clearly set forth. "It is the policy of the Navy," the instructions stated,

> . . .to develop and maintain naval laboratories of acknowledged excellence in those fields of science and technology pertinent to its needs and . . .to develop and prosecute scientific and technical laboratory programs having as their prime objective the improvement of naval capabilities, equipments and systems.

The policy of the Secretary of Defense, as set forth in his memorandum of 14 October 19[illegible], "In-House Laboratories," also recognizes the importance of the laboratories to the RDT&E efforts of the Services. In this memorandum the Secretary of Defense directed formulation of a program for strengthening the in-house laboratories and stated the policy that

> The in-house laboratories shall be used as a primary means of carrying out Defense Department programs. They shall provide scientific and technical advice in the exercise of Government responsibility for development and acquisition of new weapons.

For additional information on the Navy's in-house laboratories, see Appendix F.

0180 Navy Oceanographic R&D Groups

Three Navy technological groups have been collocated at the Naval Research Laboratory (NRL), Washington, D. C., to coordinate their oceanographic programs.

Involved in the move were ONR's newly formed Ocean Science and Technology Group, the NRL Ocean Science and Engineering Division and the Research and Development Department of the Naval Oceanographic Office.

Although the three groups will be working together, they will each remain under technical supervision of their own research director.

The venture will provide increased efficiency in oceanographic research due to the excellent laboratory facilities available at the Naval Research Laboratory and closer working ties.

The U. S. Naval Oceanographic Office's West Coast Detachment will be located at Point Loma, California. The new detachment will act as liaison between Government agencies, non-Government scientific activities and the Naval Oceanographic Headquarters in Washington, D.C., in addition to its regular technical and scientific support mission. Refer to Appendix J for additional information concerning these programs.

ANNOTATED REFERENCE LIST

General Order Number 5 of 29 April 1966, "Assignment and distribution of authority and responsibility for the administration of the Department of the Navy," constitutes the most fundamental statement of responsibilities and organizational relationships relevant to conduct of all Department of the Navy affairs, including RDT&E.

DOD DIR 5100.1 (SECNAV 5410.85), "Functions of the Department of Defense and its Major Components," provides a basic statement of the responsibilities of various organizations and officials within the Department of Defense. On the DOD level it corresponds to General Order Number 5 of the Department of the Navy level.

SECNAV INST 5430.7G, "Assignments of responsibilities to and among the Civilian Executive Assistants to the Secretary of the Navy," assigns Department-wide responsibilities for administration of the Department of the Navy to and among the Under and Assistant Secretaries of the Navy and the Administrative Assistant to the Secretary.

SECNAV INST 5430.62, "Assignment of duties and responsibilities to the Assistant Secretary of the Navy (Research and Development)" amplifies the provisions of SECNAV INST 5430.7 as they concern the ASN(R&D).

SECNAV INST 5430.67, "Assignment of responsibilities for research, development, test, and evaluation," assigns specific duties and responsibilities to the Chief of Naval Operations (CNO), Commandant of the Marine Corps (CMC), Chief of Naval Material (CNM), Chief of Naval Development (CND), Chief of Naval Research (CNR), Chief of Naval Personnel (CNP), and the Chief of the Bureau of Medicine and Surgery in the implementation of the Department-wide responsibilities of the Assistant Secretary of the Navy (Research and Development).

SECNAV INST 3900.13A, "Management of Navy research and development laboratories," establishes policies and procedures for management and operation of those institutions, both internally and in relation to their parent activity and with other elements of the Department of the Navy

SECNAV INST 5430.55, "Special Assistant (Financial Management) to the Assistant Secretary of the Navy (Research and Development), designation of," established an office which, since its inception, has been assigned to the Comptroller of the Office of Naval Research as a dual assignment.

SECNAV INST 5430.20A, "Office of Naval Research," documents the establishment of the Office of Naval Research and restates its functions, duties and responsibilities.

SECNAV INST 5430.79, "Naval Oceanographic Program; Navy Department Organization and Responsibilities," defines the Naval Oceanographic Program, establishes an Office of the Oceanographer of the Navy, and prescribes the mission of the Oceanographer of the Navy.

DOD DIR 5129.1, "Director of Defense Research and Engineering," is the charter of that official.

CHAPTER II

PLANNING

The previous chapter described the overall organization of the Navy and the Department of Defense as it affects RDT&E management processes. This chapter covers planning for RDT&E effort within that organizational context. The evolution of RDT&E plans is traced from their genesis in the interaction of scientific and technological possibilities with long-range military capability needs, to their definitive expression in a formal Project Definition Phase. The Navy and Marine Corps Planning Systems are described with emphasis on those plans which document projected future capability requirements and provide the assumptions needed for sound RDT&E planning. Marine Corps planning for RDT&E is also discussed.

0200 THE NAVY PLANNING SYSTEM

The Navy Planning System provides for the development of Navy plans and associated programs for direct inputs into, and service consideration of, joint plans. The Commandant of the Marine Corps develops plans and programs of direct application to the Marine Corps. These plans basically form the foundation for further planning and programming throughout the Department of the Navy. The Navy Planning System is responsible to, and operates within, the functional constraints resulting from its interaction with the Joint Program for Planning. In addition, it accommodates the constraints imposed by the lead times required for research, development, test and evaluation, the construction time for ships, aircraft and facilities and the provision of trained personnel for weapon systems. OPNAV Instruction 5000.19E, "The Navy Planning and Programming System," sets forth the basic Navy planning documents, describes the relationship between the various plans, and assigns responsibility for their preparation, review and updating. The Navy Planning System is described in paragraphs 0201 through 0249; the Marine Corps Planning System is described in paragraphs 0260 through 0265.

0201 Navy Planning System Concept. The Navy Planning System serves three basic purposes:

- First, it provides for the development of Navy concepts, requirements and objectives, and for their convincing presentation to higher authority in order to introduce the Navy's viewpoint into Joint, Department of Defense and Department of the Navy program planning which resolves annually into the Department of the Navy's budget submission to the Secretary of Defense.

- Second, it provides a framework for the translation of strategic and operational concepts, technological and intelligence forecast, as well as guidance received from higher authority, into research and development, force level, personnel and support plans and objectives.

- Third, it provides guidance and direction for the application of current capabilities.

0202 The Navy Planning System Intra-Relationships. The various plans and documents of the Navy Planning System interact in such a way, that, taken together, they constitute an integrated "system." The output of some of the plans constitute a major part of the inputs to others in order to provide an overall integration and coherence.

0203 Relationship between Navy Plans and Joint Plans. The Navy Planning System is designed to be responsive to the Joint Program for Planning of the Joint Chiefs of Staff, the Department of Defense Programming System, and the Congressional budget cycle. There is a two-way relationship between the Navy Planning System and the Joint Program for Planning. The Navy Planning System provides inputs into the Joint planning system, and Navy Plans implement Joint plans. (See Figure 2-1.)

0204 Joint Program for Planning. The Joint Chiefs of Staff have approved a Joint Program for Planning (JCS Memorandum of Policy No. 84) which provides annually for one joint strategic study, two joint strategic plans, a Joint Intelligence Estimate for Planning (JIEP), and a Joint Research and Development Objectives Document (JRDOD). Two joint plans, the JLRSS and JSOP, and the JRDOD are of particular interest to RDT&E and are discussed below.

a. Joint Long Range Strategic Study (JLRSS). The JLRSS is the long-range plan which provides the conceptual view of the Joint Chiefs of Staff concerning the utilization of U.S. military power. It provides broad strategic guidance for the development of military policies, plans, programs, and research and development objectives. The effective planning period is for ten years subsequent to the Base Date which is always 1 July of the current fiscal year.

b. Joint Strategic Objectives Plan (JSOP). The JSOP provides the principal military advice of the Joint Chiefs of Staff to the Secretary of Defense for development of the DOD budget, and provides planning guidance to commanders of unified and specified commands and the services for the mid-range period. It is the basic military document against which continuing military recommendations and actions on force levels and related issues concerning strategy can be measured. For the purposes of the JSOP, the mid-range period is defined as beginning on 1 July, two years subsequent to the Base Date (always 1 July of the current fiscal year) and extending for eight years thereafter.

c. Joint Research and Development Objectives Document (JRDOD). The JRDOD supports the JLRSS and JSOP by: (1) Translating broad strategic guidance concerning operational requirements into the research and development objectives considered essential to support the strategic concept and (2) Providing advice to the Secretary of Defense regarding the relative military importance of the research and development effort considered essential to support the strategic concept, the military objectives, and the needs of the Commanders of unified and specified commands.

0210 Documents of the Navy Planning System

The documents discussed below are considered to be of particular interest to RDT&E management. The other documents of the Navy Planning and Programming System, and additional information on the ones discussed here, can be found in OPNAV Instruction 5000.19E.

0211 The Navy Strategic Study (NSS). The 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 summarizes the Navy's roles and tasks and provides a scientific and technological forecast. The NSS, with annexes described in paragraphs 0212 and 0213, is issued on 1 January, covering the period five to twenty years in the future from the end of the current fiscal year.

0212 Navy Mid-Range Guidance (NMRG) - Annex A to NSS. The NMRG 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 goals, and with the basic document, provides a basis for the Navy input to the JSOP strategy and mid-range strategic guidance used in the development of the MRO (Mid-Range Objectives).

0213 Navy Long-Range Guidance (NLRG) - Annex B to NSS. The NLRG provides long-range research and development guidance for a ten-year period commencing 1 July, ten years after the end of the fiscal year in which approved. It is the primary basis for the Navy input to the JLRSS and JRDOD, provides a broad frame of reference for mid-range planning and, with the basic document, provides long-range strategic guidance used in the development of the MRO.

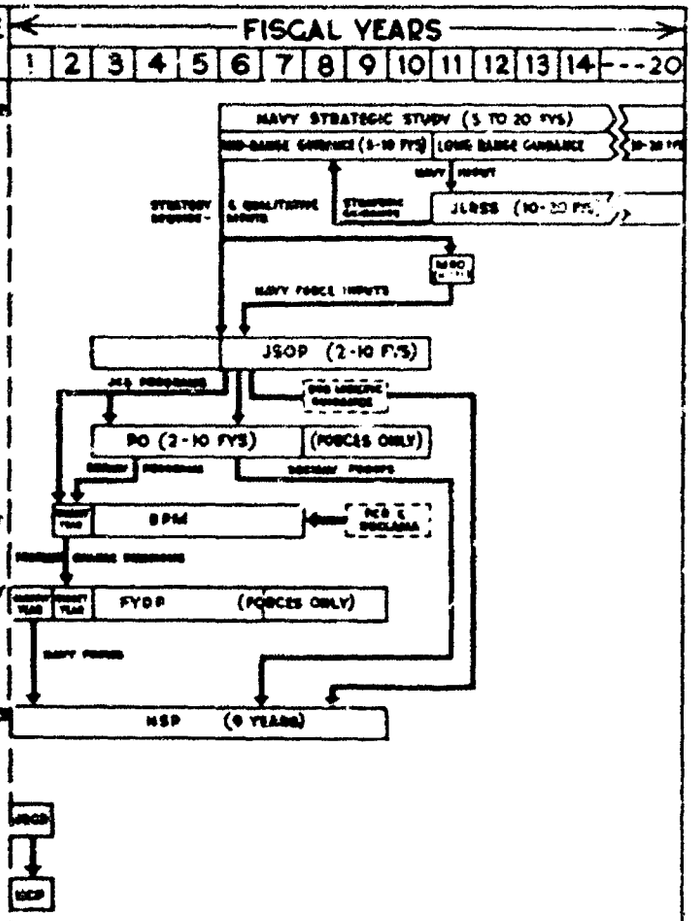
0214 The Mid-Range Objectives (MRO). The MRO serves the dual purpose of deriving quantitative force structure goals and of advancing new concepts and technology by providing guidance for updating of operational requirements and advanced development objectives. The force structure goals are for the eleventh fiscal year subsequent to that in which approved. They provide guidance for initial Navy force objective inputs to JSOP and for initial PO (Navy Program Objectives) forces, together with broad supporting rationale. MRO force goals are derived after consideration of the requirements to execute foreseeable Navy tasks efficiently and with a reasonably high expectancy of success. The MRO also presents tentative projections of desirable future changes toward new or radically revised types which may be additions to, or may in time be defined and accepted as replacements for, units within the basic force goals for the year stated. The purpose of these projections is to stimulate analytical and development action which will make possible the introduction in later force goals of specific units with the new capabilities desired.

0215 The Department of the Navy Program Objectives (PO). The PO includes all Department of the Navy Programs. It provides the Department of the Navy the force level objectives, approved by the Secretary of the Navy, and projected eight years commencing two years after the fiscal year in which approved and resource

NAVY PLANNING SYSTEM

INTER-RELATIONSHIP WITH JOINT & DOD PLANNING

PREPARED OR COORDINATED BY	PRINCIPAL CONTRIBUTORS	DOCUMENTS	UPDATE MONTH
OP-60	OPS-01, 03, 04, 05, 07, 090, 92, 95, CNR, OMB & LABS	NAVY STRATEGIC STUDY	BASIS & APPRAISE 1 JAN
JCS/OP-60	OP-07, 93, 92	JOINT LONG RANGE STRATEGIC STUDY	15 MAY
OP-93	OPS-01, 03, 04, 05, 06, 07, 90, 91, 94, 92, 95, CNR	NAVY MID-RANGE OBJECTIVES	1 JULY (FORCES)
JCS/OP-60	DCNO'S, 090, 95	JOINT STRATEGIC OBJECTIVES PLAN	VOLUME I 1 JULY VOLUMES II & III 1 DEC
OP-90	OP-09B, 01, 03, 04, 05, 06, 07, 92, 93, 94, 95, CNR, CNO, NAVCOMPT, MARCORPS	DEPT OF NAVY PROGRAM OBJECTIVES	30 NOV & 1 MAR
OSD/090	DCNO'S, 090, 95, 96	DRAFT PRESIDENTIAL MEMORANDUM	MAY-OCT
OSD/OP-90	DCNO/ACNO'S, MARCORPS, HARTMENT, OMB, CNR, NSTS, 090, ETC.	FIVE YEAR DEFENSE PROGRAM	CONTINUALLY UPDATED
OP-40	MARCORPS, USCG, NSTS, CNR, OCEAN, OPS-090, 90, 92, 94, 01, 03, 04, 05, 06, 07, CAMPUS, MAINTENANCE & DEPT CHIEFS	NAVY SUPPORT PLAN	CONTINUALLY UPDATED
JCS/OP-60	DCNO'S	JOINT STRATEGIC CAPABILITIES PLAN	31 DEC
OP-60	OPS 91, 95, 94, 40, 96, 05, 04, 95, OP-6X, OCEANS, CNR, OMB	NAVY CAPABILITIES PLAN	1 JUN



UNCLASSIFIED

Figure 2-1

levels for five years (personnel, procurement research and development, and supporting programs). It represents the level to which the Secretary of the Navy supports the objectives established by the Chief of Naval Operations and the Commandant of the Marine Corps in the JSOP. It is updated as required, at least annually. The Program Objectives are addressed in the Navy Programming Manual (OPNAV 90P-1A).

0216 Department of the Navy Five-Year Program (DNFYP). The DNFYP is the Departmental portion of the DOD FYDP and constitutes the Secretary of Defense approved program for the Department of the Navy. It covers funding for all Navy programs prior, current, and succeeding five fiscal years, and force levels for an additional three years. The DNFYP is issued at least twice a year (normally Oct & Jan), at such other times as the Secretary of Defense may direct, or as the Director, NDPIC, may deem essential as a result of accumulated changes. Minor updates are normally issued monthly to reflect previous month decisions.

0220 Need for Planning in RDT&E

The argument is frequently heard that planning, particularly long-range planning is not desirable in the management of research and development. Some even go so far as to argue that long-range planning is not even feasible. According to this school of thought, any attempt at management and control of R&D effort will drive out creativity—kill the goose which lays the golden eggs of scientific progress.

Such arguments often spring from lack of basic agreement on what is meant by "planning." The game of baseball illustrates two differing concepts, or levels, of "planning." No professional baseball manager attempts "long-range planning" of the sequence of pitchers he will use in games of the distant future. Since these decisions depend upon factors which are not known until the action takes place, such "long-range planning" is indeed impracticable.

The leader of a well-managed baseball organization can and does, however, do "long-range planning." He develops long-range goals and determines the capabilities which will have to be developed to achieve those goals. For instance, the baseball organization establishes a farm team system and recruits talent for development so that the manager of a game ten years in the future will have a supply of capable pitchers available as "options" when the necessities of some future game demand on-the-spot decisions.

The kind of "long-range planning" required in RDT&E does not attempt to freeze the future into a design perceived today, but rather to provide for the things which must be done today to develop and preserve the "options" needed to meet the uncertainties of tomorrow.

Long-range planning for RDT&E is concerned with establishing goals for the future and developing optimum strategies for their achievement. In choosing objectives and in developing and guiding strategies for allocating RDT&E resources to achieve them, planning is a fundamental necessity. It does not stifle scientific creativity. It rather provides the framework within which creativity can work most productively.

0230 Some Characteristics of the RDT&E Planning Process

RDT&E planning within the Department of the Navy is characteristically conducted as a dialogue between the User Interest and Producer Interest. The User-Producer planning dialogue is conducted within the framework of the management doctrine set forth in paragraph 12 of General Order Five and quoted in paragraph 0130 of this Guide. This passage reflects three important characteristics of the RDT&E planning process: the "contract" nature of the relationship between the User Interest and the Producer Interest, the necessity of choice to provide optimum military worth from limited resources, and the importance of information flow.

0231 The "Contract" nature of user-producer relationship. The relationship between the User Interest, represented by the Chief of Naval Operations and Commandant of the Marine Corps as spokesmen for the Operating Forces; and the Producer Interest, represented by the Chief of Naval Material speaking for the Naval Material Command (NMC), is more analogous to relationship between cooperating independent business organizations than traditional military relationships. Plans are the result of "negotiation" between the two interests. Through this process the trade-offs should be made which will result in the maximum military capability for the Operating Forces possible within the limits of the resources available to the Naval Establishment.

0232 Necessity of Choice. The resources available to the Naval Establishment are always limited. Scientific and technical resources are even more limited than general economic resources. A decision to allocate technical and

scientific manpower to one line of effort automatically precludes their application toward any alternative goal. A decision to pursue one line of development is automatically a decision against pursuing other possible developments. Choices will be better made when the alternatives are explicitly arrayed and selection is made deliberately. The RDT&E planning procedures described in the next section are designed to present decision makers at all levels with the information required to make the necessary decisions well.

0233 Importance of Unfettered Information Flow. User needs must be known to producer organizations in the Navy, to the scientific community, to industry — to all who may provide potential solutions. New potential, or actual, capabilities evolving from advancing knowledge and technology must be made known to users who may have beneficial application for such capabilities. Every RDT&E manager, User or Producer, must be aware of the alternative opportunities open to him before he can select from among them the choices which provide the greatest return in military worth for the resources required.

0234 Influence of Uncertainty. Uncertainty is one of the most important influences on the RDT&E management process. The long-term future is inherently uncertain. Projections of future military requirements are based on assumptions subject to change. Research results are as inherently uncertain as prospecting for minerals. Much of RDT&E management decision making is concerned with buying "insurance" or "options" as "hedges" against uncertainty.

Uncertainty and RDT&E costs are inversely related. Uncertainty is greatest at the research end of the RDT&E spectrum where costs are least. Costs are greatest for operational systems development, the culmination of the R&D process. Under current policy all major uncertainties as to technical feasibility, military worth and cost must have been eliminated before a project will be approved for development for service use.

0235 Iteration in RDT&E Planning. Diagrams and texts of instructions on the RDT&E planning process may give the casual reader the impression of the User Interest levying unilateral requirements — based on "pure military necessity" — on the Producer Interest. The actual process involves a continuous interaction between operational requirements and their spokesmen, and technological and scientific possibilities and their spokesmen. It is one continuing iterative interchange. New formal requirements for weapons hardware more often than not have their genesis in new possibilities stemming from advancing knowledge and technology rather than from evolving military need or reassessment of old needs. Figure 2-2 is an idealized model of the interaction between military requirements and technology in determining new weapons. (See also large fold-out charts in Appendix I.) Much of the interchange between the two sides in the RDT&E planning dialogue takes place outside of strictly formal channels on an informal or unstructured basis. Technically trained officers with recent operational experience assigned to systems commands, bureaus, offices and laboratories are an important means for this interchange.

0240 The Formal RDT&E Planning Procedures

A formal structure and set of procedures have been established for RDT&E planning. This structure is explained in OPNAV Instruction 3900.8C and amplified in several additional directives identified in the reference list for this chapter. OPNAV Instruction 3900.8C identifies the principal requirements and planning documents and explains interrelationships among them. These relationships are depicted graphically in Figure 2-3. The principal documents in the formal dialogue are discussed below. (See also fold-out charts in Appendix I.)

0241 General Operational Requirement (GOR). The Chief of Naval Operations is responsible for preparation of a General Operational Requirement (GOR) for each functional warfare and support area. These documents state, in relatively broad but significant terms, the capabilities the Navy needs within each area. Estimated threat posed by forces of potential enemies, both present and projected, are set forth. Though various sources of information will be used in developing GOR's, the NSS (See paragraph 0211) is the primary official foundation for these fundamental statements of needed operational capabilities.

Under the general guidance of the GOR, research and exploratory development effort should be focused on our most pressing needs. System Commands are encouraged to submit development proposals to the User Interest in the form of Proposed Technical Approaches (PTA's) toward fulfilling the operational needs stated or implied in the GOR.

For guidance in making tradeoffs in weapons design, the GOR contains information on the relative importance of the various capabilities desired. GOR's also contain as much information

THE R & D CYCLE

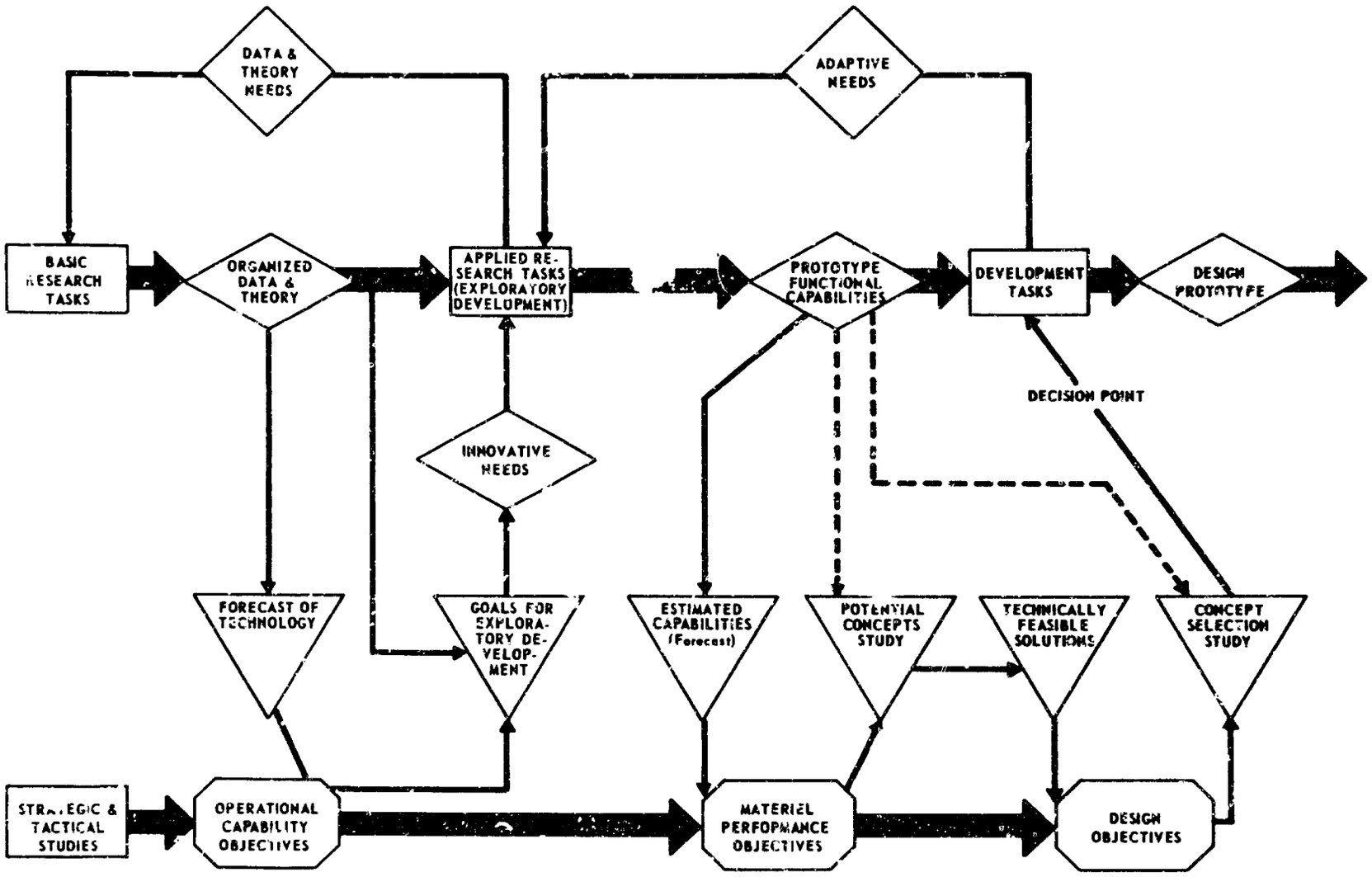


Figure 2-2

USER-PRODUCER RDT&E PLANNING DIALOGUE

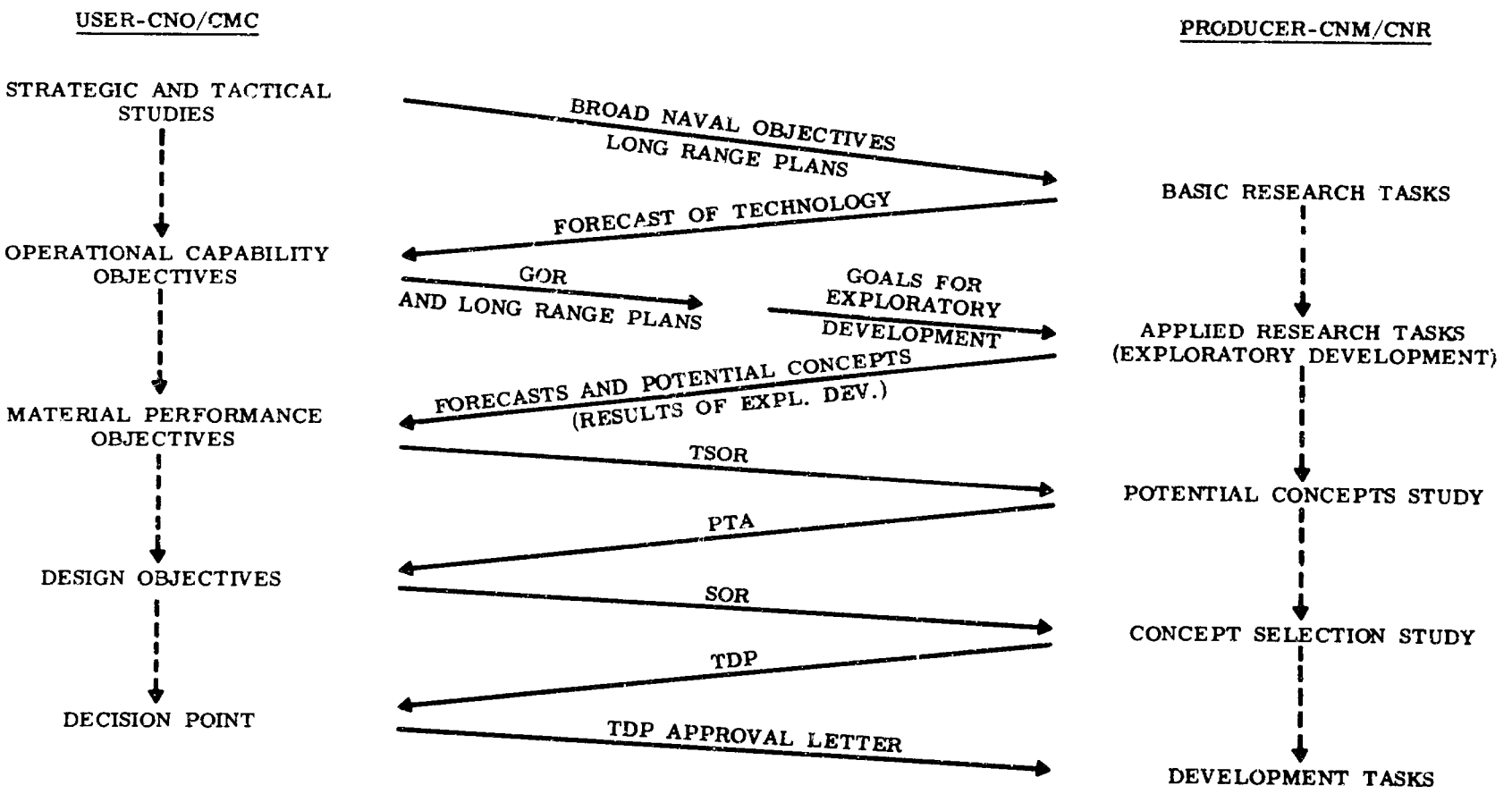


Figure 2-3

as possible on the operational concept. Section C0420 contains a list of GOR's and their designations. OPNAV Instruction 3910.9A, "General Operational Requirements (GOR's)," provides basic guidance.

0242 Naval Research Requirements (NRR). A Naval Research Requirement (NRR) is a statement in general terms of the need for investigations and studies in the physical and life sciences to provide information related to a solution to specific practical problems and to obtain a fuller knowledge or understanding of the subject under study. The Chief of Naval Research publishes Naval Research Requirements in ONR Instruction 3910.2A. This instruction constitutes a directive to all developing agencies to plan for and initiate appropriate projects in their areas of competency and responsibility.

NRR's are developed as a result of projections of the scientific knowledge needed to meet future Navy requirements and an assessment of deficiencies of available knowledge in those fields. Projections of future needs are developed from study of the NSS, GOR's and strategic and tactical studies, along with appraisals of the state of existing knowledge. A list of NRR's from ONR Instruction 3910.2A can be found in section C0320.

0243a Exploratory Development Requirements (EDR). Exploratory Development Requirements are promulgated by the Chief of Naval Development. They are issued as statements of categories of effort and when aggregated encompass the total effort directed toward improvement and expansion of naval technological capabilities. The Navy's Exploratory Development Program develops the technological wherewithal to solve specific Navy and Marine Corps problems. The program includes Concept Formulation in the form of analytical and experimental effort to help identify problems, determine alternative solutions thereto in terms of prospective systems, subsystems and techniques, and demonstrates the technical feasibility of those solutions to a degree which warrants their consideration for support under Advanced Development. It also includes analytical and experimental work on the technologies directly related to materials, components, processes, techniques, and individual equipments of Navy and Marine Corps interest. Along with research, exploratory development forms the pool of technical knowledge from which future weapons will be devised and developed.

EDRs establish the groups under which exploratory development will be classified for programming. Developing agencies plan for, organize and initiate work in exploratory development into appropriate projects and task areas pertinent to their areas of responsibility.

Exploratory Development Requirements are currently set forth in NAVMAT Instruction 3910.4. The list of EDRs from this Instruction can be found in Section C0410. Reporting of work in the Exploratory Development Category is in accordance with SECNAV Instruction 3900.32 at the work unit level. Amplifying instructions for the preparation of Department of Defense Research and Technology Resumes (DD Form 1498) are contained in NAVMAT Instruction 3910.7 of 16 February 1967 which, in addition, promulgates planning procedures to facilitate coordination of the Navy's Exploratory Development Program by the Chief of Naval Development. These planning procedures require a task area report, a tentative funding profile, along with relevancy codes as shown for a hypothetical project in Figures 2-4, 2-5, and 2-6 to assist in planning, reviewing and justification of the program.

0243b Exploratory Development Goals (EDG). Exploratory Development Goals (EDGs) are quantitative goals for exploratory development which, if met, would provide the technical means to satisfy operational requirements for future weapons and support systems. They are based on the General Operational Requirements, Long Range and Mid Range planning documents, and a predicted threat. These quantitative goals do not constitute limits but they do establish critical levels, which if not met, are expected to result in operational deficiencies.

It is at the exploratory development stage that the military potential of new knowledge is investigated. An EDG states a technological goal toward which investigations and studies can be applied to demonstrate new techniques or the feasibility of a system, sub-system, or component from which a new, improved or expanded naval functional capability could evolve. EDGs are determined by the assessment of the capabilities needed to meet future requirements and a postulated threat with projected forces, strategy and tactics. Consideration is also given in this assessment to new knowledge available for exploitation. EDGs are prepared by the Chief of Naval Development.

0244 Tentative Specific Operational Requirement (TSOR). The specific phase of the User-Producer RDT&E planning dialogue can be opened by either side. When CNO/CMC desires to initiate investigation leading to a new

SAMPLE

RESEARCH AND TECHNOLOGY RESUME		2. GOVT ACCESSION	3. AGENCY ACCESSION	REPORT CONTROL SYMBOL DD-DRE(AR)636
4. DATE OF RESUME: 01 02 67	5. KIND OF RESUME: E. PLAN (NEW)	6. SECURITY: RPT U BRK C	7. REGRADING: N/A	8. RELEASE LIMITATION: OD	9. LEVEL OF RESUME: D. TASK AREA

10a. CURRENT NUMBER/CODE: 6 22 19 01 2 WF 009 06 09

10b. PRIOR NUMBER/CODE: NONE

11. TITLE:
HIGH PERFORMANCE COMPOSITE SOLID PROPELLANT

12. SCIENTIFIC OR TECH. AREA	13. START DATE	14. CMPL. DATE	15. FUNDING AGENCY
Missiles 010700 Rocket Propellants 014700		11 70	

16. PROCURE. METHOD	17. CONTRACT/GRANT a. DATE: b. NUMBER: c. TYPE: d. AMOUNT:	18. RESOURCES EST.	a. PROFESSIONAL MAN-YEARS	b. FUNDS (In thousands)
		PRIOR FY		
		CURRENT FY		

19. GOV'T LAB/INSTALLATION/ACTIVITY	20. PERFORMING ORGANIZATION
NAME:	NAME:
ADDRESS:	ADDRESS:
RESP. INDIV.:	INVESTIGATORS PRINCIPAL: ASSOCIATE:
TEL:	TEL: TYPE:

21. TECHNOLOGY UTILIZATION	22. COORDINATION

23. KEYWORDS
Propellant Characterization, Propellant Formulation

24.

OBJECTIVE: (U) To develop a composite solid propellant with the following characteristics: Specific Impulse. Theoretical XXX sec (1000/14.7), Delivered YYY sec (1000/14.7); Density: 0.ZZZ lbs./cu.in.; Physical Properties: Satisfactory over temperature range - AAF to + BBBF; Radar Attenuation; Less than C db; Other: Five year shelf life, Class B Safety Hazard, Non-Toxic. Present air-launched solid propellant missiles are unable to provide the range capability deemed necessary in the late 1970s. Composite solid propellants hold substantial promise for achieving these capabilities while retaining the physical properties required for air-launched missiles. Attainment of the technical objective will reduce the time to intercept of current operational missiles by D%. The propellant developed to meet this objective would have general application for all air-launched solid propellant motors, for boost application in ramjets, for solid boost and liquid sustain motors, and would have specific application in an Advanced Anti-Radiation Missile, and anti-shipping missiles.

25

APPROACH: (U) Achievement of this objective involves the following four phases: Phase I. Development of a polymer which will contribute to the grain properties while providing satisfactory physical properties. These properties are essential to the development of a case-bonded unit. Phase II. Propellant formulation to make maximum use of metals but which will not exceed the radar attenuation limit. Phase III. Mixing and loading techniques will be characterized as to safety, especially with high energy ingredients. Phase IV. Effects of particle size of ingredients, choice of mixing equipment and processes, to produce the desired physical and ballistic properties, as well as reproducibility will be determined.

26

27. COMMUNICATIONS SECURITY	28.	29. OSD CODE	30. BUDGET CODE
☐ a. COMSEC OR COMSEC RELATED ☒ b. NOT RELATED		DT	3

31. MISSION OBJECTIVE	32. PARTICIPATION
GOR 11 EDG 301, 302, 333, 362	

33. REQUESTING AGENCY	34. SPECIAL EQUIPMENT
	NONE

34. EST. FUNDS (In thousands) CPFF	35.

TAB A
Enclosure (1)

DD FORM 1 AUG 64 1498 (Items 1 to 26 identical to NASA Form 1122) OVER

Figure 2-4

SAMPLE

TENTATIVE FUNDING PROFILE

Date: 1 Feb 67

1. Title: High Performance Composite Solid Propellant 2. Number/Code: 62219012 (Program Element) WF 009 06 09 (Task Area)

3. Task Area Funding	Prior & FY 67	FY 68	FY 69	FY 70	FY 71	FY 72	FY 73	FY 74	7. Remarks
4. Actual/Optimum	200	400	550	350	150				Accelerating or Stretching out the program effort will not economically achieve the task area objective
5. Maximum			650	600					
6. Minimum			200	200	200	200	200	200	
8. Assignment									9. Tasks
NOTS	102	223	330	210	90				Propellant Formulation and Development
NOS	33	93	110	70	30				Propellant Characterization
Other Govt. Agency	--	--	18	28	8				ICC Safety Classification
Contracts	65	84	92	42	22				Polymer Development
10. FY Funding	200	400	550	350	150				11. Total Funding 1650

12. Reprogramming Data. Is reprogramming recommended? Yes [X] No [ ] If Yes, indicated alternative source below.

Fiscal Year	Task Area	Adjustment	Revised Funding Level
1969	WF 009 06 09	+550 (K)	550 (K)
Alternative #1 (Preferred)	WF 009 06 03	−175	0
	WF 009 06 05	−225	650
	UF 009 06 06	−150	725
Alternative #2	WF 009 06 03	−175	0
	WF 009 06 04	−185	415
(Continue on reverse if necessary)	UF 009 06 06	−190	685

NAVMAT 7044/1 (2-67)

TAB A
Enclosure (2)

NAVMATINST 3910.7
10 Feb 1967

Figure 2-5

SAMPLE

RELEVANCY CODES

NAVMATINST 3910.7
10 Feb 1967

Date: 1 February 1967

1. Title:

2. Number/Code 62219012 (Program Element) WF 009 06 09 (Task Area)

3. Relevancy Codes

	1	2
A. WARFARE APPLICATIONS		
1. Seabased Strategic Deterrence		
2. Anti-Submarine Warfare		x
3. Strike Warfare (Surface Targets)	x	
4. Strike Warfare (Air Targets)		x
5. Amphibious Assault		
6. Mine Warfare		
7 Nuclear Warfare		
8. Biological/Chemical Warfare		
9 Electronic Warfare		
10. Special Warfare		
B. PLATFORM APPLICATIONS (GENERAL)	1	2
1. Ships		x
2. Submarines		
3. Boats		
4. Amphibians		
5. Aircraft	x	
6. Spacecraft & Satellites		
7. Land Vehicles		
8. Fixed Undersea Systems		
9. Shore Facilities		
C. PLATFORM APPLICATIONS (SPECIAL)	1	2
1. Special Purpose Submersibles		
2. V/STOL Aircraft		
3. Helicopters		
4. Surface Effect Craft		
5. Hydrofoil Craft		

	1
D. SENSORS	
1. Passive	
2. Active	
E. TECHNOLOGIES	1
1. Radar	
2. Acoustics	
3. Magnetics	
4. Lowlight Image Intensification	
5. Television	
6. Photography	
7. Infrared	
8. Microwave Radiometry	
9. Lasers/Masers	
10. Passive Radio Frequency Detection and Direction Finding	
11. Inertial Navigation and Guidance	
12. Ocean Environment	
13. Air Environment	
14. Astronautics	
15. Conventional Warhead Effects	
16. Nuclear Weapon Effects	
17. BW/CW Weapon Effects	
18. Computer Technology	

TAB B
Enclosure (2)

NAVMAT 7044 2 (2-67)

Figure 2-6

specific capability, he issues a Tentative Specific Operational Requirement (TSOR). This document states the need for achieving a particular operational capability and outlines the identifiable characteristics necessary in a warfare system to fulfill the requirement. The TSOR defines the desired performance goals and provides additional information, such as the plan for use, needed to weigh alternatives and make the tradeoffs required to achieve an optimum system. Response to the TSOR is in the form of Proposed Technical Approaches (PTA) which are discussed in the following paragraph. Guidance for preparation of TSOR's is contained in OPNAV Instruction 3910.6B.

0245 Proposed Technical Approaches. The PTA is a document prepared for the CNO by the Naval Material Command or other Bureau or office outlining technical approaches by which a particular capability may be achieved. This document may be submitted in response to a General Operational Requirement (GOR) as an unsolicited proposal to call attention to possibilities for a naval warfare system resulting from advancing technology or in response to a TSOR as a solicitated proposal in which alternative approaches to attain a capability are presented.

In the context of the general need to provide the best possible military posture from limited resources, the PTA serves four needs:

a. It provides a formal means by which new technology is introduced into naval warfare systems.

b. It presents certain technical and financial information to the CNO on which to base a decision to commence a development program; therefore,

c. It provides technical and financial information necessary for preparation of a SOR or ADO if appropriate, the step which triggers the relatively expensive efforts required to prepare a Technical Development Plan (TDP).

d. It provides the initial estimates of development and production costs in order to determine whether a formal Contract Definition will be required.

OPNAV Instruction 3910.8A provides guidance for the preparation, review and implementation of PTAs. Enclosure (2) to this Instruction describes the format and content of the PTA. The principal portions of the PTA content are:

(1) Forward. A brief description of the operational problem to be solved together with associated major technical problems, reference to the pertinent GOR or TSOR; a brief discussion of the background (i.e., Exploratory Development, Naval Research, etc.), on which the proposal is based and a review of efforts of other services or agencies, stating whether such efforts can be used in this development.

(2) Description. A brief description of the system(s) proposed.

(3) Operational Diagram. A pictorial presentation of a typical situation that will quickly orient the reader to the usefulness of the proposed system(s), if appropriate.

(4) Block Diagram. A functional flow-diagram showing each sub-system (or major equipment) and each associated system, if appropriate.

(5) Cost, Time, Performance Envelopes. Cost, time, performance (including size and weight) and system effectiveness tradeoffs.

(6) Degree of Risk. An estimate of the degree of risk for each of the approaches together with a description of development problems areas will be presented.

(7) Other Considerations. Compatibility, special manpower, reliability and maintainability.

(8) Recommendation. A specific recommendation as to the applicable RDT&E category under which the proposed development should be pursued and a recommendation as to which of the proposed technical approaches offers the best solution and reasons therefor. An estimate of the development funds required each year will be presented for the recommended technical approach.

0246. Advanced Development Objectives (ADO). An ADO outlines a requirement for an experimental development which is not yet assured as to military usefulness, technical feasibility, and financial acceptability. Such a development may be a desirable or necessary step in the transition from Exploratory Development to Engineering Development, or it may be for the express purpose of developing hardware for test and experimentation. The primary function of the ADO is to provide decision-making information as to whether to pursue the potential development through Engineering Development toward evaluation for fleet use and thus becomes the logical end-point of the Advanced Development effort on the system. The information gained as a result of this effort is of great assistance in

preparing the SOR. In major developments requiring Contract Definition (CD), the ADO may precede the SOR in order to eliminate high risk areas and achieve more accurate cost estimates. In rare instances, CD may be required for Advanced Development projects for which Engineering Development has not been considered. Here, the ADO-TDP dialogue together with the TSOR-PTA inputs, if applicable, must provide the necessary information to document the prerequisites of CD. DCNO(D) is responsible for establishing Advanced Development Objectives, in consultation with the cognizant DCNO, CNM, and the Director, Long Range Objectives Group. Guidance for the preparation of ADOs is contained in OPNAV Instruction 3910.7B.

0247 Specific Operational Requirement (SOR). CNO/CMC, through the Specific Operational Requirement (SPR), states a need for a particular capability and outlines the system characteristics which describe what capability is to be achieved. The SOR defines the performance throughout the system's operational environment and establishes the goals for reliability, maintainability, and personnel requirements. The SOR will normally be preceded by the TSOR-PTA dialogue. The SOR is the final stage in requirements documentation and, therefore, must contain definitive guidance to the NMC for use in developing a responsive Technical Development Plan (TDP).

Whereas the effort required to develop a PTA is relatively inexpensive, the cost in technical talent and money to develop a TDP is significant. The decision to promulgate an SOR is a key decision point in the development process. An SOR should not be promulgated unless there exists in the User organization a firm conviction of the validity of the operational requirement, and an equally firm intention to sponsor development if a suitable TDP is forthcoming.

The decision to promulgate an SOR must be made in full appreciation of the realities spelled out in General Order 5, that selection of the work to be done includes the "curtailment or cancellation of work already in progress in favor of work which offers greater promise or work of greater military worth." The key decision point in the transition from research to systems development is the promulgation of the SOR.

As the definitive requirements document, the SOR, must provide the producer with all the information he needs to make the trade-offs involved in developing an optimum system. It must be very explicit concerning the job the User wants the system to do, the way the system is to be used, the environment under which it will operate, and the other weapons and systems with which it will be associated. The operational concept must cover not only performance, but also reliability, maintainability, compatibility with other weapons systems and compatibility with the personnel who must operate and maintain it.

OPNAV Instruction 3910.6B covers preparation of SOR's.

0248 Technical Development Plan (TDP). The NMC response to either the SOR or the ADO is a Technical Development Plan (TDP). The TDP comprises the plan for the fulfillment of the requirement spelled out in the ADO or SOR. It is a complete and detailed description of the effort necessary to accomplish the development together with a recommended funding schedule. Approval by CNO constitutes concurrence to the technical matters described therin and the authority to commence a development project, commensurate with funds provided by separate action. When funded the TDP becomes the primary management control and reporting document for the life of the development. It is kept up-to-date on a continuing basis. Updated TDP's must be submitted to DDR&E through the chain of command on the occasions set forth in paragraph 0611.

a. The essential TDP content prescribed by the Secretary of Defense for his management needs include, as appropriate:

1. A narrative statement of the requirements, a brief development plan, and statements delineating the performance, reliability, and maintainability characteristics.

An enclosure to DOD Instruction 3200.6, "Reporting of Research, Development and Engineering Program Information," entitled "Reliability and Maintainability Information Required in Requirements Documents and Technical Development Plans," elaborates on the kinds of information required in the TDP. "Due consideration shall be given to all characteristics," this document states,

> . . . including reliability and maintainability, in the early planning and feasibility study stages, and comprehensive reliability and maintainability programs are expected for operational development projects. It is intended that both the human and hardware aspects of reliability and maintainability be considered. The goal is a balanced and integrated effort aimed at optimizing operational effectiveness, total cost and early availability.

Two pages of "Kinds of Information Required" are listed under the following headings:

- Operational information that affects reliability and maintainability design.
- Planning information needed for reliability and maintainability design.
- Plans for a reliability program outlining how reliability will be achieved.
- Plans for a maintainability program outlining how maintainability will be achieved.

2. A graphic presentation of the time scheduling of the development and the milestone schedule that forms the basis for reporting under the Programming System.

3. A financial plan for the life of the development, including the planned support from all appropriation sources.

b. Additional TDP content prescribed by the Chief of Naval Operations for his management needs includes: 1. summary sheets, 2. management plan, 3. block diagram, 4. Subsystem characteristics, 5. associated system characteristics, 6. operability and supportability plan, 7. test and evaluation plan, 8. personnel and training plan, and 9. production, delivery and installation plan.

c. Since the TDP is a definitive plan for the development of a system, it will reflext the complexity of the end item. If the program is a simple one without major problem areas, the TDP will also be simple. However, for complex weapons systems, the TDP will probably be a voluminous document. Many run to several hundred pages and may represent up to a half million dollars of planning and technical effort. Because of the magnitude of the effort, preparation of a TDP may be assigned to an in-house laboratory or contracted to industry. A definitive TDP is one of the products of a Contract Definition.

In view of the bulk and detail of most TDP's, each one includes a "TDP Summary" of the information of most significance to higher level management. Figures 2-7, 2-8, and 2-9 are a TDP summary for a hypothetical project.

"OPNAVINST 3910.4B covers preparation of TDPs. The 'Guide for the Preparation of Technical Development Plans' published by the Chief of Naval Material (NAVMAT P3910) provides guidelines for TDP preparation."

0249 Contract Definition (CD). DOD Directive 3200.9 (SECNAV Instruction 3900.33), "Initiation of Engineering and Operational Systems Development" requires formal Contract Definition (CD) for projects requiring $25 million or more of RDT&E financing or $100 million or more for production financing. Other development projects may be subjected to CD at the discretion of the military department concerned or the Director of Defense Research and Engineering (DDR&E).

CD is a formal step in the development process during which preliminary engineering and contract and management planning is performed on a project prior to the award of a full-scale development contract. CD is usually performed by two or more funded and competing contractors working in close collaboration with government representatives. CD may also be performed by in-house laboratories when they will perform the bulk of development effort, or by a sole source contractor under some circumstances.

The most important objective of CD is to provide an adequate basis for a DDR&E decision to ratify or change their initial approval to proceed with the development made prior to initiation of the Engineering or Operational Systems Development. The ultimate goal of Contract Definition, where development is to be performed by a contractor, is achievable performance, and specifications, backed by a firm fixed price or fully structured incentive proposal for Engineering or Operational Systems Development.

CD neither eliminates nor reduces the requirement for sound system analysis and feasibility studies prior to entering Engineering or Operational Systems Development. The technical, economic, and military bases for a conditional decision to initiate Engineering or Operational Systems Development are established through comprehensive system studies and experimental hardware efforts under Exploratory and Advanced Development, and are prerequisite to a decision to proceed with Engineering or Operational Systems Development. Concept Formulation (CF) describes the activities of this period.

CF and CD are discussed at greater length in Chapter VII, "Procurement of RDT&E Effort."

The Department of Defense has published the "Guide for Contract Definition" which provides guidelines for the conduct of CF and CD. The Navy designation of this publication is Navy publication No. 07P1.

0250 Project Master Plan (PMP). Project Master Plans are required for SECNAV, CNM and System Command "Designated Projects." A "Designated Project" is one which, because of its importance or critical nature, has been selected for intensified project management. A Project Master Plan is a formal life cycle plan which documents the integrated and interrelated tasks (time phased and costed), required of and by all participating organizations, and which is necessary to the success of the weapon system objectives. This Plan assigns tasks to be performed, sets task completion schedules, makes activity work assignments, defines task interfaces, sets out objectives to be achieved, specifies reports to be submitted, and delineates resources available to the Project Manager.

A Project Master Plan (1) encompasses all phases of a weapon system's life from inception through development, production, operation, and disposal and includes execution plans pertinent to those phases, (2) serves as a single controlling document which integrates as a complete data package all essential current and projected events and a time schedule for their accomplishment, and (3) provides a framework for measuring performance against plans both for the Project Manager in executing his responsibilities and for review and appraisal by higher authority.

Of necessity, a PMP should be highly coordinated with corresponding project TDP's since the two documents are somewhat duplicatory with respect to purpose and content (see Section 0248 of this document).

NAVMAT Instruction 5200.11 provides guidance for the preparation and implementation of Project Master Plans in the management and execution of appropriate projects within the Naval Material Command (NMC).

0251 DD Form 1498. Just as the TDP is the primary planning document for projects in systems development, the DD Form 1498 serves an analogous purpose for Research (6.1) and Exploratory Development (6.2) effort. OPNAV INST 3910.16A of 19 Jan 1966 forwards DOD INST 7720.16 of 6 Aug 1965 and provides guidance for program planning reporting in Research (6.1), Exploratory Development (6.2), and Management and Support (6.5) Categories of DOD Program VI (Research and Development). DD Form 1498 is also used for planning reporting for those projects in Advanced Development (6.3), Engineering Development (6.4) and Operational Systems Development (6.6) for which the TDP has been waived by DOD.

For Research, Exploratory Development and Management and Support the DD 1498 is submitted on 1 October to back up the budget estimate for the next fiscal year. Each submission is reviewed, revised if necessary, and resubmitted on 1 June to back up the apportionment requests.

For the TDP waived development systems, the DD 1498 is submitted on 1 August and 1 April to CNO.

Navy DD 1498 forms for Research and Exploratory Development work are forwarded to DDR&E via the Navy Automated Research and Development Information System (NARDIS). For further information on NARDIS see paragraphs 0615, 0624 and E0802.

0260 Marine Corps Research and Development Planning

The purpose of Marine Corps Research, Development, Test and Evaluation is to develop, in coordination with the other services, the doctrines, tactics, techniques and equipment employed by landing forces in amphibious operations. The Marine Corps has primary interest in the development of those landing force doctrines, tactics, techniques and equipment which are of common interest to the Army and Marine Corps. In fulfilling this requirement, it is Marine Corps doctrine that planning for RDT&E must be compatible with the following principles:

- Research and development must proceed from and directly support the kinds of operations and forces planned for the future.
- RDT&E must encompass operations or tactics, organization and material.
- RDT&E must be fully integrated into, and be a part of the Marine Corps planning and programming system.

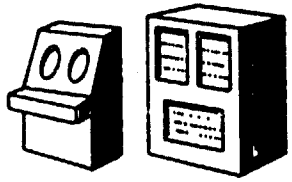
0261 Marine Corps Mid-Range Objectives Plan (MMROP). The genesis of Marine Corps RDT&E is the Marine Corps Mid-Range Objectives Plan (MMROP). It outlines the mid-range objectives of the Marine Corps which form the goals for planning and programming actions. The MMROP covers the time frame ten years in the future. This plan translates mid-range national policy and military objectives into a projected concept of operations, an estimate of the optimum structure and composition, and operational capabilities of forces judged to be required.

TDP SUMMARY (Page 2.1)
OPNAV FORM 3910-3 (6-64) | **OPNAV REPORT SYMBOL 3910-3** | CLASSIFICATION STAMP

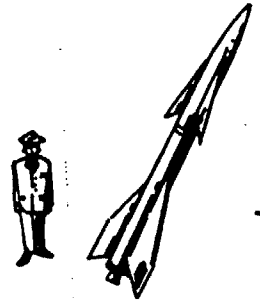
1. IDENTIFICATION AND PICTURE

Element 6.42.09.55.2
(Project W' 999)*

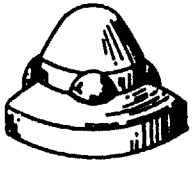
W 19-01 ZENITH MISSILE SYSTEM



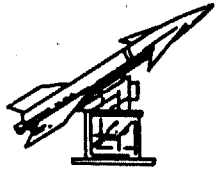
WEAPON DETECTION EQUIPMENT



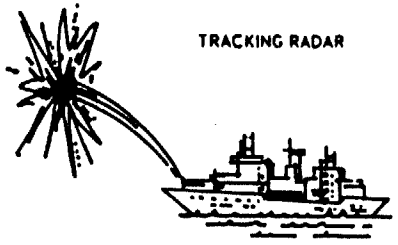
MISSILE



TRACKING RADAR



LAUNCHER



LAUNCH VEHICLE

2. DESCRIPTIVE HIGHLIGHTS

Mission: A supersonic surface-to-air missile with controlled flight to be used against attack aircraft, air-to-surface, and surface-to-surface missiles.

Type: Solid fuel propellant; guidance data processed on ship with alternatives for active homing or command; interchangeable warheads.

Performance	Mod 0	Mod 1
Speed (6 sec after launch)	Mach 3.7	Mach 5
Range (nm)	175	300
Altitude (ft)	96,000	140,000
Kill probability	.90	.95
Length (ft)	15.5	17.0
Weight (lbs)	2960	3520
Body Dia	23"	29"
Fin Dia (front/back)	44/70	48/82

NOTE: Mod 1 funding figures are in paren.

3. MAJOR SUB-SYSTEMS

	FY 64	FY 65	FY 66	FY 67	FY 68	FY 69	FY 70	FY 71
	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
MISSILE (Mod 0 & 1)	Engr Dev	Fabricate		Test	Eng Dev Mod 1	Fab	Test	Prod
LAUNCHER	Des / Engr Dev	Fabricate	Test		Production			
RADAR	Des	Fabricate	Test		Production			
WDE	Fabricate		Test		Production			

4. RDT&E FUNDING (000,000)

		FY 64 (AND PRIOR)	FY 65 (CURRENT)	FY 66 (BUDGET)	FY 67	FY 68	FY 69	FY 70	TO COMPLETE
10 Jan '64	1. ANNUAL	7.2	5.3	3.1 (.9)	2.5 (1.0)	3.2 (2.3)	(3.5)	(5.1)	(4.1)
	2. CUMULATED	14.4	19.7	22.8	25.3	28.5	32.0	37.1	41.2
		FY 62 (CURRENT)	FY 63 (BUDGET)	FY 64	FY 65	FY 66	FY 67		TO COMPLETE
1 Apr '63	3. ANNUAL	7.2	2.7	2.0	1.5 (.5)	3.0 (1.5)	3.1 (1.9)		(5.9)
	4. CUMULATED	14.4	17.1	19.1	20.6	23.6	26.7		35.6

5. PRINCIPAL DEVT. ACTIVITY
Bureau of Naval Weapons

6. TECHNICAL DIRECTOR
Systems Electronics Lab.

7. PRINCIPAL CONTRACTORS
Missile:
Boland Aerospace
Radar:
Patterson Elec.
Launcher:
Rice Mfg. Co.

TDP W 19-01 1 April 1964 p. 2.1

*use only if different from TDP number

CLASSIFICATION STAMP

Figure 2-7

TDP SUMMARY (Page 2.2)
OPNAV FORM 3910-3 (8-62) **OPNAV REPORT SYMBOL 3910-3** CLASSIFICATION STAMP

8. MAJOR MILESTONES	FY 63 1 2 3 4	FY 64 1 2 3 4	FY 65 1 2 3 4	FY 66 1 2 3 4	FY 67 1 2 3 4	FY 68 1 2 3 4	FY 69 1 2 3 4	FY 70 1 2 3 4
1. Initial TDP Approved (May 1959)								
2. Mod 0 Develop Contr Awarded (June 1960)								
3. Systems Install Schedule Issued (January 1961)								
4. Design Study Completed	ϕ							
5. Special Tube Development Completed		ϕ						
6. BRDBD Mod 0 Completed		ϕ						
7. Award Test Ship Conversion Contract		ϕ						
8. Experimental Mod 0 Tested			ϕ----------O					
9. Training Plans Conference Held			O					
10. Launcher Installation Completed on Test Ship			O					
11. WDE Component Tests Completed			O					
12. Radar Installation Completed Test Ship			O					
13. Technical Evaluation Started			⊕	----------O				
14. Award Contract Training Equipment			O					
15. Pilot Production Started Mod 0				⊕----------O				
16. OPEVAL Started Mod 0				⊕ ---- ⊕ -----O				
17. Award Development Contract Mod 1				O				
18. Mod 0 Released for Production					⊕ -------- ⊕ --------O			
19. Final Technical Manuals Compl Mod 0					O			
20. Training Devices & Materials Compl Mod 0					O			
21. Fleet Deliveries Start Mod 0					⊕ -----⊕ -------O			
22. Technical Evaluation Mod 1						O ---------⊕		
23. OPEVAL Mod 1							O	
24. Fleet Deliveries Start Mod 1								Feb 1971

ϕ COMPLETED O NOT COMPLETED ⊕---O TIME SLIP

9. FY 65 MILESTONES	JUL.	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUN.
1. Stand Test Propulsion System	O											
2. NMC Approval Compatibility Changes	O											
3. Launcher Fabrication Started		O										
4. Training Plans Conference Held					O							
5. WDE Component Tests Started					O							
6. Training Equipment Specs Completed					O							
7. Antenna Delivered Test Ship						O						
8. Award Contract Test Equipment							O					
9. WDE Computer Delivered Test Ship									O			
10. Radar/WDE Coupling Complete											O	
11. Guidance System Tests Complete												O

OP-701

TDP W 19-01 1 April 1964 p 2.2

CLASSIFICATION STAMP

Figure 2-8

The MMROP is coordinated with the mid-range planning of the CNO and reflects the appraisals and estimates developed in the Joint Long-Range Strategic Study and in joint intelligence estimates. By its nature, the MMROP is broad in scope and coverage.

0262 MMROP R&D Annex. In order to make the Marine Mid-Range Objectives Plan a more useful and meaningful tool of RDT&E, it contains a Research and Development Annex. This annex establishes direction and control of Marine Corps RDT&E.

0263 Marine Corps Development Actions. Marine Corps development actions are usually preceded by studies. In addition to the studies derived from the objectives in the Research and Development Annex, studies may be undertaken to examine subjects received from the field, proposals from industry, and possible Marine Corps applications of development actions of other Services. Studies are accomplished internally within Headquarters Marine Corps, by agencies of the Coordinator, Marine Corps Landing Force Development Activities (see paragraph E0720), by the Marine Corps Operations Analysis Group, and by external agencies under contract with the Marine Corps.

- First, studies are conducted to provide the Marine Corps with future operational, organizational and material concepts. These, of course, consider the mission of the Marine Corps, enemy capabilities, and the projected environment and technology of the period. These studies provide inputs for the MMROP.
- Second, these studies refine the objectives of the R&D Annex to the MMROP. In the further definition of the objectives of the Annex, studies are conducted which concurrently address the operational, organizational and materiel objectives. The results of these studies may provide feedback to the Annex. Materiel requirements thus derived are presented in GOR form.

a. It is Marine Corps policy to utilize material developed by other Services whenever such material will fulfill Marine requirements. Close watch is maintained of developments of the other services and actions are taken to ensure that peculiar performance capabilities and characteristics required to render items suitable for landing force use are incorporated during development. Unilateral development by the Marine Corps is undertaken only when requirements cannot be met by other means.

b. The Marine Corps Landing Force Development Center normally prepares proposed GOR's, SOR's and EDR's for promulgation by the Commandant of the Marine Corps. As part of their preparation, the Development Center staffs requirements documents for field level review to designated agencies of the other services. In this way the Marine Corps notifies the other services of its requirements and also determines their similar requirements and interest in a particular development.

0264 Marine Corps Research and Development Program Document. The Marine Corps maintains seven Marine Corps 10-year programs which are derived from the MMROP and the Marine Corps mid-range objectives plan. They are:

a. The Troop and Organization Program

b. The Research and Development Program

c. The Manpower Program

d. The Training Program

e. The Installation Program

f. The Material Program

g. The Aviation Program

The R&D program, b., sets forth the operational requirements and related material requirements for each operational category whose achievement will lead to attainment of approved objectives in both organization and combat capability. The Marine Corps R&D Program Document is derived from the Marine Corps Research and Development Annex and supports the Marine Corps Mid-Range Objectives Plan. This program is developed concurrently with the troop and organization program and is closely coordinated with it. It addresses the hardware developments to support the material objectives of the R&D Annex and bridges the gap between planning and the formulation of the R&D budget.

0265 Marine Corps Development Cycle. The Marine Corps development cycle considers operational, organizational and material objectives and commences upon the culmination of studies from which are derived: the tentative tactics and techniques to be used by the Marine Corps of the future; tentative tables of organization and tables of equipment which indicate the number of personnel and the amount of equipment required; and list of material objectives to indicate new weapons or items which are required. These material objectives are further defined in General and Specific Operational Requirements. Improved material objectives are also derived from beneficial sugges-

PROJECT RELIABILITY SUMMARY
OPNAV FORM 3910-5(6-63)

REF. OPNAVINST 3910.15
OPNAV REPORT SYMBOL 3910-7

CLASSIFICATION STAMP

1. SYSTEM/PROJECT NUMBER AND NAME	ELEMENT	DATE
W19-01 Zenith Weapon System (WW-199)	6 . 42 . 06 . 03 . 2	1 April 196Y

2. OVERALL SYSTEM	4. MINIMUM ACCEPTABLE RELIABILITY REQUIREMENTS	5. CONTRACT GOALS	6. LATEST PREDICTED RELIABILITY	7. CURRENT ACHIEVED RELIABILITY	NOTES 1
	80% chance that single one square meter target will be acquired at 200 miles LOS and shot down with one round.	Kill probability on single target 0.98	Kill prob, 0.70		
3. SUB-SYSTEMS					
Missile	85% chance that unit checked out on launcher will hit 1 sq. meter target within design envelope.	90%	85%	70%	2
	85% chance that unit will check out on launcher.	95%	75%	45%	3
Launcher	Reliability 98% when installed on deck on 90 day mission in North Atlantic Winter or Tropic Summer.	99.5%	99.5%		
Radar	90% availability during 3 month cruise	95%	85%	50%	4
	95% reliability during 4 hour GQ	200 hr MTBF (98%)	80 hr MTBF (95%)	26 hr MTBF (85%)	5 & 6
WDE	95% reliability during 4 hour GQ	200 hr MTBF (98%)	38 hr MTBF (90%)		

NOTE 1. RELIABILITY IN BOX 7 GIVEN TO A CONFIDENCE LEVEL OF 0.80 CONSISTANT WITH DATA IN BOX 5 (4 or 5).

2. Based on test firing of 100 prototype missiles.
3. Based on pre-flight checking of 150 missiles the first time they were placed on launcher after being uncrated and serviced.
4. Based on availability of radar during 30 day period of test firings.
5. Based on 1000 hour accumulated time on prototype radar.
6. For this purpose the radar is considered not to have failed if it will track a one square meter target at 250 miles LOS.

OP-701

USE OPNAV FORM 3910-5C *(continuation sheet)* **FOR ADDITIONAL SUB-SYSTEMS AND APPLICABLE NOTES**

CLASSIFICATION STAMP

TDP W19-01 1 April 196Y

Figure 2-9

tions of service personnel and unsolicited proposals of civilian contractors. These suggestions are then evaluated at the Marine Corps Landing Force Development Center and if justified may be promulgated as an SOR or may result in the modification of present equipment. Once material objectives are defined, hardware is designed, developed and tested. Concurrently as goals are obtained in material objectives, their effect on tactics and techniques or tables of organization are entered into the system. When equipment is fully developed, it is troop tested and further evaluated by the proposed using unit of the Fleet Marine Force, the results of which reflect in finalization of permanent tables of organization, equipment and technical and operational manuals.

0270 Cooperation With Allies in Research and Development of Defense Equipment. It is the intent of the U.S. to establish cooperative research and development efforts with our allies to improve the utilization of the combined technical resources of the free world in the development of defense equipment responsive to the operational requirements of both the allies and the U.S. Cooperative research and development may be based on technology and components as well as an end item or weapon system. Closely related to the cooperative research and development is the harmonization of military requirements between the U.S. and its allies whereby the desired operational compatibility of the several naval forces may be achieved. Minor differences in "requirements" should not be permitted to serve as a basis for the support of slightly different duplicative programs and projects.

ANNOTATED REFERENCE LIST ON PLANNING

DOD INST 3200.6 (SECNAV 3900.14A), "Reporting of research, development and engineering program information." This DOD instruction prescribes the requirements and procedures for preparing and submitting basic program information to the Director of Defense Research and Engineering for his review of the Department of Defense research, development and engineering program, including R&D supported from other appropriations and the RDT&E portions of other DOD Programs. This instruction is probably the single most important DOD Instruction in terms of its impact on the management of the Navy RDT&E effort.

OPNAV NOTICE 3910, "Program Planning Reporting at Element, Project and Task Area Level."

OPNAV INST 3900.8C, "Planning Procedures for the Navy research, development, test and evaluation (RDT&E) program." This instruction outlines policy and procedures for the coordination and integration of RDT&E within the Office of the Chief of Naval Operations and provides guidance to bureaus and offices external to OPNAV. In general terms this fundamental instruction covers the planning and management of the Department of the Navy RDT&E effort. It covers requirements documents — GOR, NRR, SOR, etc. — reporting documents and programming and budgeting procedures. Its scope thus spans Chapters II through IV of this manual. The following instructions amplify individual paragraphs of OPNAV INST 3900.8C.

SECNAVINST. 3900.32, "Reporting of On-Going Work in the Research and Exploratory Development Categories at the Work Unit Level."

OPNAV INST 3910.9A, "General Operational Requirements (GOR's)."

NAVMAT INST 3910.4, "Exploratory Development Requirements."

OPNAV INST 3910.6B, "Specific Operational Requirements (SOR) and Tentative Specific Operational Requirements (TSOR): instructions for preparation of."

ONR INST 3910.2A, "Naval Research Requirements, Revision of."

NAVMAT INST 3910.7, "Planning Procedures for the Department of the Navy Exploratory Development Program."

OPNAV INST 3910.7B, "Advanced Development Objective (ADC); procedures for preparation of."

OPNAV INST 3910.8A, "Proposed Technical Approach (PTA)."

OPNAV INST 3910.4B, "Technical Development Plan."

OPNAV INST 5000.19E, "The Navy Planning and Programming System." This instruction describes the basic Navy planning documents which form the foundation for further stages of Navy plans and assigns responsibilities for their development and updating.

DOD DIR 3200.9 (SECNAV 3900.33), "Initiation of Engineering and Operational Systems Development," establishes policies governing Concept Formulation and Contract Definition in the initiation of major Engineering Development projects.

Manual for Planning and Programming, U. S. Marine Corps (MCO P3121.2). This manual describes the Marine Corps planning and programming system, the relationship of Marine Corps plans and programs to the budget cycle, and to the plans and documents of the Secretary of Defense, Joint Chiefs of Staff, Secretary of the Navy, and the Chief of Naval Operations. It includes chapters on the plans of the Joint Chiefs of Staff, Department of the Navy planning, DOD programming system, and programming in the Department of the Navy.

OPNAV INST 5500.33, "Department of the Navy long range scientific and technical planning program," provides policy and guidance for indoctrination of the scientific and technical community of this country in the operational and technological capabilities and requirements of the U. S. Navy.

Marine Corps Order 3900.3, "Marine Corps research, development, test and evaluation." assigns responsibilities and delineates general procedures to be used for research, development, test and evaluation (RDT&E) in the Marine Corps.

OPNAV INST 3900.10, "Cooperation with Allies in Research and Development of Defense Equipment."

OPNAV INST. 3900.9, "Harmonization of Qualitative Requirements for Defense Equipment of United States and Allies."

NAVMAT P3910, "Guide for the Preparation of Technical Development Plans."

ONR INST 3920.3A, "European Research Contract Program, Procedures for Operation of.

NAVMAT INST 5200.11, "Guide for the Preparation of Project Master Plans.

CHAPTER III

DEPARTMENT OF DEFENSE PROGRAMMING SYSTEM

This chapter deals with the Department of Defense Programming System and its implementation in the Department of the Navy. Theoretical aspects of the system are discussed as well as the mechanics of the Five-Year Defense Program (FYDP) and the Program Change Control System.

An understanding of the DOD Programming System and its objectives and implications is of particular importance to RDT&E managers. Before any system development can be initiated, it first must be approved for inclusion in the FYDP. To gain approval for development, a program must stand up to "survival of the fittest" competition against alternative means of accomplishing the same purposes, and alternative uses of the same resources. In addition, it must also pass substantial procedural hurdles. Those projects whose designers have consciously tailored them with these considerations in mind will be best able to gain approval.

0300 OBJECTIVES AND UNDERLYING ASSUMPTIONS

The DOD Programming System was first introduced in the spring of 1961 for application to the development of the FY 63 budget.

Programming is a portion of the DOD Resource Management Systems which includes setting goals, objectives and schedules for achieving them, collecting functions and activities sharing the same objective into families (i.e., programs), and estimating resource requirements for each.

0301 Goals of the DOD Programming System. The programming system is designed to provide a comprehensive framework for planning and controlling major programs at the highest level within the Department of Defense. Seven major goals for the programming system are:

a. Planning oriented around major missions. Program planning is on the basis of broad military missions which cut across traditional organizational lines, rather than on the basis of unilateral plans and priorities of individual Services.

b. Ability to relate resource "inputs" to military "outputs." "Inputs" of manpower, materiel and installations, together with their costs, must be related to the "outputs" of military forces. The Programming System is designed to provide both financial and non-financial estimates of the resource inputs required to obtain specified time-phased military outputs.

The presentation of data in the manner described in subparagraphs a and b above facilitates "rational tradeoffs," both between complementary inputs into a single program or project, and between competing programs or projects designed to serve the same military purpose This framework fosters inter-service competition, i.e., Minuteman of the Air Force and Polaris of the Navy.

c. Coordination of long-range planning with budgeting. Budget and funding decisions must be compatible with long-range programming decisions. Conversely, long-range plans must be compatible with the realities of projected resource availabilities. To coordinate long-range military planning with short-range budgeting, detailed programs and their costs are projected five years into the future, with major military forces projected an additional three years.

d. Continuous appraisal of programs. The Programming System must provide a means for continuous review of program decisions and a mechanism for changing programs whenever a need for change is recognized. Ideally, a non-competitive program should be recognized as such the moment it becomes marginal rather than at the next budget or program review.

e. Progress reporting. Control of approved programs must be exercised through a system of progress reports which highlight significant deviations from approved plans so that timely corrective action may be taken. (See paragraph 0601, "Concept of 'management by exception'.")

f. Ability to make cost-effectiveness studies. The system must provide both physical

and financial data in forms suitable for making cost-effectiveness studies of alternative force structures.

g. Integration of DOD information systems. A long-range goal of defense management is establishment of an integrated management information system which will provide not only the information needed in support of the DOD Programming System, but also budget and other needs now served by separate reporting systems.

0302 Assumptions Underlying the System. An underlying objective of the architects of the DOD Programming System was to restructure the whole incentive system of defense management by introducing into it some of the forces which promote efficiency in a free market. The assumptions underlying the system have been spelled out in the writings of Mr. Charles J. Hitch, former Assistant Secretary of Defense (Comptroller) and some of his earlier associates at the Economic Division of the RAND Corporation. Some of these assumptions are:

- That "resources are always limited in comparison with our wants." (Hitch and McKean)
- That "military decisions, whether they specifically involve budgetary allocations or not, are in one of their important aspects economic decisions; and that unless the right questions are asked, the appropriate alternatives selected for comparison, and an economic criterion used for choosing the most efficient, military power and national security will suffer." (Hitch and McKean)
- That "in decisions affecting the situation several years hence, the main resource limitations are best viewed as general monetary constraints, and costs are best measured as dollar costs." (Hitch and McKean)
- That "an economically efficient solution to military problems does not imply a cheap force or a small military budget. It simply implies that whatever the military budget results in (or other limitation, for example, on personnel) the greatest military capabilities are developed." (Hitch and McKean)
- That "incentives . . . can make or break any plan. In some cases the devising of appropriate incentives may be more rewarding than operations research on the substantive problem." (Hitch)
- That "values to be found in interservice rivalry . . . are the values of competition. . . . Competitive incentives can act as a powerful stimulus to change and improvement." (Enthoven and Rowen)
- That "interservice competition serves a valuable role – particularly with respect to research and development. . . . If interservice rivalry did not exist, we would be forced to invent something very like it." (Hitch and McKean)

(See paragraph H0120, "Economy in Defense," excerpt from an address by the Honorable Charles J. Hitch.)

0310 Five-Year Defense Program (FYDP)

The Five-Year Defense Program (FYDP) is the summation of all approved programs of all Department of Defense components. The FYDP is the foundation of the DOD Programming System. It can be visualized as a three-dimensional matrix, in which resource inputs, phased over a five-year period, are combined with military outputs or programs, phased over the same period (see Figure 3-1). Relating inputs (resources) to outputs (forces) in this way provides the Secretary of Defense with two major planning dimensions: 1. He can determine the military forces required to counter the existing threat; 2. He can concurrently allocate available resources to those forces. The FYDP is expressed in terms of three major components: programs, program elements and resource categories. The costs of these are tabulated over a five-year period.

0311 Program Element. The program element is the smallest unit of Military output controlled at the Department of Defense level. It is defined as "an integrated combination of men, equipment and facilities which together constitute an identifiable military capability or support activity." The "Fleet Ballistic Missile System," "Attack Carriers, Forrestal Class," and "Recruit Training, Navy" are examples of program elements.

0312 Program. Program elements are aggregated to form programs (originally called "program packages"). A DOD program is a combination of program elements designed for the accomplishment of a definite objective or plan which is specific as to the time phasing of what is to be done and the means proposed for its accomplishment. Program elements in a single program either complement each other

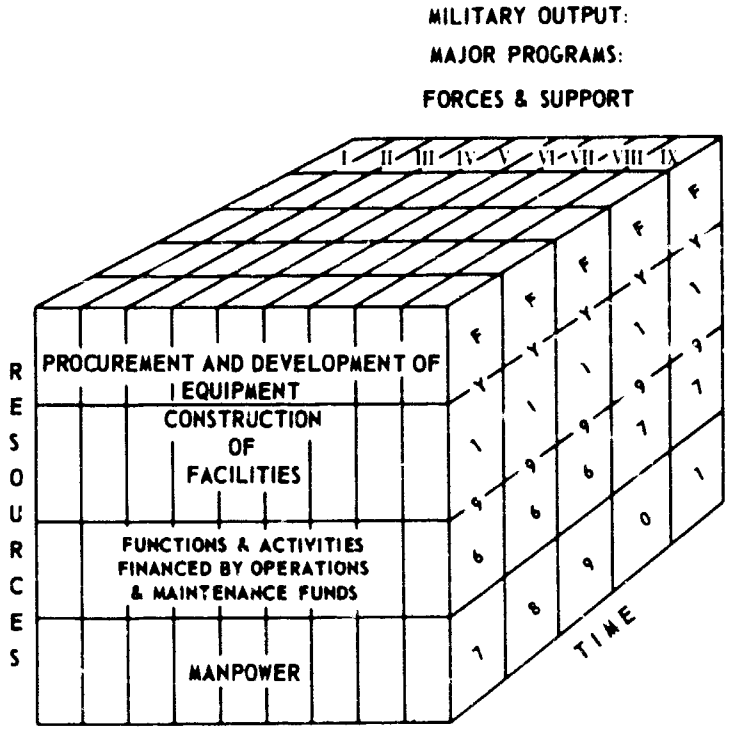


Fig. 3-1 - The Five-Year Defense Program (FYDP)

or are close substitutes for one another. The entire defense activity has been organized into nine major programs. These nine groupings identify the total Department of Defense output – the entire force structure needed to meet requirements planned for the next five fiscal years:

I. Strategic Forces

II. General Purpose Forces

III. Intelligence and Communications

IV. Airlift Sealift

V. Guard and Reserve Forces

VI. Research and Development

VII. Central Supply and Maintenance

VIII. Training, Medical and Other General Personnel Activities

IX Administration and Associated Activities

-- Military Assistance (not assigned a program number at the present time but is a separate program)

a. Within some major programs there are intermediate aggregations of program elements which either have closely-related mission characteristics or are often combined for decision-making or display purposes.

b. The Office of the Secretary of Defense places primary emphasis on making decisions regarding military output in terms of program elements. However, there must be some method of relating a program element to the resources it will require or consume. Only when the output-oriented program elements have been related to the required resource inputs is it possible to begin explicit planning for the acquisition or financing of those resources through appropriations.

0313 Resource Categories. Resource categories, which are defined as a unique type of resource or a homogeneous grouping of related procurement, manpower, or construction items, provide this second dimension of planning. There are four major types of resource categories: items of equipment, military construction, the functions and activities financed

by operations and maintenance appropriations, and manpower. In the same way that the sum of all of the program elements constitutes the total defense output, so the sum of all of the resource categories constitutes the total input. For example, the program element Fleet Ballistic Missile System is the force provided by all of the resources allocated to it – the Polaris Missile, submarines, the supporting fleet, the shore facilities, and the personnel who contribute to this element. Programs and resource categories, taken together, provide a complete picture of the sources and uses of national resources among the various defense activities.

0314 Materiel and Construction Annexes. Decisions concerning resource categories are defined in two listings, a Materiel Annex and a Construction Annex. Between them, these listings permit the Defense Department to control the majority of resource costs – the costs that influence decisions. The Materiel and Construction Annexes do not apply to Program VI, Research and Development. However, RDT&E, Manpower and Operation and Maintenance annexes are to be developed.

a. The Materiel Annex/Weapons Dictionary consists of two parts. Both parts must be consistent with the approved resources in the Five Year Defense Program (FYDP). Both must be periodically revised, in accordance with DOD Programming System instructions, to maintain consistency with the FYDP. The purpose of the Materiel Annex/Weapons Dictionary is to list and describe the materiel portion of the approved program in terms of materiel items. In most cases a materiel item will be allocated to more than one program element. The Materiel Annex/Weapons Dictionary consolidates information on each materiel item to show the "input" of such items to the FYDP.

1. The Materiel Annex, Part 1, Procurement List, shows, by fiscal years, the quantity of units, the total quantity cost, and the Total Obligational Authority (TOA) programmed for procurement. The years shown are the prior, current, and budget fiscal years and each of the four following program years. The items appearing in the procurement list include:

(a) Major items for which individual Materiel Annex, Part 2, data sheets are required.

(b) Other specific items for which the TOA in any one fiscal year during the program period is $2 million or more.

(c) Such "other" categories summarized as necessary to make up the total amount programmed in the procurement appropriations and sub-classifications thereof.

2. Materiel Annex, Part 2, Data Sheets, are required for:

(a) All items for which funding is $5 million or more in the prior year, current year, budget year, or any of the four following program years, except that items of cryptographic equipment and items of a commercial nature shall be omitted, even though the $5 million criteria is equalled or exceeded.

(b) All of the following, regardless of when funded: All aircraft programmed for procurement or listed as active in any year of the FYDP, all engines used in these aircraft, all guided missiles, and all combat tanks.

(c) All ships and submarines which are listed in OPNAV Instruction 03110. 19 series, "Accounting for U.S. Naval Ships and Craft by Inventory and Assignment."

(d) All major subsystems or components of major ($5 million in any one year) electronic systems that are funded during the prior years, current year, budget year or any of the four following program years.

(e) Other items specifically requested by OSD.

b. The Construction Annex controls construction in the same way that the Materiel Annex controls procurement. It lists the DOD-approved construction projects (with descriptive information, cost data, and scheduled dates) for the current year, the budget year, and four ensuing fiscal years. Only those projects with total costs estimated above $2 million are listed individually; projects whose costs exceed $25,000 are aggregated into comparable categories.

0315 Program Element Costs. Since major program decisions are made in terms of program elements, the Department of Defense has established a method of relating costs to program elements so that the relative economy or efficiency of the elements may be determined. In order to provide better data for decision-making, the total financial requirements for a given program element for a fiscal year are lumped together as Total Obligational Authority (TOA). TOA includes all funds available for support of a program or program element during a year, regardless of appropriation category or the year in which appropriated.

Costs are also broken down into program cost categories: These are defined in DOD Directive 7045.1 (SECNAV INST 5000.1CB). "Guidance and Implementation of the DOD Programming System," as follows:

Research and Development. Those program costs primarily associated with research and development efforts including the development of a new or improved capability to the point where it is ready for operational use. These costs include equipment costs funded under the RDT&E appropriations and related Military Construction appropriation costs. They exclude costs which appear in the Military Personnel, Operation and Maintenance and Procurement appropriations.

Investment. Those program costs required beyond the development phase to introduce into operational use a new capability, to procure initial, additional or replacement equipment for operational forces or to provide for major modifications of an existing capability. They include Procurement appropriation costs except those associated with the operating category defined below, and all Military Construction appropriation costs except those associated with research and development. They exclude RDT&E, Military Personnel and Operation and Maintenance appropriation costs.

Operating. Those program costs necessary to operate and maintain the capability. These costs include Military Personnel, Operation and Maintenance and recurring Procurement appropriation costs (such as replenishment spares). They exclude RDT&E and Military Construction appropriation costs.

Figure 3-2 depicts the three cost categories as they relate to the time-phased life of a typical weapon system. Classifying costs in this way makes the downstream implications of RDT&E decisions more apparent.

0320 PROGRAM CHANGE PROCESS

Since plans can never be static, provision is made for updating the Five Year Defense Program. This is the function of the constantly evolving program change process. This process establishes procedures for review and approval of proposed changes to the FYDP and for reporting progress toward the planned-for forces, centralizes decision making into one channel, and maintains an up-to-date approved FYDP. Through this process, significant changes in program elements are brought to the personal attention of the Secretary of Defense for approval.

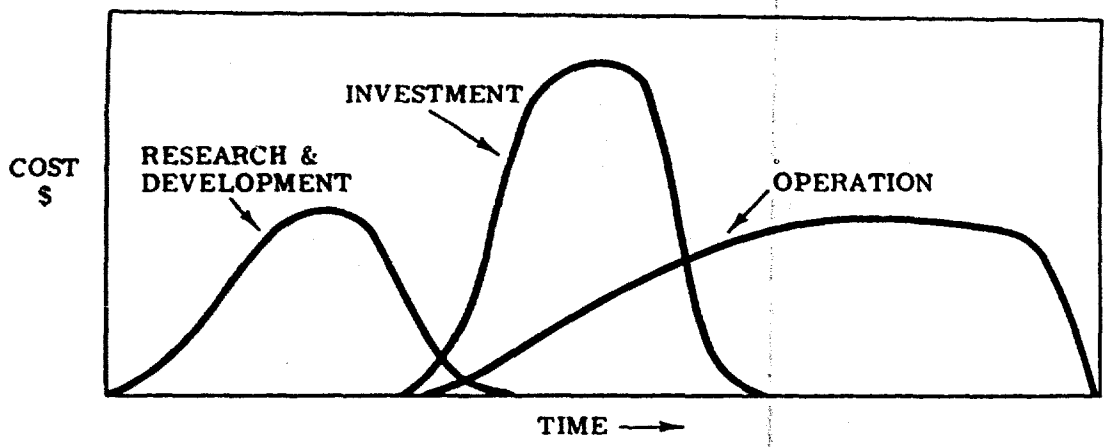
a. Program Change Request (PCR)

The PCR (DD Form 1570, OPNAV Form 5000/19 and backup rationale when required) is the means for proposing adjustments to the FYDP. Specifically, changes to Forces, the TOA, or personnel assigned to individual program elements in the FYDP may be requested. A PCR is also used to "price-out" Secretary of Defense decisions, to support the Secretary of the Navy's Program Objectives and positions in response to Draft Presidential Memorandums and to submit reclamas to SECDEF decisions. Chapter 10 of the Navy Programming Manual cited in the annotated reference list provides detail on types of PCRs and procedures.

b. Major Force Issues (MFIs)

These are issues concerning proposals which, if approved, would have a major effect, quantitatively and qualitatively, on military forces. MFIs are identified through a JCS/Service SECDEF process. SECDEF then publishes an approved list early in the calendar year for resolution during the calendar cycle. Initial Draft Presidential Memorandum (IDPM) contain the SECDEF MFI-related tentative decisions and statements of the general basis for these decisions. Recommendations concerning

COST CATEGORIES



RESEARCH & DEVELOPMENT	Development of a New Capability to the Point of Introduction into Operational Use
INVESTMENT	Costs Required Beyond the Development Phase to Equip Forces with New Capability
OPERATION	Recurring Costs Required to Operate and Maintain the Capability

Figure 3-2

these tentative decisions are submitted to SECDEF by SECNAV by means of line-in, line-out (LILO) reclama to the IDPM. A final Draft Presidential Memorandum is later promulgated and reflects SECDEF decisions on force levels and procurement. A PCR pricing out the final DPM is then required.

0321 Occasions From Initiation of Program Change Requests. The FYDP is designed to give the Secretary of Defense control over the programs of all elements of the Department of Defense. Services desiring to introduce new program elements, or make major changes to existing elements, may submit a Program Change Request (PCR) at any time, thus bringing the matter to the attention of the Secretary of Defense for decision.

However, in the course of each year's force and program review, PCRs which implement the decisions announced in Draft Presidential Memorandum (DPM) are required. The system also requires submission of a PCR when any program element deviates beyond prescribed limits, or "thresholds," from the schedule and costs projected when the element was approved. Thus when the assumptions of cost and progress upon which approval was based become seriously invalid, the system automatically brings the matter to the attention of the Secretary of Defense for "management by exception." If, in his judgment, program slippages, failure to meet reliability and other goals, or cost overruns make the program no longer a "best buy," he may cancel the program or direct reorientation.

0322 Thresholds. Basic requirements for submission of Program Change Requests are set forth in ASD (Compt) Memo, "Interim Operating Procedure No. 2—Program Change Requests (PCR)," June 30, 1966. A PCR must be submitted to the Secretary of Defense for prior approval of any new program element; any change in programmed costs for an R&D program element of $10 million or over in one year, or $25 million for the total program; or any increase of TOA. Any change to the plan in manpower, military or civilian, requires a PCR. (Programming thresholds should not be confused with reprogramming limitations on additions of $2.0 million or more in program elements. See paragraph 0530, "Reprogramming.")

0323 Documents Required in the Program Change Process. Documents required for submission and approval of PCRs, as well as detailed instructions for their use, are covered in ASD(Compt) Memo, "Interim Operating Procedure No. 2—Program Change Requests (PCR)," June 30, 1966 and the Navy Programming Manual.

0324 Internal Department of the Navy Processing of PCRs. Responsibilities of Department of the Navy officials for administration of the Program Change Control System are set forth in SECNAV Instruction 5000.16B, "Guidance for Implementation of the DOD Programming System." These responsibilities include:

a. Navy Department Program Information Center (NDPIC). The NDPIC is operated by the CNO for the Secretary of the Navy and is responsible for the processing and correlating of requests for new programs and changes to approved programs. It is also responsible for maintaining and updating all documents associated with the FYDP and for monitoring program balance and consistency of program change requests with the approved Navy Program Objectives. When NDPIC determines that corrective actions are required, the cognizant organization is advised.

b. The Chief of Naval Operations and Commandant of the Marine Corps determine requirements for changes to approved programs, originate such requests and inform NDPIC of "below threshold" program changes.

c. Office of the Navy Comptroller evaluates, from a budgetary and financial viewpoint, program change requests for:

- Appropriation and fiscal status and implications
- Financial feasibility and balance
- Validity and reasonableness of costs and pricing
- Validity in relation to planned objectives
- Legality

d. Office of Program Appraisal appraises and advises the Secretary of the Navy and his staff concerning PCRs. This office evaluates PCRs from a program content viewpoint for:

- Validity and reasonableness in relation to requirements or objectives
- Program balance
- Procurement rates and feasibility of attainment
- Compliance with logistics guidance

0325 Processing of Service PCRs in OSD. Procedure for internal OSD processing of PCRs is set forth in ASD(Compt) Memo, "Interim Operating Procedure No. 2—Program Change Requests (PCR)," June 30, 1966. The originating service or agency forwards all copies to the Secretary of Defense where they are routed to ASD(Comptroller) for processing. ASD(Comptroller) forwards copies of the PCR to one OSD component designated as primarily responsible for action and to all other DOD components with interest in the element. Virtually all PCRs on an R&D element are sent to the Office of the Director of Defense Research and Engineering.

Technically, OSD does not review Technical Development Plans, but rather analyzes them in connection with its action on the Program Change Request (PCR). This analysis has a direct bearing on the acceptability and approval of related PCRs.

Upon receipt by OSD of an RDT&E oriented PCR, supported by the TDP, it is routed to ODDR&E for primary action. ODDR&E considers the PCR from technical, cost and timing viewpoints in relation to other RDT&E projects, both present and future, competing for the same money.

The ASD(Comptroller) considers the PCR from similar viewpoints, but with emphasis on cost in relation to effectiveness and the impact on the force structure and the total FYDP, taking into account development, procurement and operating costs. He is also concerned with the availability of funds to support the proposed program.

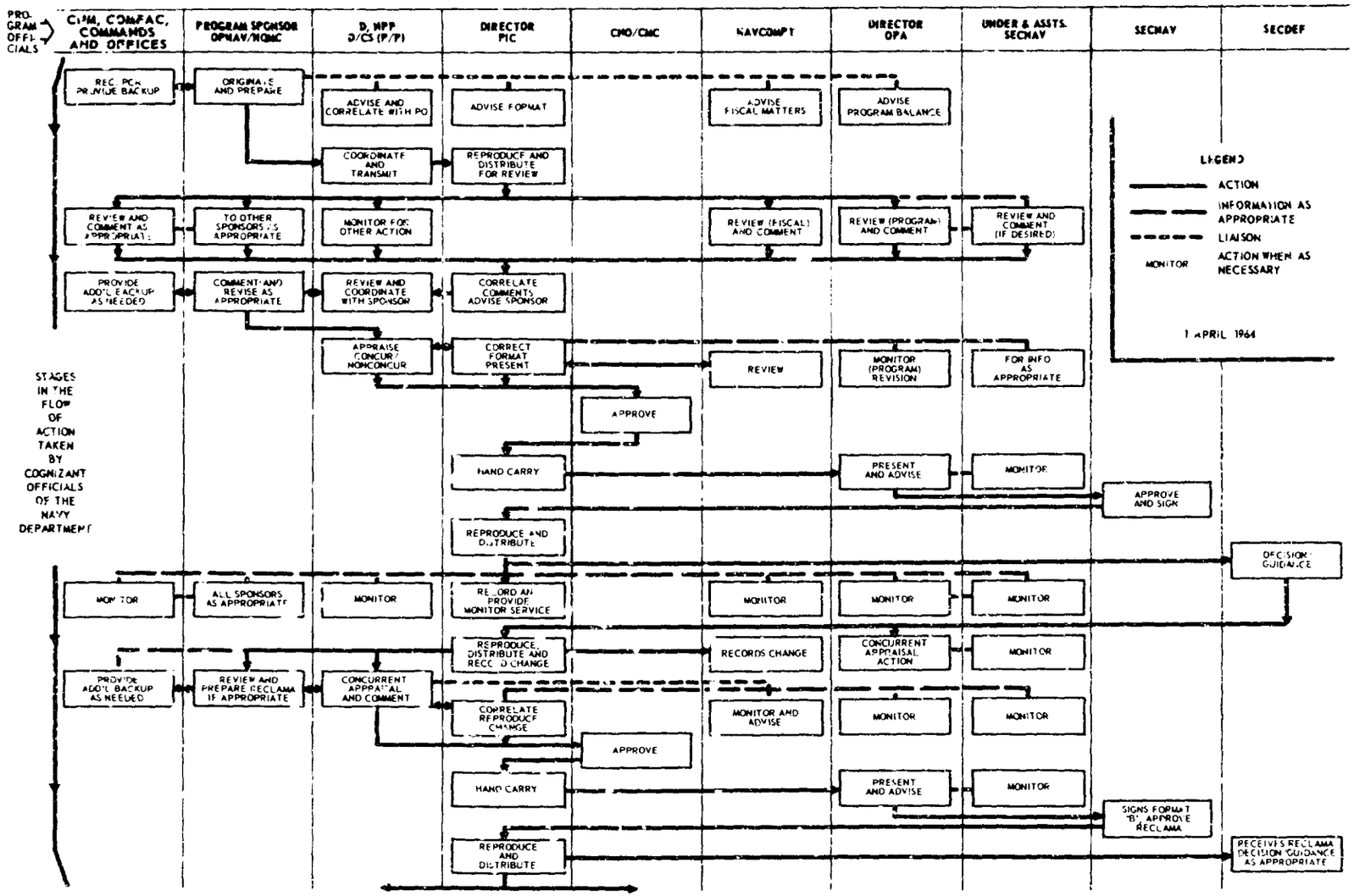


Figure 3-3 - Procedures for processing PCR's

The ASD(Comptroller) and the ASD (Systems Analysis) prepare, for the Secretary of Defense and the DDR&E, analyses by which alternative courses of action may be compared. The Office of DDR&E makes similar, more specialized trade-off analyses, drawing on the Weapons Systems Evaluation Group (see paragraph E0112 for information on WSEG) and other sources for assistance.

The Joint Chiefs of Staff (JCS) consider the PCR from the strategic viewpoint. Other OSD agencies consider it according to their own specialities; for example, the Assistant Secretary of Defense (Installations and Logistics) examines it for logistics implications.

The Secretary of Defense, with advice from his staff and the JCS, approves (or disapproves) the incorporation of a new or changed program into the FYDP. He also issues program guidance, with inputs from the DDR&E and the Comptroller, for the Military Departments to use as a basis for preparing the next fiscal year's budget, as required by the FYDP. Approval of the PCR does not constitute authority to proceed with the project. Funds must be provided through separate action. The program guidance from OSD may be accompanied by release of funds—from the Secretary of Defense Emergency Fund or through reprogramming—for the first increment of work on the system development. Alternatively, the Secretary of Defense or the DDR&E may require the Military Department to undertake Contract Definition to spell out all aspects of the proposition more sharply.

0327 Other Changes to the FYDP. Procedures for changing the FYDP have been undergoing constant evolution since the institution of program change control. The trend has been toward increased use of the formal Program Change Request. It is a firm rule that changes to the FYDP above established thresholds are made only with the approval of the Secretary of Defense. These decisions at times may be made within contexts other than action on a PCR. Program/Budget Decisions (PBD) in review of the budget, and the guidance of the JSOP can also affect the FYDP. In such cases, the Military Departments or other OSD components update the FYDP to reflect the Secretaries' decisions and submit Program Change Requests "to keep the books straight." Such program changes, since they reflect decisions already made, do not require the supporting studies required when changes are initiated by the Military Departments or other DOD components.

Changes accomplished by means of reprogramming procedures, as described in Chapter V, involving the current and preceding fiscal year programs individually may be within established thresholds. However, as indicated above, these are included with other cumulative changes in subsequent updating of the FYDP.

0328 Below Threshold Changes to FYDP. Secretaries of the Military Departments are authorized to approve changes to the FYDP below the thresholds established by the Secretary of Defense. If the cumulative effect of such changes, including additional changes proposed, equals or exceeds established thresholds, a PCR covering all of these changes must be submitted. Changes not submitted to OSD for approval must be within available funds for the current or preceding program year. For subsequent program years, any change involving an increase in the approved Military Department TOA requires submission of a PCR. Resulting changes in RDT&E programs are reported to DDR&E and ASD(Comptroller) on an after-the-fact basis in order to keep the FYDP current.

0330 Program Review and Changes

Requests for program changes to the FYDP may be submitted at any time during the fiscal year. The DOD components are responsible for maintaining a continuous surveillance and review of their programs and for submitting change requests promptly whenever there is a need for revisions exceeding thresholds. Authority to submit changes is not limited to the implementing organizations. The system also permits submission of proposed changes to programs administered by other organizations.

0331 Annual Comprehensive Program Review. An important ingredient of the programming system is a series of annual comprehensive program reviews. These reviews are scheduled during the second half of the fiscal year and provide background for early decisions on changes to the FYDP which will form the basis for the next budget submission. The reviews include, but are not limited to:

- Requirements studies directed by the Secretary of Defense.
- Proposed force changes by the Joint Chiefs of Staff (e.g., JSOP).
- Functional area reviews of interrelated program elements or aggregations such as intelligence, communications, etc.

The annual comprehensive requirements and program reviews do not diminish the importance of prompt replanning of weapon and support systems and other programs through use of the program change procedures at any time during the year when circumstances indicate the need for significant deviations from the existing approved programs.

0332 Advancing the FYDP One Year. In order to advance the FYDP, a new year is generally added to the program during the second half of each fiscal year in accordance with specific guidance issued annually. This procedure permits review of the new year forces, manpower, costs, materiel items, etc. in the context of the comprehensive program reviews.

0333 Repricing. To reflect the latest and best information in the FYDP on prices and costs, repricing changes which meet or exceed program element or item thresholds are submitted for review by Program Change Requests as soon as identified.

0340 DOD Programming System and the Department of the Navy

The conclusion to Study Report: Programming System for the Office of the Secretary of Defense, 25 June 1962 – still the best official explanation in depth of the DOD Programming System – stated that

> The recommended Programming System outlined in this report has widespread ramifications. It attempts to provide a comprehensive system for planning and controlling the major programs which determine overall U. S. military strength. Although it is directed toward top-level management within the Department of Defense, its basic framework can also be applied in the separate Departments and Agencies. Indeed, in order for the system to be wholly effective, the same concepts on which it is based must become an integrated part of the management systems used at all levels of the Department of Defense.

In a talk on the DOD Programming System and the use of cost-effectiveness analysis at the German Ministry of Defense in Bonn, given in mid-1963, Secretary Hitch reported that

> Most of this type of work is performed by the military departments, the Joint Chiefs of Staff, and their supporting contract organizations such as RAND and the Weapons Systems Evaluation Group. A small systems analysis organization has been established in the Office of the Secretary of Defense primarily to provide technical guidance to other groups and to review and evaluate for the Secretary of Defense the work performed elsewhere in the Department. Occasionally the OSD staff, itself, will conduct certain studies which cut across Service lines.

0341 Program Objectives (PO). Formal cost-effectiveness analysis and the "economic choice" way of looking at problems is spreading rapidly within the Department of the Navy. The greatest concentration of formal cost-effectiveness analysis centers around the development of the Department of the Navy Program Objectives (PO) and actions taken to develop PCRs for inclusion of PO items in the FYDP.

a. The PO is officially defined in SECNAV Instruction 5000.22, "Guidance for Administration of Department of the Navy Program Data." As described in that instruction, the PO

> . . . contains the annual increments of the Navy and Marine Corps force levels and programs necessary to progress in an orderly manner towards achieving the objectives established by the Chief of Naval Operations in the Navy Long Range Objectives (LRO) and by the Commandant of the Marine Corps in the Marine Corps Long Range Plan and other guidance documents.

Competition to the RDT&E manager is as much a matter of intra-Department of the Navy scrambling for resources within the approved TOA for the budget year as it is a matter of seeking to increase the Navy TOA within the overall DOD TOA represented in the FYDP. The importance of quality, detail and completeness of the material submitted in support of a proposed program cannot be too strongly emphasized.

0342 Approved Process for Inclusion in PO. A PO has been a part of the Navy's planning process for many years. No program is included in the PO without approval of the Secretary of the Navy. In his decision on approval of programs, he employs the same type of cost-effectiveness criteria applied by the Secretary of Defense for approval of changes to the FYDP.

All items approved in the PO, but not yet within the FYDP, are in an active state of

preparation for submission of PCRs. Thus the considerable effort to prepare a well supported PCR will be devoted primarily to plans which have survived preliminary screening.

0343 Navy Cost-Effectiveness Study Capability. Military cost-effectiveness analysis is a new and rapidly growing field. Systematic cost-effectiveness analysis is fast becoming the rule. It is now a necessity for approval of major new programs, or PCRs which substantially increase a program element. Much Navy cost-effectiveness analysis is now performed under contract. The following organizations have cost-effectiveness responsibilities.

a. Navy Program Planning Office. A principal function of the Director Navy Program Planning (DNPP) is the study effort within the Office of the Chief of Naval Operations related to Navy programs, and all of the external study effort required by the Chief of Naval Operations. He ensures coordination of the total study effort of the Department of the Navy related to Navy programs. He is responsible for seeing that necessary studies are conducted as required. In this capacity, the DNPP serves as Scientific Officer to the Center for Naval Analyses. Within the Navy Program Planning Office (NPPO) is the Systems Analysis Branch (OP-96), which carries out the detailed functions of study coordination, strategic analysis, long-range studies and system analysis cost-effectiveness studies.

b. Office of Program Appraisal (OPA). SECNAV Instruction 5430.60 which disestablished the Office of Analysis and Review and established OPA, assigns OPA responsibility to "insure that the analytical capability and the necessary information are available to permit a knowledgeable review of the costs and effectiveness of both proposed and approved programs."

c. Chief of Naval Material (CNM). General Order Number Five assigns to the Chief of Naval Material the "responsibility to provide the Chief of Naval Operations with timely and adequate technical and economic data concerning the feasibility of meeting needs . . . ." In response to this requirement, the systems commands conduct feasibility studies in the areas of economics, logistics support and technology for each specific project. These studies are conducted under the direction of the CNM.

0344 Continued Evolution of the Programming System. Both the OSD Programming System and Department of the Navy associated activities are in a state of continued evolution. Many problems remain to be solved, particularly in coordination of program approval with provision and control of funding, and the general relations between the FYDP and the budget. The Navy capabilities and procedures associated with the OSD Programming System are in an early stage of development. It is safe to predict that the Navy's capability in this field will increase and that economic choice will play an increasing role in decision making at all levels in the future. (See paragraph H0120 for a discussion of the concept of economic choice, and paragraph H0820, "Elements of an Economic Analysis.")

0345 Relations Between the Programming Process and Budget Process. Any attempt to separate the programming process from the budget process must be somewhat arbitrary. The programming process merges into the budget process. It is only through inclusion within the budget that programs gain the opportunity to be carried into effect. The next chapter will cover the development and justification of the budget. In the development phase of the budget, the programming process continues until overtaken by the budget process and the printing of the President's budget in December. Although PCRs can be submitted at any time during the year, in practice the majority of them have been concentrated in the three-month period — June, July, and August.

0346 RDT&E Program Downward Bias. On viewing a graphic portrayal of the RDT&E Program of the FYDP, newcomers often get the impression that the Department of Defense intends to "phase out" RDT&E effort. The picture shows reduced amounts for each more distant year. This "phase out" impression is an illusion caused by the fact that the FYDP projections include only currently approved projects, thus completions tend to give a downward bias to the projections. No provision is included for presently undefined but anticipated development programs in subsequent years, although it is recognized that when the next budget year cycle approaches, there will be specific proposals for new developments. In effect, the downward trend of the RDT&E Program provides an estimate of the amounts which may be available for new projects.

ANNOTATED REFERENCE LIST ON THE DOD PROGRAMMING SYSTEM

ASD(COMPT) MEMO of 29 June 1966, "Interim Operating Procedures for Program/Budget Process," advises all DOD components that a series of interim operating procedures for the program/budget process will be issued. These will take precedence over DOD Directives 7250.5 and 7045.1, and DOD Instructions 7250.10, 7045.2, 7045.3, 7045.4, 7045.5 and 7110.1 during the period the latter are being amended.

ASD(COMPT) MEMO of 29 June 1966, "Interim Operating Procedure No. 1—Major Force-Oriented Issues," prescribes interim operating procedures for the identification, submission, control, resolution, reporting and recording of major force-oriented issues.

ASD(COMPT) MEMO of 30 June 1966, "Interim Operating Procedure No. 2—Program Change Requests (PCR)," describes the form, content, and processing procedures for Program Change Requests and gives instructions for filling out DD forms associated with the system.

ASD(COMPT) MEMO of 29 June 1966, "Interim Operating Procedure No. 3—Procedures for Updating the Five Year Defense Program (FYDP)," provides procedural guidance and technical specifications for the submission of program change data in machine readable form in support of Major Force-Oriented Issues and Program Change Requests.

ASD(COMPT) MEMO of 25 August 1966, "Interim Operating Procedure No. 4—Program/Budget Structure Changes," establishes criteria under which program element codes, field identification codes, element titles, and element definitions may be established, cancelled or changed.

ASD(COMPT) MEMO of 26 July 1962 to Service Secretaries transmitted instructions for preparation and submission of the Materiel Annex and Weapons Dictionary.

DOD INST 3200.6, "Reporting of Research, Development and Engineering Program Information," provides for DDR&E participation in the PCR review process.

Navy Programming Manual, OPNAV 90P-1A of March 1967, "Presents a broad view of defense programming concepts," general understanding of the DOD and Navy Programming Systems, and detailed administrative procedures of the programming system.

OPNAVINST 5000.19E, "The Navy Planning and Programming System," describes the Navy Planning and Programming System which is the basis for the coordination and execution of planning and programming within the Office of the Chief of Naval Operations.

OPNAV NOTICE 5000 of 8 August 1963, "Army, Air Force, and DOD Agencies Program Change Proposals; review of," provides for orderly review of PCRs originating outside the Department of the Navy.

SECNAVINST 5430.60, "Office of Program Appraisal; establishment of," sets forth OPA responsibilities.

SECNAVINST 5000.16B (DOD DIR 7045.1), "Guidance for Implementation of the DOD Programming System," establishes responsibilities of various organizations and officials within the Department of the Navy in processing and maintenance of those documents, records and reports required for the DOD Programming System. DOD DIR 7045.1 is an enclosure.

SECNAVINST 3900.13A, "Management of Navy Research and Development Laboratories," covers programming and funding for laboratories in considerable detail.

SECNAVINST 5000.22, "Guidance for Administration of Department of the Navy Program Data," provides guidance for development of the Navy Program Objectives (PO).

CHAPTER IV

PREPARATION AND JUSTIFICATION OF THE BUDGET

This chapter covers the development, presentation and justification of the budget, a process beginning 18 months before the start of the fiscal year and extending to passage of the Appropriation Act. Since the defense budgetary process is now in a state of evolution, and has been for several years, it is difficult at this time to generalize about budgeting for RDT&E effort with any high expectation of continuing validity for the account.

Rather than attempt such generalization, this chapter will discuss the RDT&E budgetary process in terms of its objectives and mechanisms and, the responsibilities of the various officials and agencies involved in it. The chronology of events followed in preparation and justification of the budget will be set down, with the note of caution that no two years are ever exactly alike. The process of Congressional justification will then be covered. Several Budget Bureau charts depicting the overall budgetary process of the Federal Government can be found in Appendix I.

0400 PLACE AND IMPORTANCE OF BUDGETING IN THE MANAGEMENT PROCESS

0401 Relation between programming and budgeting processes. Programming has been characterized as a bridge between planning and budgeting. Perhaps a more appropriate analogy might be to liken programming to a weld bonding the planning-programming-budgeting process into one integrated whole. The programming and budgeting processes are both interrelated and overlapping. In attempting to understand the current, and still evolving, relationship between the programming process and the budgeting process, it is useful to review the history of their development. The OSD Programming System was initiated in the spring of 1961 for use in developing the FY 1963 budget. At that time, the federal budget had been in existence for forty years.

Review of the "program" had always been a preliminary to the budget development process. Ongoing work and desired new projects were reviewed to determine the items which would be included in the forthcoming budget request. Once the "program" which the Navy would seek had been determined, it was expressed in terms of budget estimates within the appropriation structure, reviewed and "marked-up" at various levels and eventually submitted to the Congress.

In the previous chapter, sections 0341 and 0342, there was a discussion of the PO as it seems to be evolving under the impact of the programming system. This chapter will include a chronology and description of the process to be used in developing the budget.

The major innovations of the programming system did not involve alterations of the budgetary process so much as an extension of its discipline further into the planning process. The programming system, by relating cost inputs to force outputs and by extending fully costed programs five years into the future, provided better information for making the decisions which are eventually reflected in budgets. These innovations were, however, essentially outside the budgetary process. The DOD Programming System supplements the budgeting system; it does not supplant or supersede it.

0402 Importance of the budgetary process. Budgeting is definitely not a "technical accounting matter" concerned with "keeping the books." It is within the framework of the budget formulation process that programs must compete for approval and implementation. Just as plans are meaningless unless they win approval for inclusion in the Five-Year-Defense Program (FYDP), programs must win inclusion in the budget. In this continuous process, plans are translated into programs and programs are incorporated into budgets on a selected basis.

Approval of a program in the FYDP through the PCR system is not an automatic guarantee that the program will be funded. The budget is constrained historically by estimated national dollar resources irrespective of the TOA approved for the budget year in the FYDP. Since the magnitude of resources which can be allocated to defense in any given year is usually less than the total of the programs approved in the FYDP, certain programs may be reduced or deleted when the budget is actually formulated. Programs may be reduced or deleted either to reduce the overall defense or Federal budget, or to provide for other programs of higher priority, or because of increased costs of other programs in the budget.

After approval, the budget becomes the actual framework for day-to-day management. The First Hoover Commission emphasized this fact in 1949 when it stated: "The budget and appropriation process is the heart of management and control of the executive branch."

0410 Budgeting Terms and Concepts

Knowledge of the following terms and concepts is essential for an understanding of this chapter and the process it portrays.

Mark-up. The process of modifying budget submissions and reducing, increasing, revising or eliminating items, and providing appropriate guidance resulting from the review process.

Program Budget Decision (PBD) is a document originated in OSD during the annual budget review to record the decisions of the Secretary of Defense on the Department of the Navy's budget submission. The PBD process is a formal means whereby the Assistants to the Secretary of Defense bring up issues regarding programs to be included in the budget for a decision by the Secretary of Defense. He may issue several hundred program budget decision documents during the process of budget formulation and he permits the military departments to request reconsideration by means of reclamas.

Reclama. "A presentation by an agency, requesting restoration of all or part of a reduction in a budget estimate made by a higher review level," or "an appeal for reconsideration of any action" (DOD Instruction 5000.8).

Appropriation Manager. The official responsible to the Secretary of the Navy for formulation, presentation and execution of a [illegible] appropriation. The Assistant Secretary of the Navy (Research and Development) is appropriation manager for the appropriation RDT&EN.

0420 Budgetary Structure

In chapter III it was pointed out that the OSD Programming System was devised to provide information in a form more suitable for program decisions and management control than that provided by the traditional budget. In RDT&E, as distinguished from other appropriations, it was possible early in the development of the programming process to achieve a close relationship between the program structure and the budget structure. One of the major goals of Project PRIME is to secure the benefits of such a relationship in the other appropriations. (See paragraph C0700, Volume II, for a discussion of the relationship between program structure and appropriation structure and paragraph 0434 for a discussion of Project PRIME.)

0421 Appropriations. Congress appropriates defense funds for a given fiscal year in an Appropriation Act whose principal subdivisions are:

Title I: Military Personnel
Title II: Operation and Maintenance
Title III: Procurement
Title IV: Research, Development, Test and Evaluation (RDT&E)
Title V: Special Foreign Currency Program
Title VI: General Provisions

0422 Budget Activities. The RDT&E appropriation is further classified into eight principal budget activities which are listed in an enclosure to DOD Instruction 3200.6. These budget activities are:

1. Military sciences
2. Aircraft and related equipment
3. Missiles and related equipment
4. Military astronautics and related equipment
5. Ships and small craft and related equipment
6. Ordnance, combat vehicles, and related equipment
7. Other equipment
8. Program-wide management and support.

0423 Purpose of appropriation structure. It is reasonable to expect that the appropriation structure described above and the essential features of the program structure described in the previous chapter and paragraph C0520 will both continue in use for some time in the future since each meets a need not provided for by the other. The appropriation structure is designed primarily to meet the needs of Congress. Since it is structured on a major end

item or hardware basis, it provides the Congress a convenient means for correlating the RDT&E appropriation with the various procurement appropriations. It also readily identifies the dollars relating to major categories of weapon system developments, i.e., Aircraft, Missiles, etc. The Budget presents the Congress with line items comprising the programs for the ensuing or budget year.

0424 Conversion problem. The actual budget formulation and justification process is carried on within the framework of the appropriation structure. Program decisions must be converted to appropriation structure for inclusion in the budget estimates. Decisions made in the course of budget formulation and justification must be reflected in appropriate changes in the Five-Year Defense Program (FYDP). When the Secretary of Defense presents the DOD budget to the Congress, the FYDP which he employs has been adjusted for the past, current and budget years to agree with the budget document.

Efforts are underway to develop a capability for automatic conversion of data from either appropriation structure or program structure to the other by means of automatic data processing equipment. Considerable work remains to be done before this capability is perfected.

0430 The Budgetary Process

In the budgetary process, the program in the FYDP is revised to reflect the decisions of the Secretary of Defense. The revised program is converted to the appropriation structure for the three years period to be presented in the budget and is supported by detailed shopping lists of items and dollars. The budget plan is expressed in dollar terms. In the budgeting phase of the planning-programming-budgeting process, such things as production schedules, prices, lead-time, activity rates, personnel grade structure, training requirements, etc., are required to reflect the program proposed for inclusion in the budget.

The budget formulation process is characterized by successive reviews and decision points. Each succeeding review generally considers a broader context. It is also a characteristic in this process that many items proposed for approval are reduced or eliminated. Though it is possible to criticize this process on the grounds of time and talent required, it does serve essential purposes. The objective of the process is a budget which provides the best possible military worth and program balance within the limits of anticipated resources.

0431 Concept of the "balanced budget." A budget which provides the maximum value output for a given level of expenditure implies a condition of balance such that no item is included in the budget which is less essential than any item not included. In order to approach this ideal, it is necessary to weigh alternatives. Different items competing for inclusion in the budget must be compared. In order to provide for this choice, it is necessary that more items be considered initially than can be included in the approved list submitted to higher authority. Moreover, it is a "fact of life" that valid requirements will always exceed available or anticipated financial resources.

In general, lower-level activities submit a list of requirements to higher echelons which exceed what can be approved. The higher organization, for instance a bureau or command reviewing submissions from its activities, will then consolidate submissions from these activities and bring the entire list into balance by eliminating or reducing items considered to be marginal in that context. This process at all levels of review is designed to develop a close approximation of a balanced program for submission to the next higher echelon where the process is repeated as balance is sought in a broader context. The process continues to the Congressional level where the Congress must balance defense needs against other government needs.

0432 "Justification." Justification is closely related to the process described in the previous paragraph. Each item in the estimates submitted by any organization to the next higher echelon must be supported by written justification. This justification process serves both to support the inclusion of any given item in the program and to indoctrinate higher level officials in the details of the contents of the estimates they will in turn submit to higher echelons, and be called on to justify.

Budget justification is designed to demonstrate that the proposed estimate is: a. within the framework of the law and approved administrative guidelines, b. essential to the effective performance of the mission assigned, c. the most economical and effective method of accomplishing its purpose, d. feasible with respect to timing and the availability of resources, and e. substantiated on its merits independent of needs for prior years.

The "reclama" is closely related to budget justification and mark-up. It plays a vital role in the process of approaching nearer to the impossible goal of a perfectly "balanced budget." The reclama is the request for restoration of an item deleted from a budget submission by a higher level organization in its mark-up. In general, successful reclama requires improved justification. The reclama process makes it possible to save worthwhile programs which were eliminated only because of faulty justification. PCR's (DD Form 1570) are used for reclamas.

0433 Function and source of guidance. "Guidance" plays an important part in the budget preparation process. Guidance is both substantive and procedural.

a. Procedural guidance has become increasingly important with the expanding use of automatic data-processing equipment. Uniformity, always a goal of accounting practice, is absolutely essential if ADP equipment is to be able to summarize submissions from diverse organizations. One of the duties assigned the Comptroller of the Department of Defense when the office was called for by Title IV of the Department of Defense Reorganization Act of 1949 was the establishment of "uniform terminologies, classifications, and procedures" for use in all budgeting and accounting matters.

For the most part, the means by which budget estimates are presented is directed by higher authority. Justification material is required by the Bureau of the Budget (BOB) but is used to support budget estimates at each review level. Budget Schedules and narrative are required by BOB as a basis for preparation of the Appendix to the printed federal budget. Backup Material is required by ASD (Compt) as he prescribes. Annex Material is required by NavCompt upon call concurrent with his review. Budget Summary Table feeder data is required by NavCompt for consolidation, publishing and use of Navy witnesses before Congress. These various requirements are described and defined in NAVCOMPTINST P7102.1B. The Office of Naval Research in carrying out comptrollership responsibilities as assigned by ASN(R&D) issues procedural guidance for submission of budgetary data for RDT&E to bureaus, commands, and offices.

b. Substantive guidance concerning overall budget amounts and particular programs is developed at all levels and issued to subordinate echelons. Guidance comes from the President based on various monetary and fiscal policy considerations as well as assessment of the international situation. Broad guidance from higher levels is translated into increasingly specific guidelines at lower levels. Another source of guidance is the expressed and implied intent of the Congress as stated in previous hearings on the authorization and appropriation requests and in reports accompanying the bills reported out by the various Committees for prior year and current year budgets.

0434 Project PRIME - Priority Management Efforts. PRIME is a DOD project for a series of actions concerned with programming, budgeting, and management accounting effective 1 July 1967. It focuses on two main objectives: (1) the integration of programming, budgeting, and management accounting—meaning that the information used in these three systems will be entirely consistent; and (2) the development of more meaningful information on the consumption of operating resources (as opposed to investment resources). In order to achieve the first objective, the program structure has been rearranged so that there is a match between program elements and organization units; thereby specifying responsibility for a mission or service in terms of these units. The focus is on expenses; that is, on the resources consumed by organization units in carrying out their part of the program. This new system should make it easier to estimate requirements and to justify them in a rational way.

During FY 1967, effort under Project PRIME was concentrated in the "Operation and Maintenance" area. In FY 1968, attention will be focused on achieving improvements in programming, budgeting and accounting under the RDT&E Appropriations. Draft instructions outlining improved management procedures have been distributed by the Department of Defense (April 1967).

0440 Supra-Navy Participants in the RDT&E Budgetary Process

This section will discuss the responsibilities of the various Federal officials and collective groups above the Department of the Navy who help shape the Navy RDT&E budget.

0441 Congress. Article I of the United States Constitution assigns to the Congress the responsibility to "provide for the common defense" and to "provide and maintain a Navy." Section 9, Clause 7 of this Article further provides that "no money shall be drawn from the Treasury, but in consequence of appropriations made by law." In carrying out these responsibilities, Congress takes a detailed interest in

the content of military programs and their costs. Budget estimates are considered by both the Armed Services Committees and the Appropriations Committees of both the House of Representatives and the Senate, who hold formal hearings with OSD and service representatives. The Armed Services Committees are responsible for authorizing legislation to permit appropriations to be made while the Appropriations Committees are responsible for appropriation of funds within the amounts established by the authorizing legislation. Full Congressional action is required to obtain an increase in authorization for a particular fiscal year once the authorization has been enacted into law.

a. Committee and subcommittee hearings. The appropriations subcommittees normally conduct extensive hearings concerned with the validity of the funds requested for the authorized programs. (In FY 1963, the House Armed Services Committee established a separate Subcommittee responsible for authorization involving the RDT&E appropriation. They first held hearings on the FY 1964 budget.)

b. Senate hearings and reclama of House actions. Senate hearings, at which the President's Budget is justified, normally follow the House hearings. These hearings normally provide opportunity to submit requests (reclamas) to the Senate Appropriations Committee for consideration of changes in the House action. Format for this purpose is prescribed each year by means of a NavCompt notice.

0442 The President. The President has responsibility for presenting an Executive Budget to Congress. The President, through the Bureau of the Budget, reviews, revises and approves the estimates of all departments and agencies. When consolidated, these estimates become a complete government-wide financial plan for the following fiscal year. The President assumes official responsibility for the integrity and validity of the estimates contained in the Executive Budget. By law, Budget and Accounting Act of 1921, no official of an executive department or agency may take any action or volunteer any opinion that is contrary to official budget policies as expressed by the President in his budget, except through proper official channels (see paragraph on obligation of Executive Department officials in relation to the President's budget)

0443 Bureau of the Budget. Section 207 of the Budget and Accounting Act of 1921 provided for establishment of the Budget Bureau under the Treasury Department. The Bureau of the Budget (BOB) was subsequently transferred from the Treasury Department to the Executive Office of the President. The Director is appointed by the President without confirmation by the Senate which emphasizes his status as the "President's man" for administration of the "President's budget."

0444 Secretary of Defense. The Secretary of Defense participates actively in the budgetary process. Either the Secretary or his deputy issues all Program/Budget Decisions reflecting major decisions on the budget. He also plays a major role in the justification of the budget before Congressional committees. (For additional information on the Secretary of Defense see paragraphs 0110 and E0100.)

0445 Director of Defense Research and Engineering. Program review is the principal mechanism through which DDR&E exercises his responsibilities in relation to service programs. The Director of Defense Research and Engineering (DDR&E) develops the guidelines for submission of the program underlying the RDT&E budget estimates and acts for the Secretary of Defense in the review and mark-up of program submissions. Final decisions, of course, rest with the Secretary or Deputy Secretary of Defense, but the DDR&E raises issues. (See paragraphs 0112 and E0110.)

0446 Assistant Secretary of Defense (Comptroller). Title IV of the National Security Act Amendments of 1949 (Public Law 81-216; 83 Stat. 578) was designed to carry into law some of the recommendations of the First Hoover Commission. This law provided for establishment of comptroller organizations in the Office of the Secretary of Defense and in each of the military departments. Under the Secretary of Defense, the ASD (Comptroller) is assigned responsibility for supervising and directing the preparation of the budget estimates of the Department of Defense. He is responsible for establishing principles, policies and procedures concerning preparation and execution of budget, accounting, reporting and audit functions applicable throughout the Department of Defense. He is also responsible for the integrated programming system including maintaining and updating of the FYDP (See previous chapter).

0447 Assistant Secretary of Defense (Systems Analysis). DOD management embodies a planning-programming-budgeting process. The preparation and justification of the budget rests upon planning and programming. Before 1965, the ASD (Comptroller) had the responsibility for all three phases of the management process, with Deputy Assistant Secretaries for Systems Analysis, Programming, and Budget. In a

reorganization of the OSD staff in 1965, the increasing importance of systems analysis in planning was recognized in the establishment of the office of Assistant Secretary of Defense (Systems Analysis). His responsibilities include review of quantitative requirements for forces, weapons systems, equipment, personnel, and nuclear weapons. He assists the Secretary of Defense in initiating, monitoring and reviewing requirements studies and cost-effectiveness analyses. In carrying out these responsibilities, the ASD (Systems Analysis) delves into active and reserve forces and equipment, total manpower, logistics guidance, weapons systems and major end items of material, nuclear weapons, transportation, intelligence, and command communications systems. He participates or coordinates in all phases of the planning-programming-budgeting process. (Reference: DOD Directive 5141.1, 29 September 1965.)

0450 Department of the Navy Participants in the RDT&E Budgetary Process

This section discusses responsibilities of the Secretary of the Navy and various officials and groups with major influence on the development and justification of the Navy RDT&E budget submissions.

0451 Secretary of the Navy. The Secretary of the Navy is responsible to the Secretary of Defense for the preparation and submission to the Secretary of Defense of the Navy budget, for its justification before Congress and subsequent administration of the funds thereby made available. He is assisted in discharging these responsibilities by the officials and organizations discussed in the following paragraphs.

0452 Comptroller of the Navy (NAVCOMPT). Under the Secretary of the Navy, and subject to the general policies of the ASD Comptroller, the Comptroller of the Navy develops and establishes the basic fiscal policies of the Department of the Navy. He formulates principles and policies and prescribes procedures in the area of budget preparation and administration; financial management, accounting, audit, disbursing and reporting.

NAVCOMPT provides staff services to the Secretary for the translation of policies, plans, and programs of the Navy and Marine Corps into a formal budget for presentation to the Secretary of Defense, the Bureau of the Budget and the Congress. This office issues guidance to the bureaus, commands, and offices on the form and content for submission of budget estimates and supporting data and on the availability of funds and the purposes for which funds may be spent. This guidance is binding.

0453 Assistant Secretary of the Navy (Research and Development). The Assistant Secretary of the Navy (Research and Development) [ASN(R&D)] is responsible for "management of the appropriation 'Research, Development, Test and Evaluation, Navy,'" in addition to responsibility for "Department-wide policy supervision of all RDT&E within the Department of the Navy." In carrying out these responsibilities, ASN(R&D) is assisted by the Chief of Naval Research, the Deputy Chief of Naval Operations (Development), the Chief of Naval Development and the Deputy Chief of Staff, Marine Corps for Research and Development (DCS/SR&D). (See also paragraphs 0122 and E0310.)

a. Chief of Naval Research. The Chief of Naval Research is the adviser to the Assistant Secretary of the Navy (Research and Development) on research matters, coordinates the Navy-wide research program, and administers the research and development programs of ONR. He also provides budgeting, accounting, and related reporting services for the ASN(R&D) required for his management and control of the RDT&E appropriation, and the related staff services required by the DCNO(D) and CND to fulfill their responsibilities in the integration and coordination of the RDT&E program.

The ONR Comptroller prescribes budget policies and procedures for the RDT&E program. He provides guidance and issues instructions to the bureaus, commands, and offices for preparation of the budget in support of the approved program. He coordinates the preparation of the budget estimates for submission, after review and approval of ASN(R&D), to the Secretary of the Navy, OSD, BOB and Congress.

The Comptroller, Office of Naval Research is assigned collateral duty as Special Assistant to the ASN(R&D) for Financial Management. He provides technical guidance and direction in financial matters in support of the planning and programming responsibilities of the Assistant Secretary of the Navy (Research and Development), Deputy Chief of Naval Operations (Development), CNO and the Chief of Naval Research.

The ONR Comptroller consolidates the "Program Project Listings" for the Department of the Navy RDT&E program but does not perform the program evaluation required to reduce

the program as required by fiscal availabilities, or to establish balance. The program evaluation for ASN(R&D) is performed by DCNO(D) with the advice and assistance of CMC, CND and CNR. (See paragraphs 0150 and E0810.)

0454 Chief of Naval Operations. General Order No. 5 assigns to the CNO responsibility for planning and determining the "material support needs of the Operating Forces of the Navy (less Fleet Marine Forces and other assigned Marine Corps forces) . . . ." while the Chief of Naval Material is assigned responsibility for meeting the "material support needs of the Operating Forces of the Navy . . . ."

The CNO is responsible for the overall coordination, content and priorities of the program the budget is designed to support. Thus he has a vital interest in the process of the development and defense of the budget. The CAB (CNO Advisory Board) assists the CNO in the administration of his budget-program responsibilities. (See paragraphs 0141 and E0400.)

a. Deputy Chief of Naval Operations (Development) [DCNO(D)]. The Deputy Chief of Naval Operations (Development) plays a dual role in preparation of the RDT&E program/budget estimates for the Department of the Navy. He coordinates the programs for Advanced Development, Engineering Development and Operation Systems Development for the ASN(R&D) in the same manner that CNR coordinates Naval Research and the Chief of Naval Development coordinates Exploratory Development.

In addition, he provides the staff assistance to ASN(R&D) to assemble, integrate and coordinate the Department of the Navy program/project listings of the Navy and Marine Corps RDT&E Program. In carrying out this function, he collaborates with the Commandant of the Marine Corps, the Chief of Naval Material and the Chief of Naval Research.

DCNO(D), acting as staff for ASN(R&D), prepares RDT&E program guidance for use by the Naval Material Command, the non-material bureaus, the Office of Naval Research and the Commandant of the Marine Corps. The DCNO(D) staff reviews for program content the narrative justification consolidated by ONR. He coordinates the presentation of the RDT&E(N) program before DDR&E, the ASD (Comptroller) and the Bureau of the Budget. He also participates in the preparation of reclama actions resulting from the budget mark-up by NAVCOMPT, SECNAV or OSD. The ASN(R&D), DCNO(D), and CNR are the principal witnesses before Congressional Committees in justifying the RDT&E(N) program.

b. CNO Advisory Board (CAB). The CNO Advisory Board, commonly called the "CAB," was created expressly to ensure that top military officials considered the Navy's program decisions and their budgetary and manpower implications. The membership and responsibilities of this top Navy "Board of Directors" is set forth in paragraph E0960. The CAB normally reviews the proposed Navy RDT&E program in July and August. Upon completion of the CAB review, the Navy budget is submitted to the NAVCOMPT where it is reviewed and recommendations made to the Secretary of the Navy. Upon completion of its review and mark-up, NAVCOMPT presents its mark-up to the CAB to resolve any major differences. Where unresolved issues remain, these are brought to the attention of the SECNAV for decision. Upon approval by SECNAV, the mark-up is presented to the bureaus and offices.

c. Navy Program Planning Office (NPPO). The Navy Program Planning Office (NPPO) is responsible for the "integration of planning, programming, budgeting, and appraising" within the Office of the Chief of Naval Operations. This Office supports the Chief of Naval Operations by reviewing programs and financial and manpower decisions to evaluate their impact on the total Navy program and recommending adjustments as necessary to restore balance. NPPO is the primary point of contact within OPNAV for program and budgetary matters. See paragraph E0410 for additional information on NPPO.

0455 Commandant of the Marine Corps (CMC). Assisted by the Deputy Chief of Staff (RD&S), the Commandant of the Marine Corps assembles, integrates and coordinates the Marine Corps' annual RDT&E program for submission to the Assistant Secretary of the Navy (R&D), and CNO for coordination and integration into the Department of the Navy program/project listings of the Navy and Marine Corps RDT&E Programs.

0456 Chief of Naval Material (CNM). Paragraph 8c of General Order No. 5 assigns the CNM the responsibility to plan for the utilization of resources in the performance of the work in meeting those material support needs of the Operating Forces of the Navy and of the Marine Corps which are provided by the Naval Material Command. CNM's Deputies for Programs and Financial Management and for Development assist CNM in discharging his responsibilities in this area through the budget process.

a. Deputy Chief of Naval Material (Programs and Financial Management) [DCNM (P&FM)]. The DCNM(P&FM) is responsible for assisting the CNM discharge his budgetary responsibilities by providing consistent and uniform policies and procedures for programming, budgeting, financial reporting, and all facets of program and financial management.

b. Chief of Naval Development. The Chief of Naval Development is responsible, in collaboration with the Chief of Naval Research and the chiefs of the two non-material bureaus, Personnel and Medicine and Surgery, for consolidating detailed exploratory development plans into a Navy Exploratory Development program for submission to ASN(R&D). He is also responsible for preparation of justification in support of that program and for assisting the ASN(R&D) in the presentation and defense of the program at all higher levels of review. (See paragraph E0513 for additional information on the Chief of Naval Development (CND).)

c. Director of Navy Laboratories. The director of Navy Laboratories (DNL) reports directly to the Assistant Secretary of the Navy (Research and Development) [ASN(R&D)] and also acts as the Director of Laboratory Programs (DLP) on the staff of the Deputy Chief of Naval Material (Development) [DCNM(D)].

The Director of Navy Laboratories advises ASN(R&D) in the selection of key personnel, establishes laboratory requirements and policies, represents ASN(R&D) on laboratory policy matters, and acts as Chairman of the Advisory Group to the ASN(R&D) on Laboratory matters.

0460 Development and Justification of the Budget

The chronology of the process involving development of the budget, which has been presented to the Congress and as it has been directed by OSD for the FY 1968 budget, represents a significant departure from the historical budgetary cycle.

While the budgetary process is in a state of transition, and the future cannot be accurately predicted, the Navy plan which is based on OSD Guidance is the current "modus operandi." The Navy Program/Budget Review Cycle for calendar year 1967 appears on Figure 4-1. The significant steps in developing the RDT&E budget for FY 1969 appear on Figure 4-2.

0470 Justification of the Budget before Congressional Committees

0471 General procedure. Following the President's Budget Message, the DOD budget estimates are sent to the Senate and House Armed Services and Appropriations Committees for review, and to be used as a basis for formal hearings for authorization and appropriation legislation.

For the RDT&E appropriation, the same back-up material is submitted to the four committees. This includes the narrative justification books and individual descriptive data sheets which give the full details on all line items having a value in the budget of $3 million or more. In addition, project listings are usually submitted which show the line item detail comprising the programs for the past, current and budget years.

The committees hold formal hearings using this material as a basis for evaluation and questioning and to establish for the record the position of the Services on the major issues.

Initial hearings on the RDT&E appropriation are held by the Subcommittee on Research and Development of the House Armed Services Committee. The recommendations of this subcommittee, if accepted by the full Armed Services Committee are acted upon by the full House. The Senate Armed Services Committee then conducts its hearings and reports recommendations on the Authorization bill as passed by the House. Where there are differences between the bills passed by each house, the two committees meet and arrive at an agreed joint position which is submitted to the two Houses for approval and enactment. The authorization as enacted establishes the maximum amount which may be appropriated by the Congress.

The procedure on the Appropriation is somewhat similar in that the House Appropriations Committee acts first, holds hearings and recommends an appropriation bill to the House. The Senate Appropriations Committee holds hearings and recommends appropriate changes to the Appropriation Bill as passed by the House. Following these hearings, reclamas can be made for restoration of selected eliminations or reductions made by the House. Where there are differences between the Senate bill and the House bill, a conference meeting is held between designated representatives of each house and a jointly agreed position is reported out. Upon approval by both Houses and signature by the President, it becomes law.

0472 Guidelines for witnesses before congressional committees. When a witness appears before a Congressional Committee to testify

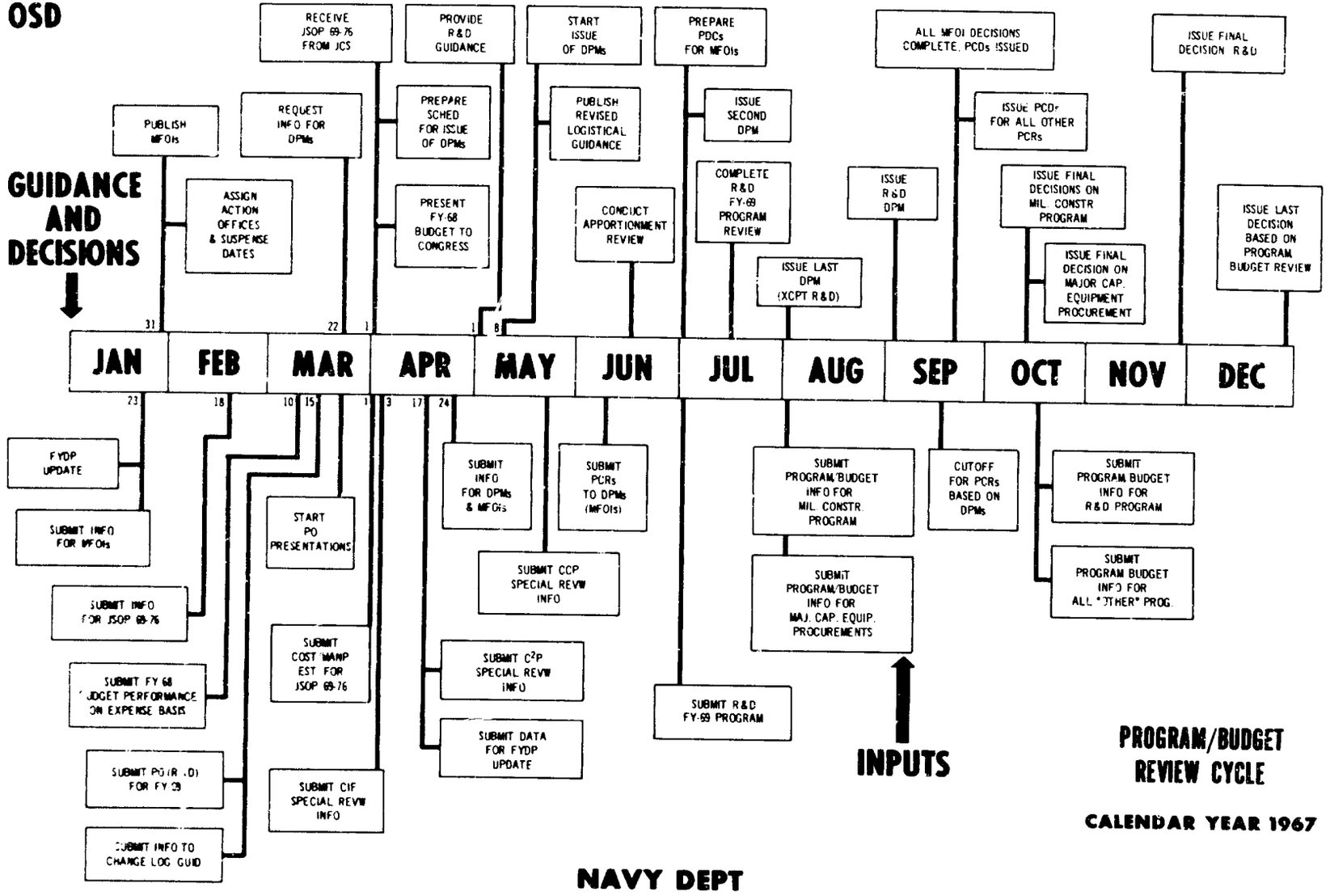

OSD
GUIDANCE AND DECISIONS
RECEIVE JSOP 69-76 FROM JCS
PROVIDE R&D GUIDANCE
START ISSUE OF DPMs
PREPARE PDCs FOR MFOIs
ALL MFOI DECISIONS COMPLETE, PCDs ISSUED
ISSUE FINAL DECISION R&D
PUBLISH MFOIs
REQUEST INFO FOR DPMs
PREPARE SCHED FOR ISSUE OF DPMs
PUBLISH REVISED LOGISTICAL GUIDANCE
ISSUE SECOND DPM
ISSUE PCDs FOR ALL OTHER PCRs
ASSIGN ACTION OFFICES & SUSPENSE DATES
PRESENT FY-68 BUDGET TO CONGRESS
CONDUCT APPORTIONMENT REVIEW
COMPLETE R&D FY-69 PROGRAM REVIEW
ISSUE R&D DPM
ISSUE FINAL DECISIONS ON MIL CONSTR PROGRAM
ISSUE FINAL DECISION ON MAJOR CAP. EQUIPMENT PROCUREMENT
ISSUE LAST DECISION BASED ON PROGRAM BUDGET REVIEW
ISSUE LAST DPM (XCPT R&D)
31
22
1
1
8
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
23
18
10
15
1
3
17
24
FYDP UPDATE
SUBMIT INFO FOR MFOIs
SUBMIT INFO FOR JSOP 69-76
SUBMIT FY 68 BUDGET PERFORMANCE ON EXPENSE BASIS
SUBMIT PCR (R&D) FOR FY 69
SUBMIT INFO TO CHANGE LOG GUID
START PO PRESENTATIONS
SUBMIT COST MANP EST FOR JSOP 69-76
SUBMIT CIF SPECIAL REVW INFO
SUBMIT INFO FOR DPMs & MFGs
SUBMIT CCP SPECIAL REVW INFO
SUBMIT C²P SPECIAL REVW INFO
SUBMIT DATA FOR FYDP UPDATE
SUBMIT PCRs TO DPMs (MFOIs)
SUBMIT R&D FY-69 PROGRAM
SUBMIT PROGRAM/BUDGET INFO FOR MIL CONSTR PROGRAM
SUBMIT PROGRAM/BUDGET INFO FOR MAJ. CAP. EQUIP. PROCUREMENTS
CUTOFF FOR PCRs BASED ON DPMs
SUBMIT PROGRAM BUDGET INFO FOR R&D PROGRAM
SUBMIT PROGRAM BUDGET INFO FOR ALL "OTHER" PROG.
INPUTS
PROGRAM/BUDGET REVIEW CYCLE
CALENDAR YEAR 1967
NAVY DEPT

Figure 4-1

SCHEDULE OF EVENTS

Calendar Year 1967

	FY 1968 Apportionment	FY 1969 Budget	FY 1969-1973 Program Review
1. Navy Submits RDT&E Program Objectives for FY 69 to OSD			15 Mar
2. ASN(R&D) Issues Call for FY 68 Apportionment.	15 Mar		
3. Bureaus/Commands Submit Project Listing to ONR for FY 68 Apportionment	15 Apr		
4. Apportionment Request Submitted to ASN(R&D)	1 May		
5. OSD Provides R&D Program/Budget Review Guidance			1 May
6. ASN(R&D) Apportionment Decisions	8 May		
7. Apportionment Submit to OSD	1 June		
8. Navy Submits R&D FY 69 Program to OSD			1 July
9. OSD Apportionment Decisions	1 July		
10. Submit FY 1969 Budget to NCB		18 Aug*	
11. OSD Issues R&D Draft Presidential Memo			1 Sept
12. Cutoff for Submission of PCRs based on Presidential Memo			September
13. FY 69 Budget to OSD		1 Oct	
14. Navy Submits Program/Budget Info to OSD			1 Oct
15. OSD prepares final decisions on R&D Program		November	
16. OSD prepares last decision based on program/ budget review		December	December

*Tentative

Figure 4-2

concerning the budget, he is there as a member of the Executive Branch supporting the "President's budget." SECDEF Memo of 22 March 1961, "Testimony on the President's Program," provided these guidelines:

> . . . It is expected that witnesses will carefully avoid volunteering views differing from the budget, either on the Record or off the Record. While direct questions at hearings must be answered frankly, it is expected that a witness who feels that he must set forth a personal view inconsistent with the President's budget will also point out that the President's judgment on the matter was reached from his overall perspective as the head of the Government and in the light of overriding national policy. The witness should make clear that his personal comments are not to be construed as a request for additional funds.

Title 31 U.S. Code 15 has the following to say on the relationship between an Executive Department witness and the President's budget:

> No estimate or request for an appropriation and no request for an increase in any item of any such estimate or request, and no recommendation as to how the revenue needs of the Government should be met, shall be submitted to Congress or any committee thereof by an officer or employee of any department or establishment, unless at the request of either House of Congress.

NAVCOMPT Instruction 7121.3C states that it is imperative that witnesses appearing before committees of the Congress be thoroughly familiar with the above provisions "in order that all testimony will meet the basic requirement of supporting the President's budget. . . ."

0473 Preparation for hearings. Every attempt is made to be prepared for hearings so that all questions of members may be answered with a minimum number of witnesses. There has been a downward trend in the number of supporting witnesses. In 1951 there were approximately 50 Navy witnesses to testify in support of the RDT&E appropriation, while less than a dozen testified at any one time in support of the FY 68 appropriation. The attempt to hold down the number of witnesses requires more extensive preparation for the few witnesses who provide the main testimony.

a. Through preliminary liaison with committee staff, conducted through NAVCOMPT for the appropriations committees, and through the Office of Legislative Affairs for all other committees, particular areas of probable interest and the probable duration of hearings are determined. Sometimes the trend of questioning of other Services will indicate a need for special preparation in certain areas. Press and magazine stories may generate spontaneous questions which can be anticipated and thus prepared for in advance. Thorough review of previous years testimony is mandatory.

b. Principal witnesses submit a prepared statement in advance of testimony. These statements are carefully reviewed internally within the Navy and OSD before submission to the Committee 48 hours in advance of scheduled hearing. The Office of Legislative Liaison (OLA), NAVCOMPT, and OSD instructions covering this subject are identified in the references at the end of this chapter.

0474 Conduct of hearings. At the authorization hearings, the Secretary of Defense and members of the Joint Chiefs of Staff testify on the overall program. These are also known as the "Posture Hearings." The Director of Defense Research and Engineering is the principal witness in support of the RDT&E program of the Department of Defense before both the authorization and the appropriation committees. The Secretary of Defense also testifies at the appropriation hearings.

The Assistant Secretary of the Navy (Research and Development) is the principal witness in support of the Department of the Navy RDT&E program and appropriation requests before both the authorization and appropriation committees. He is supported by a limited number of his top advisors such as the DCNO (Development), CNR, DCS(R&D) of the Marine Corps, the Chief of Naval Development, and the Assistant Commanders for R&D of the commands as appropriate.

There is no rigid custom for the conduct of hearings. The Committee Chairman may vary the procedure to suit time and interest. Sometimes witnesses read their complete statements and then answer questions. At other times, questions are interjected as points are covered in the statement. If time is short, the witness may be asked to file the statement for publication in the record, or he may be asked to read a shortened version. Visual aids and film clips are frequently used in augmentation of prepared statements.

Hearings on the RDT&E appropriation are almost invariably in executive session owing to the security classification of the matters discussed. If the witness is discussing a

particularly sensitive matter, he may request that it not be recorded, i.e., "off-the-record."

In spite of diligent preparation, occasions occur when the witness will not be able to provide requested information. He may request permission to "provide it for the record."

0475 Review and editing of the transcript. The Committee on Appropriations gives witnesses an opportunity to review and correct the transcript of their testimony. Witnesses are permitted to correct grammar and other obvious errors provided the substance of the testimony is not altered. Material to be provided "for the record" is added at this time. Classified portions of testimony are bracketed in black pencil and the marginal notation "Delete-Security" added along with the code of the office making the deletion. Similar treatment is given to questions asked by Congressmen which contain classified information.

Normally only one or two working days are allowed the Services for review of the record. DCNO(D) assisted by ONR Comptroller coordinates this function for the RDT&E appropriation. Only one copy of the transcript is provided and no copies can be reproduced. Thus if there are multiple witnesses, it may be impossible for each of them to review his own testimony. However, time permitting, this should be accomplished. Instructions for review of transcript are contained in NAVCOMPTINST 7121.3C.

ANNOTATED REFERENCE LIST ON PREPARATION AND JUSTIFICATION OF THE BUDGET

NAVCOMPT INST P7102.1B, "Budget Submissions Manual," prescribes guidance for preparation of budget material in support of yearly and supplemental appropriation budget submissions. It is a permanent budget guide and is revised as necessary. The manual contains detailed information on justification material, budget schedules, budget backup data, and annex material.

BUBUD Circular No. A-11, "Instructions for the Preparation and Submission of Annual Budget Estimates," states the general rules for submission of budgets. It is revised on a continuous basis.

SECNAV INST 5430.67, "Assignment of Responsibilities for Research, Development, Test, and Evaluation," assigns specific duties and responsibilities to the Chief of Naval Operations (CNO), Commandant of the Marine Corps (CMC), Chief of Naval Material (CNM), Chief of Naval Development (CND), Chief of Naval Research (CNR), Chief of Naval Personnel (CNP), and the Chief of the Bureau of Medicine and Surgery in the implementation of the Department-wide responsibilities of the Assistant Secretary of the Navy (Research and Development).

DOD INST 3200.6 (SECNAV INST 3900.14A), "Reporting of Research, Development and Engineering Program Information," prescribes requirements and procedures for preparing and submitting information in support of programs and budgets. It covers R&D Project Listings and their use in support of program, budget and apportionment requests.

NAVCOMPT INST 7121.3C, "Department of the Navy Annual Budget Hearings Before the Congressional Appropriations Committees; information for witnesses." This instruction contains much useful information for witnesses. It also provides procedures for review of hearing transcripts prior to release. Every witness testifying in support of the budget should be familiar with this instruction.

DOD INST 5000.8 (SECNAV INST 5000.13), "Glossary of Terms Used in the Areas of Financial, Supply, and Installation Management." This instruction establishes the Department of Defense glossary of terms used in financial, supply, and installation management for general reference use in subject areas.

DOD Directive 5141.1, establishes the Office of Assistant Secretary of Defense (Systems Analysis).

SECNAV INST 5430.77, establishes the position of Director of Navy Laboratories.

CHAPTER V

EXECUTION OF THE RDT&E BUDGET

This chapter covers the execution of the RDT&E program from the budget standpoint while the next chapter will view the process from the point of view of the appraisal and control of physical effort. While it is possible to discuss these two aspects as if they existed independently, they are actually intimately interrelated. The RDT&E program, more than any other program, is changing continuously both as to content and as to cost. Even when the final program decisions are made by the Secretary of Defense in December for the budget year, the requirements in the RDT&E program are changing. This is attributable primarily to the technical uncertainties and dynamic qualities which are characteristic of this program, and may result from such things as reaching a technical dead-end which requires cancellation of a program, or achieving a significant technical "break-through" which should be vigorously pursued with an accelerated or expanded program. Another example involves a technical goal which is approached concurrently by alternative routes. If one approach is successful, parallel efforts are usually discontinued.

One might assume that passage of the Appropriations Act, after a year and a half of justification, review, mark-up and reclama, would mark the end of the battle for the funds required to carry out the Navy's RDT&E program. Such is not the case for RDT&E or any other appropriation. The process continues within the Navy as well as with OSD, Bureau of the Budget (BOB) and the Congress until funds are approved, released and obligated, since changing needs and technology change the relative value and priority of various programs and projects. Even after the money has been spent, the process continues, in a sense, through audit. These matters are covered in this chapter.

0500 APPORTIONMENT AND ALLOCATION OF FUNDS

Apportionment and allocation procedures are set forth in DOD Directive 7200.1, "Administrative Control of Appropriations within the Department of Defense," and NAVCOMPT Instruction 7044.1A, "Appropriation 'Research, Development, Test and Evaluation Navy'; financial administration of." DOD Directive 7200.1 defines these terms as follows:

APPORTIONMENT. A determination by the Director of the Bureau of the Budget as to the amount of obligations which may be incurred during a specified period under an appropriation, contract authorization, other statutory authorizations, or a combination thereof, pursuant to Section 3679 of the Revised Statutes as amended (31 U.S.C. 665). An apportionment may relate either to all obligations to be incurred during the specified period within an appropriation account or to obligations to be incurred for an activity, function, project, object or combination thereof.

ALLOCATION. An authorization by a designated official of a component of the Department of Defense making funds available within a prescribed amount to an operating agency for the purpose of making allotments.

Funds must be both apportioned and allocated before they are actually available for obligation and expenditure. The apportionment process dates back almost 100 years in the Federal Government. As originally enacted, it required that expenditures be spread in an orderly manner throughout the year so as not to precipitate the need for deficiency appropriations. With passage of the Budget and Accounting Act of 1921, apportionment was given an additional function, saving funds. This act authorized the President to establish "reserves" to effect savings or to provide for contingencies. It is under this authority that the President often withholds funds appropriated by the Congress which are in excess of the amount requested in the President's budget.

0501 Apportionment Request. In April of each year NAVCOMPT issues a formal notice calling for the bureaus, systems commands, and offices, through their appropriation managers, to submit their

apportionment programs and supporting backup material including that prescribed in NAVCOMPT Instruction P7102.1B. Usually these inputs are required to be received by NAVCOMPT by 15 May in order to meet an OSD submission date of 1 June.

Although the NAVCOMPT call is issued in April, the bureaus, systems commands, and offices have been conducting a continuing review of their requirements to update their programs and to anticipate the effects of actions by the Congress in the budget hearings progress. These reviews also include incorporation of the effects of PCR and reprogramming actions which are approved subsequent to submission of the budget to Congress. The bureaus, systems commands, and offices conduct their reviews of apportionment programs in much the same manner as budget estimates are reviewed. The review and approval channels leading to submission of the apportionment program to OSD is the same as for budget estimates.

The NAVCOMPT guidance for submission of apportionment data includes the DDR&E requirements for program project listings included in DOD Inst 3200.6 (SECNAV 3900.14A). In addition, DOD Inst 3200.6 requires the submission of Technical Development Plans (TDP's) not previously submitted which supersede earlier issues. The apportionment program is submitted by ONR, through CNO to ASN(R&D) for approval. Upon approval by ASN(R&D) the apportionment program is forwarded to NAVCOMPT.

The formal apportionment request, DD Form 1105 is not submitted on 1 June, but is submitted by NAVCOMPT to the ASD Comptroller within three days after passage of the Appropriation Act, which in recent years has occurred subsequent to 1 July. When an appropriation is not enacted by 1 July, the Congress passes a joint resolution effective 1 July, pending final enactment of the appropriation, permitting Government agencies to obligate and expend funds commencing 1 July for support of continuing functions and programs. It does not permit new programs to be initiated because in its final action on the appropriation, the Congress may disapprove or reduce such proposed new program. The joint resolution provides authority for one or two months and is extended by specific Congressional action as appropriate. The authority is transmitted to the Military Departments by the ASD Comptroller. BOB Circular A-34 requires OSD to submit the DD Form 1105 within 15 days after passage of the Appropriation Act.

Upon receipt of the approved apportionment, and based upon the recommendations of ASN (R&D), NAVCOMPT establishes budget activity allocations for the appropriation RDT&E(N). Allocations to the bureaus, systems commands, and offices, and any subsequent revisions, will be approved by ASN(R&D).

0502 Apportionment Hearings. DDR&E is responsible for review of the complete RDT&E program submitted in support of the request for apportionment. DDR&E commences hearings upon receipt of the Project Listing, covering the current budget and five subsequent fiscal year programs, and supporting TDPs. These are submitted on 1 June in compliance with a DDR&E request normally made in April. DDR&E conducts comprehensive hearings jointly with BOB and the ASD Comptroller. These hearings involve technical presentations on specific major systems and projects by Navy personnel.

It must be emphasized that the "program" recommendations are generally made by DDR&E and approved by the Secretary of Defense. The ASD Comptroller also contributes to these recommendations, particularly where financial or cost/effectiveness considerations are factors. The Bureau of the Budget exercises an indirect review of decisions. The results of BOB decisions become apparent by action on the Apportionment Request, DD Form 1105, submitted to them by OSD.

DDR&E makes recommendations for approval of programs which are transmitted to the Services as program guidance by 1 July and reflect DDR&E guidance on the program submitted in support of the request for apportionment. DDR&E indicates, by program element, and in some cases by line item or project, or even sub-project, the part of the program which is approved for implementation, the part which is not approved (deferred) and the rationale underlying their decision. The Military Departments are authorized to proceed with the approved part of the program only upon receipt of a letter from the ASD Comptroller which "approves the funds for obligation" against the specific program elements approved by DDR&E.

0503 Apportionment Request - DD Form 1105. The initial apportionment request, DD Form 1105, is comprised of the amount of new obligational authority (NOA) approved by Congress, the estimated unobligated balances carried over from prior year appropriations as of 30 June (the end of the fiscal year preceding the year for which apportionment is being requested),

and anticipated reimbursements from other agencies and accounts for services and materials to be provided under the RDT&E appropriation.

When the approved apportionment form is returned by BOB via ASD Comptroller, it indicates the total amount apportioned and identifies the amount withheld (apportionment reserve) by the BOB.

0504 Budget Activity Allocations. Budget activity allocations are an internal Navy control device made in writing, which is designed to ensure that appropriated funds are actually spent for the purposes for which justified before Congress, or that appropriate action is taken to clear changes with appropriate Congressional committees. Such changes in funding are called reprogramming actions and will be discussed later in this chapter (see paragraph 0530). The aggregate of allocations issued within an appropriation will not exceed the amount of the approved apportionment.

0505 Allotments and Suballotments. Allocation makes funds available for "allotment" to operating agencies. Allotments and suballotments are authorizations to officials to incur obligations. DOD Directive 7200.1 prescribes that the heads of operating agencies shall make allotments in specific amounts, in writing, to the heads of installations or other organizational units. Units receiving allotments may then make them available through suballotments to their own subordinate organizations or to other agencies. Allotments may not be issued in excess of the amount of allocation for a specified period. DOD Directive 7200.1 specifically cites the limitation on obligation and expenditure of funds as follows:

> No officer or employee of the Department of Defense shall authorize or create any obligation or make any expenditure, except as provided by Section 3679 of the Revised Statutes as amended, (a) in excess of an apportionment or reapportionment, or (b) in excess of the amount divided or subdivided administratively in accordance with the provisions of this directive. It shall be the responsibility of the head of each installation or other organizational unit of the Department of Defense who receives allotments or suballotments, or who authorizes open allotments to assure that obligations or expenditures will not be in excess of amounts specified in each such allotment, suballotment or open allotment.

0506 Approved and Deferred Schedules. After funds have been apportioned by BOB, certain funds may be deferred by ASD Comptroller because of action by DDR&E in connection with some specific program or because ASD Comptroller questions funding requests. These deferrals may be temporary, requiring merely submission of additional information, such as an up-to-date TDP; or they may be of indefinite duration requiring a major program change. Deferred programs and projects are enumerated in a "hold" or "deferred" list issued by DDR&E and confirmed by ASD Comptroller at the beginning of the year when the initial apportionment program is approved. This is revised by the ASD Comptroller, based on recommendations from DDR&E as appropriate on a case-by-case basis.

In terms of day-to-day operations as the year progresses programs which are partially deferred may be jeopardized. In these situations it is necessary to anticipate the need for additional incremental releases to preclude work stoppages and the jeopardizing of relations with contractors. Sound and effective program management demands that requests for release of deferred funds be made in sufficient time to insure the uninterrupted prosecution of going programs.

Some programs remain in a deferred status throughout the year owing to lack of justification considered adequate by ASD Comptroller or DDR&E and may be carried over into the next fiscal year, used for the original purposes when eventually approved, or the resources may be reprogrammed to meet other program requirements.

0510 Obligation and Expenditure of Funds

The process of apportionment, allocation and allotment extends the authority to obligate funds down through the organization. That is, it makes it possible to issue orders, make contracts and otherwise do things which will establish an obligation for an eventual expenditure. Obligation authority and program approval are the tools through which control is exercised in execution of the budget.

0520 Financial Reporting

DOD Instruction 7250.8 (SECNAV INST 7300.27), "Monthly Report on Status of Funds by Functional Title," prescribes monthly reporting for subdivisions of appropriations. In the case of the RDT&E appropriations, the reports are according to

budget activities as set forth in DOD Instruction 3200.6 (SECNAV INST 3900.14A). In general, the report provides a picture of the status of accounts including the amounts apportioned, obligated and expended. See section C0500 for information on classifications used for appropriations.

0530 Reprogramming

One of the principal functions of the manager involves making "trade-offs," moving resources between programs and projects to their most productive use. It is inevitable that in the execution of the budget the interests of maximum effectiveness should demand changes in the allocations of resources set forth in the budget, allocations based on plans as much as 18 months old when actually put into effect.

While the interests of management effectiveness demand shifting funds from specific uses originally planned to others where they can make a greater contribution to military worth, the maintenance of good faith with the Congress demands that funds be spent substantially for the purposes for which they were justified before the Congressional committees.

DOD Directive 7250.5, "Reprogramming of Appropriated Funds," states the major policies of the Department of Defense on reprogramming of appropriated funds. This directive points out that Congressional Committees concerned with the Department of Defense Appropriation Acts and the authorizing acts generally accept the view that rigid adherence to the amounts justified for individual budget activities or programs may "unduly jeopardize the effective accomplishment of planned programs in the most business-like and economical manner; and that unforseen requirements, changes in operating conditions, revisions in price estimates, wage adjustments, etc., require some diversion of funds from the specific purposes for which they were justified."

Reprogramming measures, developed in consultation with the Committees and set forth in this DOD Directive and others listed in the annotated bibliography for this chapter, provide a firm basis for retention of Congressional control over the utilization of Defense appropriations by assuring that the Congressional intent is carried out while, at the same time, providing a timely device for achieving flexibility in the execution of Defense programs.

The Armed Services and Appropriations Committees of both Houses have directed that the Department of Defense adhere within certain accepted variances to the program justified in the budget. If any change is made in a budget program, a reprogramming action must be taken; that is, to provide both committees with information concerning significant variations from the justified amounts and purposes.

DOD Instruction 7250.10 (NAVCOMPT 7133.1A), "Implementation of Reprogramming of Appropriated Funds" prescribes the procedures for such reprogramming. The system for accomplishing reprogramming actions:

a. Establishes the base from which such actions may be taken. All reprogramming actions are accomplished in relation to a "Base for Reprogramming Actions." It is established immediately after final Congressional action on the authorization and appropriation has been completed. It is submitted on DD Form 1414 through OSD to the Congressional Committees, and identifies the purposes, in terms of budget sub-activities (program elements) for the RDT&E appropriation, the amounts for which funds have been authorized and appropriated. It also reflects the specific application of adjustments made by the Congress and/or the specific application of adjustments made by DOD when not specified by the Congress. For example, Congress may make an across-the-board reduction of 3% in the RDT&E Appropriation without specifying how it will be applied. The DD Form 1414 will show how the DOD elected to apply this reduction to specific programs.

b. Specifies reprogramming actions requiring prior written approval of both SECDEF or his Deputy and the Armed Services and Appropriations Committees of Congress. Any reprogramming action involving the application of funds, irrespective of the amount, to items, programs or functions specifically eliminated or reduced by Congressional action, or to items in which the Congressional Committees have expressed a special interest requires prior SECDEF and Congressional approval before the reprogramming is accomplished.

c. Specifies reprogramming actions requiring prior written approval of SECDEF with notification to the Armed Services and Appropriations Committees of Congress. Any reprogramming action, single or cumulative, involving an increase of $2 million or more in any budget subactivity including the addition of a new budget subactivity line item, or the addition of a new budget subactivity line item, the cost of which is estimated to be $10 million or more over a three-year period, requires the prior approval of SECDEF or his Deputy. SECDEF will notify the Congressional Committees of such approval.

DD Form 1415, "Reprogramming Action" is prescribed as the form for proposing reprogramming actions.

0531 Reprogramming Procedures. Each request for reprogramming approval (DD Form 1415) includes an explanatory statement, concisely and simply setting forth the need for the reprogramming. These statements must contain all the details necessary for reviewing authorities and Congressional Committees to understand the action proposed. These actions must identify all compensating increases and decreases within the appropriation total so that the net effect is zero for the individual reprogramming proposal. This does not apply when the reprogramming involves a transfer of funds into or out of the appropriation. This difference would then show up as a net change to the appropriation total. An example would be a transfer from OSD Emergency Funds.

DOD Instruction 3200.6 (SECNAV [illegible]ST 3900.14A) requires that all reprogramming actions for RDT&E involving prior approval or notification of Congressional committees will be reviewed by DDR&E for concurrence or comment before being routed to the Secretary of Defense.

0532 Reprogramming Hearings. Periodically throughout the year reprogramming hearings are conducted by Congressional Committees. The House Appropriations Committee conducts formal closed hearings, while the Senate Appropriations Committee usually does not hold hearings unless the reprogramming includes an item which is of particular interest to them.

In the past, experience with the Appropriations Committees has pointed up the value of preliminary discussions between Navy representatives and the Committee staff. These meetings provide an opportunity to convey details to the Committee staff which curtails the amount of questioning which later occurs at the formal hearings. An early indication as to which issues will be the most troublesome and therefore would require more detailed and comprehensive preparation by the witnesses can be gained from such contacts.

0533 Reprogramming Reports. A semi-annual reprogramming report is submitted to the Congressional Committees. It summarizes all reprogramming actions approved during the period, including those which did not, individually, require submission of reprogramming proposals to the Congressional committees. This report is prepared by ONR on DD Form 1416, "Report of Programs."

0540 Tapping the Secretary of Defense Emergency Fund

Probably the most characteristic quality of research and development effort is uncertainty. The long lead-times of the appropriation process described in the last two chapters are often not suited to maximum exploitation of scientific breakthroughs or to rapid change in response to evolving requirements. To provide the flexibility needed to meet such situations, Congress appropriates a fund from which the Secretary of Defense can meet needs not foreseen when program plans were developed and budget estimates worked out. In recent years $150 million has been appropriated annually for this purpose. He also is provided with authority to transfer an additional $200 million between appropriations (see paragraph 0543).

0541 Eligibility Requirements. SECNAV Instruction 7000.7, "Requests for Allocation of Funds from the Secretary of Defense Emergency Fund," provides guidance for submission of requests for allocations of funds from the Secretary of Defense Emergency Fund.

In general, to qualify for funds from the emergency fund, a project must have sufficient promise that there is no reasonable doubt that it would be supported by the Congress if time permitted its submission in the normal manner. It should also be of such a nature that delay to await normal appropriation processes would be seriously detrimental. Requirements resulting from technical breakthroughs provide occasions for tapping this fund. Often the emergency fund is used to provide interim funding prior to the availability of the next regular appropriation. Emergency funds are not available normally to "bail out" projects suffering cost overruns.

0542 Emergency Fund Request Procedures. SECNAV Instruction 7000.7 provides for careful internal Navy consideration of requests for funds from the Secretary of Defense Emergency Fund before forwarding them. Even though the Secretary of Defense may provide the "down payment" on a program, the annual "installments" — which are usually much larger — must come out of future Navy budgets.

0543 Transfer Authority Under Emergency Fund. The appropriation enacted each year contains a section under Title V General Provisions, which provides the SECDEF with authority under the Emergency Fund to transfer funds between appropriations (RDT&E as well as other appropriations). Section 636 of Public Law 89-687 (FY 1967 Appropriation) provides as follows:

> During the current fiscal year, the Secretary of Defense may, if he deems it vital to the security of the U.S. and in the national interest to further improve the readiness of the Armed Forces, including the reserve components, transfer under the authority and terms of the Emergency Fund an additional $200 million: Provided, that the transfer authority made available under the Emergency Fund Appropriation contained in this act is hereby broadened to meet the requirements of this section: Provided further, that SECDEF shall notify the Appropriations Committees of the Congress promptly of all transfers made pursuant to this authority.

0550 Audits and Review

Programming, reprogramming and accounting controls are supplemented by periodic audits and reviews conducted by certain offices inside and outside the Navy. The nature and scope of these activities and how they affect the RDT&E management function are described below.

0551 The General Accounting Office. The Budget and Accounting Act of 1921, which established the Executive Budget and the Bureau of the Budget, also established the General Accounting Office headed by a Comptroller General. The GAO is an agency of the Congress, completely independent of the Executive Branch. It is the responsibility of the Comptroller General to investigate all matters relating to the receipt, disbursement and application of public funds. He makes an annual report to the Congress plus special reports as needed. In these reports he makes "recommendations looking to greater economy of efficiency in public expenditures."

Section 313 of the B&A Act of 1921 provides the Comptroller General the power required to examine all Executive Branch records. The act states that

> ... all departments and establishments shall furnish to the Comptroller General such information regarding the powers, duties, activities, organization, financial transactions, and methods of business of their respective offices as he may . . . require.

In former times audits by the General Accounting Office tended to emphasize the legality of transactions. GAO audits were focused on accounting matters, particularly whether expenditures were made in accordance with the law and intent of Congress. In recent times emphasis has increasingly been on the question of how efficient, effective and economical government business has been conducted.

0552 Internal Audit. Title IV of the National Security Act amendments of 1949 which established the office of Comptroller of the Department of Defense and within the Services, established internal audit as a function of these offices. Within the office of the Comptroller of the Department of Defense, there is an Assistant Comptroller for Audit. Within the Department of the Navy, the Comptroller is responsible for auditing. Such audit functions are performed by the Auditor General of the Navy.

The Navy audit program encompasses two distinct types of audit — internal and contract. Internal audit is the independent appraisal of accounting, financial and related matters of an operating nature. It is concerned both with detecting the kinds of deficiencies which would be of interest to an external auditor -- GAO, for instance -- and with providing management with the information needed to improve economy and effectiveness of operations. In short, internal audit is designed to provide management both protective and constructive services.

Contract audit involves the examination of books and records of private contractors and verification of their cost representations insofar as work with the Navy is concerned. Contract audit also provides contracting officers with advice useful to them in negotiating contract prices. Both internal and contract audit are under the Auditor General of the Navy.

Efforts are being made to strengthen the Navy's internal audit capability with a view "toward assisting every level of management in the Department in the areas of accounting, financial management, business management, resource utilization, and related matters."

SECNAV Instruction 7500.6, "Management Attention to Audit Reports," emphasized the ongoing Navy drive to make the most effective use of internal audit as a management tool. Portions of that directive are quoted:

> The Secretary of Defense and the Secretary of the Navy have repeatedly emphasized the value of the audit function in helping management identify deficiencies or undesirable conditions in order that management at all levels may use this guidance in planning and taking corrective action. . . . Unfortunately, General Accounting Office reports continue to cite deficiencies the same as, or similar to, those previously reported by Navy auditors. . . . The failure of management to use internal audit findings as a guide to improvement is further demonstrated by the frequency of "repeat" findings in internal audit reports. These cases are of grave significance when viewed as an apparent disregard of information which was developed to help management recognize problem areas. . . . The value and effectiveness of any audit program are dependent upon the degree to which management utilizes the audit results to identify areas where management attention and action are needed.

In his instruction, 7500.6, the Secretary of the Navy prescribed several actions to correct the deficiencies noted above. He directed management at all levels to "take responsive action to correct underlying causes of deficiencies, as well as individual defects. . ." He also directed the Auditor General of the Navy to monitor corrective actions taken in response to GAO and DOD audit reports. In the conclusion he stated:

> The Department of the Navy will continue to work for steady improvement in management and performance, to seek and correct deficiencies, and to build the quality of and that confidence in our management which should reduce the need for outside criticism.

ANNOTATED REFERENCE LIST ON EXECUTION OF THE RDT&E BUDGET

SECNAV INST 5430.7G, "Assignment of Duties and Responsibilities to the Assistant Secretary of the Navy (Research and Development)."

SECNAV INST 5430.37, "Assignment of Responsibilities for Research, Development, Test, and Evaluation," assigns specific duties and responsibilities to the Chief of Naval Operations (CNO), Commandant of the Marine Corps (CMC), Chief of Naval Material (CNM), Chief of Naval Research (CNR), Chief of Naval Development (CND), Chief of Naval Personnel (CNP), and the Chief of the Bureau of Medicine and Surgery in the implementation of the Department-wide responsibilities of the Assistant Secretary of the Navy (Research and Development).

DOD DIR 7200.1 (SECNAV INST 7300.8), 'Administrative Control of Appropriations within the Department of Defense," prescribes regulations to prevent obligation in excess of apportionment and to fix responsibility for creating an obligation or expenditure in excess of an "appropriation, apportionment, reapportionment, or subdivision thereof."

NAVCOMPT INST 7044.1A, "Appropriation 'Research, Development, Test and Evaluation, Navy'; administration of," promulgates procedures and responsibilities for budgeting, accounting and related reporting for the RDT&E(N) appropriation.

DOD DIR 7250.5 (SECNAV INST 7133.3), "Reprogramming of Appropriated Funds," states DOD policy with respect to reprogramming proposals and actions relating to the appropriation accounts covered by the Department of Defense Appropriations Act. This is the most fundamental DOD directive on reprogramming.

DOD INST 7250.10 (NAVCOMPT INST 7133.1A), "Procedures and Reporting Requirements Related to the Reprogramming of Appropriated Funds; Implementation of," provides instruction for implementation of DOD INST 7250.10.

DOD INST 3200.6 (SECNAV INST 3900.14A), "Reporting of Research, Development and Engineering Program Information," includes a paragraph, "Approval of planned program actions," which sets forth DDR&E participation in reprogramming actions.

SECNAV INST 7000.7, "Requests for Allocation of Funds from the Secretary of Defense Emergency Fund," provides guidance for submission of requests for allocations of funds from subject fund.

SECNAV INST 7500.6, "Management Attention to Audit Reports," reviews past failures to take full advantage of audit reports as a means to more effective management and prescribes corrective measures.

DOD INST 7250.8 (SECNAV INST 7300.27), "Monthly Report of Status of Funds by Functional Titles," prescribes reporting procedures applicable to RDT&E.

SECNAV INST 3900.13A, "Management of Navy Research and Development Laboratories," which establishes policies and procedures for Navy R&D laboratories, contains a paragraph, 5. c. (5), on the funds available to the laboratory director for institutional research. At the laboratory level these funds provide flexibility somewhat analogous to that provided at the DOD level by the Secretary of Defense Emergency Fund.

31 U.S.C. 665 (Section 3679 of the revised statutes, as amended by Section 1211 of Public Law 759, 81st Congress) relates to apportionment and control of appropriated funds. DOD DIR 7200.1 cautions all "officers and employees of the Department of Defense who are authorized to obligate or expend Federal funds . . . . to become thoroughly familiar with the provisions of" this law. It is available as attachment 1 of DOD DIR 7200.1.

CHAPTER VI

APPRAISAL OF RDT&E EFFORT

The last chapter discussed the execution of the RDT&E program from the financial management viewpoint. This chapter will discuss it from the viewpoint of the appraisal of ongoing effort which provides the occasion for management action. Though the appraisal function is an inherent part of management at all levels, this chapter will focus on organization procedures and practices at the supra bureau/command level.

The theory of management by exception is discussed, as well as the place of planning, information reporting and appraisal in support of management by exception. The discussion also covers DDR&E continuing review of ongoing projects and the physical evaluation of equipment, weapons and weapon systems by the Operating Forces.

0600 APPRAISAL OBJECTIVES AND AIDS

Appraisal of ongoing RDT&E effort has two basic objectives: detection of deviations from plans for performance, cost and schedule; and verifying the continuing validity of plans and the requirements they support.

0601 Concept of "management by exception." The detection of deviation from plans and schedules is a necessary prerequisite to "management by exception." Under the concept of management by exception, higher level management interjects itself only into those situations requiring corrective action. There are two prerequisites to successful management by exception: sound plans and an information and appraisal system for detecting deviations from those plans. When appraisal indicates events are heading "out of control" – deviating from approved plans to a significant extent – management must take preventive action to "force events to conform to its plans," or, if that is not possible, develop new plans compatible with existing realities.

0602 Place of information reporting and display systems. Effective appraisal is a necessary prior condition for management exception. The appraisal function, in turn, is dependent upon an information reporting system which faithfully reports the facts, plus aids for evaluation and display of that information so that significant trends become apparent. The primary system of RDT&E information reporting and displays employed for use will be described in this chapter.

0603 Verifying continuing validity of plans and requirements. Exceptions to plans are not the only legitimate interest of higher management in ongoing projects. It is also necessary to ensure that the project continues to support a valid requirement. The assumptions underlying the validity of program decisions may be undermined by changes in military needs, or development of superior alternative means of meeting those requirements, as well as by failure of programs to live up to expectations. The dynamic nature of research and development brings about frequent technological events which may render even the best planned and managed projects obsolete. These considerations are weighed during the series of reviews described in the past two chapters.

0610 RDT&E Reports

0611 Technical Development Plan (TDP). The TDP is the primary management document for projects in Advanced Development, Engineering Development and Operational Systems Development. (See paragraph 0248.)

Appraisal of such projects is made against the performance goals and time and cost schedules of the TDP. This plan is revised as necessary to keep it current, i.e., whenever significant changes in program status occur. Though they are not technically reports, updated TDP's must be submitted on specific occasions and at

stated times covered in DOD Instruction 3200.6 (SECNAV INST 3900.14A) and OPNAV Instruction 3910.4B. Updated TDPs must be submitted:

a. When a Program Change is approved.

b. Whenever a significant change occurs in the status of the project.

c. At least once a year by 1 April to provide up-to-date information for use in reviewing project listings.

The TDP Summary, OPNAV Form 3910-3 and pages 2.1 and 2.2 of the TDP, serves as a succinct compendium of TDP information of most significance to top management. (See Figures 2-7 and 2-8 for an example of TDP summary.) It identifies a project, its subprojects, the resource expenditures planned, and the milestone schedule for the project. The Monthly Project Evaluation is plotted against the planning data in the TDP Summary to measure project progress.

0612 Monthly Project Evaluation (MPE). OPNAV Instruction 3910.12A, "Monthly Project Evaluation," requires material commands to submit Monthly Project Evaluation (MPE) Reports on all projects in Advanced Development, Engineering Development or Operational Systems Development—all projects for which a TDP is required. The MPE is plotted against the planning data in the TDP Summary. It provides top management with two kinds of information:

a. Current data, both on project progress and problems; and

b. Forecasts of plan revisions.

The MPE reflects the best judgment of the material commands/project management offices as to the current status and future prospects of a project.

The MPE's together with associated TDPs provide the basic means of keeping DCNM(D), DCNO(D) and the ASN(R&D) informed of systems development progress. Copies are also distributed to other offices in OPNAV, including the NPPO, and to the office of Program Appraisal and NAVCOMPT.

The evaluations used in the MPE employ a system of "barometer terms": "Good Shape," "Minor Weakness," "Marginal," "Major Weakness," and "Critical." General definitions of these terms, as well as specific guidance for their use in each category are provided in enclosure (2) of OPNAV Instruction 3910.12A. These terms are used to express evaluation of the project in five areas: Milestones, Funds, Technical Development, Personnel Support, and Reliability. These general definitions are as follows:

GOOD SHAPE	No problems
MINOR WEAKNESS	The bureau or office can handle expected problems
MARGINAL	In between
MAJOR WEAKNESS	The bureau or office must go elsewhere for assistance within Navy, e.g., NavCompt, CNO, SECNAV.
CRITICAL	The Navy must go elsewhere for assistance, e.g., OSD, other military departments, Congress.

Any items marked less than "Good Shape" require amplifying information to be entered in Block 6 of the MPE Form. Figure 6-1 is an example of an MPE on a hypothetical missile.

0613 HOTLINE Report. While the MPE's meet the need for routine status reporting, the dynamic nature of RDT&E effort often requires faster communications. HOTLINE Reports meet this need. OPNAV Instruction 3910.13 established the procedures and format for RDT&E HOTLINE Reports. These Reports are transmitted by the cognizant bureau or office in standard message format to the DCNO(D) for ACTION, and the ASN(R&D) and DCNM(D) for information. They may be made initially by telephone followed up later by message.

The instructions points out that it is essential that the ASN(R&D) and the DCNO(D) be immediately aware of serious problems on development projects. HOTLINE Reports are normally limited to problems of major or critical significance. Problems not intrinsically of major significance, but which may result in Presidential, Congressional, or Office of the Secretary of Defense inquiry, are also reported.

An evaluation of the RDT&E reporting system by a highly qualified group of RDT&E-experienced personnel for the Assistant Secretary of the Navy (Research and Development) concluded that the potentialities of the HOTLINE Report had not been fully utilized. They reported that review of actual conditions in the programs during the nine months the system had been in operation revealed occasions when HOTLINE Reports would have been appropriate but had not been used. The report stated

[SHOW ONLY IF OLD TYPE PROJECT NO. (not based on SOR No.) IS ALSO USED]

OPNAVINST 3910 12A

MONTHLY PROJECT EVALUATION
OPNAV FORM 3910-4 (7-65)

Ref. OPNAVINST 3910 12A
OPNAV REPORT SYMBOL 3910-1

CLASSIFICATION STAMP

1 SYSTEM PROJECT NUMBER AND NAME	2 REPORT FOR MONTH OF	OP-07 COG:
WB19-01 Advanced Missile System (ZENITH) (WW-999)	July 1965	729

3 OVERALL EVALUATION

Evaluate the project in terms of the 5 areas listed. Compare the current status of each area against the planning data in the currently effective TDP. Select a numerical rating for each area from the Barometer Terms and insert it in the rating box. Explain all ratings other than "Good Shape", in Box 6.

AREA	RATING
MILESTONES	5
FUNDS	3
TECHNICAL DEVELOPMENT	4
PERSONNEL SUPPORT	Due 7-66
RELIABILITY	3

BAROMETER TERMS	
GOOD SHAPE	1
MINOR WEAKNESS	2
MARGINAL	3
MAJOR WEAKNESS	4
CRITICAL	5

4 SUB SYSTEM EVALUATION

Using the Barometer Terms evaluate each of the major sub-systems. Insert the name of each sub-system and a numerical rating in the box below. Explain all ratings other than "Good Shape" in Box 6.

SUB-SYSTEM TITLE (LIST MAJOR COMPONENTS OF ITEM SHOWN IN BLOCK 1)	OVERALL RATING	RELIABILITY RATING
Missile	4	3 (predicted)
Launcher	2	2
Radar	1	1
Guidance	1	2

5 ACT & E FUND CHANGES List any changes expected from the latest approved Five Year Force Structure and Financial Program. Explain in Box 6. If alternatives exist, group figures in sub-columns.

FISCAL YEAR	FROM $1000s	TO $1000s	EXPLANATION
66	2,000	2,500	Excessive heat caused by new propellant will require additional funds in FY 66 and 67 to fabricate stronger nozzles and baffles if speed and range in SOR are to be met. Alternate propellant will reduce speed and range by 20%.
67	3,000	4,000	
68	2,700	2,700	
69	1,500	1,500	
70	1,000	1,000	
TOTALS	10,200	11,700	

6 REMARKS

Explain briefly all evaluations other than "Good Shape". Define problems clearly, suggest alternative courses toward resolution, and describe expected consequences of each alternative. If a Program Change or a re-programming request is being forwarded, identify it and where it is presently being reviewed. (NOTE: any changes to the milestones listed in the TDP Summary should be submitted on an updated page 2 of the OPNAV Form 3910-3 containing the approved milestones and should be attached to this report.)

The missile sub-system has trouble in two areas: a minor problem in marriage of the components and serious difficulty with propulsion. The contractor must repeat circuit tests for compatibility of components. This will cause two months slippage which could be made up by overtime but the propulsion problem may not make this worthwhile.

Stand tests indicate that the new propellant is too hot for the nozzle rings. Some melting has occurred in the inner surface and cracks have appeared in the baffles. We need effort in fabricating stronger nozzles and baffles or in modifying the propellant mix. The slipped milestones indicated in the attached TDP Summary are: #8, #12, #14, #15, and #18.

A CNO decision is needed on whether to accept the 20% decrease in speed and range or fabricate the stronger nozzles and baffles and accept a probable two year slippage in Fleet Delivery Date and an additional cost of about $1,500,000.

7 PROJECT HIGHLIGHTS (INCLUDE ANY MAJOR BREAKTHROUGHS OR NEW CAPABILITIES)

a. MILESTONES ACHIEVED THIS MONTH: # 5 , # 6 , # ___

b. LATEST ESTIMATE OF FLEET INTRODUCTORY DATE: July 1969 if alternate propellant used.

c. PERSONNEL TRAINING PLAN REQUIRED: YES ; DATE TRAINING PLAN PROMULGATED: Due 7-66

8 NAME AND TITLE OF OFFICIAL TO CONTACT FOR FURTHER INFORMATION	9 TELEPHONE EXT.	10 SUBMISSION DATE
Robert A. Turner, CDR, USN, Project Officer	64849	2 August 1965

OP-761	DECLASSIFICATION	CLASSIFICATION STAMP
Order forms from Supply Dept. (Navy Yard Annex) NAVSTA WASH. (Code 514.32) (Code 514.32)		

Figure 6-1

"Project managers should be made to realize that it is advantageous to the Navy and themselves to report a serious problem or breakthrough as soon as it occurs." Timely reporting of problems is to the project manager's advantage. The DCNO(D) has proven to be a very helpful "friend-in-court" to the manager with a problem who has reported it in a timely and accurate manner.

0614 DD Form 1498. The Research and Technology Resume DD 1498 serves as a planning document for projects and task areas (see paragraph 0243a). In addition, the DD 1498 is used for the reporting of on-going effort at the work unit level. The work unit DD 1498s are stored in the Navy Automated Research and Development Information System (NARDIS) data bank and forwarded by NARDIS to the Defense Documentation Center (DDC) data bank. Each work unit is to be updated when a significant change occurs and at least annually.

The completed project, task area and work unit DD 1498 forms and summaries of data from them can be obtained from NARDIS by any government organization by following the procedure defined in ONR INST 3920.4. See paragraphs 0251, 0623 and E0802 for further information on NARDIS and the DD 1498.

0615 Research and Exploratory Development Highlights. The Research and Exploratory Development Highlights provide top management with monthly coverage on the most significant problems and accomplishments in the areas of Research and Exploratory Development. OPNAV Instruction 3910.14, "Research and Exploratory Development Program Highlights," establishes the reporting requirements and provides detailed directions to the bureaus and offices on how and when to prepare the report. Reports are submitted on an exception basis at the end of any month when difficulties, breakthroughs or other noteworthy events make a special report appropriate.

0616 RDT&E Project Listings. RDT&E project listings were discussed in Chapter IV, "Development and Justification of the Budget." Project listings are updated quarterly in addition to special submissions in August in support of budget estimates; annually in December to reflect the President's budget; and annually in May in support of Apportionment Requests.

0617 Resource Category Reports. Resource Category Reports, also known as Navy Cost Information System Reports, provide top management with monthly funding data on each individual project, including the 1 July program base, SECDEF and administrative adjustments, the total obligation authority as of the given month, how much of it is obligated, and how much unobligated. NAVEXOS P-2412 (July 1962) provides detailed directions to commands and offices on how to prepare this report.

0620 Evaluation Aids

The establishment of reporting requirements and submission of masses of facts does not, in itself provide management the information it needs to detect those occasions requiring remedial action. Information must be collected, processed and displayed—presented in a manner which will highlight significant trends. Many elaborate data processing systems have been developed to meet this need. Many different project management centers, or "Management CIC's," have been developed since the first one was placed in operation in 1956 in support of the Fleet Ballistic Missile Program. The following paragraphs describe the principal arrangements used by DCNO(D) and ASN(R&D).

0621 Monthly Summary Analysis. Information from the MPE's is brought together into a collected form and made available to all interested offices through a Monthly Summary Analysis which includes the following sections:

- Barometer charts on the warfare and support areas.
- Monthly appraisal prepared by the Development Planning Division of the Office of the Deputy Chief of Naval Operations (Development) (OP-701). This appraisal includes interpretive comments on barometer chart changes since the preceding month.
- Five-Week Monday morning briefing agenda.
- Schedule of fleet delivery dates by warfare and support areas.
- Projected expenditures charts by warfare and support areas.
- Summary highlights in research and exploratory development.

0622 Program Status Books. In addition to other sources of information available to top Navy RDT&E management, the Assistant Secretary of the Navy (Research and Development),

the Deputy Chief of Naval Operations (Development), and his deputy, The Assistant Chief of Naval Operations (Development) are each provided a personal copy of a Program Status Book. These books serve as ready reference compilations of the most pertinent current data on each project covered by TDP and reported by MPE. These loose-leaf volumes contain a description and the latest TDP Summary for each project. HOTLINE Reports, after receiving top management attention, are inserted temporarily as page one on each project. They are discarded at the next regular updating of the books. The Program Status Books are updated monthly.

0623 Navy Automated Research and Development Information System (NARDIS). NARDIS has been developed by Navy to be responsive to Navy needs in Research and Development information and reporting (ONR INST 3900.23 of 21 December 1964 and ONR INST 3900.24 of 24 May 1965). The Chief of Naval Research has been assigned management responsibility for NARDIS. Under the Chief of Naval Research, the operation of the system will be accomplished by the Applied Mathematics Laboratory, Naval Ship Research and Development Center (NSRDC). NARDIS is machine compatible with the DD Form 1498 reporting system. The NARDIS "data bank" is supported by inputs from Navy bureaus, commands and offices consisting of (1) completed DD Form 1498 at planning levels; (2) supplementary information for Navy use on each DD Form 1498 planning level report; and (3) certain working documents to NARDIS for work-unit reporting. (See paragraphs 0614, 0615 and E1002.)

0630 DDR&E Review of Ongoing Projects

In addition to the appraisal described above, and similar appraisal conducted in the bureaus and the Office of Naval Material, the Office of the Director Defense Research and Engineering also conducts a continuing review of ongoing RDT&E projects. This ongoing review is, in addition, the ODDR&E review of the RDT&E program during preparation of the annual budget, for apportionment submissions, reviews of specific elements of the RDT&E program in connection with PCRs and during the conduct of Contract Definition. The ODDR&E technical or systems office assigned primary responsibility conducts a continuing review of assigned RDT&E projects to ensure that the requirement for the project continues to justify the project as currently planned. ODDR&E also appraises projects to see if they are progressing satisfactorily in terms of schedule, cost, and technical performance.

In conducting its appraisal, ODDR&E uses both formal and informal information sources. Research and Technology Resumes (DD Form 1498s), Technical Development Plans (TDPs), RDT&E Project Listings, and Program Change Requests comprise the principal formal sources. In addition test reports and progress data on selective projects are used. Information of a less formal nature is obtained through field visits, contacts with project personnel, etc.

0640 Testing and Evaluating Weapons and Weapons Systems

There are a variety of areas in which the processes of test and evaluation are used in the Navy. From the RDT&E standpoint, perhaps the most important aspect of the test and evaluation process is securing approval for service use of the end-product of development. A second important consideration is support by operational testing organizations and units of the Operating Forces of research and development projects.

0641 Types of tests. OPNAV Instruction 3960.1C, "Prosecution by the Operating Forces of CNC Assigned RDT&E Projects," establishes responsibilities and procedures for conduct of tests and investigations by the operating forces. This directive defines in detail different types of investigations, evaluation projects and tests. These can be classified into the following classes:

a. Development Assist Tests. These are projects which, in effect, provide fleet services when a developing agency needs to conduct tests in an operational environment before continuing with the development effort.

b. Operational Evaluations. These are the service acceptance tests which culminate the RDT&E effort for each development.

c. Research Operational Investigations. These projects are used to provide fleet services when needed for broad research purposes which are not directly connected with a current equipment development.

Other tests, such as production tests designed to see if material meets specifications, and qualification tests on samples by prospective bidders seeking certification are conducted before material is ready for fleet tests. One of the "principles" of RDT&E management which has been reaffirmed over the years is "Test early and test often." Testing can be considered as starting long before actual hardware

development effort with feasibility studies and theoretical tests of concepts. Testing continues even after the material is accepted for service use.

0642 Organizations performing test and evaluation. The following is a list of some of the many types of organizations involved in testing and evaluating:

- Contractor establishments
- Commercial laboratories
- Navy RDT&E facilities—laboratories, test centers, ranges
- Maintenance activities—shipyards, O&R facilities, ordnance plants
- Fleet units.

0643 Approval for service use. Service acceptance tests are to demonstrate whether or not a system performs its function in a complete fleet environment, i.e., operated and maintained by fleet personnel with the training manuals, training equipment, supply and all other factors considered. These tests provide information on military effectiveness compared with other systems for doing the same job; cost effectiveness; operability and maintainability in a fleet environment; personnel requirements and training requirements.

Approval for service use requirements and procedures are set forth in OPNAV Instruction 4720.9B, "Approval of Material for Service Use." This instruction states that in order to be "approved for service use," a weapon system, support system, or other material must successfully undergo operational and/or technical evaluation wherein it must:

- Demonstrate its ability to perform reliably in accordance with its designed specifications and in its intended operational environment.
- Demonstrate its ability to be effectively operated and maintained by the level of personnel skill anticipated to be available under service conditions, and
- Provide sufficient evidence that it can be supported logistically in a deployed status.

Suitability for service acceptance is determined by a review of the results of operational evaluation and, where applicable, by experience gained from the use of pilot production equipment. Responsibility for the decision as to suitability for service use is assigned to DCNO (Air) for aircraft and supporting equipment and to DCNO (Fleet Operations and Readiness) for all other equipment. In certain instances procurement may be authorized prior to formal approval for service use. However, it is the general policy of the Chief of Naval Operations that weapons systems and equipment not be approved for service use until they have proved their effectiveness by operational test and evaluation.

0644 Role of Operational Test and Evaluation Force (OPTEVFOR). OPTEVFOR may be described as an operational testing organization responsible for evaluating new products for the consumer, the Operating Forces. While developing new products and ensuring compliance with plans and specifications are the concern of the material bureaus, determining the effectiveness of the equipment from an operational point of view is the responsibility of the users. The Commander, Operational Test and Evaluation Force (COMOPTEVFOR) is the agent of the Chief of Naval Operations for coordination and technical control of all fleet units participating in the prosecution of assigned evaluation projects. In addition to service acceptance tests, COMOPTEVFOR also has the important function of procuring and coordinating the services of fleet units when needed in support of other aspects of RDT&E—development/assist tests and research/operational investigations. (See paragraph E1210.)

0645 Role of Marine Corps Landing Force Development Activities. The Marine Corps Landing Force Development Activities at Quantico performs similar functions for the Marine Corps in addition to its other developmental functions. (See paragraph E0920.)

0646 Obtaining operational services for RDT&E projects. The services required to support RDT&E projects are many and varied. They are provided by units permanently assigned to COMOPTEVFOR, such as Air Development Squadrons, or by other forces assigned for special purposes in the Fleet Commander's Quarterly Employment Schedules. Additional services may at times be supplied by other Military Departments for specialized tests.

Procedures for obtaining assistance of the Operating Forces in conducting tests, evaluations and investigations are set forth in OPNAV Instruction 3960.1C. This instruction requires certain detailed data to be submitted for review and approval before the project is authorized.

Minimum safe lead-time for submission of the request for services by a developing agency is 15 weeks prior to the start of the quarter in which the services are needed.

0647 Board of Inspection and Survey Trials. Board of Inspection and Survey (BIS) trials are limited to ships and aircraft. There is, however, a vast difference in the scope and procedures for the two classes of vehicles. The BIS trials for a ship is normally limited to a few days during which the BIS representatives are aboard the ship during the contractor demonstration phase to determine whether the ship and its equipment (not including weapons) performs satisfactorily. They then make recommendations as to the acceptability of the ship.

In the case of aircraft, it would be extremely hazardous to take them aboard carriers until the flight characteristics are well known and their pilots thoroughly indoctrinated. Therefore, the trials for aircraft are more extensive. The contractor's own pilots demonstrate the safety of flight at the company's facility, or at Edwards Air Force Base. During this period, the Navy Preliminary Evaluation (NPE) gets under way, during which the Navy test pilots fly the aircraft to determine the craft's readiness for BIS trials. When NAVAIRSYSCOM is satisfied with the aircraft's performance, the BIS trials begin, and these are usually carried on for about 60 days to determine whether the aircraft and its support equipment is capable of performing its basic mission and is suitable for service use. Some BIS trials may continue after BIS endorses the aircraft as ready for Fleet introduction.

ANNOTATED REFERENCE LIST ON APPRAISAL OF RDT&E EFFORT

DOD INST 3200.6 (SECNAV INST 3900.14A), "Reporting of Research, Development and Engineering Program Information," prescribes requirements and procedures for reporting basic program information to ODDR&E. This instruction provides basic guidance for submission of TDPs, and Research and Development Project Listings. It also provides some guidance for submission of Program Change Requests (PCRs) and reprogramming requests.

OPNAV INST 3910.4B, "Technical Development Plans," provides guidance for the preparation, submission and review of TDPs. Since the TDP is the primary document for appraisal of all projects in Advanced, Engineering or Operational Systems Development, the instruction is fundamental to this chapter's subject.

OPNAV INST 3910.12A, "Monthly Project Evaluation," sets forth requirements for reports on each project in Advance, Engineering and Operational Systems Development.

OPNAV INST 3910.13, "Research, Development, Test and Evaluation HOTLINE Report," establishes procedures and format for these reports to ASN(R&D) and DCNO(D).

OPNAV INST 3910.14, "Research and Exploratory Development Program Highlights," establishes guidelines and criteria for these monthly reports.

CNO Letter of 14 May 1963, "Reliability Status of Development Programs," requires addition of reliability to other factors reported in MPE (see OPNAV INST 3910.12A). An enclosure covers use of barometer terms for reliability.

OPNAV INST 3960.1C, "Prosecution by the Operating Forces of CNO Assigned RDT&E Projects," establishes responsibilities and procedures for such tests, evaluations and investigations.

SECNAV INST 9080.1B, "Acceptance Trials and Inspection of Vessels and Service Craft," establishes the requirements and procedure for acceptance trials and inspections of vessels and service draft built or converted by and for the Navy.

SECNAV INST 5420.12C, "Organization and Responsibilities of the Board of Inspection and Survey," describes the organization of the Board of Inspection and Survey and assigns responsibilities and tasks in connection with Trails and Inspection.

BUWEPS INST 4355.6, "Board of Inspection and Survey (BIS) Tests and Trials of Aircraft," provides a general outline of the purpose of aircraft tests and trials conducted by the Navy Board of Inspection and Survey (BIS), of the procedures for initiating such tests and trials, and of the general format and policy for the preparation of endorsements for BIS reports.

OPNAV INST 03700.7A, "Introduction of New Model Carrier Aircraft into the Fleet."

BUWEPS INST 13100.4, "Release of Naval Aircraft for Trials and Fleet Use; policy regarding," establishes the policy, procedure, and minimum requirements for the release of naval aircraft for Navy evaluations, trials, and Fleet delivery.

ONR INST 3900.23, "Naval Research and Development Information System," describes the details and provides guidance for furnishing the input data required for NARDIS. It also serves as a guide to the NARDIS operating personnel for the programming and indexing of the material. (See ONR INST 3900.24.)

DOD INST 7720.13 (SECNAV INST 3900.32), "Reporting of On-Going Work in the Research and Exploratory Development Categories at the Work Unit Level."

OPNAV INST 4720.9B, "Approval of Material for Service Use," provides for thorough consideration of operational and logistic factors involved in approving equipment for service use.

OPNAV INST 3910.16A, "Preparation of DD Forms 1498 (Research and Technology Resumes) for reporting RDT&E Planning," provides direction for program planning reporting procedures at project and task area levels to meet requirements of Department of Defense Research and Technology Resume (DD Form 1498). This Instruction implements DOD INST 7720.16 within the Navy Department.

DOD INST 7720.16, "Research and Technology Resume (DD Form 1498) for Research and Development Program Planning Review," prescribes the requirements and procedures for preparing and submitting Research and Technology Resumes (DD Form 1498) to the Director of Defense Research and Engineering as part of the planning information necessary for his review of Department of Defense Research and Development Programs. (See OPNAV INST 3910.16A.)

ONR INST 3900.24, "Navy Automated Research and Development Information System (NARDIS): work unit data input requirements and procedures for," provides guidance for the furnishing of technical and management information by the bureaus, commands and offices on the ongoing RDT&E work at the "work unit" level.

CHAPTER VII

PROCUREMENT OF RDT&E EFFORT

This chapter deals with the process of arranging for implementation of RDT&E effort, whether it be performed in-house, by a non-profit institution or contracted to industry. The chapter covers policies for procurement of RDT&E effort, procedures for contracting in research and exploratory development, and Contract Definition and other procedures associated with contracting for major engineering developments. It also touches on some of the more technical aspects of contracting procedures and requirements.

0700 BACKGROUND AND GENERAL CONSIDERATIONS

Effective performance of the functions discussed in this chapter is essential not merely to efficient use of resources — good "business management" — but also to the military effectiveness of the weapons and equipment for the Operating Forces. The magnitude and complexity of modern weapons development requires division of labor. Requirements generated by one organization must often be conveyed to another for implementation.

The problems covered in this chapter are related to the User-Producer requirements-planning problem discussed in Chapter II. All of the problems of the User-Producer relationship are present in the procurement relationship plus additional complications when implementation is by profit-making industry. In the User-Producer relationship between the Chief of Naval Operations and the Commandant of the Marine Corps on one hand, and the Chief of Naval Material and the systems commands on the other, all are striving toward the same goal. Thus, theoretically at least, there can be no conflict of interest. The problem under these circumstances is largely one of the User determining requirements and communicating them to the Producer in such a way that their achievement can be optimized through rational trade-offs.

The harmony which exists between OPNAV and NMC, or between the systems commands and their laboratories, also exists in the Government-Industry relationship but on a philosophical level and is not as powerful an influence on day-to-day decisions. The Government interest seeks maximization of military worth in relation to costs while the Industry interest seeks maximization of profit. Optimum performance of the contracting function requires such structuring of incentives that the contractor's profits will be at their highest when the Government interest is best served. This is a most challenging task.

0701 Past Problems in RDT&E Procurement. The magnitude of the military RDT&E effort has increased more than tenfold since World War II, from $500 million in 1945 to approximately $7 billion at current levels. While the magnitude of the effort was thus increasing, its nature was also in transition. From 1953 to 1965 the dollar value of missiles and electronics as a per cent of total hardware deliveries increased significantly. The increase in magnitude and changing nature of the RDT&E effort was accompanied by many serious problems. Weapons complexity in some cases outran our ability to maintain and operate them effectively in a fleet environment. Cost overruns and schedule slippages were more the rule than the exception. Dealing with these problems has received much attention by organizations and groups at all levels. Although substantial progress has been made, much remains to be done.

0702 Bell Report. At the request of President Kennedy a study of government contracting for research and development was undertaken. The task group was headed by the Director of the Bureau of the Budget, the Honorable David E. Bell and included the Secretary of Defense, the Chairman of the Atomic Energy Commission, the Chairman of the United States Civil Service Commission, the Administrator of the National Aeronautics and Space Administration, and the Special Assistant to the President for Science

and Technology. The report of the task group was submitted 30 April 1962 under the title Report to the President on Government Contracting for Research and Development. This report has become known as the Bell Report. Most recommendations of the Bell Report have since become Government policy. (See also paragraph 0711.)

0703 Recent Advances in RDT&E Procurement.

1. In order to deal with the serious problems in research and development procurement, a thorough re-examination of traditional procurement policies and practices was undertaken. This reappraisal has culminated in a series of related studies and policy directives that, viewed in their entirety, constitute a sweeping effort to establish more adequate government control over RDT&E procurement. The most significant of these changes are as follows:

a. An Advance Procurement Plan (APP) is required for all major procurement programs (including development as well as production). The APP is required to be included as a part of the initial TDP and to be modified as appropriate in connection with each PCR. The purpose of the APP is to promote coordinated and systematic planning in the development and acquisition of material for Navy programs.

b. Research and development has been broken into a number of separate categories for purposes of planning, contracting, funding, and control.

c. Precontract planning will receive formal recognition through a funded Contract Definition Phase.

d. Heavy emphasis is being placed on the use of Firm Fixed-Price, Fixed-Price-Incentive, and Cost-Plus-Incentive-Fee contracts in lieu of the Cost-Plus-a-Fixed Fee contract.

e. Research and development contractors will be evaluated during and after contract performance, and this evaluation will be used as a determinant in selection for future awards.

f. More sophisticated control and planning techniques, such as PERT and PERT-Cost, have been developed and are being given general application to development programs.

g. Profit and fee will be negotiated using a system of weighted guidelines.

2. Total Package Procurement Concept (TPPC) recently has been introduced into the Navy. This concept envisions that all anticipated development, production, and as much support as is feasible of a system throughout its anticipated life, is to be procured as one total package and incorporated into one contract containing price and performance commitments at the outset of the acquisition phase of a system procurement. Concept Formulation (CF) and Contract Definition (CD), required as a prerequisite to full scale development, provide the building blocks for TPPC.

The purpose of TPPC is to obtain the benefits of competition at the outset of a program. By combining development, production, and other life-cycle factors into a single package, the Government is able to obtain the full benefits of competition among interested companies. Under former procedures the initial competition was applied to the development effort only. The successful bidder under the development competition was then in a sole-source position for ensuing production awards.

TPPC also produces more realistic and responsible design and development since the successful contractor is required to produce, to his development package, at the production price established in "total package" price competition.

0704 Importance of Good Work Statements. In the discussions in this chapter, the problems of contracting for research and exploratory development are treated separately from the problem of contracting for systems development since in so many respects the problems are different and best approaches for one are not necessarily applicable to the other. In all cases, however, the foundation of good procurement is a clear definition of the Government's goals or "requirements." The solution of this problem must precede procurement effort. To do otherwise will cause many of the resources put into procurement to be utilized inefficiently.

0705 RDT&E Procurement a Team Effort. Because of the complexity of the problems and the legal restrictions surrounding expenditure of government funds, the letting of contracts is a technical and exacting process requiring the services of many highly trained specialists. In a typical case such a team may include.

a. Scientific and technical engineering advisors

b. Procurement personnel (including negotiator, contracting officer and contract administrator)

c. Legal and patent counsels

d. Budget and fiscal analysis experts and auditors

e. Fleet support, maintenance and operational experts and inspectors

f. Numerous boards (Data Review Board, Source Selection Board, Procurement Review Board, Standardization Groups, etc.).

0706 Types of Contracts. Contract types in use by the Navy range from the cost-plus-a-fixed-fee (CPFF) contract (under which the contractor is reimbursed for all allowable costs incurred during performance plus a fixed fee which is independent of estimated or incurred costs) to the firm fixed-price contract (FFP) where the contractor must perform the work at the negotiated or bid price regardless of the ultimate costs of performance.

Between these extremes lie a number of flexible contract types that provide for a resetting of price at a later point in time, sometimes on the basis of a sharing formula established at the outset and usually within some pre-established limits. No single one of these types will fit all procurement situations; each has advantages and limitations which must be weighed in light of circumstances of a particular procurement.

In general, the firm fixed-price contract or an incentive contract is preferred because these provide the contractor with the most potent incentive to be efficient and economical. (See ASPR 3-402(b).)

Since the contract appropriate to a particular procurement depends so much on the nature of the RDT&E effort being procured, in the following discussion contract types used in procurement of research are discussed separately from types employed for systems development.

0710 Some Fundamental RDT&E Procurement Policies

Government and Navy RDT&E procurement policies have not been collected into one comprehensive list and so labeled. The following list has been culled from many sources.

0711 Government Responsibilities. The following doctrine from the Bell Report has achieved the status of policy:

> The basic purposes to be served by Federal research and development programs are public purposes, considered by the President and the Congress to be of sufficient national importance to warrant the expenditure of public funds. The management and control of such programs must be firmly in the hands of full-time Government officials clearly responsible to the President and the Congress.

The Bell Report then went on to point out that full discharge of this inherent Government management responsibility

> . . . requires that the Government have on its staff exceptionally strong and able executives, scientists, and engineers, fully qualified to weigh the views and advice of technical specialists, to make policy decisions concerning the types of work to be undertaken, when, by whom, and at what cost, to supervise the execution of work undertaken, and to evaluate the results.

Much of the report addressed itself to the problem of developing and preserving the Government's capability to discharge those inherent Government responsibilities which cannot be delegated to industry or non-profit institutions.

> One major source of this technical knowledge," the report pointed out, "is the Government-operated laboratory or research installation. . . A strong base of technical knowledge should be continually maintained within the Government service and available for advice to top management.

0712 Choice of Implementing Institutions. Government policy for implementation of RDT&E calls for performance of RDT&E effort by the class of institution — Government laboratory, educational institution, private contractor — which can perform the work most effectively and efficiently, subject to certain qualifications. One such qualification is that assignments must be compatible with the Government's inherent management responsibility discussed in paragraph 0711. It must also take into consideration the long-term effect on the Government's ability to perform those functions. The Bell Report pointed out that:

> . . . we need to be particularly sensitive to the cumulative effects of contracting out government work. A series of actions to contract out important activities, each wholly justified when considered on its own merits, may when taken together begin to erode the Government's ability to manage its research and development programs.

0713 Avoidance of Conflict of Interest. Another criterion for assignment involves conflict of interest in the broadest sense. The rule as laid down in DOD Directive 5500.10, "Rules for the Avoidance of Organizational Conflicts of Interest," is to avoid work assignments which create inherent conflicts of interest. Although this general rule is simple, its application to particular cases is not always clear. The instruction provides illustrative examples. The ultimate test, according to the directive should always be:

> Is the contractor placed in a position where his judgment may be biased or where he has an unfair competitive advantage?

Another aspect of "conflict of interest" involves the Government official. All military and civilian personnel of the Naval Establishment who deal with industry must be ever on the alert to ensure that their relations with industry are above reproach in every respect. They must make sure that they are never in a position where a conflict of interest between their personal lives and their Government responsibilities exists, may exist, or reasonably may be presumed to exist by third parties. They must take no action which might favor, or provide a competitive advantage to one firm over others seeking Government business.

0714 Bureau and Systems Command Relations With Industry. In the bureaus and systems commands, various industry-generated ideas and proposals are received. They stimulate creative ideas which ultimately assist in fulfilling the Fleet's needs. Therefore, the ideas are carefully screened and evaluated in the light of applicability and availability of funds. Many times the better ideas submitted in unsolicited proposals result in industry participation in R&D contracts or formal mutual exchange programs. In addition, there are formal mechanisms for the systems commands, bureaus and industry to get together. The Naval Air Systems Command issues for qualified contractors the R&D Planning Guide which covers weapon systems and the R&D Long-Range Technical Area Plan. If the contractor desires, he may undertake an unfunded study project based on these plans and provide a report. As a result of the report, program action may be started.

0715 The Place of the In-House Laboratories. In his memorandum of 14 October 1961, the Secretary of Defense laid down the policy that:

> The in-house laboratories shall be used as a primary means of carrying out Defense Department programs. They shall provide scientific and technical advice in the exercise of Government responsibility for development and acquisition of new weapons.

SECNAV Instruction 4200.21, "Contracting for Research and Development," states the policy that in-house capability shall be utilized to the fullest extent practicable for conduct of feasibility and cost effectiveness studies. This policy is also reiterated in ASPR, Section 4, Part 1.

0720 Categorization of RDT&E Effort

The single phrase "research and development" was used traditionally to describe any procurement of hardware other than repetitive production work performed against firm specifications. It mattered little whether the procurement involved studies in solid state physics, breadboard models of a new guidance system, or fabrication of the first prototype of an operational missile system. The label "research and development" was attached, and certain traditional procurement patterns – broad specifications, cost-plus-a-fixed-fee contracting– were followed. It is obvious, however, that the three procurements mentioned above are quite dissimilar in the nature of the effort required for their implementation and in the policies and practices appropriate for discharge of Government management functions.

In order to provide a more appropriate breakdown of "R&D" effort for management purposes, in 1962 the Department of Defense promulgated the six categories of RDT&E effort. These categories are 1. Research, 2. Exploratory Development, 3. Advanced Development, 4. Engineering Development, 5. Management and Support, and 6. Operational Systems Development. This categorization of effort is also in ASPR, Section 4, Part 1.

If the Management and Support category is omitted, the remaining five categories may be grouped into two broad classifications. The first, encompassing Research, Exploratory Development, and Advanced Development, bears the hallmark of those characteristics traditionally associated with research and development. For instance, in these categories there is great uncertainty as to output which may differ markedly from original goals; primary emphasis is on gaining knowledge. As a result, cost prediction is difficult and it is usually impracticable to try to measure results against goals established before the initiation of the effort. The government will usually wish to create an environment in which alternative approaches may be pursued. Contracts used

for this type of effort are usually of a type which places little financial risk on the contractor for failure to achieve hoped-for results.

The second grouping, Engineering Development and Operational Systems Development, is concerned exclusively with the design, fabrication, test and evaluation of hardware in what finally evolves in the process to become its operational configuration. Before a project is approved in either of these categories, engineering data, previously accumulated in Exploratory and Advanced Development, must indicate that primarily engineering effort is required to achieve successful development. If there is considerable uncertainty as to the systems effectiveness of the proposed system, total program lifetime cost, or development time, approval for systems development will normally be withheld. The existence of such uncertainty demonstrates that the project is not ready for systems development and that further Exploratory Development or Advanced Development is required.

Since feasibility, method of approach, and development objectives will be clearly established before project approval, contractors performing systems development work are expected to work under firm fixed-price (FFP), fixed-price-incentive (FPI), or cost-plus-incentive-fee (CPIF) contracts.

0730 Contracting for Research and Exploratory Development

By nature and definition, research and exploratory development involve effort to extend knowledge, knowledge of nature's laws and of its useful applications. Since the end result normally cannot be foreseen, the achievement of a specified result usually cannot be made a condition of the contract. A research "contract" usually covers a specified effort, not the achievement of any useful or foreseen result.

Partly due to the impossibility of contracting for a specified substantive result, most research and exploratory development effort is performed in-house, particularly in laboratories. A portion of this work is, however, performed by non-government institutions. The financial arrangements under which such work is performed are discussed in the following paragraphs of this section.

0731 Grants. The Office of Naval Research is permitted by law (42 USC 1891) to support research at educational and other nonprofit institutions whose primary purpose is the advance of scientific knowledge. The grant is administratively, from the standpoint of the performing institution, the simplest arrangement for support of research. The actual number and value of grants is, however, small when compared to amounts spent under various forms of contracts.

0732 Fixed-Price Type Contract. The fixed-price type contract is used to support research where the desired effort and costs can be firmly established in advance of performance. Such contracts provide among other things for: a. performance of the actual research prescribed, such as performance to be within the contract period; and b. submission of a final report. The fixed-price type contract for research has the advantage from both the Government's and the contractor's standpoint that it is more easily administered than cost-reimbursement type contracts since it requires much less detailed record keeping and auditing. The firm fixed-price contract has proved particularly suitable in the case of small research contracts, up to about $25,000.

0733 Cost Contract. A cost contract calls for the Government to pay all of the allowable costs involved in executing a given research project. This type of contract establishes an estimate of the total cost for purposes of a. obligating current funds, and b. establishing a ceiling beyond which the contractor cannot go (except at his own expense) without prior approval.

a. Cost-Sharing Contract. Under a cost-sharing contract the contractor is reimbursed for an agreed portion of his allowable costs, not to exceed an established ceiling.

ASPR 4-110, "Cost-Sharing Policy," prescribes the following policies for employment of cost type contracts:

(a) It is the policy of the Department of Defense to utilize cost-sharing in research or development procurements with contractors, other than educational institutions and foreign governments, only when there is a high probability that the contractor will receive substantial present or future commercial benefits. Accordingly, cost-sharing contracts may be used in such procurements only when:

(i) the contracting officer shows conclusive evidence that there is a high probability that the contractor will receive substantial present or future commercial benefits, and

(ii) the Head of a Procuring Activity approves the use of such a contract in writing.

It should be recognized that these controls do not apply to jointly sponsored research or development work with educational institutions or to cost-sharing arrangements between the United States and foreign governments.

0734 Cost-Plus-a-Fixed-Fee Contract. The cost-plus-a-fixed-fee type contract is similar to the cost contract in that it provides for payment to the contractor of all allowable costs as defined in the contract, and establishes an estimate of the total cost; in addition, however, it provides for payment of a fixed fee based on the nature of work to be performed and upon other factors as stated in ASPR 3-808.

0735 Full Disclosure Policy. When the Government supports research, it is buying knowledge to increase the basic reservoir available for meeting our defense needs. Therefore, full disclosure of all necessary information developed in execution of contracts obtained under research programs should be a requirement in all contracts. This information is then made available to those who need it and have the proper security clearance.

0736 Government Equipment for Universities and Other Nonprofit Institutions. It is government policy that educational and non-profit institutions be encouraged to maintain a high level of effort in basic technologies to enhance our long-range scientific knowledge. Where equipment or facilities excess to the Government's need are available for disposal, such items may be approved for retention by the educational institutions in accordance with existent disposal regulations.

0740 Contracting for Systems Development

In this section of the Guide, the problems of contracting for projects in the Engineering Development and Operational Systems Development categories will be examined within the framework of Contract Definition (CD). Though CD is required only on major projects, the objectives sought through CD must be achieved by one means or another for all projects in these two categories. Adequate planning is an indispensable prelude to any procurement action. The question is one of degree, and CD simply acknowledges the large amount of such planning that is necessary and justifiable in the more costly and more complex development projects. Information similar to that generated during CD must be obtained for smaller projects though in less detail. The requirements in the proposal package for Engineering Development developed during CD are an excellent basis on which to plan any development contract. These requirements, as stated in enclosure (2) of the CD instruction DOD DIR 3200.9 (SECNAV INST 3900.33) are as follows:

INFORMATION IN THE PROPOSAL PACKAGE

Each participant shall submit a final CD report containing a complete technical, management and cost proposal package for the Engineering Development. The report shall contain, but shall not be limited to, the following items (except as specifically exempted by the DDR&E):

1. A list of each of the end items required for operation and maintenance.

2. Performance specifications for each of the end items.

3. The work breakdown structure for Engineering Development as a whole (primarily oriented to hardware or product rather than to function); the statement of work in the proposal and the resulting authorizing document will be itemized in accordance with the work breakdown structure.

4. A Program Evaluation and Review Technique (PERT) network plan for the Engineering Development of all items contained in the system or subsystem on which the participant proposed indicating events that interface with the work of other participants. In addition, a planning and decision network for the period beyond Engineering Development, including production, operation, maintenance, training, logistics, and deployment.

5. Principal objectives and features of the overall system design, including recommendations for its operational use based on operational concepts established by the DoD Component.

6. A recommended plan for maintenance of the system based upon maintenance and logistic concepts established by the DoD Component.

7. Detailed cost estimates for the Engineering Development (which include cost estimates for the items of the work

breakdown structure) consistent with PERT/Cost; together with planning estimates for the period beyond Engineering Development (investment and operating cost for five years, including production, operation, maintenance, etc.).

8. A milestone schedule for the Engineering Development consistent with the PERT network and validated by recycling the PERT planning process, together with planning schedules for the period beyond Engineering Development (investment and operation for five years, including production, training, maintenance, etc.).

9. Quantitative reliability and maintainability specifications for the system and major subsystems and proposed test plans to demonstrate their achievement.

10. Time/cost/performance trade-off decisions that have been made with respect to major alternatives, including subsystems and components, and backup information showing the operational and cost effectiveness of these alternatives.

11. Required new designs and technology, if any, and a proposed test plan to demonstrate feasibility, including justification of the decision that existing designs or techniques are not applicable.

12. Foreseeable technical problems and proposed solutions including backup efforts, if necessary.

13. Other problems that could not be defined or resolved during Contract Definition.

14. Technical specifications and performance requirements for those items of system and subsystem support for which early Engineering Development is required (such as facilities, training equipment, documentation, etc.), and analysis and delineation of the remaining major aspects relating to system and subsystem support (such as logistics planning, spare-parts planning, etc.).

15. Delivery schedules and requirements for data and documentation.

16. Proposed schedule of production engineering and production tooling with relation to the Engineering Development, if appropriate.

17. Participant commitments for managing the project including:

    (a) Planned participant project-management structure and organization.

    (b) Key project management and technical personnel by name and experience, together with statements of responsibility and authority for Engineering Development.

    (c) Management-control and cost-control techniques, including reporting procedures.

    (d) Make-buy subcontracting procurement plan and gold-flow implications, if any.

    (e) Facility requirements, if any.

18. Developing agency-participant coordination networks.

19. Contractor proposals on the specific features of an incentive contract. (This arrangement is considered important because it will permit the negotiation of targets and incentive patterns into the contract while competitive proposals are still available and furnish the basis for incentive provisions in the contract).

20. Specific reference to those Government specifications requiring waiver or deviation, including a statement of such waiver or deviation.

0741 Systems Effectiveness Concept. The objective of development of weapons systems is not mere ownership of weapons hardware, but rather the acquisition of the capability to carry out a military task. The "systems effectiveness concept" focuses on the capability output – which is the product of a total "system" of which weapons hardware is but one "sub system" – rather than on hardware inputs. Systems effectiveness means the effectiveness of a system in operational use – the effectiveness with which the system performs its operational mission or missions. It can be expressed in many ways, the best ways of expressing the concept convey the idea of the ability of the system to perform its intended mission in its true operational environment. For example, it can be expressed in terms of number of targets destroyed per aircraft under given conditions, the number of attacking aircraft that get through a defense system, the probability that a given mission

will be accomplished successfully, etc. Systems effectiveness is a function of equipment reliability, equipment maintainability, maintenance procedures, training and ability of operating and maintenance personnel, logistic support, etc. Of this mix, reliability and maintainability are of major importance. These parameters are receiving increased emphasis during all stages of RDT&E. It is now recognized that reliability and maintainability are as vital to systems effectiveness and military worth as traditional performance parameters such as range, firepower, speed, and the like.

a. Systems Effectiveness and Project Approval Prospects. Under the DOD Programming System, the costs of supporting and operating a system are lumped together with the cost of the functional item itself for purposes of economic analysis and program selection. This "Program Packaging" requires that the program be sold in terms of mission capability and costs as compared to alternative means of accomplishing the same general objective.

b. Contracting for Reliability and Maintainability. A major problem is getting reliability, maintainability and other elements of systems effectiveness into development contracts in a meaningful way. Requirements for maintainability and reliability laid down in the SOR must be included in the TDP, along with plans for their achievement. These are also set forth in the specifications and other exhibits that make up the Request for Proposal (RFP). Requirements contained in the RFP, and later in the contract, must be quantitatively expressed and be capable of verification through objective measurement. By means of plausible tests it must be possible to demonstrate that these requirements can be met under conditions of use with an acceptable degree of confidence.

Contract Definition (CD) provides for treating the proposed new development as a "total system" in which maintainability, reliability, and the other aspects of systems effectiveness are given emphasis equal to that accorded hardware and the more glamorous aspects of performance.

0742 Contract Definition (CD) Concept and Objectives. Contract Definition (CD) is a formal step in the development process, preceding actual development, during which preliminary design and engineering are verified and accomplished, and firm contract and management planning are performed. CD may be accomplished by a single contractor, by two or more competing contractors, or by a Government laboratory in certain circumstances. DOD Directive 3200.9 (SECNAV INST 3900.33), "Initiation of Engineering and Operational Systems Development," establishes basic DOD policies concerning the employment of CD. A manual, DOD Guide for Contract Definition (Navy Publication No. 07P1), provides additional guidance.

CD is generally conducted by two or more funded competing contractors, working in close collaboration with the Government Department having development responsibility. Under the stimulation of a genuinely competitive environment, the prospective development contractors perform preliminary engineering and contract and management planning, prior to award of a development contract to the successful competitor.

CD may be conducted by an in-house laboratory where it is planned to use such laboratory for all or a majority of the actual development effort.

a. The Overall Objective of Contract Definition (CD) is to determine whether the conditional decision to proceed with Engineering Development should be ratified. The ultimate goal of CD, where Engineering Development is to be performed by a contractor, is to:

1. Provide a basis for a firm fixed-price or fully structured incentive contract for Engineering Development.

2. Establish firm and realistic performance specifications.

3. Precisely define interfaces and responsibilities.

4. Identify high risk areas.

5. Verify technical approaches.

6. Establish firm and realistic schedules and cost estimates for Engineering Development (including production engineering, facilities, construction and production hardware that will be funded during Engineering Development because of concurrency considerations).

7. Establish schedules and cost estimates for planning purposes for the total project (including production, operation and maintenance).

0743 Concept Formulation (CF). Conceptually the CD approach presumes identification of the frontiers of the state-of-the-art and presumes the ultimate project will be defined within those limits. A development plan which includes CD neither eliminates nor reduces the requirement for sound system

analysis and feasibility studies prior to requesting approval from DDR&E to initiate Engineering or Operational Systems Development which includes formal Contract Definition. Concept Formulation (CF) describes these required activities preceding the approval request. The experimental tests, engineering, and analytical studies that provide the technical, economic and military basis for a decision to develop the equipment or system must be accomplished during the CF period. Conditional approval to proceed with an Engineering or Operational Systems Development which includes CD, will depend on the evidence that CF has accomplished the following prerequisites:

a. Primarily engineering rather than experimental effort is required, and the technology needed is sufficient in hand.

b. The mission and performance envelopes are defined.

c. The best technical approaches have been selected.

d. A thorough trade-off analysis has been made.

e. The cost effectiveness of the proposed item has been determined to be favorable in relationship to the cost effectiveness of competing items on a DOD-wide basis.

f. Cost and schedule estimates are credible and acceptable.

Naturally initiation of CD will not be approved by DDR&E unless the above prerequisites have been met, or specific waivers granted by DDR&E.

0744 Projects Subject to CD. All Engineering Development and Operational Systems Development projects requiring cumulative RDT&E funding in excess of $25 million, or estimated to require production investment in excess of $100 million, must undergo CD unless a specific waiver in writing is issued by the Director of Defense Research and Engineering. Other projects may be required to include CD at the discretion of the developing Department or as directed by DDR&E.

0745 Trade-Off Analysis in CD. Trade-off studies, to optimize planned development with respect to cost, schedule and operational effectiveness are a major purpose of CD. Subparagraph VI F.4. of DOD Directive 3200.9 (SECNAV INST 3900.33) lays down the policy on trade-offs in unambiguous terms.

"Trade-offs should be used to obtain, within the mission and performance envelopes, an optimum balance between total cost, schedule, and operational effectiveness for the system. In this context, total cost means the total cost of acquisition and ownership (development, production, deployment, operation, and maintnnance); operational effectiveness includes all factors influencing effectiveness in operational use (such as 'pure' performance, reliability and maintainability); and system includes the hardware itself and all other required items, such as facilities, personnel, data training equipment, etc."

It is noteworthy that this policy requires continuous review of, and whenever advantageous to the Government, changes to requirements and technical approaches as mutually agreed upon by the Government-Contractor team.

0746 Performance Demonstrations and Systems Effectiveness. The full-scale development contract which is negotiated at the conclusion of CD must specify the tests by which achievement of performance requirements is demonstrated. The contractor's profit or fee (including any incentive fees contained in the contract) must be contingent upon successful passage of the performance demonstrations. The devising of practicable and unambiguous demonstrations for such characteristics as reliability, maintainability and supportability is a most important task which should be given a great deal of attention.

The demonstrations normally take the form of Technical Evaluations and Operational Evaluations to the end of demonstrating systems effectiveness. These evaluations may be conducted by the material bureau, COMOPTEVFOR, the contractor or, in the case of aircraft, the Board of Inspection and Survey (BIS). "Systems effectiveness" is officially defined by the Chief of Naval Material as "the probability that the system will perform a stated mission for a specified period of time under explicit environmental conditions." It has an associated confidence factor which is derived from the number of demonstrations which are economically feasible. Systems effectiveness encompasses the reliability, maintainability, availability, operability, and supportability of both the men and the machines which make up the system.

The DOD Incentive Contracting Guide discussed the problem of performance tests in the following passage.

It must be clear to both parties exactly what is meant by each equipment characteristic, and

how that characteristic will be measured for the purpose of determining fee. The word "reliability" is meaningless until it is phrased in terms of test methods and conditions, confidence limits required, and what constitutes a test "success" or "failure." Even as simple a parameter as aircraft speed, expressed in miles per hour, can be completely defined only by specifying test altitude, instrumentation, loading atmospheric conditions, and so forth. Thus, before performance targets, ranges of incentive effectiveness, and incentive patterns can be set, Government and industry technical personnel must agree completely on those tests that will (i) define the incentive parameter and (ii) be used to determine its final value. Unless this is done before the contract is signed, final settlement of the performance aspects of the contract may require recourse to the disputes procedure or, at best, a long and unpleasant series of negotiations.

(See item 9, "Information in the Proposal Package," enclosure (2) to DOD Directive 3200.9 of 1 July 1965.)

0747 Types of Contracts. Contracts for Engineering Development or Operational Systems Development are to be firm fixed-price (FFP), fixed-price-incentive (FPI) or cost-plus-incentive fee (CPIF). The type used will depend to a large extent upon how well the project is defined, both before and during CD. The competition during CD will also apply to the type of contract the contractor is willing to accept. The extent to which the contractor is willing to accept a fixed-price or other high-risk type contract provides a measure of his confidence in his ability to achieve projected goals for performance, cost and schedule. If the contractor believes that uncertainties associated with the development are so great that he is unwilling to enter into a meaningful incentive contract, then, according to the DOD Incentive Contracting Guide, the project should be considered for postponement until enough research and exploratory development has been completed to bring the uncertainty to manageable levels.

0748 Structuring the Incentive Contract. The problem of structuring the incentives in incentive contracts is discussed in the DOD Incentive Contracting Guide. It is a difficult and important problem. Ideally a system of multiple incentives should be developed which would produce an absolute identity between the Government's interest and maximum profits for the contractor. If extreme care and skill is not exercised in structuring the contract it is easy to bring about a situation where the contractor's profit maximizes while important performance requirements are sacrificed. One approach to preventing such a condition is to pay no incentives until all minimum performance requirements are met. Another approach involves a factored reduction of incentives when performance – or any other aspect subject to an incentive – falls below a certain minimum.

A properly developed incentive structure will have these benefits:

a. Its development will require effective Government planning and analysis of the total range of procurement objectives.

b. It will improve communication of Government objectives to the developing contractor. This communication will include priorities of trade-offs when the maximum contractual objectives may prove to be unattainable.

c. It will relate incentive rewards to the contractor's success in complying with the Government's order of priorities.

0749 Contractor Performance Evaluation (CPE). Department of Defense Directive 5126.38, "Program of Contractor Performance Evaluation," established a program for evaluating the work of Department of Defense contractors engaged in Advanced Development, Engineering Development, and Operational Systems Development. The directive has been amplified by DOD Guide to Contractor Performance Evaluation (Development and Production) of June 1966, and implemented in the Navy by SECNAV INST 4335.5A and NAVMAT INST 4335.8B. The primary purpose of the program is to determine and record a contractor's effectiveness in meeting his contractual commitments with regard to performance, schedule and cost. The program provides a long-term incentive to contractors by creating within the government a "memory" of their performance and a means of considering this record in future source selections.

The major features of the Program for Contractor Performances Evaluation are:

a. Contractor Performance Evaluation Reports ... for the entire contract, and for concurrent or follow-on production contracts if the projected cost exceeds $5 million for a single year or $20 million overall. Subject to prescribed approval, certain other contracts that do not fall within the foregoing categories may be evaluated.

b. Contractor Performance Evaluation Reports will be submitted to the Contractor Performance Evaluation Group, Headquarters Naval Material Command. There they will be reviewed, forwarded to the contractor for comment and to the Defense Documentation Center for storage in the Data Bank.

c. Departmental Contractor Performance Evaluation Groups will be composed of engineers, procurement specialists and accountants experienced in technical development work. When necessary these groups will be reinforced on an ad hoc basis by experts or consultants of particular competence in the technologies most important to the development effort being evaluated.

d. No new contracts in excess of 1 million and of the type subject to CPE will be awarded until a complete transcript of the performance histories of all contractors submitting acceptable proposals has been obtained from the Defense Documentation Center, or it is determined that none are on file.

0750 Contracting With In-House Laboratories

A major portion of the Department of the Navy RDT&E effort is carried out by in-house RDT&E laboratories. Though technically a systems command or office does not "contract" with its laboratories, it does reach agreement with them on such things as the work to be done, the cost, time, etc. In exercising management guidance to its laboratories, a systems command will transmit work requirements by "task" assignment after agreement has been reached through informal negotiations. Task documents describe the level of effort and schedule together with all necessary technical details to enable the laboratory to accomplish the work in accordance with the Command's desires. Figure 7-1 is an example of the task assignment form employed by the Naval Air Systems Command.

0760 Contracts and Contract Provisions

Various laws and regulations, such as Title 10 U.S. Code, the Armed Service Procurement Regulation (ASPR), and Navy Procurement Directives (NPD), impose restraints and limitations on, as well as guide, the award of contracts by the Department of the Navy. These laws and regulations recognize major differences between procurement of "hardware" and contracting for research and development. They contain many permissive clauses specifically applicable to research and development. The quality of our research end product can be improved, time required for contracting reduced, and costs kept down by efficient management of our contracting procedures and by judicious use of permissive clauses of the laws and regulations.

0761 The RDT&E Contract. A simple contract is an offer and an acceptance backed by legal considerations. When the Government enters the domain of commerce, it normally submits itself to the same laws that govern individuals there (Cook v. United States, 95 US 389). Advice concerning the details and procedures of contracts will be provided by procurement consultants, negotiators and legal and patent counsel available in systems commands and at most development activities.

0762 Standard Contract Provisions. Certain government standards and specifications are set forth in uniform regulations which are incorporated by reference into the contract document. For instance, MIL-D-70327 as amended relates to drawings the contractor is required to deliver to the Government. Another standard clause relates to the right of government inspector personnel and plant representatives to enter the contractor's premises to examine work in progress at reasonable times.

a. Certain specifications are standard and are recited in "boiler plate" portions of the contract. They may be Federal specifications or Coordinated Military specifications (MIL).

b. The language employed in contracts is ordinarily arrived at only after long experience. The terms are "words of art" which have a specific established meaning in governmental circles and to contractors. Some are defined in ASPR, others in Standards and MIL Specifications. Some are the result of specific laws or Government regulations.

c. Each contract has a Disputes Clause permitting appeal to the Armed Services Board of Contract Appeals of disputes of questions of fact.

d. In R&D work, design and performance specifications are widely employed and, in most cases, both are necessary to define the procurement goal. A design specification spells out in detail the materials to be used, their size and shape and method of manufacture; while performance specifications express their requirements in terms of capacity, function or operation, leaving to the developer discretion as to details. It will be apparent that the more indefinite the specification, the more uncertain will be the measure of contractor's demonstrated performance.

AIRTASK WORK UNIT ASSIGNMENT
NAVAIR FORM 3930 1 (7-66)

DEPARTMENT OF THE NAVY
NAVAL AIR SYSTEMS COMMAND
WASHINGTON, D.C. 20360

NAVAIRNOTE 3930
17 Aug 1966
See BUWEPSINST 3900.4 for applicable details on completing this form.

CASE FILE NO.

PAGE 1 OF

ADDRESSEE	AIRTASK NO.	AMEND. NO.
	WORK UNIT NO.	AMEND. NO.
	EFFORT LEVEL	
COGNIZANT NASC ENGINEER CODE	CLASSIFICATION OF AT/WU	

1. The AIRTASK WORK UNIT ASSIGNMENT described below is assigned in accordance with the indicated effort level and schedule. Funding authorization for AIRTASKS will be provided in separate correspondence. If this AIRTASK/WORK UNIT ASSIGNMENT cannot be accomplished as assigned, advise the Commander, Naval Air Systems Command.

SAMPLE

PROG PROJ APPROVAL (For the ASST (AIR))	DATE	SIGNATURE (By Direction CDR NASC)	DATE
		CLASSIFICATION AND GROUP MARKING	

Figure 7-1

0763 Authority to Negotiate Contracts. In general, the law requires government contracts to be awarded through formal advertising. In the case of R&D contracts certain exceptions to this requirement are permitted. The Armed Services Procurement Act provides for these exceptions to the general requirement for formal advertising when procuring R&D:

Exception #3 - for purchases aggregating not more than $2,500.

Exception #5 - for service to be rendered by any college, university, or other educational institution.

Exception #6 - for property or service to be procured and used outside the United States and its territories, possesions, and Puerto Rico.

Exception #11 - for experimental, developmental or research work or property for experimental, developmental or research work.

Where exception 11 is used for procurements over $100,000, a D&F must be signed by the Secretary of the Navy. Unless limited by higher authority, the contracting officer may make the determination and findings under $100,000 when this exception 11 is used. Exceptions 3, 5 and 6 do not require a D&F.

0764 Patent Rights. Contracts calling for the performance of experimental, developmental or research work are required by the Armed Services Procurement Regulation (ASPR) to include a Patent Rights clause which defines the rights and obligations of the contracting parties with regard to inventions that are conceived or first actually reduced to practice in the course of the contract. ASPR, Section IX, Part I, identifies three categories of procurement situations involving research and development contracts and requires that such contracts include one of three clauses, a. Patent Rights Title clause, b. Patent Rights License clause, or c. Deferred Determination of Rights clause.

In general, it is expected that there will be few occasions in military procurement to employ the "Title" clause, although there may be some procurement situations where the use of the clause would be warranted, as where the Government has been the principal developer in a field of science or technology and the retention of title by a contractor would give the contractor a preferred or dominant position.

It appears that most Defense procurement situations will fall within the "License" or the "Deferred Determination of Rights" area. In the latter area, the Government initially takes title but the contractor may, in appropriate cases after the invention has been identified, later prove its right to and be given title. In both instances, the criteria for the acquisition of title by a contractor appears to be the contractor's technical competence in the broad field of technology plus the contractor's ability to demonstrate an established non-governmental position.

In determining whether the Government or a contractor should acquire title, the contracting officer is assisted by his team of legal, patent and technical advisors. Moreover, the file of each contract must be fully documented to support the contracting officer's determination.

0765 Data Acquisition and Data Rights. As pointed out in the discussion of the "Systems Effectiveness" concept, a military capability is not only the product of weapons hardware but also of all the other elements required to make it effective in combat. One such element is technical data.

Hardware alone is of little value without the technical data required to operate and maintain it. Technical data is also required for many other Governmental purposes including competitive reprocurement of end items and competitive reprocurement or direct purchase from the equipment manufacturer's source of repair parts, this latter practice being known as "breakout." A technical data package must be planned for and obtained, whenever it is economically practicable to do so, to fulfill all of the needs of the Government and to permit competitive reprocurement where production contracts follow research and development efforts. (See ASPR Section IX, Part 2.)

Contracts under which the Government acquires technical data contain both "data requirements" and a "data clause." The "data requirements" of a contract appear in the schedule thereof and set forth the technical data that is actually required to be furnished by a contractor. The "data clause" on the other hand, is a special contract clause which defines the rights and obligations of the contracting parties with respect to such data and particularly the Government's right to use such data. "Data requirements" are determined for the most part by technical personnel. Data "rights" are primarily the concern of patent and legal personnel.

The acquisition and preservation of data is an expensive process. Data needs must be carefully determined so that data actually acquired will be adequate to meet Government requirements and at the same time have a value commensurate with its cost. Data should be scheduled, ordered, negotiated for, separately priced, procured, managed and maintained to the same extent as the design, development, production and maintenance of the hardware itself. (See paragraph E1121 "DOD Council on Technical Data and Standardization Policy.")

0766 Alternative Procurement Means. There are several means for execution of RDT&E effort in addition to Navy in-house laboratories and contractors. Funds may be transferred to another government agency – e.g., AEC, NASA, Army, Air Force, National Bureau of Standards, HEW, National Academy of Sciences, National Institute of Health, National Security Agency. Under our Military Assistance program foreign research programs showing promise may be the subject of cost sharing or aid contributions which entitle us to share in results, reports, and other data. NATO-coordinated production arrangements which aid weapons standardization of our allies may entitle us to data and production items.

ANNOTATED REFERENCE ON PROCUREMENT OF RDT&E EFFORT

SECNAV INST 4200.21, "Contracting for research and development," furnishes general policy guidance for procurement of research and development from private institutions. It was issued in response to Bell Report recommendations.

DOD DIR 3200.9 (SECNAV INST 3900.33), "Initiation of Engineering and Operational Systems Development," establishes DOD policies governing Concept Formulation (CF) and Contract Definition (CD) in management of large development projects. The general requirements set forth in this directive are useful as guidance in contracting for projects not subject to formal CD.

NAV PUB No. 07P1, "DOD Guide for Contract Definition," provides recommended guidelines for the conduct of Concept Formulation and Contract Definition.

DOD DIR 5126 38, "Program of Contra[illegible]erformance Evaluation," establishes a program for evaluating the work of Department of Defense contractors engaged in Engineering, and Operational Systems Development, and assigns responsibility for administering its provisions.

DOD Instruction 5230.14, "Advanced Planning Briefings for Industry," prescribes procedures to be followed in developing and scheduling classified presentations for industry involving statements of future research and development planning.

DOD DIR 5500.10, "Rules for the Avoidance of Organizational Conflicts of Interest," prepared in response to the Bell Report, states DOD policy for avoiding contract situations which might affect the objectivity of advice and information provided the Government. It establishes rules for relationships and conduct with nonprofit or industrial organizations to achieve integration and coordination for large weapon systems involving several major contractors.

DOD INST 4105.52 (SECNAV INST 4255.2), "Uniform Negotiation for Reimbursement of Independent Research and Development Costs," provides a method of joint negotiation of reasonable and uniform cost allowance of independent R&D expense of certain contractors performing work for more than one Military Department.

Incentive Contracting Guide, Department of Defense 1965, NAVMAT P-2483, prepared by the Office of the Assistant Secretary of Defense (Installations and Logistics), provides information and guidance for negotiation of incentive contracts. It is simply written for general use.

Guide to Contractor Performance Evaluation (Development and Production), Department of Defense June 1966, contains guidance on the Department of Defense Program for Contractor Performance Evaluation (CPE). It includes administrative procedures for preparation and processing of CPE reports.

SECNAV INST 4335.5A, "Program of Contractor Performance Evaluation," prescribes a program for evaluating the work of DOD contractors engaged in advanced development, engineering development, operational-systems development and subsequent or concurrent production, and assigns responsibility for administering its provisions.

NAVMAT INST 4335.8B, "Department of the Navy Contractor Performance Evaluation Program," directs compliance with the Contractor Performance Evaluation (CPE) Program and prescribes operating procedures for the Department of the Navy.

Contractor's Manual, Office of Naval Research, October 1963, covers the administrative procedures and requirements for contract types employed by ONR. The manual is written primarily for contractors but provides Government RDT&E officials information of value.

ASPR (Armed Services Procurement Regulation) establishes uniform policies and procedures for DOD relating to procurement of supplies and services.

Industrial Security Manual for Safeguarding Classified Information (Attachment to DD Form 441), Department of Defense, establishes uniform security practices for application within industrial plants or educational institutions and all organizations and facilities used by prime and subcontractors having classified Government information.

Defense Procurement Handbook (NAVMAT P-12410), provides basic information on defense procurement as practiced by the Army, Navy, Air Force and Defense Supply Agency. [Also identified as FM 38-3 (Army), AFP 70-1-6 (Air Force) and DSAH 4-105.1 (Defense Supply Agency).]

DOD DIR 4105.62 (NAVMAT INST 4200.35), "Proposal Evaluation and Source Selection," establishes DOD objectives, principles, and policy for the evaluation of proposals and the selection of contractual sources for each Advanced Development, Engineering Development, or Operational Systems Development proposal contract estimated to require in excess of 25 million.

Other Publications Applicable to Procurement are Navy Procurement Directives; Naval Supply Systems Command Manual, Volume VI, "Purchasing"; Administrative Manual — Military Inspection Service; Contract Audit Manual; Navy Comptroller Manual; and Navy Contract Law.

APPENDIX A

GLOSSARY

The following terms used in RDT&E management were culled from the sources indicated at the end of each definition. Additional information on these and other sources can be found in the annotated reference list at the end of this appendix. Most of these definitions came originally from directives which bore a disclaimer along these lines: "As used in this directive, the following definitions will apply." Thus these definitions are presented with the following words of caution:

> WARNING! The following definitions are presented for information only. It can not be assumed that directive and manual writers using these terms in any particular instance are attempting to convey the precise meanings contained in these definitions.

See pages iii and iv of Volume I or pages i and ii of Volume II for list of abbreviations.

-A-

ACCOUNT, BUDGET - Summary account for costs and obligations incurred required to be used in budgets and reports. Includes "Budget Program" and "Budget Activity" accounts. (Project 60)

ACCOUNT, BUDGET-PROJECT - A budget account at the second level of subclassification of any appropriation account. More appropriately called a "budget-activity account" in the case of an appropriation in the Operations and Maintenance area. (Project 60)

ACCOUNT, DEPOSIT - An administrative subdivision of an appropriation subhead account representing the accounting dollar limitation of the applicable program plan. (BUWEPS 5200.25)

ACTIVITY, BUDGET - 1. As used by the Navy, the subdivision of an appropriation by major function as justified to the Congress, for administration, accounting and control purposes, and designated by a subhead; comparable to budget program as used by the Army and Air Force. 2. A term used broadly in budgeting to indicate a function or program. (Project 60)

ACTIVITIES, SCIENTIFIC AND TECHNICAL INFORMATION - Include all management, administrative, and operational efforts directed to the planning, support, control, performance and improvement of the functions or tasks which deal with the processing, handling, and communication of scientific and technical information. The four categories are: 1. Publication and distribution. 2. Bibliographic and Reference Services. 3. Scientific Symposia and Technical Meetings. 4. Research & Development in Scientific Communication and Documentation. (National Science Foundation 63-11)

ADMINISTRATION, CONTRACT - Management of all facets of a contract, to make certain that both government and contractor fulfill all contractual agreements. (BUWEPS 5200.25)

(ADO) ADVANCED DEVELOPMENT OBJECTIVE - An ADO is a requirement document prepared by CNO stating a need to conduct certain experimental studies, test and development effort (OPNAV 3900.8C)

AGENCY - 1. As officially used for the government as a whole, any executive department, military department, commission, authority, administration, board, or other independent establishment in the executive branch of the Government, including any corporation wholly or partly owned by the United States which is an instrumentality of the United States. Excludes the District of Columbia. 2. Loosely used to designate a subordinate organizational subdivision of the Department of Defense and the military departments. (DOD 5000.8)

AGENCY, DESIGN - The agency which accomplishes the engineering design of a developmental item or system. The design agency may be a contractor or a Government laboratory. (Project 60)

AGENCY, DEVELOPING - A developing agency is the command, bureau or office within the Department of the Navy with whom the Chief of Naval Operations has arranged for the prosecution of a project from which may come a product requiring evaluation. (OPNAV 3960.1C)

AGENCY, DIRECTING (REPORTING) - In connection with reporting, the agency which issued the basic order for the establishment of a report, or which provides the basic directive by which the necessity for a report is implied or established. May also be the initiating agency. (Project 60)

AGENCY, INITIATING (REPORTING) - In connection with reporting, the agency which develops and prescribes a specific reporting requirement. (Project 60)

AGENCY, REPORT-USING - In connection with reporting, an agency which is specifically required by the reporting directive to receive and take action on a copy of the report. This may be in addition to, or other than, either the directing or initiating agency. (Project 60)

AGREEMENTS, RESEARCH - Agreements to perform federally sponsored research through grants, cost-reimbursement type contracts, cost-reimbursement type sub-contracts, and fixed price contracts and sub-contracts for research. (Project 60)

ALLOTMENT - 1. An authorization by the head or other authorized employee of an agency to incur obligations within a specified amount pursuant to an appropriation or other statutory provision. 2. In the Department of Defense, the word has a more limited significance; in addition, the word means: a. that the authority is granted by an operating agency to another office, generally one subordinate to it, within and pursuant to an allocation or other similar authority granted to it, and b. that the granting of such authority must be rigidly formal and subject to certain specific procedural, bookkeeping, and reporting requirements. Hence, other forms of allotments are distinguished by other words, viz: suballotments, obligation authority, citation of funds. 3. Definite portion of pay of military personnel which is authorized, either voluntarily or by law, to be paid to another person or to an institution. (Project 60)

ALLOTMENT NUMBER - Series of symbol numbers assigned to an allotment, consisting of 1. the identity of the operating agency. 2. The serial number of the allotment, for use in budgetary accounting and control. (Project 60)

AMENDMENT - An authorized document for changing existing requirements in, or adding new requirements to, contractual provisioning documents. (Project 60)

ANALYSIS, COST EFFECTIVENESS - A method for examining alternative means of accomplishing desired military missions for the purpose of selecting weapons and forces which will provide the greatest military effectiveness for the cost. (NAVEXOS P-2426A)

ANALYSIS, MONTHLY SUMMARY - A "collected" form of monthly project evaluation reports for distribution to all interested offices. (RDT&E Guide 0621)

ANNEXES, PROGRAM - Detailed listings of specific resource requirements of the five-year programs. (DOD 7045.1)

APPORTIONMENT - A determination and limitation by the Bureau of the Budget as to the amount of obligations or expenditures which may be incurred (or authorized to be incurred) during a specified period, under an appropriation or other fund, contract authorization other statutory authorization, or a combination thereof. An apportionment may limit either all obligations to be incurred during the specified period within an appropriation or other fund account, or obligations to be incurred for an activity, function, project, object, or combination thereof. When so specified, the limitations apply to accrued expenditures rather than obligations. (DOD 5000.8)

APPRAISAL - An essential element of the planning and programming process performed at all decisive stages of the process. The appraisal process includes: determining what information is necessary for decision at a given control level; ensuring that this information is available from supporting information systems; screening and evaluating this information to determine its significance; and finally, presenting the information in a manner that will be of assistance in decision making. (OPNAV 5000.19E)

APPROPRIATION - A statutory authorization to make payments out of the Treasury for specified purposes within a prescribed amount. (Project 60)

APPROPRIATION, ANNUAL - An appropriation which is available for incurring obligations only during one fiscal year specified in the appropriation act. (Project 60)

APPROPRIATION, CONTINUING - An appropriation which is available for incurring obligations until exhausted or the purpose for which made is accomplished, without restriction as to fixed period of time. (Project 60)

APPROPRIATION, NO-YEAR - An appropriation which is available for incurring obligations for an indefinite period of time. (Project 60)

APPROPRIATION ACCOUNT - An account established to make amounts available for obligation and disbursement from the Treasury. For certain purposes, appropriation accounts include not only accounts to which money is directly appropriated for obligation and disbursement, but also revolving funds, working funds, trust funds, etc. Appropriation accounts do not include deposit fund accounts. (DOD 5000.8)

APPROPRIATION EXPENDITURES - The amounts of approved vouchers, claims or other documents which have been entered in the accounts of an agency or final charges against an appropriation. Such amounts are net of refunds received. (Project 60)

APPROPRIATION HEAD - A separate classification of appropriations in an appropriation act. Each appropriation head constitutes a separate authorization and limitation as to the purpose for which the funds may be used. (DOD 5000.8)

APPROPRIATION SUBHEAD - 1. A subclassification of an appropriation head generally stated in an appropriation act. In such case, transferability usually is legally possible between the subheads under one appropriation, but it is generally understood that transfers of material amounts between such subheads will be made only after discussion by the Department with the Bureau of the Budget and the Chairman of the Appropriation Committees. 2. Sometimes used to refer to a major budget account not stated in an appropriation act. (DOD 5000.8)

APPROPRIATION TITLE - A descriptive name assigned for purposes of identification to an appropriation account or accounts. The title does not include a designation as to year; hence, there may be as many as four appropriation accounts with one appropriation title available for expenditure at one time—three, each covering a different fiscal year, and the fourth, all prior years (merged appropriation account). (Project 60)

ARMED SERVICES PROCUREMENT PLANNING OFFICER (ASPPO) - Staff member of a military field office who is assigned one or more plants for which he is responsible to coordinate all Army, Navy, Air Force, Defense Supply Agency, and Maritime Administration production planning activities for the Department of Defense. (Project 60)

AUTHORITY - 1. The power or right to act or command, or to demand obedience (Syn. power). 2. An individual, organization, or office possessing and exercising such power. 3. One who, by virtue of his position in an organization or by his reputation as an expert in a given area is empowered or regarded as competent to decide a question. Note: When authority is delegated downward in a chain of command commensurate with responsibilities assigned, such delegation does not relieve the superior of responsibility. (Project 60)

AUTHORITY, OBLIGATION - 1. Any kind of Congressional or administrative authority to incur obligations, whether or not it also carries the authority to make expenditures in payment thereof. 2. A specific form of authority of the kind known as "citation-of-funds" used within the Department of the Army and the Air Force. 3. An administrative subdivision of an allotment authorizing the incurrence of obligations within a specified amount against the allotment without further recourse to the office which granted the authority. The official records of obligations and disbursement under the obligation authority are maintained on the allotment ledger of the office which granted the authority. (Project 60)

AUTHORITY, OBLIGATIONAL - 1. An authorization by Act of Congress to procure goods and services within a specified amount, either by appropriation or otherwise, such as by unfinanced contract authorization. 2. The administrative extension of such authority, as by apportionment or funding. 3. The amount of authority so granted. (Project 60)

AUTHORITY, SOURCE SELECTION - The Authority (e.g., activity-project manager, etc.) designated in the document approving CD initiation, which determines the "source" (contractor) that will be employed for Phase II of the CD program. (DOD 4105.62)

AUTHORIZATION, BUDGET - An administrative action, normally within the chain of command or management, approving an operating budget for use in execution of a program or programs, subject to such limitations as may be established in connection therewith. May be separate from, although related to, "funding." Would be the same as funding when all costs covered by an operating budget are funded. (Project 60)

AUTOMATIC DATA PROCESSING (ADP) - The processing (classifying, sorting, calculating, summarizing, recording, printing) of data through the use of electronic digital computers, communications channels and devices used with such computers, and associated peripheral equipment. Includes preparation of source data in form appropriate for such processing. (DOD 5000.8)

AUTOMATIC DATA PROCESSING EQUIPMENT (ADPE) - Electronic digital computers, communications equipment, and devices used with such computers, and associated peripheral equipment. This also includes transcription and transmission devices that are designed especially for producing media for mass data producing. (Project 60)

AUTOMATIC DATA PROCESSING SYSTEMS (ADPS) - The equipment, personnel, programs, and application operations involved in the utilization of electronic data processing equipment (along with associated electric accounting machines) to solve business and logistics data-processing problems, with a minimum of human intervention. (Project 60)

AUTOMATIC DATA PROCESSING AUXILIARY EQUIPMENT - Equipment related in function to "automatic data processing equipment," other than "peripheral equipment," and whose use is not exclusively and directly used with an ADP System; and when it is so used, it supports the system in off-line operations, such as card-punching equipment and paper-tape preparing equipment. (Project 60)

-B-

BASE (SHORE STATION) SYSTEM - The complete entity of a shore station or base including the devices, equipage, buildings and grounds required to make the station operational. (BUSHIPS 5430.38)

(BOA) BASIC ORDERING AGREEMENT - An instrument of understanding (not a contract) executed between a procuring activity and a contractor which sets forth negotiated contract clauses which will be applicable to future procurements entered into between the parties during the term of the agreement. It includes as specific as possible a description of the supplies or services and a description of the method for determination of prices. (ASPR 3-410.2)

BOARD, NAVY RESEARCH AND DEVELOPMENT REVIEW - A board whose membership is made up of the Directors of the several CNO Warfare Divisions, and Chief of Naval Research with DCNO (Development) as chairman. (NAVSHIPS 250-331-1)

BOOKS, PROGRAM STATUS - Ready references to the most pertinent current data on each project covered by TDP. Made available to top RDT&E management personnel. (RDT&E Guide 0623)

BREAKOUT - A program that provides for the systematic analysis of high value equipment or systems, to determine whether competitive procurement of major components by the government (or prime contractor) is feasible. (BUWEPS 5200.25)

BUDGET - 1. A planned program for a fiscal period in terms of a. estimated costs, obligations and expenditures. b. Source of funds for financing, including reimbursements anticipated and other resources to be applied, and c. explanatory and workload data on the projected programs and activities. 2. To prepare such a program. (Project 60)

-C-

CALL, PROGRAM - Each year, the Navy Comptroller issues a notice containing guidance for the preparation of the initial budget estimates for all appropriations. Based on this general format and fiscal guidance from NAVCOMPT and the Annual Program Objectives, the Assistant Secretary of the Navy (R&D) in collaboration with DCNO (Development) will prepare and issue the call letter to all Developing Agencies which will provide detailed instructions as to format and overall fiscal levels for the preparation and submission of the RDT&E program for review by the CNO. (NAVSHIPS 250-331-1)

CARD, RDT&E PROJECT (DD FORM 613) - A description of the requirement or justification for the project, the problem areas, the approach to be taken, past progress, and future plans, including a list of Sub-projects. (NAVSHIPS 250-331-1)

CARRY-OVERS - The language for the RDT&E(N) Appropriation Act provides that funds authorized will remain available until expended. Thus, funds which remain unobligated at the end of one fiscal year may be carried forward for obligation in the succeeding fiscal year; these unobligated balances are also called "Carryover funds." These unobligated balances may not represent free assets, but in general are funds which are programmed to specific projects and for various reasons did not get obligated prior

to the end of the fiscal year. Some factors leading to these unobligated balances are difficulties in program definition, difficulties in contract negotiation, reprogramming actions, price redeterminations and/or contract renegotiations, late engineering changes, etc. (Original)

CATEGORIES, PROGRAM COST - 1. Research and Development—those program costs primarily associated with research and development efforts including the development of a new or improved capability to the point where it is ready for operational use. These costs include equipment costs funded under the RDT&E appropriations and related Military Construction appropriation costs. They exclude costs which appear in the Military Personnel, Operation and Maintenance and Procurement appropriations. 2. Investment—those program costs required beyond the development phase to introduce into operational use a new capability, to procure initial, additional or replacement equipment for operational forces or to provide for major modifications of an existing capability. They include procurement appropriation costs except those associated with the operating category defined below, and all Military Construction appropriation costs except those associated with research and development. They exclude RDT&E Military Personnel and Operational and Maintenance appropriation costs. 3. Operating—those program costs necessary to operate and maintain the capability. These costs include Military Personnel, Operation and Maintenance and recurring Procurement appropriation costs (such as replenishment spares). They exclude RDT&E and Military Construction Appropriation costs. (DOD 7045.1)

CHANGE, ENGINEERING - The term includes all changes in the physical characteristics of an item when reflected in the design, plans, or specifications for the item. (Project 60)

CHANNEL, TECHNICAL - Direct communication channel used to handle routing of technical reports and instructions. (Project 60)

CHARACTERISTICS, CLASSIFICATION OF - The enumeration of characteristics of the unit product classified according to their importance. Characteristics shall normally be grouped into classes of critical, major, or minor; however, characteristics may be grouped into other classes if applicable. (Project 60)

CHARACTERISTICS, QUALITY CONFORMANCE - Those properties of a unit of product that may be evaluated to the specific requirements of a drawing, specification, model, or other standard. (Project 60)

CHARTER, PROJECT - The official document promulgated by the chartering authority establishing the Designated Project and appointing an individual by name as the Project Manager defining his authority and responsibility, to gether with limitations, if any. The Charter includes the resources, program elements and parts thereof, and facilities and manpower available to the Project Manager and approved for the project. The charter also specifies the interfaces with other Designated Projects or non-designated projects and described the operating relationships between the Project Manager and other participating organizations concerned with or involved in the Project. (NAVMAT 5000.5A)

(CIV-M-MARP) CIVILIAN MOBILIZATION MANPOWER ALLOCATION/REQUIREMENTS PLAN - A component part of the Navy Support Plan, but issued under separate cover. This component contains the phased civilian manpower mobilization requirements for each existing and proposed activity of the Department of the Navy for the one-year period of the plan. (OPNAV 5000.19E)

(CIP) CLASS IMPROVEMENT PLAN - A summary to provide for the homogeneous improvement of any single ship class of those uncompleted projects and new improvement items affecting military characteristics. It requires approval by the Chief of Naval Operations after recommendation by the Ship Characteristics Board. Each class of ships has its own Class Improvement Plan. (OPNAV 4720.2)

CLASSIFICATION, DEFENSE SECURITY - A category or grade assigned to defense information or material which denotes the degree of danger to national security that would result from its unauthorized disclosure and for which standards in handling, storage, and dissemination have been established. These categories are defined as follows: Confidential—Defense information or material, the unauthorized disclosure of which could be prejudicial to the defense interests of the Nation. Secret—Defense information or material, the unauthorized disclosure of which could result in serious damage to the Nation, such as by jeopardizing the international relations of the United States, endangering the effectiveness of a program or policy of vital importance to the national defense, or compromising important military or defense plans, scientific or technological developments important to national defense, or information revealing important intelligence operations.

Top Secret—Defense information or material which requires the highest degree of protection. The top secret classification shall be applied only to that information or material, the defense aspect of which is paramount, and the unauthorized disclosure of which could result in exceptionally grave diplomatic relations affecting the defense of the United States, an armed attack against the U.S. or its allies, a war, or the compromise of defense classification of military or defense plans, or intelligence operations, or scientific or technological developments vital to the national defense. (Project 60)

CLASSIFICATION, OBJECT - In fiscal usage, the classification of an obligation, expenditure, or disbursement in terms of the services received or the articles obtained, rather than in terms of the purpose served or the activities carried out. (Project 60)

CODE - A system of numbering, or otherwise designating accounts, vouchers, and other documents in such manner that the symbols used will facilitate classification, tabulation or analysis. (Project 60)

CODE (FISCAL), BUDGET - A tabulation of "budget accounts" including account numbers. (DOD 5000.8)

CODING, SOURCE - The assignment, at the time of provisioning, of codes made up of letters, or combinations of letters and numerals, to each item to indicate to a consumer the source, i.e., supply system, manufacturing, next higher assembly, etc., for an item required for the maintenance or repair of an equipment. The code may include an indication of the maintenance echelon capable of manufacturing or testing an item prior to installation, the maintenance echelon capable of installing the item in an equipment, and/or the recoverability status (if any) of an item. (SECNAV 4423.2A)

COGNIZANCE, MANAGEMENT - The responsibility for complete management direction, and coordination and application of technical direction of a system or program in achieving an objective. Management cognizance does not necessarily imply that the management cognizant agency performs all the functions involved in the responsibility. (BUSHIPS 5430.38)

COGNIZANCE, TECHNICAL - The responsibility for research, design, development, test, technical evaluation, production or construction of equipment, assemblies and parts. It includes responsibility for providing engineering services in specialty areas and criteria for installation, alteration, maintenance, repair, overhaul, and material effectiveness of material and equipment. It also includes the responsibility for applied technical direction. (BUSHIPS 5430.38)

COMMAND, CHAIN OF - The succession of commanding officers from a superior to a subordinate through which command is exercised. Also called "command channel." (Project 60)

COMMAND, OPERATIONAL CHAIN OF - The chain of command established for a particular operation or series of continuing operations. (Project 60)

COMMITMENT - A firm administrative reservation of funds, based upon firm procurement directives, orders, requisitions, or requests which authorize the creation of an obligation without further recourse to the official responsible for certifying the availability of funds. Differs from term used in business, where it means a contract or other legal obligation for goods or services to be furnished. (Project 60)

COMPUTER, ELECTRONIC DIGITAL - A machine which uses electronic circuitry in the main computing element to perform arithmetic and logical operations on digital data (i.e., data represented by numbers or alphabetic symbols) automatically, by means of an internally stored program of machine instructions. Such devices are distinguished from calculators on which the sequence of instructions is externally stored and is impressed manually (desk calculators) or from tape or cards (card programmed calculators). (Project 60)

(CF) CONCEPT FORMULATION - Describes the activities preceding a decision to carry out Engineering Development. These activities include accomplishment of comprehensive system studies and experimental hardware efforts under Exploratory and Advanced Development, and are prerequisite to a decision to carry out Engineering Development. (DOD 3200.9)

CONSTRUCTION - Construction means construction, alteration or repair (including dredging, excavating and painting) of buildings, structures or other real property. For purpose of this definition, the terms "buildings, structures or other real property" include, but are not limited to, buildings, structures and improvements of all types, such as bridges, dams, plants, highways, parkways, streets, subways, tunnels, sewers, mains, power lines, pumping stations, railways, airport facilities, terminals, docks, piers, wharves, ways, lighthouses, buoys, jetties, breakwaters, levees, canals, and channels. (Project 60)

CONTRACT, CLASSIFIED - Any contract that requires or will require access to classified information by the contractor or his employees in the performance of the contract. A contract may be classified even though the contract document itself is not classified. (Project 60)

CONTRACT, COST - 1. A contract which provides for payment to the contractor of allowable costs, to the extent prescribed in the contract, incurred in performance of the contract. 2. A cost-reimbursement type contract under which the contractor receives no fee. (Project 60)

CONTRACT, COST-PLUS-INCENTIVE-FEE (CPIF) - A cost-reimbursement type contract with provision for a fee which is adjusted by formula in accordance with the relationship which total allowable costs bear to target costs. The provision for increase or decrease in the fee, depending upon allowable costs of contract performance, is designed as an incentive to the contractor to increase the efficiency of performance. (Project 60)

CONTRACT, COST-PLUS-A-PERCENTAGE-OF-COST - A form of contract formerly used, but now illegal for use by the military departments, which provided for a fee or profit at a specified percentage of the contractor's actual cost of accomplishing the work to be performed. Sometimes referred to as a "cost-plus" or "percentage-of-cost" contract. (Project 60)

CONTRACT, COST-REIMBURSEMENT TYPE - 1. A type of contract which provides for payment to the contractor of allowable costs incurred in the performance of the contract, to the extent prescribed in the contract. This type of contract, establishes an estimate of total cost for the purpose of obligation of funds and establishing a ceiling which the contractor may not exceed (except at his own risk) without prior approval of subsequent ratification of the contracting officers. 2. Cost-reimbursement contracts include the following types: a. cost contracts; b. cost-sharing contracts; c. CPFF contracts; d. CPIF contracts; e. facility (with limitations). (Project 60)

CONTRACT, COST SHARING - A cost-reimbursement type contract under which the contractor receives no fee but is reimbursed only for an agreed portion of its allowable costs. (Project 60)

(CD) CONTRACT DEFINITION - Is a formal procedure preceding full-scale development. During Contract Definition preliminary engineering and contract and management planning are accomplished in order to arrive at realistic design characteristics, cost estimates, schedule estimates, definition of high risk areas, as well as definition of system interfaces and management responsibilities. The ultimate objective of Contract Definition is to permit firm fixed price or a fully structured incentive contract. (GPNAV 3900.8C)

CONTRACT, FIRM FIXED-PRICE (FFP) - A contract which provides for a price which is not subject to any adjustment by reason of the cost experience of the contractor in the performance of the contract. It is used for contracts awarded after formal advertising; also used in negotiated contracts when reasonably definite specifications are available and costs can be estimated with reasonable accuracy to enable the negotiation of a fair price. Sometimes referred to as "lump-sum" contract in the area of construction of facilities. (Project 60)

CONTRACT, FIXED-PRICE - A type of contract which generally provides for a firm price, or under appropriate circumstances may provide for an adjustable price, for the supplies or services which are being procured. Fixed price contracts are of several types so designed to facilitate proper pricing under varying circumstances. For various types see "firm-fixed price contract," "fixed-price with escalation contract," "fixed-price contract providing for the redetermination of price," and "fixed-price-incentive contract." (Project 60)

CONTRACT, FIXED-PRICE-INCENTIVE (FPI) - A fixed-price type of contract with provisions for the adjustment of profit and price by a formula based on the relationship which final negotiated total cost bears to negotiated target cost. (Project 60)

CONTRACT, FIXED-PRICE PROVIDING FOR THE REDETERMINATION OF PRICE (FPR) - A fixed-price type contract which contains provisions for the subsequent negotiated adjustment, in whole or in part, of the initially negotiated (base) price. Depending on the contract provisions adjustments may be made at a stated time, at stated intervals, on request of either party, or upon completion of the contract. This type of contract is used to assure the government the benefit of reduced costs of performance, and in some instances, to the contractor the recovery in whole or in part of increased costs, and to obtain reasonable prices whenever contingency charges otherwise would be included in a contract price due to such factors as prolonged delivery schedules, unstable market conditions for material or labor, lack of definite specifications, or uncertainty as to cost of performance. (Project 60)

CONTRACT, FIXED-PRICE WITH ESCALATION - A fixed-price type contract which provides for the upward and downward revision of the stated contract price upon the occurrence of certain contingencies (such as fluctuations in the material prices and labor rates) which are specifically defined in the contract. (Project 60)

CONTRACT, INCENTIVE TYPE - The incentive type contract may be of either a fixed-price or cost-reimbursement nature, with a special provision for adjustment of the fixed price or fee. It provides for a tentative target price and a maximum price or maximum fee, with price or fee adjustment after completion of the contract for the purpose of establishing a final price or fee based on the contractor's actual costs plus a sliding scale of profit or fee which varies inversely with the cost but which in no event shall permit the final price or fee to exceed the maximum price or fee stated in the contract. (Project 60)

CONTRACT, INDEFINITE DELIVERY TYPE - A type of contract used for procurement where the exact time of delivery is not known at the time of contracting. Contracts of this type may be as follows: 1. Definite quantity contract. This type provides for a definite quantity of specified supplies or for the performance of specified services for a fixed period, with deliveries or performance at designated locations upon order. 2. Requirements contract. This type provides for filling all actual purchase requirements of specific supplies or services of designated activities during a specified contract period with deliveries to be scheduled by the timely placement of orders upon the contractor by activities designated either specifically or by class. 3. Indefinite quantity contract. This type provides for the furnishing of an indefinite quantity, within stated limits, of specific supplies or services, during a specified contract period, with deliveries to be scheduled by the timely placement of orders upon the contractor by activities designated either specifically or by class. These types of contracts are sometimes referred to as call or open-end contracts. (Project 60)

CONTRACT, LETTER - A written preliminary contractual instrument which authorized immediate commencement of manufacture of supplies, or performance of services, including preproduction planning and the procurement of necessary materials. It is used when negotiation of a definite contract in sufficient time to meet the procurement need is not possible, as, for example, when the nature of the work involved prevents the preparation of definite requirements, specifications, or cost data. It must specify the maximum liability of the Government and be superseded by a definite contract within a specified time. Sometimes called "letter of intent." (Project 60)

CONTRACT, NEGOTIATED - One obtained by direct agreement with a contractor, without formal advertising for bids, but after soliciting price quotations from qualified sources. (Project 60)

CONTRACT, PRIME - From DOD standpoint, any contract entered into directly by any Military Department or procuring activity of the Department of Defense. (Project 60)

CONTRACT, RESEARCH AND DEVELOPMENT - A contract for experimental development or research work. (Project 60)

CONTRACT, TASK TYPE - A master contract for research and development work, consisting of two parts, one of which sets forth general provisions and the other of which is represented by one or more task orders issued thereunder. (Project 60)

CONTRACTOR - An individual or organization outside the Department of Defense which has accepted any type of agreement or order for providing supplies or services under procedures established by the Armed Services Procurement Regulation. The term specifically includes both a prime contractor and a subcontractor. (SECNAV 3900.24A)

CONTRACTOR, PRIME - A contractor who enters into a contract with an agency of the Government to produce, assemble, and deliver specific items of material or perform services in accordance with the requirements of the agency. (Project 60)

CONTROL - 1. The act or power of asserting authority especially in pursuance of a specific plan of action. 2. Superintendence or guidance. 3. The act of evaluating, through the use of reports or records or by inspection of operations, current performance of assigned responsibilities as compared with planned objectives or established standards. The term includes, when such evaluation shows unsatisfactory performance, the action taken for purposes of correction. Note: When conjoined with other terms, the work may take on a much narrower meaning, e.g., control account, accounting control, report control, form control. (Project 60)

CONTROL, BUDGETARY - The financial control or management of a unit or function in accordance with an approved budget with a view of

keeping expenditures or costs within the limitations thereof. Includes control of commitments and obligations preceding costs. (Project 60)

CONTROL, COMMAND - Control exercised by authority, commensurate with rank or position of such authority, over subordinates, or subordinate organizations, in all matters pertaining to, and which are the responsibility of that authority. (Project 60)

CONTROL, COORDINATION - Control exercised by an authority over separate units, organizations, operations, etc., to insure integrated and harmonious relationships between such separate elements in accomplishment of a common objective. (Project 60)

CONTROL, MANAGEMENT - Control exercised by an authority, in other than military matters, in the administration and supervision of organizational units or operations under its responsibility. (Project 60)

CONTROL, MILITARY - Control exercised by an authority over an assigned responsibility limited in scope to military matters only. When circumstances dictate, military control may extend to all other matters. (Project 60)

CONTROL, OPERATIONAL - Those functions of command involving the composition of subordinate forces, assignment of tasks, designation of objectives, and authoritative direction necessary to accomplish the mission. Operational control should be exercised by use of assigned normal organizational units through their responsible commanders or through commanders of subordinate forces established by the commander exercising operational control. It does not include such matters as administration, discipline, internal organization and unit training, except on request. (Project 60)

CONTROL, TECHNICAL - Guidance by an authority over an assigned responsibility limited in scope to the specialized or professional aspects inherent therein. (A Navy term frequently found useful throughout the Department of Defense). (Project 60)

COORDINATION - To bring into common action. It implies that activities concerned with a problem or proposed action are advised of the situation and provided an opportunity to indicate capability and problem areas. BUSHIPS 5430.38)

COORDINATION, MANAGEMENT - The responsibility for guiding, coordinating, monitoring, evaluating, reporting, and settling of problems encountered in the planning, funding, and implementation of plans and programs. (BUWEPS 5430.1A)

COORDINATION WITH - In consulation with. This expression means that agencies coordinated with shall participate actively; their concurrence shall be sought; and if concurrence is not obtained, the disputed matter shall be referred to the next higher authority in which all participants have a voice. (Project 60)

COST, ESTIMATED - 1. A calculated amount, as distinguished from an actual outlay, based upon related cost experience, prevailing wages and prices, or anticipated future conditions, usually for the purposes of contract negotiation, budgetary or cost control, or replenishment. May relate to a material item, project, job, contract, or function, or part thereof. 2. The amount stated in a cost-type contract as the estimated cost thereof. (Project 60)

COSTS, INVESTMENT - The program element costs required beyond the development phase to introduce a new capability into operational use including military construction projects not related to development, and nonrecurring procurement costs. (BUWEPS 5200.25)

COSTS, OPERATING - The recurring program element costs required to operate and maintain the capability. Include Military Personnel, Operation and Maintenance, and recurring Procurement appropriation. (BUWEPS 5200.25)

COST, PERT - Utilizes the network structure as the common reference for estimating and controlling the cost as well as the schedule of the program. This feature permits more complete measurement of progress and enables managers to appraise more realistically the consequences of alternative courses of action. (Pert Guide for Management Use)

COST, PROGRAM (DOD PROGRAMMING SYSTEM) - The estimate of Total Obligational Authority (TOA) required. (DOD 7045.1)

COST, PROGRAM ELEMENT - The total cost of a program element. Breaks down into three categories: 1. Research and development. 2. Investment. 3. Operating. (BUWEPS 5200.25)

COUNCIL, ARMED SERVICES PROCUREMENT PLANNING OFFICER (ASPPO) - Regional groups, composed of the local ASPPO's and representatives of other Federal Government agencies with mobilization planning functions, organized to provide a forum for the resolution

of conflicting procedures among the several field offices in the conduct of planning programs, to provide a direct line of communication between the Program Monitor in OASD (I&L) and the operational people in the field, and to coordinate planning activities of the several Government programs in the field of mobilization planning. (Project 60)

-D-

DATA, ENGINEERING - Consists of documents such as specifications, drawings, standards, lists, or other technical information relating to the design, manufacture, procurement, test, or inspection, operation and maintenance of a product or service. (Project 60)

DATA, PROVISIONING TECHNICAL - Those data required of a contractor by an activity of the Department of the Navy which are used during the provisioning process for the identification of items, cataloging, determination of requirements, and contractual formalization of items to be procured. (SECNAV 4423.2A)

DATA, RESTRICTED - All information designated as being "restricted data" within the meaning of Public Law 703, 83rd Congress (atomic Energy Act of 1954), including all documents and other material of such designation which bear the following markings in addition to their classified markings: "Restricted Data, Atomic Energy Act of 1954." (Project 60)

DATA, TECHNICAL - A broad coverage of information pertaining to the arts, sciences, or professions. Essentially the same as "engineering data" but in a broader sense. (Project 60)

DATA COMMUNICATIONS - The electronic or electrical transfer of data from one place to another and such translation as is necessary to make the data acceptable at its destination. (Project 60)

DATA PROCESSING EQUIPMENT (DPE) - A general term which embraces the class of equipment designed especially for mass processing of data. It also includes transcription and transmission devices that are designed especially for producing media for mass data processing (such as punch cards, paper, or magnetic tapes). This term does not include the class of office equipment used primarily for document creation, document posting, or individual computations such as typewriters, bookkeeping machines, adding machines, or calculators (desk size). (Project 60)

DATA TRANSMISSION - The transfer by electronic or electrical means of data outside the data processing installation (DPI) or between data processing installations. (Project 60)

DEFECT, CRITICAL - A defect that judgment and experience indicate could result in hazardous or unsafe conditions for individuals using or maintaining the product; or, for major end item units of product such as ships, aircraft, or tanks, a defect that could prevent performance of their tactical function. (Project 60)

DEFECTS, CLASSIFICATION OF - The enumeration of possible defects of the unit of product classified according to their importance. Defects shall normally be grouped into the classes of critical, major, or minor defects; however, defects may be grouped into other classes if applicable. (Project 60)

DEMONSTRATIONS - Trials required under some weapon system prime contracts, wherein the contractor establishes that the equipment can be safety operated by Navy personnel, and to demonstrate conformance with specifications and contract requirements. (BUWEPS 5200.25)

(DNFYP) DEPARTMENT OF THE NAVY FIVE-YEAR PROGRAM - The Departmental portion of the DOD FYDP and constitutes the Secretary of Defense approved program for the Department of the Navy. It covers funding for all Navy programs prior, current, and succeeding five fiscal years, and force levels for an additional three years. The DNFYP is issued at least twice a year (normally Oct. & Jan.), at such other times as the Secretary of Defense may direct, or as the Director, NDPIC, may deem essential as a result of accumulated changes. Minor updates are normally issued monthly to reflect previous month decisions. (OPNAV 5000.19E)

(D&F) DETERMINATION AND FINDINGS - A document which justifies the use of the authority to enter into contracts by negotiation. Normally it is made only with respect to individual purchases or contracts, but it can be used for a specified period to authorize negotiation of two or more contracts for supplies or services of same or related types. (ASPR 3-301)

DEVELOPMENT, ADVANCED - A category of RDT&E effort. Includes all projects which have moved into the development of hardware for experimental or operational test. It is characterized by line item projects and program control is exercised on a project basis. A further descriptive characteristic lies in the design of

such items being directed toward hardware for test or experimentation as opposed to items designed and engineered for eventual service use. (OPNAV 3900.8C)

DEVELOPMENT, ENGINEERING - A category of RDT&E effort. Includes those development programs being engineered for service use but which have not yet been approved for procurement or operation. This area is characterized by major line item projects and program control will be exercised by review of individual projects. (OPNAV 3900.8C)

DEVELOPMENT, EXPLORATORY - Includes all effort directed toward the solution of specific military problems, short of major development projects. This type of effort may vary from fairly fundamental applied research to quite sophisticated bread-board hardware, study, programming and planning efforts. It would thus include studies, investigations and minor development effort. The dominant characteristic of this category of effort is that it be pointed toward specific military problem areas with a view toward developing and evaluating the feasibility and practicability of proposed solutions and determining their parameters. Small hardware items for Fleet use are usually developed in the Exploratory Development program and do not go through the Advanced Development and Engineering Development stages. (OPNAV 3900.8C)

DEVELOPMENT, OPERATIONAL SYSTEM - Includes research and development effort directed toward development, engineering and test of systems, support programs, vehicles and weapons that have been approved for production and Service employment. This area is included for convenience in considering all RDT&E projects. All items in this area are major line item projects which appear as RDT&E Costs of Weapons Systems Elements in other Programs. Program control will thus be exercised by review of the individual research and development effort in each Weapon System element. (DOD 3200.6)

DIRECTION, APPLIED TECHNICAL - The exercise of technical decision by an organization having technical cognizance. (BUSHIPS 5430.38)

DIRECTION, COORDINATED TECHNICAL - The exercise of technical responsibilities by a management cognizant bureau/office or its designated agent. It shall include the provision of technical requirements for work assigned, overall technical evaluation of work performed and making overall decisions to meet technical aspects of program, system or project requirements. (BUSHIPS 5430.38)

DIRECTION, MANAGEMENT - The exercise of management authority and responsibility for the performance of work relative to system, equipment or facility development. Management direction shall include the development of programs for accomplishing work, provision of time schedules, budgeting and funding when applicable or as required, assignment of reporting requirements for tasks delegated, evaluation of performance against workload requirements and making necessary management decisions to meet program system or project requirements. An organization applying management direction may be a lead bureau, a developing agency, or a management control bureau/office. (BUSHIPS 5430.38)

DIRECTION, TECHNICAL - Generally the specialized or professional service performed, or professional guidance or direction exercised through promulgation of policies and procedures in technical matters by an organization in accordance with its assigned mission. (BUSHIPS 5430.38)

DIRECTIVE - 1. A military communication in which a policy is established or a specific action is ordered. 2. A plan issued with a view to placing it in effect when so directed, or in the event that a stated contingency arises. 3. Broadly speaking, any communication which initiates or governs action, conduct, or procedure. (Project 60)

DIRECTOR, PROJECT IMPLEMENTATION - Responsible for implementing the production/construction phase of a program, system or project in accordance with plans, specifications and requirements provided by the Project Technical Director. He will coordinate the technical skills and services of bureaus, offices and contractors to meet overall production/construction requirements. (BUSHIPS 5430.38)

DOCUMENT - All types of formally recorded scientific and technical results from DOD research, development, test, and evaluation (SECNAV 3900.24A)

DOWNGRADE - To assign a lower security classification than that previously assigned. (Project 60)

(DPM) DRAFT PRESIDENTIAL MEMORANDUM - The Final Draft Memorandum which reflects the Secretary of Defense's final decisions on force levels and MFIs reflected in his IDPMs as influenced by Service and JCS comments. (OPNAV 5000.19E)

DRAWING, ENGINEERING - A dimensionally verifiable engineering delineation setting forth pictorial or descriptive language representations, or combination thereof. The engineering drawing reveals engineering information which may be used for construction, evaluation, inspection, identification, maintenance and manufacture. (Project 60)

-E-

(EPP-FY) EFFECTIVE PROGRAM PROJECTIONS - The Department of Navy programs contained in the latest Five-year Defense Program. Contains the current budget and the budget and the budgets of the ensuing four fiscal years. (BUWEPS 5200.25)

EFFECTIVENESS, SYSTEM - A measure of the extent to which a system can be expected to complete its assigned mission within an established time frame under stated environmental conditions. (RDT&E Guide 0741)

ELEMENT, MEMORANDUM NON-ADD PROGRAM - A portion of a program element or aggregation separately displayed for information purposes. (DOD 7045.1)

ELEMENT, PROGRAM - An integrated activity; an identifiable military capability; a force, support activity, research activity, etc., comprising a combination of men, equipment and facilities. (DOD 7045.1)

(EPS) ENGINEERED PERFORMANCE STANDARDS - Those performance standards which have been developed or engineered to the extent that the standard represents a "should take" time rather than a "did take" time. They are usually stated in terms of man-hours, minutes, or days per work unit; or work-units per time period. EPS are developed through the use of the methods analyses procedures, the exclusion of lost time, and/or the application of techniques which provide for adjusting the actual time to represent a normal work pace. The development of EPS makes use of the procedures of time study and predetermined time systems. The degree or amount of engineering and adjusting to a "should take" time depends upon the accuracy and the validity required in the applications or uses made of the standards. Adequate time allowances to provide for the worker's personal needs and fatigue are included in the EPS. Engineered-type performance standards are characterized by the inherent methods improvement and/or adjustment to a normal work pace employed in their development. (SECNAV 5220.5)

ENGINEERING - The application of scientific knowledge directed toward the utilizing of products of earth, properties of matter, sources of power in nature, and physical forces for supplying human needs in the form of products. (Project 60)

(ECP) ENGINEERING CHANGE PROPOSAL - A proposal submitted by the contractor to the procuring activity in accordance with contractual specifications, ANA Bulletin 390a, 391a, or 445, as applicable. The purpose of the ECP is to furnish information relative to a proposed engineering change in order to permit a preliminary evaluation of the change. Changes meriting further formal consideration are submitted to the IBCC by IBCC Change Request. (BUWEPS 5200.25)

ENGINEERING, MANAGEMENT - Analysis of organization, functions, procedures, systems and methods, to include management improvement, work simplification and work measurement programs. This field of specialization combines the exactness of science with the art of judgment to develop managerial tools, techniques, procedures, and methods which, when applied by a manager, will help to achieve more effective operations. (Project 60)

ENGINEERING, VALUE - An organized effort of intensive appraisal of an item and its components including specifications and operating requirements to achieve the necessary performance, maintainability and reliability at minimum cost. (SECNAV 4858.2)

EQUIPMENT, GENERAL PURPOSE ELECTRONIC TEST - That test equipment which measures a range of parameters of electronic functions common to two or more equipments or systems of basically different design. (BUSHIPS 5430.38)

EQUIPMENT, SPECIAL PURPOSE TEST - That test equipment which is built into or associated with a major equipment or system and which measures parameters of electronic functions specific or peculiar to that major equipment or system. This equipment is usually

used for the purpose of determining operational readiness of the major equipment or system. (BUSHIPS 5430.38)

ESTIMATE, BUDGET - An amount estimated for any element included in a budget. (Project 60)

ESTIMATES, CALL FOR - Instructions issued to prepare and submit budget estimates and estimated fund requirements for the budget year. (DOD 5000.8)

EVALUATION - An evaluation is an appraisal of a weapon or support system component, equipment or material resulting from research and/or development, in order to determine its suitability to meet certain specified requirements. (OPNAV 3960.1C)

EVALUATION, CONCURRENT - A concurrent evaluation is the joint test and analysis of a weapons system, support system, component or equipment conducted by the Developing Agency and the Operational Test and Evaluation Force to determine whether the system, component or equipment meets design specifications and specified operational requirements and is suitable for service acceptance. The Developing Agency is responsible for the technical aspect of a concurrent evaluation. The Commander, Operational Test and Evaluation Force is responsible for the operational aspects of a concurrent evaluation. (BUSHIPS 250-331-1)

EVALUATION, LOGISTICAL - A logistical evaluation is an appraisal of the logistics and logistical procedures required by a new weapon or a new application of an existing weapon with respect to personnel equipment, spare parts, tools, instruction manuals and handling gear, in order to assess the adequacy of the foregoing for provision of either prototype or war reserve items. (NAVSHIPS 250-331-1)

EVALUATION, MONTHLY PROJECT (MPE) - The MPE is a monthly report submitted to CNO by the office with the responsibility for a project in advanced, engineering, or operational systems development. It reports the progress of the development as measured against the development plan set forth in the TDP (or DD Form 1498 in TDP - waived projects). (OPNAV 3900.8C)

EVALUATION, TECHNICAL - A technical evaluation is the test and analysis required by a Developing Agency to determine whether a weapon system, support system, component, equipment or material meets design specifications and is technically suitable for operational evaluation or service use. (NAVSHIPS 250-331-1)

EXECUTION - The operation of carrying out the program as contained in the approved budget. (NAVEXOS P2426A)

EXECUTION, BUDGET - The processes involved at every echelon in budgetary administration subsequent to passage of an appropriation act. Includes preparation of operating budgets; apportionments; funding actions; review and approval of operating budgets; the incurring of obligations, costs, and expenditures; fund reporting; review and analysis of variances from approved budget, and initiation of corrective action required as a result of such review. (Project 60)

(EDG) EXPLORATORY DEVELOPMENT GOALS - Developed by the Chief of Naval Development, an EDG sets forth the technical basis for investigations, feasibility studies, experimental effort and minor development required to advance technology in various functional areas. (OPNAV 3900.8C)

-F-

FORCE CHANGE - Any change to the force tables in the OSD published FYDP. This is a limited definition for determining conditions under which force change proposals are to be submitted. (DOD 7045.1)

FORECAST, BUDGET - Estimates prepared before the beginning of a fiscal period, based upon a forecast of the workload of volume of work to be performed. (Appropriation budget estimates employ this method.) Forecast budgets for expenses are distinguished from "flexible budgets." (Project 60)

FORM, DD - A form used by two or more agencies or military departments of the Department of Defense—specifically: 1. a form prescribed by a Department of Defense agency under appropriate authority to be used by two or more military departments or agencies of the Department of Defense; 2. a form adopted for use by two or more military departments or by one or more military departments and one or more agencies of the Department of Defense. (DOD 5000.8)

FORMULATION, BUDGET - The processes of preparation, review, and establishment of the annual budget presented to the Congress as a basis for appropriations. Includes planning and programming. (DOD 5000.8)

FUND, EMERGENCY - The Emergency Fund is a fund made available by the Congress to the Secretary of Defense with funding flexibility. This flexibility is required to fill program gaps, to permit the prompt exploitation of technological breakthroughs, and to handle unexpected developments related to the research and engineering programs of the Department of Defense. (NAVSHIPS 250-331-1)

(FYDP) FIVE-YEAR DEFENSE PROGRAM - The summation of the approved programs of the DOD components. (DOD 7045.1)

-G-

(GOR) GENERAL OPERATIONAL REQUIREMENT - A GOR is a broad statement of objectives and goals for future operational capabilities needed in a major warfare or support area to meet the estimated threat of the 5- to 10-year period. A GOR will delimit the efforts and the area being considered and provide guidance to the developing agencies for the planning and formulation of:

a. The Naval Research Programs
b. The Exploratory Development Programs
c. Proposed Technical Approaches.

(OPNAV 3910.9A)

GOVERNMENT PROPERTY, CLASSIFICATION OF - The terms "classify" and "classification" as used herein with reference to Government property refer to the grouping of property into different categories. Government property shall be classified in five categories: 1. Real Property. Means lands, buildings, structures, improvements and appurtenances thereto. It does not include plant equipment as defined in subparagraph 2 below. 2. Plant Equipment. Means personal property of a capital nature, consisting of machinery, equipment furniture, vehicles, machine tools, and accessory and auxiliary items, but excluding special tooling used or capable of use in the manufacture of supplies or in the performance of services, or for any administrative, or general plant purposes. 3. Minor Plant Equipment. Means an item of plant equipment having a unit value of less than $200 and other plant equipment regardless of cost, when so designated by the government. 4. Material. The term means property which may be incorporated into or attached to, an end item to be delivered under a contract or which may be consumed or expended in the performance of a contract. It includes, but is not limited to, raw and processed material, parts, components, assemblies, and small tools and supplies which may be consumed in normal use in the performance of the contract. 5. Special Tooling. The term means all jigs, dies, fixtures, molds, patterns, special taps, special gauges, special test equipment, other special equipment and manufacturing aids, and replacements thereof, acquired or manufactured by the contractor for use in the performance of the contract, which are of such a specialized nature that without substantial modification or alteration, their use is limited to the production of such supplies of parts thereof, or the performance of such services are peculiar to the needs of the Government. The term does not include: a. items of tooling or equipment acquired by the contractor prior to the contract, or replacements thereof, whether or not altered or adapted for use in the performance of the contract, b. consumable small tools, or c. general or special machine tools, or similar capital items. (Project 60)

GRANTEE - An organization outside the Department of Defense to which grant funds have been awarded, in lieu of a contract, by a sponsoring DOD activity. (DOD 5100.38)

GUIDE, SHIP IMPROVEMENT - A catalogue maintained by the Ship Characteristics Division of all items which come to its attention, or are submitted to it by fleet requirement sponsors, research and development offices, the Board of Inspection and Survey, or the Bureau concerned, for consideration for inclusion in the Class Improvement Plan. (OPNAV 4720.2A)

GUIDELINES, BUDGET - Both general and specific instructions furnished by a higher level as a basis for budget formulation or budget execution. (DOD 5000.8)

-H-

HIGHLIGHTS, RESEARCH AND EXPLORATORY DEVELOPMENT PROGRAM - This report is to keep RDT&E administrators and managers informed as to progress, or lack thereof, towards objectives within the categories of Research and Exploratory Development. These highlights include all significant accomplishments and problems, actual or anticipated, within the approved programs for Research and Exploratory Development. (OPNAV 3900.8C)

-I-

INFORMATION, CLASSIFIED - Official information which requires protection in the interest of rational defense and which is classified for such purpose by appropriate classifying authority. Classified information of the Department of the Army, Navy, and Air Force in the hands

of industry is to be considered and known as classified information of the Department of Defense, and shall be protected as provided for in the "Industrial Security Manual for Safeguarding Classified Information." (Project 60)

(IDPM) INITIAL DRAFT PRESIDENTIAL MEMORANDUM - Reflects the Secretary of Defense's tentative decisions on force levels and all Major Force Issues. The Services and the Joint Chiefs of Staff review, develop and submit comments on the IDPM. (OPNAV 5000.19E)

INSPECTION - The examination (including testing) of supplies and services (including when applicable, raw materials, documents, data. components and intermediate assemblies) to determine whether the supplies and services conform to technical requirements. (ASPR 14-100.1)

INTEGRATION - The achievement of maximum compatibility, interchangeability, and sharing of equipments, assemblies, techniques, all with minimum interference. (BUSHIPS 5430.38)

INTERFACE - 1. The boundary between two media especially as transited by a propagated wave, e.g., the inner surface of the bore of a gun. 2. The boundary, electrical or mechanical, existing between two systems or components. (Project 60)

INTERFERENCE - Any disturbance which causes undesirable response or malfunctioning of electronic equipments. (BUSHIPS 5430.38)

INVESTIGATION, FLEET OPERATIONAL - A Fleet Operational Investigation is an examination or a comparison by the Operating Forces of concepts, procedures, techniques, equipments or material aimed at enhancing fleet readiness and with the concomitant aim of determining the adequacy of the RDT&E program in the area investigated. "Although material improvements may be forthcoming as a result of these investigations, the primary end products are procedures and tactics." (OPNAV 3960.1C)

INVESTIGATION, FLEET RESEARCH - A Fleet Research Investigation is an examination into the military application of natural or special phenomena in the operational environment, as required by a Developing Agency in prosecution of research and for which the Operating Forces provide assistance for the conduct thereof. The Developing Agency is responsible for the planning and conduct of Fleet Research Investigations. (NAVSHIPS 250-331-1)

INVESTMENT - 1. The sum of money or capital employed for a given purpose or in a given area. 2. A security or other property right purchased or otherwise acquired or the cost of acquisition thereof. (DOD 5000.8)

-J-

(JIEP) JOINT INTELLIGENCE ESTIMATE FOR PLANNING - The JIEP provides a principal intelligence basis for the development of the JLRSS, JSOP, and JSCP. It is prepared by the Director, Defense Intelligence Agency and submitted to the Joint Chiefs of Staff for approval. (OPNAV 5000.19E)

(JLRSS) JOINT LONG-RANGE STRATEGIC STUDY - The JLRSS provides the conceptual view of the Joint Chiefs of Staff concerning the utilization of U.S. military power in the long-range period and to provide broad strategic guidance for the development of military policies, plans, programs, and research and development objectives. The effective planning period is for 10 years after Base Date (always 1 July of current fiscal year). (OPNAV 5000.19E)

(JRDOD) JOINT RESEARCH AND DEVELOPMENT OBJECTIVES DOCUMENT - The JRDOD supports the JLRSS and JSOP by:

(1) Translating broad strategic guidance concerning operational requirements into the research and development objectives considered essential to support the strategic concept.

(2) Providing advice to the Secretary of Defense regarding the relative military importance of the research and development effort considered essential to support the strategic concept, the military objectives, and the needs of the commanders of unified and specified commands. (OPNAV 5000.19E)

(JSCP) JOINT STRATEGIC CAPABILITIES PLAN - Provides a statement of military strategy to support national policies and objectives based on capabilities and extends for a one year period (effective on 1 July of current FY). The JSCP constitutes a planning directive to commanders of unified and specified commands for the execution of military tasks assigned therein. (OPNAV 5000.19E)

(JSOP) JOINT STRATEGIC OBJECTIVES PLAN - The JSOP provides the principal military advice of the Joint Chiefs of Staff to the Secretary of Defense for development of the DOD budget, and provides planning guidance to commanders of unified and specified commands and the Services for the mid-range period. (OPNAV 5000.19E)

JUSTIFICATION, BUDGET - The supporting statements and data used to prove the requirement of the amount in a budget estimate. (Project 60)

-L-

LEAD LABORATORY - A Lead Laboratory is a laboratory designated by the Bureau as the laboratory responsible for a "lead area" of effort based upon the developed skills and facilities of that laboratory. The assignment of a lead laboratory does not necessarily mean that the particular laboratory will accomplish all the work in this assigned area. It does mean that all the work in the area will be fully monitored by the Lead Laboratory and that the major portion of the effort will be assigned to that Laboratory. (NAVSHIPS 250-331-1)

LEAD TIME - The length of time before end-item delivery in which an operation must be performed to meet the delivery schedule. (Project 60)

LEAD-TIME, ADMINISTRATIVE - The interval between initiation of procurement action and letting of a contract or placing of an order. (Project 60)

LEAD TIME, PROCUREMENT - The time elapsing between the initiation of procurement action and the receipt into the system of materiel purchased as a result of such actions. Procurement lead time is applicable to materiel to be obtained from any source outside the procuring department or by manufacture within that department and it is composed of three distinct elements: 1. The time elapsing between initiation of procurement action and letting of contract or placing of order (adm. lead time). 2. The time elapsing between letting of contract or placing of order and completion of manufacture. (Production lead time.) 3. The time elapsing between completion of manufacture and receipt of material into the system. (Project 60)

LEAD-TIME, PRODUCTION - The time interval between the placement of a contract and receipt into the supply system of material acquired. (Project 60)

LINE ITEM - 1. A complete descriptive entry on any document, including quantity, unit of issue, stock or part number, and description of the item involved. 2. A row of numerical facts in a tabular presentation. (Project 60)

LINE ITEM (MCON) - A statement of a construction requirement for a facility or a group of similar facilities in terms of a category code number, title, unit of measure, quantity required, estimated cost, description, justification, and so forth. (BUWEPS 5200.25)

(LRO) LONG-RANGE OBJECTIVES - Basic guidance leading to the achievement of balanced long-range (ten to fifteen years hence) ship, aircraft, and weapons goals attainable under specific (self-imposed) fiscal assumptions. Based on the LRR, it is used solely for internal Navy Guidance. (BUWEPS 5200.25)

-M-

(MFI) MAJOR FORCE ISSUES - Issues concerning proposals which, if approved, would have a major effect quantitatively or qualitatively, on military forces. (OPNAV 5000.19E)

MANAGEMENT, CONTRACT - All those actions which are accomplished in the field for the benefit of the Government which are necessary to the performance of a contract or in support of the buying organization. (Project 60)

MANAGEMENT, FINANCIAL - That area of management concerned with planning, administration, and control of use of resources (property as well as funds) in monetary terms. (Project 60)

MANAGEMENT, PROJECT - A concept for the business and technical management of selected projects based on the use of a designated, centralized management authority who is responsible for planning, directing, and controlling the definition, development, acquisition, initial logistic support of weapons systems and execution of project objectives; and for the integration and coordination of planning the scheduled accomplishment by the organizations responsible for the complementary functions of follow-on logistic and maintenance support, preparation of personnel training plans, and preparation for operational testing, in accordance with the Project Charter or official joint agreements with other military departments or other Government agencies and the Project Master Plan. (Activation and deployment of operating elements is a responsibility of the Chief of Naval Operations.) The centralized management authority is supported by functional organizations, which are responsible for the execution of project tasks assigned. (NAVMAT 5000.5A)

MANAGEMENT, REPORTS - Approves or disapproves all locally generated reports and conducts scheduled reviews of these reports to assure that reporting is eliminated when no longer essential to the staff mission. Regulates local reporting, intercommand reporting, and

public reporting. Maintains case files on each locally generated report, those imposed by higher authority, and authorized inter-command reports. (Project 60)

MANAGEMENT, SYSTEM - The direction, evaluation, and control of a specific weapon or equipment/space system from the decision to develop, through the procurement and production phase, to distribution to final destination including "feed-back" from users concerning operational effectiveness. System management also includes the interrelated processes of programming, organizing, coordinating, and evaluating the efforts of subordinate commands and organizations to accomplish systems management objectives. (Project 60)

MANAGER, PROGRAM - The person directly and continuously responsible for coordinating all phases of management of a single program. (BUWEPS 5200.25)

MANAGER, PROJECT - The individual who is responsible for the successful management techniques within well-defined boundaries of time, resources and performance requirements, and who has the necessary authority and resources for executing the approved Designated Project Plan. Within the NMSE the title Project Manager is used only with relation to the head of a Designated Project. The term Program Manager is not used in this connection. (NAVMAT 5000.5A)

MARK-UP, BUDGET - Revision of a budget in detail, at a review level, based on consideration of policies, programs, scheduling, cost factors, and other pertinent data, as a basis for approval or obligation authorization. (DOD 5000.8)

MATERIAL, BILL OF - A descriptive and quantitative listing of materials, supplies, parts and components required to produce a designated complete end item of material or assembly or subassembly, to overhaul or repair such an item, or to construct or repair a structure or facility item. May also show estimated costs. (DOD 5000.8)

MATERIEL, CRITICAL - Those supplies and equipment vital to the support of operations, which owing to various causes are: 1. Not available in sufficient quantity to meet existing requirements. 2. Not anticipated to be available in sufficient quantity to meet future or planned requirements. (Project 60)

(MRO) MID-RANGE OBJECTIVES - MRO serves the dual purpose of deriving quantitative force structure goals and of advancing new concepts and technology by providing guidance for updating of operational requirements and advanced development objectives. MRO is a further quantitative basis for research and development guidance leading to the annual updating of General Operational Requirements (GOR). (OPNAV 5000.19E)

MILESTONES - Recognizable points in time at which specific tasks or activities (major or minor) start or end. (BUWEPS 5200.25)

(MIP) MILITARY IMPROVEMENT PLAN - An annual compilation which establishes a priority order for and implements and controls in an orderly manner the accomplishment of and budgeting for alterations selected from items contained in Class Improvement Plans for active ships. (OPNAV 4720.2A)

(MIPR) MILITARY INTER-DEPARTMENTAL PURCHASE REQUEST - A procurement order issued by one military service or another military service to procure, produce, or deliver services, supplies, or equipment to or for the ordering service. (Project 60)

(MOBCON) MOBILIZATION CONSTRUCTION PLAN - Based upon and considered a supplement to the Navy Support Plan, but issued under separate cover. This component lists the total construction required to support the operating forces in the event of general or partial mobilization in the current year. (OPNAV 5000.19E)

(M-MARP) MOBILIZATION MANPOWER ALLOCATION/REQUIREMENTS PLAN - A component part of the Navy Support Plan, but is issued under separate cover. This plan contains the authorized phased mobilization allocations of Navy officer and enlisted manpower for each existing and proposed activity of the Department of the Navy for the one-year period of the plan. (OPNAV 5000.19E)

MODIFICATION, CONTRACT - Any written alteration in the specification, delivery point, rate of delivery, contract period, price, quantity, or other contract provisions of an existing contract, whether accomplished by unilateral action in accordance with a contract provision, or by mutual action of the parties to the contract. It includes bilateral actions such as supplemental agreements and amendments, and unilateral actions such as change orders, notices of termination, and notices of the exercises of a contract option. (Project 60)

MONITOR - 1. To exercise general surveillance, over a project, program, operation, or the like, in order to assure coordination and observance of command policy without exercising, however, direct supervision or direct control. 2. To listen in on, or to observe a lecture, briefing, telephone call, radio message, classroom or field exercise, exhibition, or other performance, with the object either of keeping abreast of what is being done or said, or of providing a basis for coordination and observance of command policy. (Project 60)

MONITOR, PROJECT - The individual who assists the program sponsor in formulation and administration of a program, monitors the execution of a project for the program sponsor, and transmits guidance from the program sponsor to the project manager as required. (NAVEXOS P-2426A)

-N-

(NRAC) NAVAL RESEARCH ADVISORY COMMITTEE - The NRAC is a committee of private civilians that report to the Secretary of the Navy. They advise the Secretary of the Navy, the Chief of Naval Operations and the Chief of Naval Research on all research matters. (NAVSHIPS 250-331-1)

(NRR) NAVAL RESEARCH REQUIREMENTS - An NRR is a statement in general terms of the need for investigations and studies in the physical and life sciences to provide information related to a solution of specific practical problems and to obtain a fuller knowledge or understanding of the subject under study. Naval Research Requirements are published by CNR and constitute a directive to all developing agencies to plan for and initiate appropriate projects in their areas of competency. (OPNAV 3900.8B)

(NARDIS) NAVY AUTOMATED RESEARCH & DEVELOPMENT INFORMATION SYSTEM - A system for storing and retrieving R&D information. Operation of NARDIS is under the direction of the Commanding Officer and Director of the David Taylor Model Basin. Technical responsibility is under CNR. The DD Form 1498 plus the NARDIS supplement are used as inputs to the system. Output takes two forms, logistic and subject matter. (ONR 3900.23)

(NCP) NAVY CAPABILITIES PLAN - The NCP provides a basis for the Navy position in staffing the JSCP for the current fiscal year. It provides direction and guidance for the functions, administration and support of Navy forces, and concepts for the mobilization, organization, training and equipping of these forces. (OPNAV 5000.19E)

(NIF) NAVY INDUSTRIAL FUND - A fund under which industrial activities are provided with working capital. Replenished through periodic billings to its customer activities for which work is performed. (BUWEPS 5200.25)

(NLCP) NAVY LOGISTIC CAPABILITIES PLAN - Issued as an annex to the NCP and contains the logistic implications for the Naval Establishment in support of the guidance contained in the JSCP. (OPNAV 5000.19E)

(NOP) NAVY OBJECTIVES PLAN - Covers the strategic concepts and objectives of the Navy during the next 10 years. These concepts and objectives are to be in agreement with Joint Chiefs of Staff plans and Navy estimates for active and reserve forces considered necessary to engage in cold, limited and general war under various conditions, including the provisions for full mobilization needs. It will include, separately identified, the approved Navy forces plus the incremental additional forces which the Chief of Naval Operations considers essential to carry out the military tasks and functions assigned to the Navy in the Joint Chiefs of Staff Plans and other authoritative strategic plans and sources. (OPNAV 5000.19E)

NAVY PROGRAM OBJECTIVES (PO) - The PO (Program Objectives) provides the Department of the Navy the force level objectives, approved by the Secretary of the Navy, and projected eight years commencing two years after the fiscal year in which approved and resource levels for five years (personnel, procurement, research and development, and supporting systems). (OPNAV 5000.19E)

(NSS) NAVY STRATEGIC STUDY - Provides concepts and philosophy concerning future naval contributions to national defense and 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 summarizes the Navy's roles and tasks and provides a scientific and technological forecast. The NSS, with annexes described below, is issued annually on 1 January, covering the period five to twenty years in the future from the end of the current fiscal year.

(1) Annex A to NSS--Navy Mid-Range Guidance (NMRG) 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 goals, and with the basic document, provides a basis for the Navy input to the JSOP strategy and mid-range strategic guidance used in the development of the MRO.

(2) Annex B to NSS—Navy Long-Range Guidance (NLRG) provides long-range research and development guidance for a ten year period commencing 1 July, ten years after the end of the fiscal year in which approved. It is the primary basis for the Navy input to the JLRSS and JRDOD, provides a broad frame of reference for mid-range planning and, with the basic document, provides long-range strategic guidance used in the development of the MRO (Mid-Range Objectives). (OPNAV 5000.19E)

(NSP) NAVY SUPPORT PLAN - Provides policy and guidance for the support of approved and mobilized forces and for the phased expansion of the Department of the Navy in mobilization. It supports the NCP and the JSOP setting forth force levels and logistic capabilities for the current fiscal year and for the following eight fiscal years under conditions of cold, limited and general war. It is based upon approved Navy forces. It also shows, separately identified, the Program Objectives (PO) which the Secretary of the Navy has approved as being essential for the execution of the Navy's mission. (OPNAV 5000.19E)

NOTIFICATION, CONTRACT CHANGE - Is a written order signed by the contracting officer directing the making of changes of the kind authorized by the provisions of the contract in the supplies or services called for thereunder and usually containing an estimated price or cost for such changes. Following such a written order, the necessary revisions in other provisions of the contract which are brought about by such order will be made by a supplemental agreement which will establish the firm price or cost. (Project 60)

-O-

OBLIGATION, FORMAL - A Navy term for actual obligation evidenced by a formal document individually recorded on records of cognizant bureau. Formal obligations include contracts and purchase orders, letters of intent and project orders. (Project 60)

OFFICER, PROJECT - Responsible for carrying out management cognizance responsibilities for a project. (BUSHIPS 5430.38)

OPERATIONAL - Operational is the time at which field use may be expected assuming normal production and training periods that reflect the priority of the project. (NAVSHIPS 250-331-1)

(OPTEVFOR) OPERATIONAL TEST AND EVALUATION FORCE - The OPTEVFOR is an operational fleet command under the administrative command of Commander-in-Chief, U.S. Atlantic Fleet. ComOPTEVFOR shall have primary responsibilities to the Chief of Naval Operations in the areas of test and evaluation in support of the Navy's RDT&E Program. (NAVSHIPS 250-331-1)

ORDER, CHANGE - A written order, signed by the contracting officer, directing the contractor to make changes which the Changes Clause of a contract authorizes the contracting officer to order without the consent of the contractor. (Project 60)

ORDER, PURCHASE - 1. An executed document authorizing a vendor to deliver materials or equipment which, upon acceptance, constitutes the purchase contract. 2. An accepted government purchase order binds the government to pay money from a specifically designated appropriation or fund. 2. A form intended for such use. (Project 60)

-P-

PERIOD, REPORTING - The interval of time covered by the data submitted in a report. (Project 60)

PERT - A set of principles, methods, and techniques for effective planning of objective-oriented work thereby establishing a sound basis for effective scheduling, costing, controlling and replanning in the management of programs. It employs: • A product-oriented work breakdown structure, beginning with these objectives subdivided into successively smaller end-items. • A flow plan consisting of all the activities and events that must be completed or accomplished to reach the program objectives, showing their planned sequence of accomplishment, interdependencies, and interrelationships. This is called a network. • Elapsed time estimates and identification of critical paths in the networks. • A schedule which attempts to balance the objectives, the network flow plan, and resources availability. • Analysis of the interrelated networks, schedules, and slack values as a basis for continuous evaluation of program status, forecast of overruns, and the identification of

problem areas in time for management to take corrective action. (Pert Guide for Management Use)

PLANNING, THE JOINT PROGRAM FOR - The Joint Chiefs of Staff have approved a Joint Program for Planning (JCS Memorandum of Policy No. 84) which provides annually for one joint strategic study, two joint strategic plans, a joint intelligence estimate for planning, and a joint research and development objectives document. (OPNAV 5000.19E)

(PO) PLANNING OBJECTIVE - A PO categorizes the common objectives of Navy functional warfare and support areas under the four major groupings of Strike Warfare, Anti-Submarine Warfare, Command Support, and Operational Support. (OPNAV 3900.8C)

PROCEDURES, RDT&E BUDGET - The Navy Department RDT&E budget contains the financial data which supports the Navy Department program. The DCNO(D) is responsible for the review of the consolidated program project listings as submitted by the Chief of Naval Research and for their submittal to the ASN(R&D). (OPNAV 3900.8C)

PROCEDURES, RDT&E PROGRAM - The Navy Department Annual RDT&E Program is comprised of the individual projects planned in support of the SORs, ADOs, EDRs, NRRs, the Marine Corps requirements, and the necessary Range and Management Support projects for that fiscal year. The DCNO(D) is responsible for coordinating the Navy Department RDT&E Program and Program 6 of the Department of Defense Five-Year Force Structure and Financial Program. (DCNO(D)) is also responsible for assuring that those Navy Department RDT&E Projects assigned to programs other than Program 6 are adequately coordinated with the appropriate OPNAV and Marine Corps sponsors. (OPNAV 3900.8C)

PROCESS, BUDGET - The process embracing all the stages through which the budget passes, namely, the formulation stage, the review and enactment stage, and the execution stage. (Project 60)

PROCUREMENT, SINGLE DEPARTMENT - The procurement of supplies pursuant to assignments of procurement responsibility made by the Secretary of Defense, whereby one Department procures certain supplies to satisfy the requirements of all Departments, including procurement responsibilities assigned under Department of Defense integrated supply management assignments. (ASPR 5-1101.2)

PROGRAM - 1. A plan or scheme of action designed for the accomplishment of a definite objective which is specific as to the time-phasing of the work to be done and the means proposed for its accomplishment, particularly in quantitative terms, with respect to manpower, materiel, and facilities requirements. Thus a program provides a basis for budgeting. 2. A segment or element of a complete plan. 3. A budget account classification. (DOD 5000.8)

PROGRAMS, APPROVED (DOD PROGRAMMING SYSTEM) - Individual program elements or other components of the FYDP approved by the Secretary of Defense and as modified by approved Program Change Requests (PCRs), Reprogramming Actions (DD Form 1415), Program/Budget Decisions (PBD), other Secretary of Defense decisions, or below-threshold changes approved by the head of a DOD component. (OPNAV 90P-1A)

PROGRAM, BUDGET - A portion of a departmental budget submitted to reflect estimated receipts, obligations, and expenditures pertaining to a particular program of an agency or department. (Project 60)

(PBD) PROGRAM BUDGET DECISION - A document originated in OSD during the annual budget review to record the decisions of the Secretary of Defense on the Department of the Navy's budget submission. (OPNAV 5000.19E)

(PCD) PROGRAM CHANGE DECISION - A document that announces the Secretary of Defense's decision on a PCR. (OPNAV 5000.19E)

(PCR) PROGRAM CHANGE REQUEST - A document used in the programming system to forward requested changes to the FYDP for review and action by the Secretary of Defense. PCRs are required also to reflect the program changes which develop from the decisions made during the DPM process. (OPNAV 5000.19E)

PROGRAM, ESSENTIAL ELEMENTS OF A - In order for a program to be self-sufficient and defensible, the following essential elements must be present: a. the objective, b. the scheme for attainment of the objective, c. the time-phasing of the various stages, d. the determination of the means to be allocated.

PROGRAM, FLEET INTRODUCTION (FIP) - An accelerated flight program to indoctrinate Fleet personnel in the operation and maintenance of a new weapons system, and to provide a further check on the system's Fleet readiness. (BUWEPS 5200.25)

PROGRAM, MAJOR - As used by the OSD, a broad aggregation of program elements usually based on a common mission or set of purposes. The program elements involved complement each other, or are close substitutes that would be considered together in working out major program decisions. The entire defense activity has been organized into nine major programs. (BUWEPS 5200.25)

PROGRAM, NAVY DEPARTMENT STUDY - The Navy Department Study Program provides for initiation of required studies so that their analyses will be available in time to provide support for Navy planning and programming decisions and pertinent joint actions. The Secretary of the Navy, by SECNAVINST 5000.23, designated the Chief of Naval Operations as Navy Department Study Coordinator. In accordance with OPNAVINST 5000.30, the Director of Navy Program Planning acts as CNO's executive in the coordination and supervision of studies related to Navy planning and programming. (OPNAV 5000.19E)

PROGRAM (PROGRAM PACKAGE) - An interrelated group of program elements that must be considered together because they support each other or are close substitutes for each other. The unifying principle of each package is a common mission or set of purposes for the elements involved. (Project 60)

PROGRAMS - A combination of program elements designed for the accomplishment of a definite objective or plan which is specific as to the time phasing of what is to be done and the means proposed for its accomplishment. The major components of the DOD programming system are the numbered programs in the FYDP. (DOD 7045.1)

PROGRAMMING - The process of preparing a program especially in terms of quantitative, physical requirements of manpower, materiel, and facilities. (Project 60)

PROJECT - A planned undertaking, which usually has a finite beginning and ending, involving definition, development, production and logistic support of a major weapon/system and keyed to the accomplishment of specific operational tasks in support of an indentifiable DOD objective. (NAVMAT 5000.5A)

PROJECT, DEVELOPMENT - A specifically defined task or group of related tasks involving application of scientific facts, techniques, materials, and physical laws to creation of new or improved material or methods. (Project 60)

PROJECT, DESIGNATED - A work effort within the NMC which meets the criteria established by NAVMATINST 5000.5A or has been selected at the direction of the Secretary of the Navy or by the Chief of Naval Material for intensified Project Management, and for which the appointment of a Project Manager by name is required and a Project Charter has been directed. (NAVMAT 5000.5A)

PROJECT, EVALUATION - An evaluation project is an undertaking (requiring services by the operating forces) assigned by the Chief of Naval Operations to the Commander Operational Test and Evaluation Force direct, or via the appropriate Fleet Commander-in-Chief to accomplish an evaluation. (NAVSHIPS 250-331-1)

PROJECT, FLEET INVESTIGATION - A Fleet Investigation Project is an undertaking assigned by the Chief of Naval Operations to the appropriate Commander-in-Chief or the Commander Operational Test and Evaluation Force for the purpose of conducting an investigation as defined in subparagraphs 6.f. and 6.g. of OPNAV 3960.1C.

(PMP) PROJECT MASTER PLAN - A compilation of planning documents prepared by the Project Manager, with assistance from participating organizations and contractors, which places in context the plans, schedules, costs, and scope of all work and resources to be provided by each participating organization. The Master plan defines a management approach for acquiring items and services required to satisfy specified operational requirements. (NAVMAT 5000.5A)

PROJECT, OPERATIONAL EVALUATION - A operational evaluation project is the test and analysis of a weapon system, support system, component, equipment or tactic conducted by the Operational Test and Evaluation Force, under service operating conditions insofar as practicable, to determine the ability of a system, component or equipment or tactic to meet specified operational performance requirements and/or to establish overall suitability for service use. (OPNAV 3960.1C)

PROJECT, RESEARCH AND DEVELOPMENT - A single undertaking or group of similar tasks, within an approved program, directed towards development of equipments, systems devices, components, or techniques, or to explore a field of knowledge. A project may cover more than one related task, but not unrelated items. The project is the basic building-block used in planning, reviewing, and reporting in performance of research and development programs. (Project 60)

(PTA) PROPOSED TECHNICAL APPROACH - The PTA is prepared by the Naval Material Command for CNO in which technical approaches to achieve a capability are presented. The PTA is submitted in response to a TSOR or to the broad statements of requirements in a GOR. The PTA provides CNO the technical information on which to base a decision for further development, and contains cost va. time and cost vs. performance trade-offs for the technical approaches presented. An appraisal of the technical risk involved for the several approaches and a technical appraisal of reliability, maintainability and support requirements as they would apply to systems similar to that being considered are also included in the PTA. (OPNAV 3900.8C)

PROVISIONING, INITIAL - The process of determining the range and quantity of items (i.e., spares and repair parts, special tools, test equipment, and support equipment) required to support and maintain an end item of material for an initial period of service. Its phases include the identification of items of supply, the establishment of data for catalog, technical manual, and allowance list preparation, and the preparation of instructions to assure delivery of necessary support items with related end articles. (SECNAV 4423.2A)

-Q-

QUALIFIED PRODUCTS - Those products which, in accordance with specifications containing qualification requirements have been subjected to examination and tests and have been found to satisfy all requirements of the applicable specification. Qualified Products Lists identify the specification, manufactured item by part of model number or trade name, place of manufacture and the test report involved. Suppliers whose products have successfully completed qualification testing and who furnish evidence thereof, are eligible for award although not yet included on the Qualified Products List. (Project 60)

(QPL) QUALIFIED PRODUCTS LIST - A government-prepared or approved list of products, qualified under the requirements stated in the applicable specification, including appropriate identification and reference data with the name and plant address of the manufacturer. (Project 60)

QUALITY ASSURANCE - A planned and systematic pattern of all actions necessary to provide adequate confidence that the product will perform satisfactorily in service. (BUWEPS 5430.10)

QUALITY ASSURANCE ENGINEERING OR ENGINEERING INSPECTION - From a thorough knowledge of product requirements and functions, the selection or development of tests, test equipment, test methods and procedures and inspection techniques needed to determine if the manufactured product meets the engineering requirements. (Project 60)

QUALITY CONTROL - A management system for programming and coordinating the quality maintenance and quality improvement efforts of the various groups in a manufacturing or maintenance organization so as to enable production at the most economic levels which allow for full customer satisfaction. (BUWEPS 5430.10)

-R-

RECLAMA - 1. A presentation by an agency, requesting restoration of all or part of a reduction in a budget estimate made by a higher review level. 2. An appeal for reconsideration of any action. (DOD 5000.8)

RELEASE, INTERIM - The authorization given to a contractor to release to production or procurement certain equipment support items prior to submission of a parts order by the Military Service. (SECNAV 4423.2)

RELIABILITY - The probability that a system, subsystem, component, or part will: 1. Perform its intended function ?. For a specified period of time. 3. Under stated conditions. (Project 60)

REPORT - Any transmission (presentation) of data or information on a recurring, regular, periodic, as required, or one-time basis, whether in oral or written narrative, tabular, graphic questionnaire, punchcard, tape, or other form, regardless of method of transmission. (Project 60)

REPORT, HOTLINE - This report provides a formal method of ensuring that the ASN(R&D) and DCNO(D) are made quickly aware of RDT&E problems which are, or have the potential for, seriously affecting RDT&E projects. This report will provide interim coverage when major or critical problems or other significant events occur or are anticipated between regular monthly progress reports. (OPNAV 3900.8C)

REPORT, PROGRESS - A report composed of data relating to current operations of programs, functions, organizational units, activities projects, or processes; most effective when compared with similar data for another period, or

a prescribed or assumed standard, objective, or average. (Project 60)

REPORT, SITUATION - A recurring report, other than a periodic report which is prepared upon each occurrence, recurrence, or non-occurrence of an event or situation of certain prescribed characteristics (e.g., "upon graduation," "upon occurrence of an accident," etc.). (Project 60)

REPORT, STATUS - A report reflecting the current situation with respect to programs, functions, activities, project, or processes. (Project 60)

REPORTING, PROGRAM COST - Reporting requirements prescribed in DOD Instructions which provide for comparable program cost and related data on research and development activities and hardware items for use in program cost validation and progress and status analyses. (DOD 7045.1)

REPROGRAMMING - 1. The process of revising a previously established program. 2. Revision of budget estimates under a revised program. (DOD 5000.8)

(RAN) REQUEST FOR AUTHORITY TO NEGOTIATE - A memorandum transmitting the D&F to SECNAV via CNM and containing detailed factual information explaining the necessity for procuring supplies or services by negotiation rather than by formal advertising. It also includes required supporting documents and information. (NPD 3-306.50)

(RFP) REQUEST FOR PROPOSAL - Provides a description of the items to be procured, may include specifications, quantities, time and place of delivery, method of shipment, packaging and instruction manual requirements and material to be furnished. The manufacturer is requested to submit a quotation supported by cost breakdown on the form provided. Government is not committed to pay any costs. Approximately 30 days are allowed the company to prepare and submit its proposal. (Navy Contract Law - 2nd Edition - Para. 12.11)

REQUEST, PROCUREMENT - The document that initiates procurement action; contains basic information in which a procurement plan can be established and is usually supplemented by the contract schedule, which consists of a description of items to be so procured, delivery dates, specification, and proposed contract terms. (BUWEPS 5200.25)

REQUIREMENTS - 1. The need or demand for personnel, equipment, facilities, other resources, or services, by specific quantities, for specific periods of time or at specified times. 2. For use in budgeting, item requirements should be screened as to individual priority and approved in the light of total available budget resources. (DOD 5000.8)

REQUIREMENTS, RELIABILITY - Expressed as desired attributes, which include expected life, average life, failure rate, mean time between failures, expected number of failures in a given period of time, percent devective, etc. (Project 60)

REQUIREMENT, REPORTING - An authorized request for information, whether one-time or recurring, tabular or narrative, made by an agency or activity, to be obtained from or through other agencies or activities or from the general public. (Project 60)

RESEARCH, NAVAL - a. Naval Research is applied and basic research effort that is conducted for the purpose of acquiring new knowledge, methods, techniques, and materials that are necessary to provide a general broad base for the continuing improvement of the Department of the Navy. b. Naval Research includes all items of research and development directed toward acquiring new knowledge, methods, techniques and materials that are necessary to provide a general broad base for the continuing improvement of the Navy. (NAVSHIPS 250-331-1)

RESPONSIBILITY, FISCAL - Responsibility for all monetary aspects of program management, including encumbrance, commitment, and obligation of appropriated funds, and pricing and budgeting of future costs. (BUWEPS 5200.25)

REVIEW, PROVISIONING - The process of re-examining the initial determination of the range and depth of items required to support and maintain an end item of material, subsequent to initial provisioning, but prior to completion of the contract(s) under which the end item is being procured. This process may also include a review of other phases of the provisioning process, such as the establishment of data for catalog and allowance list preparation. (SECNAV 4423.2A)

-S-

SCHEDULE - 1. A subsidiary detailed financial statement or statistical table, generally in support of summary data in an exhibit. 2. That

part of a contract which sets forth details of the property to be delivered or services to be performed, delivery terms, etc. (DOD 5000.8)

(STINFO) SCIENTIFIC AND TECHNICAL INFORMATION - Knowledge or data resulting from the conduct of research and development, and required for organizing, administering, or performing research and development. It encompasses any information, existing in recorded or other communicable form, which describes the status, progress or results of research and development in any area of science or technology, and which has some potential use in advancing current and future research and development. (National Science Foundation 63-11)

SECURITY - Refers to the safeguarding of information classified Top Secret, Secret, or Confidential (including Confidential, Modified Handling Authorized) against unlawful or unauthorized dissemination, duplication, or observation. (Project 60)

SHIPS, MILITARY IMPROVEMENT OF - Changes to military qualities and features which increase the capabilities of ships to perform their approved missions and tasks. (OPNAV 4720.2A)

SPARE PARTS - Individual parts, subassemblies, and assemblies (components), supplied for the maintenance or repair of equipment. (DOD 5000.8)

(SOR) SPECIFIC OPERATIONAL REQUIREMENT - CNO through the SOR states a need for a specific operational capability. It defines the required capability in terms of mission requirement, operational concept and performance constraints. The SOR results from the TSOR - PTA exchange if this exchange indicates there are no unacceptable risks and that technology for the system under consideration is at hand. The Naval Material Command or bureau will prepare a TDP in response to the SOR. (OPNAV 3900.8C)

SPECIFICATIONS, MILITARY - Document intended primarily for use in procurement, which are clear accurate descriptions of the technical requirements for items, materials, or services including the procedures by which it will be determined that the requirements have been met. Specifications for items and materials also contain preservation, packaging, packing and marking requirement. (Project 60)

SPONSOR - A designated senior within the Offices of the Chief of Naval Operations, Commandant of the Marine Corps, Secretary of the Navy who has been assigned prime responsibility for the development and accomplishment of a task or mission. Whenever reference is made to a program, project or appropriation sponsor, it identifies immediately that the individual is within the Office of CNO, CMC, or SECNAV. (OPNAV P5000.20)

SPONSOR, PROGRAM - The individual designated as responsible for determining program objectives, time-phasing and support requirements, for justifying program funding, and for appraising program progress. (NAVEXOS P-2426A)

STANDARDIZATION - The process of establishing by common agreement engineering criteria, terms, principles, practices, materials, items, processes, equipment, parts, subassemblies, and assemblies to achieve the greatest practicable uniformity of items of supply and engineering practices, to insure the minimum feasible variety of such items, and practices, and to effect optimum interchangeability of equipment parts and components. (BUSHIPS 5430.38)

SUB-SYSTEM (WEAPON) - A principal or major secondary item which is required to complete the particular weapon (equipment) system so that the latter can be brought on target or perform the function for which it was built. (Project 60)

SUPERVISION, TECHNICAL - Supervision through a technical channel such as the performed by the Director of Statistical Services over various reports prepared in the field. (Project 60)

SUPPORT, CONTRACTOR - An interim arrangement during initial development or production of an equipment whereby a contractor is obligated to furnish to the government, either from production or from stocks maintained by him, items for support of the equipment, on an as required basis, pending assumption of support responsibility by the government. (SECNAV 4423.2)

SUPPORT, ENGINEERING LIAISON AND - Those functions involved in the furnishing of scientific and technical assistance where engineering knowledge and experience is essential. This includes the engineering field support furnished to the production and quality control organizational elements as well as that rendered within the framework of responsibility and authority delegated by the buying office, system project manager or item project office. (Project 60)

SYSTEM - A combination of two or more interrelated equipments (sets) arranged in a functional package to perform an operational function or to satisfy a requirement, e.g., ship system, weapon system, communication system, navigation system, fire control system, aircraft system, etc. (BUSHIPS 5430.38)

SYSTEM, AIRCRAFT - A combination of those inter-related aircraft end items (excluding the expendable military payload) which represent a specific type aircraft and its peculiar support equipment arranged in functional packages required to meet an operational requirement. Also defined as the complete entity of an aircraft or astronautic vehicle including the airframe or rocket propulsion machinery, armament, electrical, electronic and mechanical equipment. (BUSHIPS 5430.38)

SYSTEM, DOD PROGRAMMING - The methods and procedures for the establishment, maintenance and revision of the FYDP. (DOD 7045.1)

SYSTEM, NAVAL COMMUNICATION - The world-wide network of transmitting and receiving stations designed and built to provide worldwide and local communications service to the Navy ashore and afloat; provides common user facilities and facilities for special communication requiprements. (BUSHIPS 5430.38)

SYSTEM, NAVY PLANNING AND PROGRAMMING - This system serves three basic purposes. First, it provides for the development of Navy concepts, requirements and objectives, and for their presentation to higher authority in order to introduce the Navy's viewpoint into Joint, Department of Defense and Department of the Navy program planning which resolves annually into the Department of the Navy's budget submission to the secretary of Defense. Second, it provides a framework for the translation of strategic and operational concepts, technological and intelligence forecasts, as well as guidance received from higher authority, into research and development, force level, personnel and support plans and objectives. Third, it provides guidance and direction for the application of current capabilities. (OPNAV 5000.19E)

-T-

TASK AREA - The scientific or technological bounds within which work units may be created. The task area is the echelon above the work unit. (DOD 7720.13)

TASK, RESEARCH - A finite unit of basic or applied research effort which is managed as a separate entity, has unity of scope and purpose, and is tested as a single research effort. (Project 60)

TECHNICAL - Relates to highly refined requirements, specific procedures, functions or acts necessary to properly accomplish, or evaluate the accomplishment of a process or function. These requirements are usually delineated by engineering personnel. (Project 60)

(TDP) TECHNICAL DEVELOPMENT PLAN - A TDP is prepared by the Naval Material Command or the cognizant bureau for the purpose of documenting those actions, procedures and resources which are required in order to achieve the capability described in the SOR, or those actions required to achieve the objectives outlined in an ADO. The TDP will include plans for development, production, installation, integrated logistic support, reliability, maintainability, test and evaluation, and personnel training for the project. The TDP will also provide cost estimates. If formal Contract Definition will be employed, the TDP shall contain a plan for the conduct of Contract Definition. (OPNAV 3900.8C)

(TSOR) TENTATIVE SPECIFIC OPERATIONAL REQUIREMENT - The TSOR is a requirement document prepared by the CNO and addressed to the CNM or the cognizant bureau outside of the Naval Material Command. It is generally the initial step in the formal exchange of documents between the user and producer in RDT&E planning cycle. The TSOR is therefore the first step toward arriving at a definition of the system, its characteristics, its deployment and its procurement, operation and maintenance costs. The TSOR will tentatively state a requirement for a particular capability, identify the anticipated threat, outline the operational concept, define those performance and operational characteristics which can be specified, and indicate the time period in which the capability is needed. Promulgation of a TSOR by the CNO does not establish a firm requirement and does not authorize commencing a new development program. The NMC or cognizant bureau will respond to a TSOR by means of a PTA. (OPNAV 3900.8C)

TERMINATION, CONTRACT - As used in DOD procurement, refers to the cessation or cancellation in whole or in part, of work under a prime contract, or a subcontract thereunder, for the convenience of, or at the option of, the Government. (Project 60)

TEST, DEVELOPMENT ASSIST - A development assist test is the testing of a weapon system, support system, component, equipment or material in any stage of research and development, wherein the assistance of ships, aircraft and/or other appropriate fleet units is requisite to the collection of data necessary to the determination of the direction in which an established development should advance. Such tests are conducted by the Developing Agency, utilizing the services of fleet units arranged for and coordinated by the Operational Test & Evaluation Force. The Developing Agency is responsible for the planning and conduct of Development Assist Tests. (NAVSHIPS 250-331-1)

TEST, ENGINEER DESIGN - A test conducted by or under the supervision of the design agency with an engineering approach where the objective of the test is to determine inherent structural, electrical, or other physical and chemical properties of construction materials, a component, subassembly, or prototype assembly, item, or system, including the effect of environmental stress on these properties. It is characterized by controlled conditions and elimination of errors in human judgment, so far as possible, through the utilization of laboratory equipment, modern statistical methodology, and personnel trained in engineering or scientific fields. The purpose of such tests is to collect design data, confirm preliminary concepts and calculations, and to determine the compatibility of components. In the case of a highly complex system consisting of a number of major integrated components, e.g., a guided missile system, the EDT may be expanded to include a complete system demonstration. Here, following component or subsystem testing, the design agency demonstrates the engineering feasibility of complete system corporation. (Project 60)

TEST, ENGINEERING - A test conducted by or under the supervision of the developing agency concerned, with an engineering approach, where the objective of the test is to determine the technical performance and safety characteristics of an item or system and its associated tools and test equipment as described in the QMR, the Technical Characteristics, and as indicated by the particular design. This determination includes the measurements of the inherent structural, electrical, or other physical and chemical properties of an item or system, including the effects of environmental stresses on these properties. The test is characterized by controlled conditions, and the elimination of human errors in judgment, so far as possible, through the utilization of physical measurement techniques, controlled field trials, statistical methodology, and the use of personnel trained in the engineering or scientific fields. The engineering test provides data for use in further development and for determination as to the technical and maintenance suitability of the item or system for service test. (Project 60)

TEST, ENVIRONMENTAL - An engineering test performed to evaluate the effects of natural climates or induced conditions of cold, heat, wind, moisture, radiation, etc., on the properties and performance of a product. (Project 60)

TEST, MAJOR DEVELOPMENT - Engineer design, engineering, and service tests. (Project 60)

TEST, USER - User tests are those tests made to determine the operational characteristics under actual service conditions. (NAVSHIPS 250-331-1)

(TOA) TOTAL OBLIGATIONAL AUTHORITY - The total financial requirements for the FYDP or any component thereof. (DOD 7045.1)

-W-

WEAPON - An instrument of offensive or defensive combat which contains the destructive force used to destroy the enemy. (Project 60)

WORK UNIT - The smallest assigned unit of research and development effort such as the task assignment to the laboratories, the items of a coordinated laboratory summary, MIPR/IPR, project order, or the individual procurement items of a contract or grant. (ONR 3900.23)

-Y-

YEAR, CURRENT FISCAL - The fiscal year in progress but not completed. (DOD 5000.8)

YEAR, FIRST PROGRAM - During the first six months of the current fiscal year, the first program year is the budget year. During the last six months of the current fiscal year, the first program year is the budget year plus one. (DOD 7045.1)

YEAR, FISCAL - Twelve-month period selected for accounting purposes. (The fiscal year for most agencies of the United States Government begins on the first day of July and ends on the thirtieth day of June of the following calendar year.) The fiscal year is designated by the calendar year in which it ends, i.e., the fiscal year 19X1 is the year beginning 1 July 19X0 and ending 30 June 19X1. (DOD 5000.8)

YEAR, LAST FISCAL - In comparative annual budgets, the last complete fiscal year—this is the fiscal year immediately preceding the current fiscal year. (DOD 5000.8)

GLOSSARY REFERENCE LIST

SOURCES FOR DEPARTMENT OF THE NAVY RDT&E MANAGEMENT GUIDE GLOSSARY

The foregoing glossary was compiled from the sources listed in the following. A short identification of the source, as it appeared following each definition, precedes each listing in parentheses.

Other Glossaries

(DOD 5000.8) Glossary of Terms Used in the Areas of Financial, Supply and Installations Management. This glossary is enclosure (1) to DOD Instruction 5000.8 of 15 June 1961, subj: "Glossary of terms used in the areas of financial, supply and installation management," which was disseminated as an enclosure to SECNAV Instruction 5000.13. It contains approximately 1,200 terms "for general-reference use."

(Project 60) Glossary of Contract Management Terms — Secretary of Defense Project 60. This is not an approved Department of Defense glossary, but a collection of approximately 1,200 definitions of terms used in contract management. It was developed and compiled as an adjunct to the Contract Management Study undertaken as SecDef Project 60 and was issued as an aid in understanding the report of the project. Each entry is identified as to source, for the most part manuals, instructions, etc., of DOD, the Military Departments, Joint Agencies, and NASA.

(BUWEPS 5200.25) Bureau of Naval Weapons, Weapons System Program Manager's Manual, promulgated by BUWEPS Instruction 5200.25 of 22 October 1963 of the same subject. Appendix A of this manual is a glossary of over 100 definitions and abbreviations appearing in the various Bureau of Naval Weapons publications dealing with program management.

(NAVSHIPS 250-331-1) NAVSHIPS 250-331-1, Research, Development, Test, and Evaluation Programming, a manual for engineering and scientific personnel, 1 April 1961. Appendix I is a glossary containing approximately 60 terms used in RDT&E management.

(NAVMAT 5000.5A) Office of Naval Material Policy NAVMAT 5000.5A, 7 December 1965. Project Management in the Naval Material Support Establishment. (now the Naval Material Command)

Instructions and Other Official Sources

(ASPR) Armed Services Procurement Regulation

(NPD) Navy Procurement Directives

(BUSHIPS 5430.38) JOINT DIRECTOR OF NAVAL COMMUNICATIONS, BUREAU OF YARDS AND DOCKS, BUREAU OF SHIPS, BUREAU OF NAVAL WEAPONS INSTRUCTION 5430.38, of 13 January 1961, subj: "Management and technical cognizance of electronic systems and equipment; policies and procedures for." Enclosure (1) contains 37 definitions "for purposes of this instruction."

(DOD 3200.6) DOD Instruction 3200.6 (SECNAV 3900.14), "Reporting of Research, Development and Engineering Program Information."

(DOD 3200.9) Department of Defense Directive 3200.9, Directive concerning Project Definition Phase, 26 February 1964).

(OPNAV 3900.8C) OPNAV Instruction 3900.8C, "Planning Procedures for the Navy Research, Development, Test and Evaluation (RDT&E) Program."

(OPNAV 3960.1C) OPNAV Instruction 3960.1C, "Proscecution by the Operating Force of CNO assigned RDT&E Projects"

(SECNAV 4423.2A) SECNAV Instruction 4423.2A, "Policy and Principles Governing Provisioning of End Items of Material."

(OPNAV 4720.2A) OPNAV Instruction 4720.2A, "Program for Military Improvement of Ships."

(OPNAV 5000.19E) OPNAV Instruction 5000.19E, "The Navy Planning and Programming System."

(DOD 5100.38) DOD Instruction 5100.38 (SECNAV 3900.24A). Defense Documentation Center for Scientific and Technical Information (DDC)."

(SECNAV 4858.2 (SECNAV Instruction 4858.2. Assigns responsibilities for establishing policies and coordinating procedures pertaining to the Navy value engineering program.

(SECNAV 3900.33) SECNAV Instruction 3900.33 "Initiation of Engineering and Operational Systems Development" (20 August 1965)

(BUWEPS 5430.10) BUWEPS Instruction 5430.10, "Quality Program of the Bureau of Naval Weapons; statement of."

(DOD 7045.1) DOD Directive 7045.1, "DOD Programming System," forwarded under SECNAV Instruction 5000.16B, "Guidance for Implementation of the DOD Programming System."

(DOD 7250.5) DOD Directive 7250.5 (SECNAV 7133.3), "Reprogramming of Appropriated Funds."

(NAVEXOS P-2426A) NAVEXOS Publication P-2426A of 15 December 1962, Review of Management of the Department of the Navy (Dillon Report).

(DOD 5010.14) DOD Directive 5010.14, "System/Project Management."

(SECNAV 5000.21A) SECNAV Instruction 5000.21A, "Project Management in the Department of the Navy."

(NAVMAT 7000.4) NAVMAT Instruction 7000.4, "Naval Material Support Establishment Policy for the Financial Management of Secretary of the Navy/Chief of Naval Material Designated Projects."

(NAVMAT 5000.8) NAVMAT Instruction 5000.8, "Department of Defense Weapon Systems Management Center."

Other Glossaries not Used as Sources

Though these sources were not used in compiling this glossary, they are listed here for the benefit of future compilers of glossaries.

Dictionary of United States Military Terms for Joint Usage (Short Title: JD) (JCS Pub 1, 1 February 1962.) Primarily of a military operational orientation, JCS Pub 1 was prepared under the direction of the Joint Chiefs of Staff in coordination with the Military Services for planning and operational usage. DOD Directive 5000.9 of 23 September 1961 prescribed its use throughout the Department of Defense.

Dictionary of United States Army Terms (Short Title: AD), Army Regulations AR 320-5 of 28 February 1963. This official Army glossary contains approximately 6000 terms and definitions. Each term is coded to indicate the extent of its official applicability, i.e., Army wide, joint usage, combined usage within NATO, etc.

Air Force Glossary of Standardized Terms and Definitions, Air Force Manual 11-1 of 16 December 1963. Containing about 3500 definitions, AFM-11-1 is the Air Force equivalent of AR 320-5 above.

Glossary of Management Systems Terminology, PERT Orientation & Training Center, Bolling Air Force Base, Washington, D.C., June 1963.

This glossary contains definitions of approximately 120 management systems terms and acronyms.

Automatic Data Processing Glossary, published by the Executive Office of the President, Bureau of the Budget, December 1962. This glossary of approximately 1200 automatic data processing terms is provided by the Bureau of the Budget for use as an authoritative reference by all officials and employees of the Executive Branch of the Government. Available GPO, $.40.

APPENDIX B

THE NAVY DIRECTIVES SYSTEM

The Navy Directives System uses two types of directives; Instructions, which are directives of a continuing nature and are effective until subsequently cancelled, and Notices, which are directives of a one-time nature, or are applicable for a brief period of time, usually 6 months or less. Notices contain a provision for their own cancellation.

B0100 SCOPE AND PURPOSE

Directives serve two purposes. First, they prescribe or establish policy, organization, methods, or procedures; and second, they require action or contain information essential to the effective administration or operation of activities concerned. All Department of the Navy directives are issued in the Navy Directives System with the following required exceptions:

1. Top Secret Directives

2. Joint Army-Navy-Air Force publications (JANAP's) which are numbered serially.

3. Registered publications

4. Plans issued under the Navy Planning System.

Optional exceptions to the Navy Directives System are,

1. Military Operational releases

2. Book-type publications (manuals and technical publications)

3. Directives addressed to less than six addressees, including "Copy to" addressees. (In this connection primary consideration should be given to content rather than number of addressees.)

B0200 DIRECTIVE NUMBERING

There are 13 major divisions in the Navy-Marine Corps Standard Subject Classification System. An explanation of these divisions follows:

1000 Series	MILITARY PERSONNEL. Includes subjects relating solely to the administration of military personnel. (Civilian personnel subjects are included in the 12000 series. General personnel subjects relating to both civilian and military personnel are included in the 5000 series.)
2000 Series	COMMUNICATIONS. This series includes subjects relating to general communication matters and to communication systems and equipment.
3000 Series	OPERATIONS AND READINESS. Includes subjects relating to such matters as operational plans, fleet operations, operational training and readiness, warfare techniques, operational intelligence, and research and development.
4000 Series	LOGISTICS. Includes subjects relating to the logistical support of the Navy and Marine Corps, including procurement, supply control, property redistribution and disposal, travel and transportation, maintenance, construction and conversion, production and mobilization planning, and foreign military assistance.
5000 Series	GENERAL ADMINISTRATION AND MANAGEMENT. Includes subjects relating to the administration, organization, and

management of the Department of the Navy, including general personnel matters (concerning both civilian and military personnel), security, external relations, law and legal matters, office services, and publication and printing matters.

6000 Series — MEDICINE AND DENTISTRY. Includes subjects relating to medical matters, such as physical fitness, general medicine, special or preventive medicine, dentistry, medical equipment and supplies.

7000 Series — FINANCIAL MANAGEMENT. Includes subjects relating to the financial administration of the Department of the Navy, including budgeting, disbursing, accounting, auditing, industrial and other special financing matters, and statistical reporting.

8000 Series — ORDNANCE MATERIAL. Includes subjects relating to all types of ordnance material and weapons, including ammunition and explosives, guided missiles of all types, underwater ordnance materials, and miscellaneous ordnance equipment.

9000 Series — SHIPS DESIGN AND SHIPS MATERIAL. Includes subjects relating to such matters as the design, characteristics, and readiness of ships, and to ships material and equipment.

10000 Series — GENERAL MATERIAL. Includes subjects relating to general categories of materials not included in the specialized material groups. It includes photographic equipment and accessories, general machinery and tools, personnel (materials), and miscellaneous categories.

11000 Series — FACILITIES AND ACTIVITIES ASHORE. Includes subjects relating to ashore structures and facilities, transportation facilities, utilities and services, and other similar subjects.

12000 Series — CIVILIAN PERSONNEL. Includes subjects relating solely to the administration of civilian personnel. (Military personnel subjects are included in the 1000 series. General personnel subjects relating to both civilian and military personnel are included in the 5000 series.)

13000 Series — AERONAUTICAL AND ASTRONAUTICAL MATERIAL. Includes subjects relating to aeronautical and astronautical material including parts, accessories, and instruments; special devices, armament; aerological equipment, weapons systems, types of aircraft; and astronautic vehicles.

B0210 Further Divisions

Further divisions of the above list are made. For example, the 3000 series, Operations and Readiness, is extended into seven divisions, of which Research and Development is one.

3900-3999 RESEARCH AND DEVELOPMENT

3900 General (Include Basic Research)
3910 Plans
3920 Programs
3930 Projects
3960 Tests and Evaluation

(Note: The numbers between these indicated--3901 through 3909, 3921 through 3929--have not been assigned in this series, though numbers between the decades have been assigned in some subject areas.)

The numbers following the decimal in directives numbering are the consecutive numbers and are assigned by the originating office directives control point. To illustrate, the first OPNAV Instruction issued in the 3900 series will be 3900.1, the second, 3900.2, etc. Subsequent revisions of these directives are indicated by a capital letter following these numbers. For instance, 3900.1A would be the first revision of 3900.1.

B0300 IDENTIFYING AND OBTAINING INSTRUCTIONS

Identifying all directives dealing with a particular subject matter may prove to be somewhat more difficult than anticipated. Once

the required directives have been identified, obtaining copies is relatively easy. Each bureau, office and systems command maintains a directives control point for the purpose of supplying directives to the activity. Such offices are also maintained by the Chief of Naval Operations and the Secretary of the Navy. When new directives arrive at an organization's directive control point, copies are routed to the various sections. Additional copies may be obtained as needed through the directive control point.

B0310 Consolidated Subject Index

The biggest problem is in identifying the specific directives which provide guidance on a particular subject. Primary aid for identifying directives covering particular subjects is the current edition of Consolidated Subject Index, NAVPUBINST 5215.4. This document provides a guide to the subject matter of unclassified Instructions issued by components of the Navy Department and distributed to addressee outside the originating office. It is usually effective in identifying directives dealing with a subject listed in the "Subject" of the directive.

The greatest difficulty is in identifying directives which affect subjects which are not the principal subject of the directive. If an attempt were being made to identify directives dealing with "Reprogramming of appropriated funds," the most important directive on the subject NAVCOMPT Instruction 7133.1A, "Reprogramming of Appropriated Funds," could be found listed in Consolidated Subject Index under a subdivision of "FUNDS" "Appropriated, reprogramming of." The search for it could also be narrowed considerably by hunting through the "Financial Management" 7000-7999 section of SECNAV Instruction P5210.11, "Navy-Marine Corps Standard Subject Classification System," where it could be determined that a "reprogramming" instruction would be numbered 7133. However, the "Reprogramming" instruction covers other matters related to the subject, but which also are important to other subject areas. As a case in point, consider the following paragraph from DOD Directive 7250.5, "Reprogramming of Appropriated Funds."

POLICIES

A General. The Congressional Committees concerned with the Department of Defense Appropriation Acts and the authorizing Acts related thereto and the Department of Defense have generally accepted the view that rigid adherence to the amounts justified for budget activities or for subsidiary items or programs may unduly jeopardize the effective accomplishment of planned programs in the most business-like and economical manner, and the unforeseen requirements, changes in operating conditions, revisions in price estimates, wage rate adjustments, etc., require some diversion of funds from the specific purposes for which they were justified. Reprogramming measures, developed in consultation with the Committees, are both necessary and desirable, and will provide a firm basis for retention of Congressional control over the utilization of Defense appropriations by assuring that the Congressional intent is carried out while, at the same time, providing a timely device for achieving flexibility in the execution of Defense programs.

The above material, it will be remembered, could be retrieved through use of the Funds or Reprogramming sections in two different publications. If, however, one were using these two publications to gather instructions relating to Congressional Committees and their relationship to Research and Development, this instruction would not be listed. The Consolidated Subject Index does not include this instruction in either the Committee section or the Congressional section.

B0400 DOD DIRECTIVE SYSTEM

The DOD directive numbering system is based on issuing offices within the Office of the Secretary of Defense rather than on subject matter covered in the directive. Thus there is no systematic direct relationship between the DOD system and the Navy system. All DOD directives of concern to the Navy are forwarded by SECNAV to the action addressees.

ANNOTATED REFERENCE LIST

SECNAV P5210.11 "Navy-Marine Corps Standard Subject Classification System," promulgates guidance for classifying documents by subject. It contains a listing of the system by number, showing the related subjects, and an alphabetical list of subjects showing numbers.

NAVPUB 5215.4 "Navy Directives System Consolidated Subject Index of Unclassified Instructions," is issued to assist in identifying departmentally originated Instructions on any desired subject, issued by the Secretary of the Navy, Chief of Naval Operations, Bureaus and Offices of the Department of the Navy. It is reissued annually on 30 June.

APPENDIX C

CLASSIFICATION SYSTEMS

This section presents several classification systems employed in RDT&E management. These classification systems provide multiple prospectives of the single reality which is the Department of the Navy RDT&E effort.

C0100 SOME THEORETICAL ASPECTS OF CLASSIFICATION SYSTEMS

Classification systems are critical to management. The more appropriate the classification systems in use the more manageable is the effort. Classification systems determine the type of information available to the manager and thus shape his perception of the reality he is responsible for managing. The prime function of the manager is efficient accomplishment of his mission. He is responsible for achieving maximum mission accomplishment from a fixed amount of resources, or, conversely, with accomplishing a fixed task with minimum possible resources. To achieve such efficiency, the manager must achieve optimum "balance" within his program. Optimum balance means that all resources available to him must be put to their most productive use. In other words, he must make "trade-offs," move resources within his program to put them to their most productive use. Classification systems provide the key to detection of imbalance within the program – opportunities to increase effectiveness through trade-offs. (See paragraph 0431, "Concept of the 'balanced budget.'")

A classification system is generally designed to meet the specific needs of a particular user. No single rigid classification system can be designed to meet the needs of all users. An understanding of classification systems can aid a program manager in selection of one that will meet his needs.

The requirements imposed on a theoretical classification system are:

a. It must be useful. It must display information in a manner which will permit a decision maker to make a decision with confidence that he has all the relevant information and that it is accurately displayed.

b. It must be simple.

c. The elements of the system must be mutually exclusive. If the elements are not mutually exclusive decisions based on the system can be ambiguous.

d. Elements must be symmetrical. This means that elements that do not convey similar but different concepts should be discarded or replaced. For example, if one were to classify materials and an element appeared which dealt with human factors it would be readily apparent that it was out of place. On borderline cases it is very difficult to tell whether or not an element is applicable.

e. Elements must cover the entire spectrum of the classification system. Unless this is true the decision maker is not given the entire set of facts on which to base a decision.

f. The system must be convertible. This means that the decision maker is readily able to shift from one system to another in order to get a different perspective on the subject matter.

g. It should lend itself to mechanical accumulation of data. As classification systems pass from a higher to a lower organizational level the degree of detail in a specific area increases. In this transition the mass of data required to fulfill the needs of the system increases to such an extent that it is almost mandatory that an ideal classification system be amenable to computerization. This will ensure that the data is timely.

C0200 COVERAGE OF CLASSIFICATIONS SYSTEM APPENDIX

The nine classification systems listed below break into four general classes. First is the type based on common scientific technical center of interest. Second are the systems based on functional military capabilities. Third are appropriation classification systems based on various resource inputs. Last there is the Department of Defense Programming System which looks at the effort from the point of view of military capability outputs. Other classification systems not shown deal with priority, time considerations, etc.

The last major subdivision of this chapter, C0700, shows the relationship between the appropriation classification system and the programming system in the RDT&E area.

C0300 CLASSIFICATION BY SCIENTIFIC TECHNICAL CENTER OF INTEREST

C0310 RDT&E Project Classification

DOD Inst. 3200.6 states "Each DOD RDT&E Project will be identified under one of the following classes of effort."

Code	Title	Definition
AR	Applied Research	The application of knowledge, materiel, and/or techniques directed toward a solution to an existent or anticipated military requirement.
BR	Basic Research	Research directed toward the increase of knowledge in science, the primary aim of the investigator being a fuller knowledge or understanding of the subject under study.
DT	Development, Test, and Evaluation	Projects directed toward the development, test or evaluation of items of equipment and/or systems for experimentation or operational use.
MS	Management and Support	Items of general support, necessary for the management and operation of RDT&E installations or activities.

C0320 Naval Research Requirements (NRR)

Planning areas for research as listed in ONR Inst. 3910.2A.

R001	Chemical Sciences
R002	Physical Sciences
R003	Mathematical Sciences
R004	Earth Sciences
R005	Biological Sciences
R006	Psychological Sciences
R007	Material Sciences
R008	Electronic Sciences
R009	Engineering Mechanics
R010	Energy Conversion
R011	General Science

C0400 CLASSIFICATION BY FUNCTIONAL MILITARY CAPABILITIES

C0410 Exploratory Development Requirements (EDR)

Planning areas for Exploratory Development. Reference, OPNAV 3910.3.

F001	Target Surveillance
F002	Navigation
F003	Environmental Surveillance
F004	Integrated Surveillance
F005	Command Control
F006	Communications
F007	Data Processing
F008	Weapons and Ordnance
F009	Guided Missiles
F010	Jamming and Deception
F011	Naval Defense Applications
F012	Aircraft & Aircraft Support
F013	Ships and Submarines
F014	Boats and Amphibious Vehicles
F015	Logistics
F016	Personnel Administration
F017	Training
F018	Warfare Research
F019	Astronautics
F020	Materials

F021 Electronic Materials and Techniques
F022 Life Sciences Technology

C0420 General Operational Requirements (GOR)

Reference: OPNAV 3910.9.

10 STRIKE WARFARE

11 Airborne Attack
12 Surface Attack
13 Submarine Attack
14 Amphibious Assault
15 Strategic Deterrence
16 Airborne Anti-Air
17 Surface Anti-Air
18 Vacant

20 ANTI-SUBMARINE WARFARE

21 Airborne ASW
22 Surface ASW
23 Submarine ASW
24 Undersea Surveillance
25 Mining
26 Mine Countermeasures
27 ASW Ancillary Support

30 COMMAND SUPPORT

31 Command Control
32 Naval Communications
33 Electronic Warfare
34 Navigation
35 Ocean Surveillance
36 Reconnaissance and Intelligence
37 Environmental Systems
38 Special Warfare

40 OPERATIONAL SUPPORT

41 Logistics
42 Vacant
43 Personnel
44 Astronautic Support
45 Aviation Support
46 Ship Support
47 Ordnance Support
48 NBC Defense

C0500 CLASSIFICATIONS USED FOR APPROPRIATIONS

C0510 The DOD Budget Structure

Funds appropriated by Congress for a given fiscal year. The principal divisions of the Appropriations Act are:

Title I: Military Personnel
Title II: Operation and Maintenance
Title III: Procurement
Title IV: Research, Development, Test and Evaluation (RDT&E)
Title V: Special Foreign Currency Program
Title VI: General Provisions

C0520 Budget and Expense Classification

DOD Instruction 3200.6 (SECNAV 3900.14) states, "All expenses covered in the research, development, test, and evaluation appropriations will be classified in one of the following eight principal budget activities:

1. Military Sciences
2. Aircraft and related equipment
3. Missiles and related equipment
4. Military astronautics and related equipment
5. Ships and small craft and related equipment
6. Ordnance, combat vehicles, and related equipment
7. Other equipment
8. Program-wide management and support."

(NOTE: Further breakdown into budget sub-activities, projects and tasks is discussed in section 0700. Also see Figure C-2.)

C0600 CLASSIFICATIONS USED IN DOD PROGRAMMING SYSTEM

C0610 DOD Five-Year Defense Program

The Standard Program Classification in the Department of Defense.

I Strategic Forces
II General Purpose Forces
III Intelligence and Communications
IV Airlift and Sealift
V Guard and Reserve Forces
VI Research and Development
VII Central Supply and Maintenance
VIII Training Medical and Other General Personnel Activities
IX Administration and Associated Activities ... Military Assistance (not assigned a program number at the present time, but is a separate program)

C0620 Category

There are six categories in the numbered Program VI, Research and Development, which are as follows: (DOD Inst. 3200.6)

1. Research
2. Exploratory Development
3. Advance Development
4. Engineering Development
5. Management and Support
6. Operational Systems Development—This area is included for convenience in considering all RDT&E projects. All items in this area are major line item projects which appear as RDT&E Costs of Weapons Systems in Programs other than Program VI. Program control will thus be exercised by review of the individual research and development effort in each Weapon System.

C0630 Aggregations

OPNAV 3900.8 states, "An aggregation is an optional major subdivision of a category and may consist of a number of Program Elements within the Advanced Development or Engineering Development Cetegories." As set forth in Study Report: Programming System for the Office of the Secretary of Defense (25 June 1962), these aggregations are as follows:

ADVANCED DEVELOPMENT NAVY

6	32	03	Undersea Warfare
6	32	06	Strike Warfare
6	32	09	Fleet Air Superiority
6	32	12	Command Developments
6	32	15	Astronautics
6	32	18	Marine Corps Developments

ENGINEERING DEVELOPMENT NAVY

6	42	03	Undersea Warfare
6	42	06	Strike Warfare
6	42	09	Fleet Air Superiority
6	42	12	Command Development Programs
6	42	15	Astronautics
6	42	18	Marine Corps Developments

C0640 Program Element

As defined in DOD Directive 7045.1 (SECNAV 5000.16), a Program Element is "an integrated activity; an identifiable military capability; a force, support activity, research activity, etc., comprising a combination of men, equipment and facilities." It is the smallest subdivision of the RDT&E program normally considered within the context of the DOD Programming System. Each RDT&E element is made up of RDT&E projects in the same budget activity. Elements are identified by eight-digit numbers as set forth graphically in Figure C-1.

C0700 RELATIONSHIP BETWEEN PROGRAMMING AND APPROPRIATION CLASSIFICATIONS

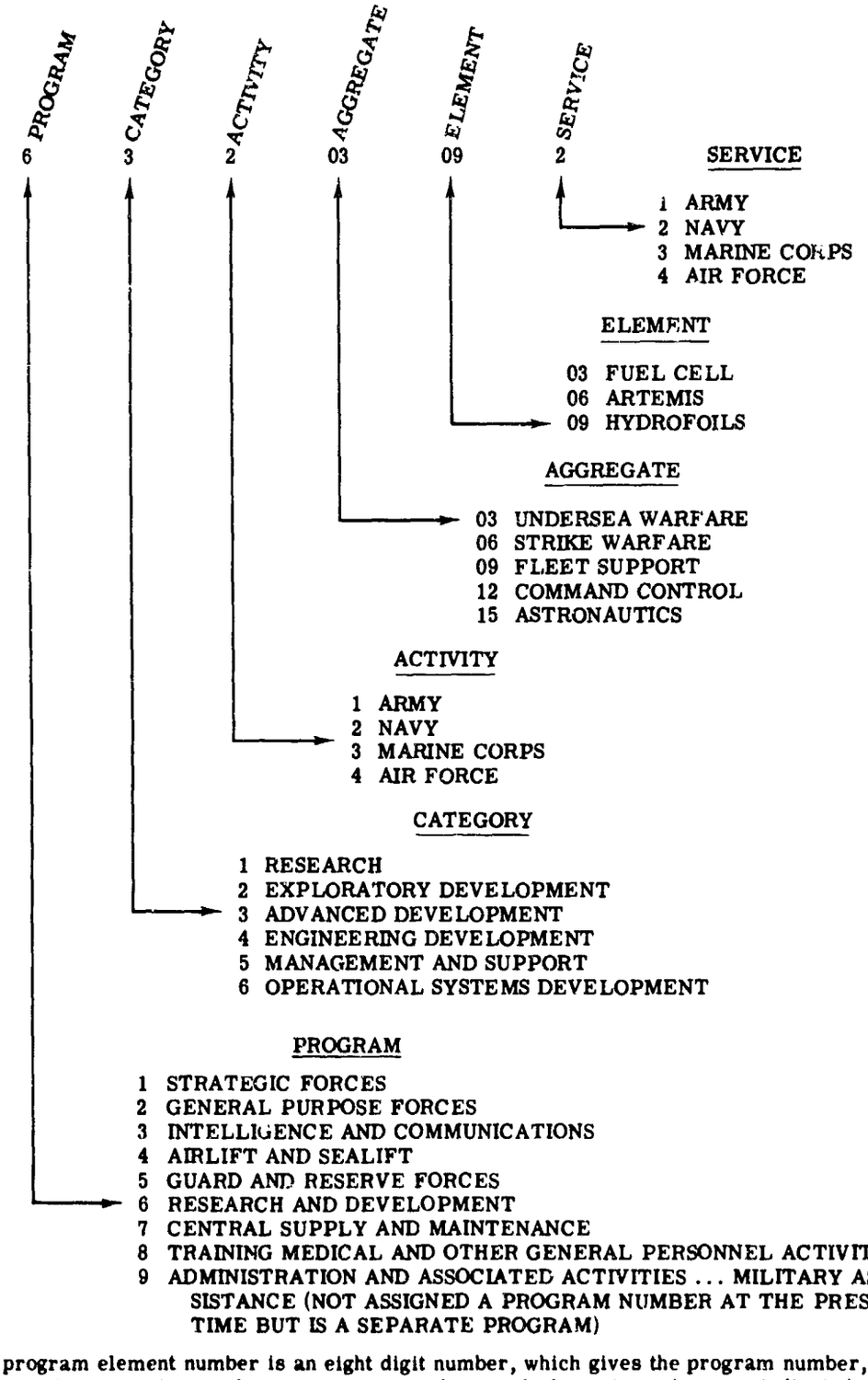
The relationship between the appropriation and programming classification systems was set forth in a statement by Assistant Secretary of Defense (Comptroller), the Honorable Charles J. Hitch, to the House Committee on Government Operations, 25 July 1962. Pertinent extracts appear below. The full testimony and additional material provided for the record, including Study Report: Programming System for the Office of the Secretary of Defense previously cited, can be found in Systems Development and Management, Part 2 of Hearings before a Subcommittee of the Committee on Government Operations, House of Representatives, 87th Congress, 2nd Session.

There are four principal RDT&E appropriations, one each for the Army, Navy, Air Force, and the Defense Agencies. A fifth appropriation, the 'Emergency Fund, Defense,' is used to finance research and development work only by transfers to the other four accounts. The four principal RDT&E appropriations have been broken down into a total of about 340 subactivities which are identical in both the budget structure and the program structure.

. . . you will notice that the first breakdown is by budget activity—Military Sciences, Aircraft and Related Equipment, and, on the next page, Missiles and Related Equipment, etc. Each budget activity in turn is broken down by major program; for example, under the budget activity 'Military Science,' appears Program VI, 'Research and Development.' Under this major program are the two sub-groups that are pertinent to Military Sciences, 'Research' and 'Exploratory Development.'

Under Budget Activity 2, 'Aircraft and Related Equipment,' we find the Major Program III, 'General Purpose Forces.' All the RDT&E sub-activities which are part of the General Purpose Forces are grouped under that heading. Next, we find the RDT&E sub-activities which belong to Major Program VI, 'Research and Development.'

FORCE STRUCTURE AND PROGRAM ELEMENT NUMBERING



The program element number is an eight digit number, which gives the program number, category number, activity number, aggregate number, and element number as indicated above.

FIGURE C-1

This interlocking of the program and the budget in the RDT&E area can be more clearly seen in Attachment 8. (See Figure C-2.) Starting at the bottom of the chart, we can see that there are tens of thousands of individual contracts and job orders financed each year by the RDT&E appropriations. These contracts and orders aggregate into something in the order of 15,000 tasks which, in turn, are aggregated into about 1600 technical projects. These 1600 technical projects have now been aggregated into the 340 or so sub-activities which were listed in attachment 7.

Proceeding now up the budget chain, shown on the left-hand side of Attachment 8, the 340-off sub-activities are aggregated into 25 budget activities and the 25 budget activities into four appropriations. The four appropriations are included under the budget title, 'Research, Development, Test, and Evaluation.

Turning now to the program chain: most of the RDT&E sub-activities fall under Program VI, 'Research and Development,' and constitute the program elements of that major program. However, about 70 RDT&E sub-activities enter into and become parts of program elements in other major programs. These program elements in turn are aggregated under sub-program groupings which in turn are aggregated under major programs.

"Attachment 8

RESEARCH, DEVELOPMENT, TEST, AND EVALUATION
FLOW CHART
Fiscal Year 1963

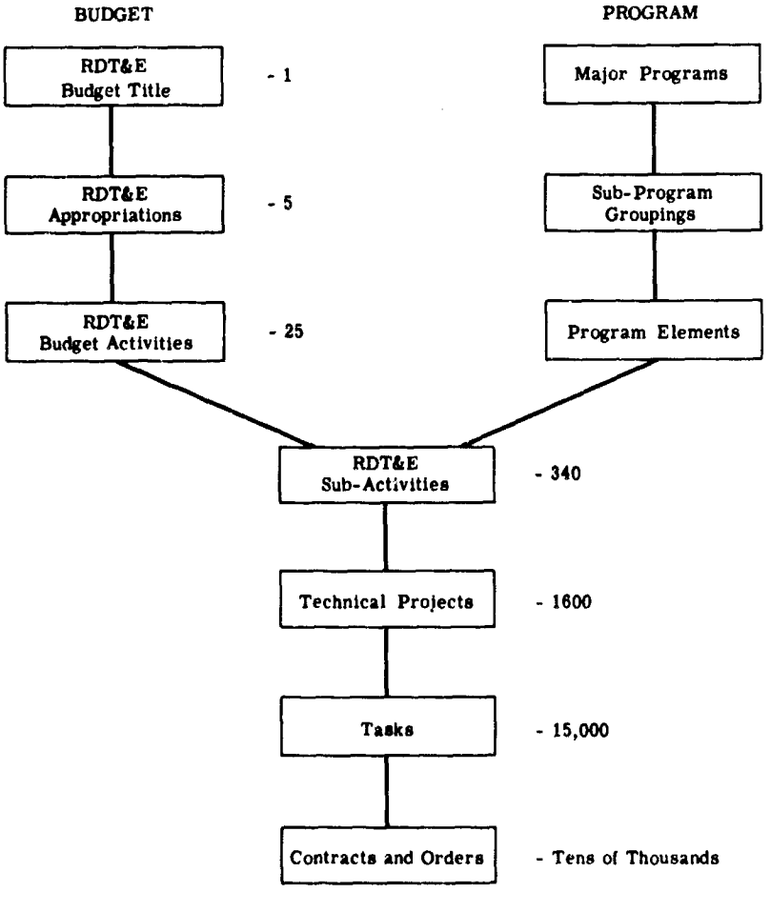


Figure C-2

ANNOTATED REFERENCE LIST

DOD Instruction 3200.6 (SECNAV 3900.14) - Provides the requirements and procedures for preparing and submitting basic program information to the Director of Defense Research & Engineering.

DOD Directive 7045.1 (SECNAV 5000.16) - Promulgates the DOD directive on the programming system and establishes responsibilities of various organizations and officials within the Dept. of the Navy in the processing and maintenance of those documents, reports, and records for the DOD Programming System.

OPNAV INST 3900.8 - Provides the policy and procedures for coordination and integration of Research, Development, Test and Evaluation with the Office of the Chief of Naval Operations and provides guidance to bureaus and offices external to OPNAV.

OPNAV INST 3910.3 - Promulgates Exploratory Development Requirements.

OPNAV INST 3910.9 - Provides the procedures and format for use in the preparation and promulgation of General Operational Requirements.

ONR INST 3910.2A - A listing and description of the Navy's requirements for research.

APPENDIX D

THE NATURE OF RDT&E EFFORT

Whereas the rest of the Department of the Navy Management Guide focuses on the management of RDT&E effort, the focus of this appendix is upon the RDT&E effort itself. The various categories of effort will be discussed and examples provided of the kinds of effort pursued under each category.

D0100 NEED FOR CATEGORIZATION OF RDT&E EFFORT

The expression "RDT&E" is often used as if it referred to a single "thing." In reality the term denotes a wide range of activities differing radically in nature, cost, and management requirements. The management tools and techniques appropriate to the development of major operational systems are vastly different from those required for optimum guidance of the pursuit of fundamental knowledge—both activities included in "RDT&E."

With promulgation of DOD Instruction 3200.6 (SECNAV 3900.14) in 1962, the RDT&E spectrum was divided into the following six broad categories:

1. Research
2. Exploratory Development
3. Advanced Development
4. Engineering Development
5. Management and Support
6. Operational Systems Development.

The RDT&E process is now viewed as an ordered series of separable and definable activities, each requiring different treatment from a management standpoint.

If the Management and Support category is omitted, the remaining five categories may be grouped into two broad classifications. The first, encompassing Research, Exploratory Development, and Advanced Development, bears the hallmark of those characteristics traditionally associated with research and development. For example, the outcome of efforts in these areas may be expected to differ markedly from the original goals; primary emphasis is placed on the generation of information regarding the feasibility of various engineering concepts or the relative desirability of alternative approaches for building military hardware. As a result, cost prediction will, in general, be extremely difficult. The Government will usually wish to perform such work in-house, or if contracted out, to retain close control over the contractor's work and to create an environment in which alternative approaches may be pursued without detriment to either party.

The second grouping, Engineering Development and Operational Systems Development, is concerned exclusively with the fabrication of hardware in its final operational configuration. In fact, the only important distinction between the two categories in this group is that Engineering Development encompasses hardware that has not been approved for production or operation. If the same work effort covered hardware that had been approved for production and service employment, it would be classified under Operational System Development.

The breakdown of RDT&E work under the six categories, and how it is assigned for implementation and funded, will be discussed in the next section.

D0200 CATEGORIES OF RDT&E EFFORT

D0210 Naval Research

Naval research includes all effort directed toward increased knowledge of natural phenomena and environment and efforts directed toward the solution of problems in the physical, behavioral and social sciences. It would, thus, by definition, include all basic research and, in addition, that applied research directed

toward the expansion of knowledge in various scientific areas. It does not include efforts directed to prove the feasibility of solutions of problems of immediate military importance or time-oriented investigations and developments. The Research elements are further characterized by using level of effort as the principal program control.

Research is the realm of ideas and theory from which advanced devices and invention finally emerge. If the objective is to increase man's knowledge of natural phenomena and environment by exploration in the physical behavioral, and social sciences, mathematics, and medicine in areas of general interest to the Navy, it is Basic. If it is in support of a possible new development, it is Applied.

For example: basic research in exploratory studies of germanium crystal structure led to concepts of its possible use as an electronics device. Methods for purifying the crystal to shape it up for solid state electronics was a kind of basic research with eventual application in mind. Research on make up and application of germanium diodes in electronic systems is clearly applied research. There is overlap.

A program of applied research at the Ordnance Research Laboratory, Pennsylvania State University (an in-house extension laboratory) resulted in major advances in guidance, homing, propulsors, torpedo form, and dynamics, all eventually applicable to the wire-guided EX-10 torpedo. Another example is an in-house research project on a new class of titanium-nickel alloys with unique dimensional and vibrational damping properties as a function of temperature and deformation.

The Basic Research is done primarily by the universities and non-profit organizations under contract, and to some extent by the Naval Research Laboratory. Applied Research is carried on by the Naval Research Laboratory, the laboratories of the bureaus and systems commands by task assignment, and by the universities and non-profit organizations under contract. Some basic research is carried on in bureau and systems commands laboratories as part of foundational research with unfettered funds provided for that purpose. (See paragraph 5.c.(5) of SECNAV 3900.13, "Management of Navy research and development laboratories.")

D0220 Exploratory Development

Exploratory Development includes all effort directed toward the solution of specific military problems, short of major development projects. This type of effort may vary from fairly fundamental applied research to quite sophisticated breadboard hardware, study, programming and planning efforts. It would thus include studies, investigations and minor development effort. The dominant characteristic of this category of effort is that it be pointed toward specific military problem areas with a view toward developing and evaluating the feasibility and practicability of proposed solutions and determining their parameters. Program control of the Exploratory Development element is normally exercised by general level of effort.

Study of fatigue characteristics of deep-diving submarines, and comparative studies on aircraft design for low-speed characteristics at the wind tunnel level are examples. Specifically, the shipboard countermeasures studies, including mine, torpedo, atomic, biological and chemical defense, being carried on by the Mine Defense Laboratory, Panama City, Fla.; Naval Research Laboratory, Washington; the Radiological Defense Laboratory, Oakland, are in Exploratory Development. Included also are such programs as nuclear propulsion, ship silencing, energy sources, explosion resistance, and many others on ships, submarines, and boats at the Naval Ship Research and Development Center, the Applied Science Laboratory, Brooklyn, and the Navy Boiler and Turbine Laboratory at Philadelphia.

D0230 Advanced Development

Advanced Development includes all projects which have been moved into the development of hardware for experimental or operational test. It is characterized by line item projects and program control is exercised on a project basis. A further descriptive characteristic lies in the design of such items being directed toward hardware for test or experimentation as opposed to items designed and engineered for eventual Service use.

Advanced Development is the realm of design and other technical feasibility studies, also of prototype studies leading to determination of relative costs of new design versus existing design modification. For example, in fiscal 1965, $2 million were budgeted to determine military usefulness, technical feasibility and cost effectiveness of Air Cushion Ships for amphibious, mine warfare, strike, and ASW missions. Also under the category is the X-15, Stellar Inertial Guidance technique being

developed for missile use, and the project ARTEMIS, a program to determine feasibility of very-long-range, active-acoustic submarine detection for surveillance purposes.

Advanced Development is normally handled by the in-house laboratories of the bureaus and systems commands and by contract with industrial laboratories. In the bureau and systems commands laboratories, the funding is done by allotment from the parent organization. Some Advanced Development projects are handled by educational, non-profit or industrial organizations on a contract basis.

D0240 Engineering Development

Engineering Developments include those development programs being engineered for service use but which have not yet been approved for procurement or operation.

Engineering Development is characterized by major line item products, and program control is exercised by review of individual projects.

D0250 Management and Support

This category includes research and development effort directed toward support of installations or operations required for general research and development use, which are not chargeable to specific projects in other categories under current operating procedures. Included would be test ranges, military construction, maintenance support of laboratories, operations and maintenance of test aircraft and ships. Costs of laboratory personnel may be included in this category or assigned to appropriate projects in other categories. Military construction costs directly related to a major development program will be included in the appropriate element.

D0260 Operational System Development

Operational Systems Development includes research and development effort directed toward development, engineering and test of systems, support programs, vehicles and weapons that have been approved for production and Service employment. This area is included for convenience in considering all RDT&E projects. All items in this area are major line item projects which appear as RDT&E costs of Weapons Systems Elements in other programs of the DOD Programming System. Program control is exercised by review of the individual research and development effort in each Weapon System Element.

ANNOTATED REFERENCE LIST

DOD Instruction 3200.6 (SECNAV Inst. 3900.14A)- Provides the requirements and procedures for preparing and submitting basic program information to the Director of Defense Research & Engineering.

SECNAV INST 3900.13A - Establishes policies and procedures for the management and operation of Navy research and development laboratories.

APPENDIX E

ORGANIZATIONS

E0100 OFFICE OF SECRETARY OF DEFENSE

E0110 Director of Defense Research and Engineering (DDR&E)

Mission: As prescribed by DOD Instruction 5129.1, the Director of Defense Research and Engineering is the principal advisor and staff assistant to the Secretary of Defense in the functional fields of scientific and technical matters; basic and applied research; research, development, test and evaluation of weapons, weapon systems, and defense material; and design and engineering for suitability, producibility, reliability, maintainability, and materials conservation.

Organization: The organization of the Office of the Director of Defense Research and Engineering is indicated on Figure E-1.

Functions: Under the direction, authority and control of the Secretary of Defense, the Director of Defense Research and Engineering supervises all research and engineering activities in the Department of Defense and performs the following functions in his assigned fields of responsibility:

a. Recommends policies and guidance governing Department of Defense planning and program development.

b. Plans and recommends an optimum integrated program of research and development to meet the requirements of national military objectives and initiates projects to fill important gaps which may exist.

c. Reviews projects, programs and objectives of programs of the military departments and other Department of Defense research and development agencies.

d. Develops systems and standards for the administration and management of approved plans and programs.

e. Evaluates the administration and management of approved policies, programs and projects.

f. Recommends the assignment or reassignment of research and engineering responsibility for the development of new weapons or weapons systems, giving due consideration to the departmental functions set forth in DOD Directive 5100.1.

g. Directs and controls (including their assignment or reassignment) research and engineering activities that the Secretary of Defense deems requiring of centralized management.

h. As approved by proper authority, engages in or designates appropriate research and development facilities to engage in basic and applied research projects essential to the responsibilities of the Department of Defense which pertain to weapons systems and other military requirements: 1. By contract with private business entities, educational or research institutions or other agencies of government. 2. Through one or more of the military departments. 3. By utilizing employees and consultants of the Department of Defense.

i. Recommends appropriate steps (including the transfer, reassignment, abolition and consolidation of functions) which, in the Department of Defense, will provide for more effective, efficient and economical administration and operation, will eliminate unnecessary duplication, or will contribute to improved military preparedness.

j. Recommends to the Secretary of Defense appropriate funding for research, development, test and evaluation, including allocations from the Emergency Fund, Department of Defense.

k. Keeps the Department of Defense informed on significant trends in scientific research relating to national security and recommends measures to assure continuing progress.

DDR&E ORGANIZATION

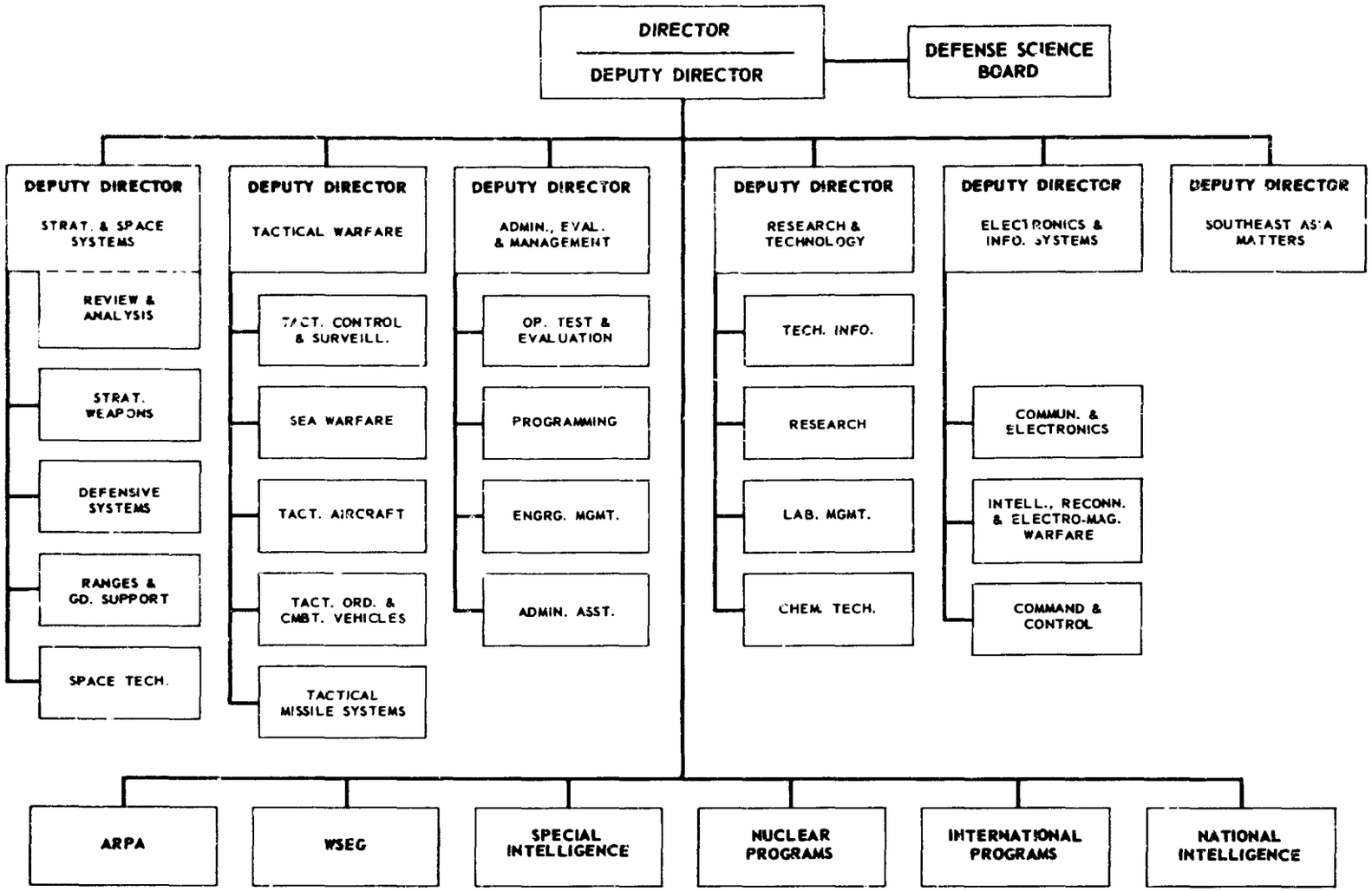


Figure E-1

l. Exercises administrative direction of the Weapons Systems Evaluation Group and assures its responsiveness to the needs of the Joint Chiefs of Staff and the Office of the Secretary of Defense for operations analysis.

m. In coordination with the Assistant Secretary of Defense (International Security Affairs), engages in programs for assistance to friendly countries both in military research and development and in the interchange of related scientific and technical information.

n. Carries out such other duties as the Secretary of Defense assigns.

Relationships: a. In the performance of his functions, the Director of Defense Research and Engineering:

1. Coordinates actions as appropriate, with the military departments and other Department of Defense agencies having collateral or related functions in the field of his assigned responsibility.

2. Maintains active liaison for the exchange of information and advice with the military departments and other Department of Defense agencies.

3. Consults with the Joint Chiefs of Staff on the interaction of research and development and strategy.

4. Seeks formal statements of military operational requirements from the military departments or the Joint Chiefs of Staff, as appropriate, for research and development projects and equipment areas which appear to require such statements.

5. Maintains or arranges for the maintenance of active liaison with appropriate research and development agencies outside the Department of Defense, including private business entities, educational or research institutions or other agencies of government.

6. Makes full use of established facilities in the Office of the Secretary of Defense, military departments and other Department of Defense agencies rather than unnecessarily duplicating such facilities.

b. The Secretaries of the military departments, their civilian assistants, and the military personnel in such departments fully cooperate with the Director of Defense Research and Engineering and his staff in a continuous effort to achieve efficient administration of the Department of Defense and to carry out effectively the direction, authority and control of the Secretary of Defense.

Authorities: a. The Director of Defense Research and Engineering, in the course of exercising full staff functions in his assigned fields, including those enumerated above, is specifically delegated authority to:

1. Issue instructions and one-time directive-type memoranda, in writing, appropriate to carrying out policies approved by the Secretary of Defense for his assigned fields of responsibilities in accordance with DOD Directive 5025.1. Such instructions and memoranda to the military departments will be issued through the Secretaries of those departments or their designees.

2. Approve, modify or disapprove programs and projects of the military departments and other Department of Defense agencies in his assigned fields to eliminate unpromising or unnecessarily duplicative programs, and initiate or support promising ones for research and development.

3. Obtain such reports and information (in accordance with provisions of DOD Directives 7700.1 and 5158.1) and assistance from the military departments and other Department of Defense agencies as may be necessary to the performance of his assigned functions.

E0111 Advanced Research Projects Agency (ARPA).

Mission: The Advanced Research Projects Agency (ARPA) administers or performs appropriate research work that: 1. Is not identified with a specific military requirement. 2. Relates to the primary functions of two or more of the military services. 3. Can be better handled by a DOD agency than by one of the military services.

Organization: The Director of ARPA reports directly to the Director of Defense Research and Engineering and the internal organization is as depicted in Figure E-2. Such personnel, facilities and funds as the Secretary of Defense deems necessary will be made available to ARPA for the performance of its assigned responsibilities.

Functions: Under the direction and control of the Director of Advanced Research Projects, the Agency performs the following functions within its assigned field of responsibility:

ADVANCED RESEARCH PROJECTS AGENCY.

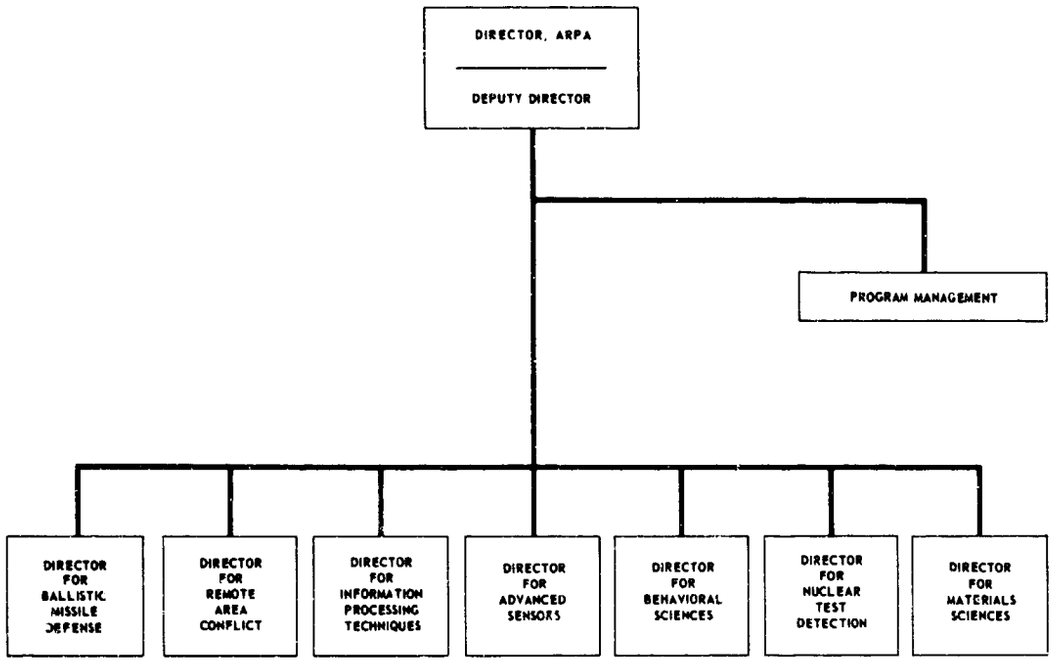


Figure E-2

a. Engages in assigned advanced research projects.

b. Arranges for the performance of and supervises the work connected with assigned advanced projects by the military departments, other Government agencies, individuals, private business entities or educational or research institutions, giving consideration to the primary functions of the military departments.

c. Recommends to the Director of Defense Research and Engineering the assignment of advanced projects to the Agency.

d. Informs the Director of Defense Research and Engineering, the Joint Chiefs of Staff, the military departments and other DOD agencies, as appropriate, of significant new developments, break-throughs and technological advances within assigned projects and of the status of such projects in order to facilitate early operational assignment.

e. Performs such other functions as the Secretary of Defense or the Director of Defense Research and Engineering assigns.

Relationships: ARPA coordinates actions, as appropriate, with the military departments and other DOD agencies having collateral or related functions in the field of its assigned responsibility. In addition, it maintains active liaison for the exchange of information and advice in the field of its assigned responsibility with the military departments, other DOD agencies and appropriate research and development agencies outside the Department of Defense, including private business entities, educational or research institutions or other agencies of Government. ARPA makes full use of established facilities in the Office of the Secretary of Defense, military departments and other DOD agencies rather than unnecessarily duplicating such facilities. Officials of the Office of the Secretary of Defense, military departments and other DOD agencies shall provide support, within their respective fields of responsibility, to the Director of Advanced Research Projects as may be necessary to carry out the assigned responsibilities and functions of the Agency.

Typical outputs: Include research, experimentation and systems development in the following areas:

a. All aspects of Ballistic Missile Defense; including, Penetration Aids, Missile Phenomenology, Systems Development, Techniques and Devices, and General Research.

b. Improvement of the United States capability to detect, identify, locate, and verify the occurrence of nuclear explosions in space, the atmosphere, underground or underwater.

c. Study of technological, environmental and sociological characteristics of remote area warfare.

d. Studies in behavioral sciences; such as, human performance, motivation, and teaching and learning.

e. Techniques of communication between men and machines and the organization of computers into powerful problem-solving systems.

f. Basic research in materials.

g. Work in the field of Sensors research.

h. Advanced engineering technical studies.

REFERENCES

1. Department of Defense Directive 5129.33, "DOD Advanced Research Projects Agency."

2. Federal Organization for Scientific Activities, 1962. National Science Foundation Publication, NSF 62-37.

E0112 Weapons Systems Evaluation Group (WSEG).

Mission: The Weapons Systems Evaluation Group, a Department of Defense organization of military and civil service personnel, conducts operational analyses and evaluations for the Joint Chiefs of Staff (JCS) and the Director of Defense Research and Engineering (DDR&E), and other elements of the Office of the Secretary of Defense as authorized by the Secretary of Defense, and participates in and supervises such WSEG study contracts with civilian or other government agencies as may be required to discharge its mission.

Organization: a. The Director of the Weapons Systems Evaluation Group is selected from among the senior officers of the Department of Defense and is appointed by the Secretary of Defense with the advice of the Joint Chiefs of Staff and the Director of Defense Research and Engineering. The Director is responsible for the internal organization and procedures of the WSEG. Such personnel, facilities and other administrative support approved for the Group, are provided from the resources of the DDR&E. To supplement the efforts of the organization, the Director of the WSEG recommends to the DDR&E such contractual arrangements for analytical and professional services that he considers necessary.

b. An example of contractual support is the Institute of Defense Analysis (IDA), a nonprofit organization, which is supported by eleven of the nation's leading universities. IDA was specifically formed as a private research corporation that would enhance the scientific capability of the Weapons Systems Evaluation Group. Today IDA's Weapons Systems Evaluation Division combines broad scientific approaches with WSEG's first-hand military experience to evolve studies that consider not only technical performance of competitive systems, but also their political and economic implications, the strategy they would permit or demand, the logistical problems of their use, their feasibility, and their probable length of life.

Functions: The Weapons Systems Evaluation Group:

a. Is responsive to study directives from the Director of Defense Research and Engineering, the Joint Chiefs of Staff, and other authorized elements of the Office of the Secretary of Defense.

b. Operating on behalf of the government, assigns tasks and projects and their priorities to contractors and receives and forwards all reports and communications relative to these tasks and projects.

c. Upon request for a WSEG Study, places a task on a contractor to undertake a "Contractor's Study" and will arrange for participation of military personnel in the study. It takes all other appropriate actions including internal review and consultation with appropriate divisions of the Joint Staff, other components of the DOD, and other agencies or consultants to ensure the highest quality of response to the assigned task. The WSEG Study incorporates such Contractor's Reports as separate identifiable parts of the WSEG Report.

d. Maintains contact and consults, as appropriate, with all contractor personnel assigned to tasks and projects under WSEG study contracts on matters pertaining to the tasks and projects.

e. Arranges with the office originating the request, the Military Departments, and other component agencies of the DOD and government, to secure relevant information requested by the contractor in pursuit of tasks and projects assigned under the WSEG study contracts.

f. Submits a quarterly status report to the Joint Chiefs of Staff and the Director of Defense Research and Engineering on the status of tasks and projects. In addition, he submits an annual fiscal year report in August.

g. In collaboration with the offices requesting studies, evaluates and reports periodically to the Director of Defense Research and Engineering on the responsiveness and quality of contractor performance under the contract.

Responsibilities: The Director, WSEG, is responsible, under the administrative direction of the Director of Defense Research and Engineering, for:

a. Advising the JCS and DDR&E, and other elements of the Office of the Secretary of Defense as requested, on matters relating to operational analyses and evaluations within his purview.

b. Providing overall direction of the WSEG, to include preparation of study directives, assignment of WSEG study tasks, provision of appropriate military participation to assist contractors in assigned tasks, the evaluation of studies in progress, the receipt of contractor's completed reports and the preparation of final WSEG Reports.

c. Supervising contractor performance under WSEG contracts.

d. Controlling all classified material and information issued to, used by or developed by contractor personnel engaged in WSEG contract studies in government furnished space, and physical security and visitor control in assigned government space utilized by WSEG and contractor personnel.

e. Identifying sensitive material and information needed by or developed by the contractor and exercising specific control over access thereto at all times and locations.

Relationships: Prior to initiating action in response to directives, WSEG will consult with the originating agency to insure the studies proposed are within the capacity of the WSEG and the contractors, to advise as to the degree to which the proposed studies are likely to result in significant findings and conclusions within a reasonable time, and to make maximum use of other in-process or completed studies.

Distribution of all completed reports is determined and made by the DOD agency initiating the study, except in special cases. Distribution external to the contractor of classified contractor-initiated studies done under a WSEG Study Contract shall be determined by WSEG. WSEG may by agreement with the contractor, circulate to agencies within the Department of Defense, preliminary drafts of all or portions of a contractor draft report for review and comment, as appropriate, to assist the contractor in the performance of assigned tasks and projects. WSEG with approval of the initiating agency, will provide or arrange for briefings at any stage of a WSEG Report, to assist in development of the report or to improve the understanding of the subject in issue.

WSEG will make available without delay to the Secretary of Defense, the Deputy Secretary of Defense, the Director of Defense Research and Engineering, and the Chairman of the Joint Chiefs of Staff, one copy of each completed report. In the case of extremely sensitive reports, distribution will be determined on a case-by-case basis.

All classified information, except as qualified below, will be issued to contractor representatives for use in accordance with Department of Defense security regulations.

Sensitive material and information, including related briefings, conferences, etc., will be specifically controlled by the Director, WSEG, as to individual contractor representatives to whom access is authorized.

The Director, WSEG, is specifically delegated (DOD Directive 5129.1) authority to obtain such reports and information and assistance from the Military Departments and other Department of Defense agencies as may be necessary to the performance of his assigned functions.

The findings and conclusions of WSEG reports shall be advisory and not binding on any group or agency of the Department of Defense.

REFERENCES

DOD Directive 5129.1, "Director of Defense Research and Engineering," providing for the establishment of WSEG.

DOD Instruction 5129.37 establishing the policies and responsibilities of WSEG.

E0130 Joint Agencies

E0131 National Security Agency. a. The National Security Agency (NSA) is located at Fort George G. Meade, Maryland. It was established by Presidential Direction in 1952 and is an element of the Department of Defense, subject to the direction and control of the Secretary of Defense.

b. Its activities are not publicized and are of a highly specialized, technical nature, involving missions relating to the national security.

c. The Secretary of Defense has assigned the Director, National Security Agency (DIRNSA) the responsibility for establishing and conducting a research and development program to meet the needs of NSA and the Departments and Agencies which are engaged in certain special activities and for the review and coordination of related research and development programs by such Departments and Agencies. National Security Council and Department of Defense Directives apply to these responsibilities. When R&D is considered necessary, DIRNSA coordinates the requirement among the Services and Agencies. Often various Services become executive agents for NSA-type projects by the nature of their primary interest, experience, and/or requirements. Related projects peculiar to one Service are reported to and reviewed by DIRNSA through continual contact, by means of programming and reporting documents and special meetings. The normal coordination point with the Navy by DIRNSA is with the Deputy Commander, Naval Communications for Cryptology/DNSG. The Assistant Director, NSA, for Research and Engineering (ADRE) has the authority to coordinate internal NSA R&D activities with the Services and Agencies.

REFERENCES

DOD Directives S-5100.20, S-3115.2, S-3115.4, C-5200.5

DOD Instruction C-3100.2.

E0132 Defense Atomic Support Agency

On May 6, 1959, the Armed Forces Special Weapons Project, which was activated in 1947 as a result of the dissolution of the Manhattan Engineer District, was redesignated the Defense Atomic Support Agency (DASA). Personnel are assigned to DASA by each of the military services. The Director, DASA, is responsible to the Secretary of Defense through the Joint Chiefs of Staff.

The Defense Atomic Support Agency (DASA) is responsible for consolidated management and direction for the Department of Defense nuclear weapons, weapons effects and nuclear weapons test program in accordance with the provisions of DOD Directive 5105.31, dated 22 July 1964. It maintains overall surveillance of, and provides direction, coordination, advice, or assistance, as appropriate, on major actions affecting the nuclear stockpile including composition, development, production, allocation, storage modification, maintenance, retirement and stockpile management services. DASA acts as the central coordinating agency for the Department of Defense with the Atomic Energy Commission (AEC) on matters pertaining to the research, development, production, stockpiling and tests of nuclear weapons; advises and assists the Joint Chiefs of Staff in the development of recommendations concerning the stockpile composition, allocation and dispersal of nuclear weapons; plans for, coordinates and supervises the conduct of DOD weapons effects tests and DOD research for the investigation of nuclear weapons effects; conducts technical standardization inspections of units having responsibilities for assembling, maintaining or storing nuclear weapons, their associated components and auxiliary equipment; and plans, programs, conducts or sponsors a variety of training, post-graduate and orientation courses.

To accomplish its mission, the DASA is organized into a headquarters in Washington, D. C.; Joint Task Force EIGHT, Field Command DASA and Test Command DASA at Albuquerque, New Mexico; the Armed Forces Radiobiology Research Institute at Bethesda, Md; a Field Command at Albuquerque, New Mexico, and military units at certain storage locations under Field Command DASA.

Relationships between the Navy and DASA in the R&D field appear to be well established: 1. The Navy originates a weapons requirement. 2. The requirement is sent by CNO (Op-75) to the JCS for approval. 3. When approved, CNO (Op-75) requests Sec. Def (DDR&E) to issue a letter thru the Military Liaison Committee (MLC) to the AEC requesting the AEC to proceed with Phase 3 (AEC/DOD agreement of 1953) "Development Engineering." After the Phase 3 letter has been signed, DASA coordinates proposed Military Characteristics (MC's) among the Services and presents the coordinated effort to the MLC for approval and transmission to the AEC. 4. The AEC sends these MC's as development guidance to the AEC laboratories and DASA assumes a monitoring responsibility. The Sandia Corporation, the Los Alamos or Livermore Laboratory, the Services and DASA Field Command participate in the development of the weapon through liaison by assigned Project Officers. Naval Air Systems Command ties into the project through the Naval Weapons Evaluation Facility (NWEF) at Albuquerque. Funds for Navy developments are the responsibility of the Navy Department.

E0133 Defense Documentation Center (DDC)

Mission: The Defense Documentation Center (DDC) of the Defense Supply Agency (DSA) is the Department of Defense central facility for research, development, test and evaluation (RDT&E) reports. These documents are available without charge to all DOD components, other Federal agencies and, as authorized, to their prime contractors, sub-contractors, grantees and to potential defense contractors.

Organization: DDC, formerly the Armed Services Technical Information Agency, (ASTIA), is under the operational control of DSA and under the policy direction of the Director of Defense Research and Engineering.

Functions: The primary function of DDC is to acquire, store, announce, retrieve, and provide secondary distribution of scientific and technical documents directly to registered users. The Center is also responsible for providing the following specific related functions:

a. Prepare document and abstract listings upon request.

b. Provide services to users, upon request, for distributing its holdings and acquisitions and for provision of bibliographic data, reference service, abstracts, and index terms related thereto.

c. Test, evaluate, and apply developed techniques and equipment which have a potential application to improve documentation services.

d. Maintain and improve a working vocabulary of terms and work toward vocabulary compatibility with other like activities, for use in the processing of technical documents throughout the DOD RDT&E effort.

e. Provide experimental or specialized documentation services as may be specifically directed by DDR&E. Typical efforts of this nature include:

(1) Providing an information service for the military regarding current RDT&E program elements, projects, task areas, and work units from periodic resumes submitted to DDR&E. (NARDIS supplies this information on Navy R&D to DDC).

(2) Provide a centralized referral service for all registered users on available DOD-sponsored sources of scientific and technical information.

Relationships: The Departments of the Army, Navy and Air Force and three other DOD components have assigned liaison representatives to DDC. In addition, one field grade officer each from the Departments of the Army, Navy and Air Force are assigned full time duty at DDC as assistants for R&D liaison.

Each DOD component is required to coordinate its document support functions with DDC and to transfer those appropriate functions which properly belong under the cognizance of the Center. Also, DOD components have contractual provisions requiring that reproducible copies of all documents containing results of RDT&E efforts be provided the Center.

By regulation, 20 copies of all scientific and technical reports generated by defense funding must be submitted to DDC on primary distribution. Exceptions to this requirement are limited to highly sensitive reports and to those reports which have no scientific or technical value.

Services: Twice each month the Center publishes and distributes the Technical Abstract Bulletin (TAB), with a companion volume of indexes, for use as reference tools, to eligible registered users of DDC services. Between 1500 and 3000 individual current document announcements are presented in each issue of TAB.

Registered users are supplied stocks of data processing forms which are used in requesting copies of documents believed to be pertinent to their current research and development projects. Users may request either hard copies of the documents or microform copies (16- or 35-mm film strips or microfiche).

DDC offers a bibliography search service through which the user receives complete descriptions of selected documents in the collection deemed pertinent to a specific research and development problem. The DDC document collection totals more than 770,000 different titles, covering all areas of science and technology.

The Center provides a referral service to identify, in answer to requests, DOD-sponsored Information Analysis Centers where state-of-the-art information may be obtained regarding specific R&D questions.

Information concerning current defense research and exploratory development effort is

available from DDC to all echelons of the DOD and to other Government agencies as specifically authorized by the DOD. Data from Research and Technology Resumes (DD Forms 1498) are stored in the Center's computer to provide an automated rapid retrieval capability for the exchange of this technical and management information.

Field Services operated by DDC receive microfilm copies of all documents as they are accessioned by the Center and announced in TAB. In these regional offices, research and development personnel of registered user organizations may review the documents and reproduce selected pages on reader-printer equipment. DDC Field Services are located in the following areas: Boston, Mass.; New York, N. Y.; Dayton, Ohio; Los Angeles, California; San Francisco, California; and Alexandria, Virginia. Extension services of DDC activities are provided by the Redstone Scientific Information Center at Huntsville, Alabama.

DDC Headquarters are located at Building No. 5, Cameron Station, Alexandria, Virginia 22314.

Those interested in this service may obtain more specific information by requesting the DDC Information Kit (available on request from DDC or any of its field services) or by telephoning the Public Affairs Officer, DDC Headquarters, Area Code 202, OXford 81981.

REFERENCES

DOD Directive 5100.36, "Department of Defense Technical Information."

DOD Instruction 5129.43, "Assignment of Functions for the Defense Scientific and Technical Information Program."

DOD Instruction 5100.38, "Defense Documentation Center for Scientific and Technical Information (DDC)." (SECNAV 3900.24)

DOD Instruction 3200.8, "Standards for Documentation of Technical Reports under the DOD Scientific and Technical Information Program." (SECNAV 3900.29)

DOD Instruction 7720.13, "Reporting of Current Research and Exploratory Development Effort at the Work Unit Level."

DOD Directive 5200.20, "Distribution statements (other than Security) on Technical Documents," NAVMAT INSTR 4000.17)

E0134 Defense Communications Agency (DCA)

The DCA was established on 12 May 1960, as an agency of the Department of Defense under the direction, authority and control of the Secretary of Defense. The Director, DCA is responsible to the Secretary of Defense through the JCS. DOD Directive 5105.19 assigns 5 functions relating to research and development to DCA:

a. Coordinate communications research and development programs of the military departments and other DOD agencies which are applicable to the DCS to ensure effective integration, standardization and compatibility and to eliminate unnecessary duplication in research and development effort and expense.

b. When authorized, assume management direction of specific communications research and development programs within the DOD to ensure maximum contribution to DCA goals.

c. Review current status of research and development efforts and budgets in support of the DCS.

d. Examine basic research efforts and new techniques for possible application to the DCS and initiate technical feasibility studies of new concepts which have DCS application.

e. Recommend research and development programs or projects required to ensure progressive improvement of the system.

REFERENCE

1. Research and Development Mgt. Study. Review of Mgmt. of the Dept. of the Navy, Vol. II, Study 3, pp. 25, 26.

E0200 OTHER GOVERNMENT SCIENTIFIC ORGANIZATIONS

E0210 Atomic Energy Commission (AEC)

The Atomic Energy Commission (AEC) was established by the Atomic Energy Act of 1946. The purpose of the Act, as amended by the Atomic Energy Act of 1954, is to provide by national policy that the development, use, and control of atomic energy shall be directed to make the maximum contribution to the general welfare and to the common defense and security; and to promote world peace, increase the standard of living, and strengthen free competition in private enterprise.

The operations of the Commission are carried out largely by industrial concerns and by private and public institutions under contract with the Commission, in accordance with the requirements and policies established by the Commission pursuant to the Atomic Energy Act. The principal AEC production and research and development activities are conducted

by contractors, usually in facilities owned by the Commission.

The Atomic Energy Commission advises and consults with the Department of Defense through the Military Liaison Committee (MLC). The MLC consists of a chairman and representatives from Departments of the Army, Navy, and Air Force. At present the MLC is headed by the Assistant to the Secretary of Defense (Atomic Energy).

The Navy's Research and Development interests are divided into three groups: 1. Atomic weapons. 2. Naval reactors for ship propulsion. 3. Other atomic power activities. In the weapons field, work is done for the Navy through specific agreements, with the flow of information clearly defined by CNO instructions. The primary channel for the flow of information is OPNAV (OP75) through the MLC to the AEC. Matters dealing with weapon conception, weapon feasibility studies or weapon development requirements are all processed through DDR&E and the MLC to the AEC. In the case of weapon development requirements, the JCS establishes such requirements prior to submission to DDR&E. The Navy contact point for nuclear weapon development matters is OPNAV (Op-75).

E0220 National Aeronautics and Space Administration (NASA)

The establishment of the NASA by the National Aeronautics and Space Act of 1958 has had, and will continue to have a great influence on the Navy's R&D programs. The statutory functions of NASA are to:

a. Conduct research into problems of flight within and outside the earth's atmosphere.

b. Develop, construct, test, and operate aeronautical and space vehicles for research purposes.

c. Conduct such activities as may be required for the exploration of space.

d. Arrange for participation by the scientific community in planning scientific measurements and observations to be made through use of aeronautical and space vehicles.

E0221 The Office of Advanced Research and Technology of NASA is responsible for the planning, direction, execution, and evaluation of advanced programs which may have general application to aeronautical and space objectives. The particular areas of responsibility include studies in the areas of aircraft, spacecraft, launch vehicles, nuclear systems, space power systems, propulsion, electronics systems, biotechnology, and human research, and basic research in certain areas.

E0222 The Office of Manned Space Flight is responsible for planning, directing, and executing manned space flight missions, including the development of large launch vehicles and spacecraft, and the launch, operational, logistic, life support, and related systems required for man to conduct scientific and technological missions in space.

E0223 The Office of Space Science and Applications is responsible for unmanned scientific explorations of space and the planets, and for communications, meteorological, and related peaceful applications. It provides the focal point for NASA contacts with the Space Science Board of the National Academy of Sciences.

E0224 The Office of Tracking and Data Acquisition is responsible for the development and operation of tracking and data acquisition facilities, systems, equipment, and instrumentation necessary to acquire, record, process, and transmit technical and scientific data for NASA programs.

E0225 The Aeronautics and Astronautics Coordinating Board. In the aeronautical field, the excellent R&D relations which the Navy had with NACA, the predecessor of NASA, have carried over. Coordination of major programs is effected through the Aeronautics and Astronautics Coordinating Board. This Board is a high-level forum used to exchange information between NASA and DOD. The Department of Defense is represented on this board by the DDR&E with participation by Ass't SECNAV (R&D). The Coordinating Board has established panels covering the various areas of development; i.e., unmanned space flight, launch vehicles, facilities and ground support, and manned space flight.

E0300 OFFICE OF SECRETARY OF THE NAVY

E0310 Assistant Secretary of the Navy (Research and Development) [ASN(R&D)]

E0311 Duties and Responsibilities. Subject to the direction of the Secretary of the Navy, the Assistant Secretary of the Navy (Research and

Development) is authorized and directed to act for the Secretary in his area of responsibilities. In coordinating and directing the efforts of the Office of the Chief of Naval Operations; Headquarters, Marine Corps; the Naval Material Command, and other bureaus and offices in the performance of the research, development, engineering, test and evaluation programs, and in fulfilling the operational requirements of the Operating Forces, he shall:

a. Initiate, review and evaluate appropriate actions regarding program development and execution.

b. Formulate, develop and promulgate management policies, systems, procedures, standards, or decisions, which are necessary for effective administration.

c. Formulate recommendations on fundamental policies, orders or directives for promulgation by the Secretary of the Navy in accordance with paragraph 3a of SECNAVINST 5430.7G, which are considered necessary for the effective administration of the Department of the Navy and which are beyond the scope of his individual responsibility.

d. Establish policy, exercise management and control of, direct, and supervise all Department of the Navy research, development, engineering, test and evaluation matters, including general management of the appropriation "Research, Development, Test and Evaluation, Navy;" and for oceanography, ocean engineering, and closely related matters.

e. Act as Chairman of the Research and Development Committee, Department of the Navy.

f. Exercise immediate supervision of the Office of Naval Research.

E0312 Functions. In accordance with his assigned responsibilities as stated above, the Assistant Secretary of the Navy (Research and Development) initiates, evaluates, formulates, recommends, and promulgates, as necessary and appropriate:

a. Policies and guidance governing Department of the Navy planning and programming, including the systems and standards for their administration and management.

b. Integrated programs of research and development to meet the requirements of naval objectives, including the initiation of efforts to fill important gaps which may exist.

c. Appropriate funding, personnel and facilities for research, development, engineering, test and evaluation programs.

d. Status and objectives, and the related study and evaluation efforts of projects and programs of the Department of the Navy.

e. Acceptability of the research and development equipments and systems for production, procurement, and introduction into the Fleet.

f. Information for the Department of the Navy on significant trends in scientific research relating to the national security and measures to assure continuing progress in naval technology.

E0313 Relationships. In the performance of his functions, the Assistant Secretary of the Navy (Research and Development):

a. Coordinates actions, as appropriate, with the Under Secretary and other Assistant Secretaries having collateral or related functions in the field of his assigned responsibilities.

b. Consults with the Chief of Naval Operations, and the Commandant of the Marine Corps, as appropriate, on the planning, programming, status and progress of the research, development, test and evaluation programs in relation to the fulfillment of his operational requirements.

c. Consults with the Chief of Naval Material, the Chief of Naval Research, the Chief of Naval Personnel, and the Chief of the Bureau of Medicine and Surgery on all aspects pertaining to the execution of research, development, engineering, test and evaluation programs.

d. Maintains active liaison with the following:

1. Director of Defense Research and Engineering

2. Assistant Secretary of the Army (Research and Development)

3. Assistant Secretary of the Air Force (Research and Development)

4. Other centers of research and development interest in the government.

E0314 Organization. The ASN(R&D) functions with an immediate staff of a Naval Aide, a Marine Corps Aide (who also serves as Special

Assistant for Marine Corps matters), three Naval Officers as Special Assistants, four Civilian technical Special Assistants, and a Special Assistant for financial management. While there is a nominal grouping of staff functions keyed mostly to the special knowledges and backgrounds of individual staff members, the staff operates generally without specifically assigned duties and mutually assist and support each other in sharing the total office workload.

The principal advisors to the ASN(R&D) are the Deputy Chief of Naval Operations (Development), the Deputy Chief of Staff (R&D) Marine Corps, the Chief of Naval Research, the Chief of Naval Development, the Oceanographer of the Navy, Director of Navy Laboratories (DNL), and the Project Managers of Secretary of the Navy designated Projects.

REFERENCES

SECNAV INST 5430.7G, "Assignments of responsibilities to and among the Civilian Executive Assistants to the Secretary of the Navy," provides amplification of basic responsibilities set forth in General Order No. 5.

SECNAV INST 5430.66, "Assignment of duties and responsibilities to the Assistant Secretary of the Navy (Research and Development)," amplifies the provisions of SECNAV INST 5430.7 above and constitutes the basic charter for the ASN(R&D).

SECNAV INST 5430.67, "Assignment of responsibilities for research, development, test, and evaluation," assigns specific duties and responsibilities to DCNO(D), DCS(R&D) Marine Corps, CND, CNR, CNP, Chief BUMED, and Project Managers of SECNAV Designated Projects for support and assistance to the ASN(R&D).

E0330 Office of Program Appraisal (OPA)

Background: The Office of Program Appraisal, was established by SECNAVINST 5430.60 and replaced completely the Office of Analysis and Review. All references in outstanding instructions to the Office of Analysis and Review, however, are construed as referring to the Office of Program Appraisal.

Mission: The Office of Program Appraisal provides the Secretary of the Navy with a small appraisal staff to assist him in assuring that existing and proposed Navy and Marine Corps programs provide the optimum means of achieving the objectives of the Department of the Navy. This Office concentrates on the analysis of objectives and the programs proposed to achieve these objectives, including evaluation of requirements and plans.

Organization: The Office of Program Appraisal is a staff office under the immediate supervision of the secretary of the Navy. The organization of the office is as shown on Figure E-3.

Functions. The Office of Program Appraisal:

a. Analyzes Department of the Navy objectives and the validity, adequacy, feasibility and balance of proposed programs to meet them as a basis for the Secretary to assess the overall direction and priority of effort within the Department of the Navy.

b. Conducts, or provides the guidelines for, and coordinates special studies as requested by the Secretary of the Navy and his Civilian Executive Assistants, including studies for the Secretary of Defense.

c. Appraises and advises the Secretary of the Navy and his Civilian Executive Assistants concerning Program Change Requests and other substantive or procedural documents used in the Navy Department Planning and Programming System. Recommends for Secretarial signature such instructions as are necessary for the operation of the System. Presents programming matters to the Secretary for action and, where appropriate, arranges for briefings of the Secretary and his assistants.

d. Reviews and Evaluates the responsiveness of the Department of the Navy programming system in meeting the needs of the Secretary, and present recommendations thereon as required."

e. Insures that the analytical capability and the necessary information are available to permit a knowledgable review of the cost and effectiveness of both proposed and approved programs.

f. Recommends, in cooperation with the Office of the Chief of Naval Operations, the Headquarters, Marine Corps, the Office of the Chief of Naval Material, and the System Commands, Bureaus, and other offices, the application of procedures and techniques which will provide information on important programs, including major weapon systems.

g. Develops, in coordination with the Office of the Chief of Naval Operations and the Headquarters, Marine Corps, procedures and techniques which will insure that all proposed programs meet the criterion of personnel feasibility, both qualitatively and quantitatively.

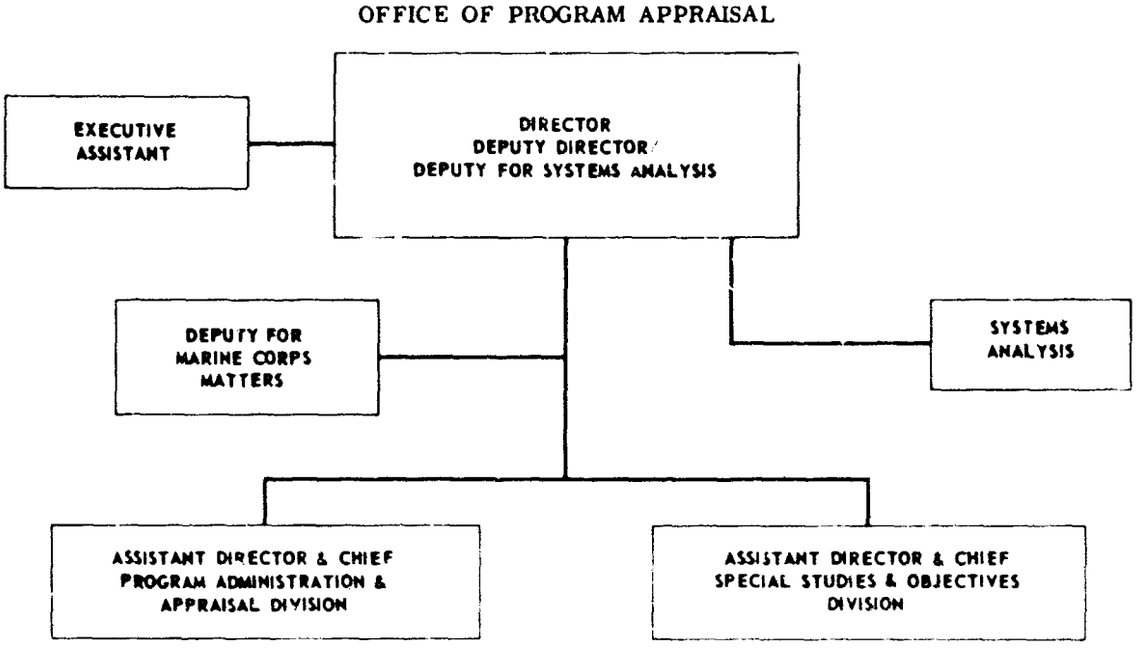


Figure E-3

h. Prepares such other analyses, statements and reports as the Secretary of the Navy may direct.

REFERENCE

1. SECNAVINST 5430.60. "Establishment of the Office of Program Appraisal."

E0400 CHIEF OF NAVAL OPERATIONS (CNO)

Mission: As stated in General Order No. 5: "The Chief of Naval Operations is the senior military officer of the Department of the Navy and takes precedence above all other officers of the naval service, except an officer of the naval service who is serving as Chairman of the Joint Chiefs of Staff. He is the principal naval adviser to the President and the Secretary of the Navy on the conduct of war, and the principal naval adviser and naval executive to the Secretary on the conduct of the activities of the Department of the Navy. The Chief of Naval Operations is the Navy member of the Joint Chiefs of Staff, and is responsible for keeping the Secretary of the Navy fully informed on matters considered or acted upon by the Joint Chiefs of Staff; in this capacity, he is responsible under the President and the Secretary of Defense for duties external to the Department of the Navy as prescribed by law."

In the exercise of this responsibility, the Chief of Naval Operations commands the Operating Forces of the Navy, the Naval Material Command, the Bureau of Naval Personnel, and the Bureau of Medicine and Surgery; plans for and determines the material support needs of the Operating Forces (less Fleet Marine Forces and other assigned Marine Corps forces) including equipment, weapons or weapons systems, materials, supplies, facilities, maintenance, and supporting services. This latter responsibility includes the determination of the military performance requirements of and priorities of things to be developed or procured, and the determination of the order in which ships, aircraft, surface craft, weapons or weapons systems, and facilities are to be acquired, constructed, maintained, altered, repaired, and overhauled.

Organization: The organization of the Office of the Chief of Naval Operations is depicted on Figure E-4. The mission and functions of those elements of this organization which have principal RDT&E responsibilities follow:

E0410 Director, Navy Program Planning (DNPP) (OP-090)

E0411 Mission. In accordance with the OPNAV Organization Manual the Director, Navy Program Planning, exercises centralized supervision and coordination of the Navy Program Planning, study, and information efforts in order to ensure the integration of planning, programming,

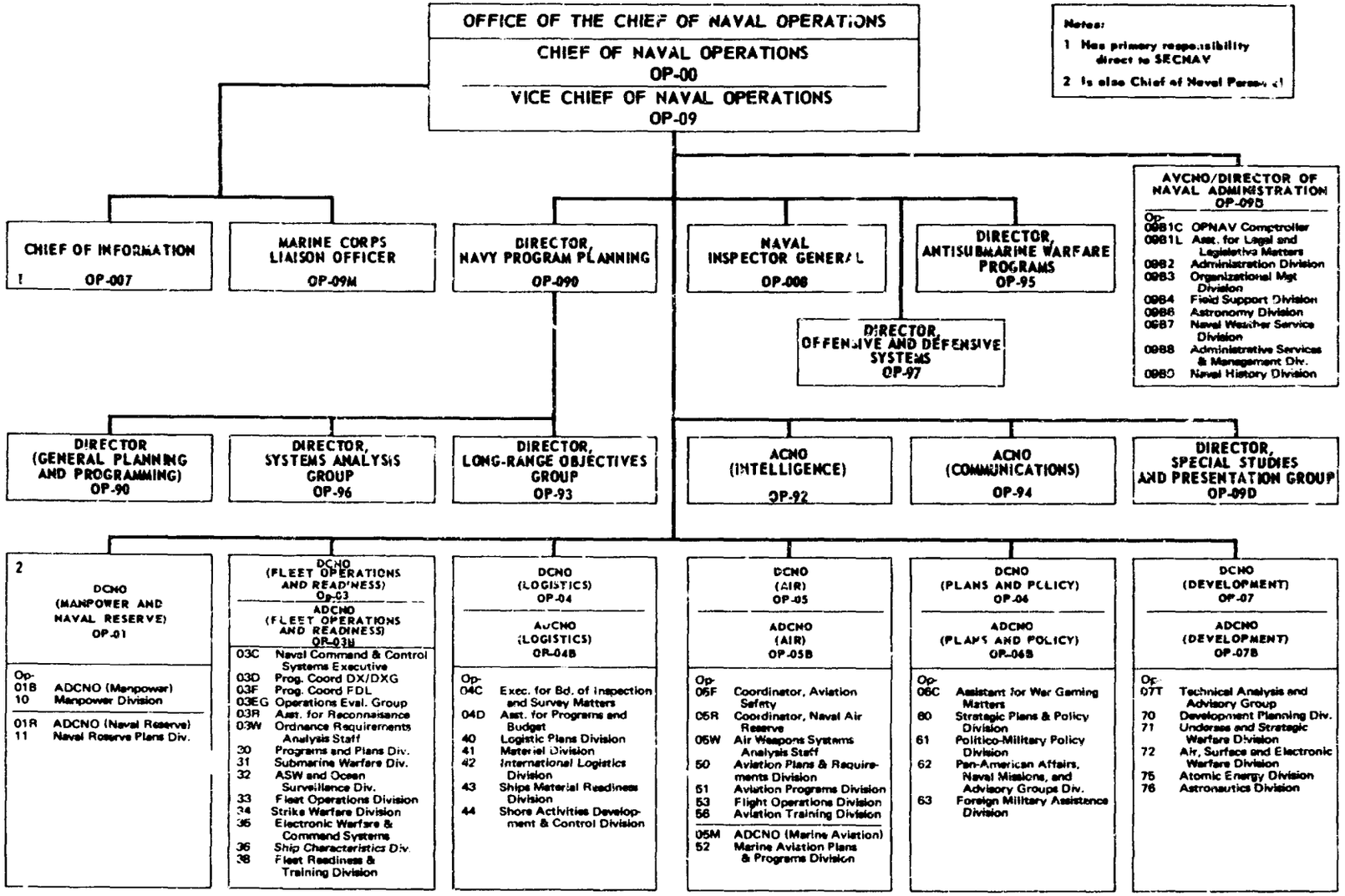


Figure E-4 - Office of the Chief of Naval Operations

budgeting, appraising, and information systems within the Office of the Chief of Naval Operations and the management echelons subordinate to the Chief of Naval Operations.

E0412 Functions (RDT&E)

a. Reviews and evaluates programs for balance of individual programs, and overall balance within the total Navy programs; ensures adequacy of program development to support Navy plans; and recommends changes to program sponsors or the Vice Chief of Naval Operations, when necessary.

b. Develops and operates an integrated program planning and information system for the Chief of Naval Operations; and administers the Navy Department Program Information Center.

c. Exercises centralized coordination within the Office of the Chief of Naval Operations in all Congressional matters pertaining to authorizations, appropriations and Navy Programs; provides support to the Chief of Naval Operations and the Secretary of the Navy as required in preparation for and during Congressional testimony on the budget; and assists as necessary with other matters pertaining to the Congress.

d. Provides guidance and exercises coordination in the preparation and dissemination of Chief of Naval Operations program/budget guidance and policy statements as required.

e. Provides policy guidance within OPNAV for implementation of the Resource Management System.

f. Serves as the primary point of contact within the Office of the Chief of Naval Operations for matters pertaining to the review of Secretary of Defense guidance papers, statements and memoranda on Navy programs, and force structures.

g. Reviews program, financial and manpower decisions and evaluates their impact on the Navy program effort; and recommends to program sponsors or the Vice Chief of Naval Operations program adjustments to restore overall program balance.

h. Provides a program cost estimating service to program sponsors.

i. Maintains liaison with the appropriate offices of the Navy, Marine Corps, Secretary of Defense and other Services on matters concerning planning, programming, budgeting and appraising; and serves as the primary point of contact within the Office of the Chief of Naval Operations for such matters.

j. Evaluates program progress and makes recommendations to the program sponsors or the Chief of Naval Operations for corrective action as required.

k. Supervises the program change control system for the Chief of Naval Operations.

l. Conducts a continuing analysis of strategic, tactical, technological and political factors bearing on the long range development and force objectives of the Navy; reviews and contributes to the Navy Mid-Range Study and Navy Long Range Strategic Study; develops supporting studies in specific areas as needed; and generates for the Chief of Naval Operations an integrated statement of long range Navy missions, tasks, broad development goals and force structure objectives.

m. Supervises the study effort of the Office of the Chief of Naval Operations concerned with Navy Programs; supervises the external study effort required by the Chief of Naval Operations; ensures coordination of the total study effort of the Department of the Navy related to Navy Programs; conducts studies as necessary; and acts as Chairman of the Navy Department Study Coordination Council.

n. Acts as Scientific Officer to the Center for Naval Analyses.

o. In collaboration with the Deputy and Assistant Chiefs of Naval Operations, arranges for presentation of Navy programs and plans associated therewith.

p. Provides guidance and exercises centralized coordination in the preparation and promulgation of Navy programs and plans associated therewith.

q. Coordinates the preparation of the Department of the Navy Program Objectives for the Chief of Naval Operations.

r. Obtains through control and coordination of Navy Information Systems the development of an integrated information system which will meet the requirements of all levels of management in the Navy; acts as central point of contact within the Office of the Chief of Naval Operations for Automatic Data Processing (ADP) matters.

E0420 Deputy Chief of Naval Operations (Manpower and Naval Reserve) (OP-01)

E0421 Mission. The DCNO(M&NR) implements the responsibilities of the Chief of Naval Operations for planning, programming, controlling, and appraising the Navy's military manpower, manpower support, and the Naval Reserve.

E0422 RDT&E Functions. Determines Operational Requirements for the areas of manpower and personnel within the Navy's RDT&E planning and programming system. Determines the implications, for manpower planning, of new proposed weapon and support systems, by conducting continuing analysis and review of development planning and requirements information provided by the Navy's future research, test, and evaluation plans and programs. Approves for use in the Navy's manpower program those manpower planning and control systems emerging from the Navy's RDT&E effort, and develops policies, plans and procedures for the introduction of such systems.

E0430 Deputy Chief of Naval Operations (Fleet Operations and Readiness) (OP-03)

E0431 Mission. The DCNO(FO&R) implements the responsibilities of the Chief of Naval Operations in respect to the operations and readiness of the Operating Forces of the Navy, except MSTS, including their employment, training and readiness for war.

E0432 RDT&E Functions. Formulates ship concepts and determines the characteristics of, and requirements and priorities for, ships and waterborne craft and their associated equipment, weapons, and support systems, in collaboration with DCNO(D) and the ACNO (Communications). Advises in the plans for and the determination of the RDT&E which are adequate and responsive to long range objectives, immediate requirements, fiscal limitations and advancing technology. Approves for service use, those items, less aircraft and aircraft support items, emerging from test and evaluation, and makes recommendations for the procurement of certain items not yet so approved (less ASW systems, weapons and equipment).

E0433 Submarine Warfare Division (OP-31) (RDT&E Functions). This Division maintains liaison with and advises the DCNO (Development) on research, development, test and evaluation programs concerned with submarine warfare. OP-31 provides the necessary operational information on submarine warfare matters through DCNO (Development) to those technical agencies conducting submarine research, development, test and evaluation.

E0434 Anti-Submarine Warfare and Ocean Surveillance Division (OP-32) (RDT&E Functions). This Division maintains liaison with and advises the DCNO (Development) and the Director, Anti-submarine Warfare Programs on: research, development, and test and evaluation programs concerned with Anti-submarine Warfare, Mine Warfare, and Ocean Surveillance.

E0435 Strike Warfare Division (OP-34) (RDT&E Functions). The Strike Warfare Division provides guidance in the field of Strike Warfare to those offices responsible for the development of weapon systems and equipment.

E0436 Electronic Warfare and Command Systems Division (OP-35) (RDT&E Functions). This Division formulates and/or revises operational requirements to establish standards for the operational performance, and development of new command and control systems, electronic warfare, and other electronic systems and facilities; reviews pertinent technical development plans and recommends appropriate changes; and collaborates with appropriate offices of the Deputy Chief of Naval Operations (Development) as required.

E0437 Ships Characteristics Division (OP-36) (RDT&E Functions). Keeps abreast of Research and Development Programs and insures the introduction of new developments into ships in a timely, effective and feasible manner.

E0440 Deputy Chief of Naval Operations (Air) (OP-05)

E0441 Mission. The DCNO (Air) implements the responsibility of the Chief of Naval Operations in the determination of requirements and the planning, preparation, and execution of programs pertaining to naval aviation; acts as principle adviser to him on naval aviation matters; and acts as his representative in naval air operational matters involving relationships with other governmental and civil agencies.

E0442 RDT&E Functions. Among his many functions, DCNO (Air) maintains liaison with the DCNO (Development) regarding the monitoring of the progress of naval aviation programs during research, development, testing, and evaluation phases; recommends priorities for aeronautical developments to meet fleet requirements; and coordinates with cognizant of-

fices and commands in integration of such developments with other new developments, and their assimilation into the fleet.

He sponsors programs for the procurement of aircraft, air-launched missiles, and aviation conventional weapons; as activity sponsor, coordinates funding of aircraft, missiles, weapons and weapon support equipments; sponsors and coordinates funding of operations and maintenance programs for aviation; and directs the bureaus and offices with regard to requirements for the procurement, modification, supply distribution, maintenance, overhaul, and disposal of aircraft.

In addition, the DCNO (Air) determines the aviation planning factors and the aviation support requirements for aircraft and aircraft related items, including aviation ammunition and air-launched missiles; monitors the effectiveness of plans and programs for the provision of such support; and furnishes guidance and procurement objectives on matters pertaining to such items.

E0450 Deputy Chief of Naval Operations (Development) (OP-07)

E0451 Mission. To implement the responsibilities of the Chief of Naval Operations and to assist the Assistant Secretary of the Navy (Research and Development) with respect to coordination, integration and direction of the Navy Research, Development, Test and Evaluation (RDT&E) Program.

E0452 Organization. The organization of the Office of DCNO (Development) is depicted on Figure E-5. The mission and function of the several divisions are detailed in subsequent sections.

E0453 Functions. In fulfillment of his RDT&E responsibilities, the DCNO(D) performs the following functions:

a. Acts for the Chief of Naval Operations as appropriation sponsor for the Appropriation Research, Development, Test and Evaluation, Navy.

b. Manages the planning and reporting procedures for the conduct of the Research, Development, Test and Evaluation Program.

c. Coordinates the formulation of, and promulgates the Research, Development, Test and Evaluation requirements resulting from the concerted efforts of the Staff of the Chief of Naval Operations.

d. Coordinates exchange of inter-service Research, Development, Test and Evaluation information to enhance Research, Development, Test and Evaluation efforts, preclude duplication of effort where inappropriate, and benefit from commonality.

e. Supervises the formulation of Navy Program Objectives and the annual budget for Research, Development, Test, and Evaluation to achieve the optimum response to stated requirements within the fiscal constraints of the Five Year Defense Program.

f. Appraises the progress of Research, Development, Test, and Evaluation effort, and recommends projects for curtailment, suspension, or cancellation, as appropriate, in favor of those having more promise, greater military worth, or more imminent need.

g. Exercises leadership in maintaining high levels of competence, morale, and motivation in the Navy Research, Development, Test, and Evaluation community.

h. Develops plans and policies for international cooperative research and development of military equipment for naval use.

i. Advises the Chief of Naval Operations on all matters pertaining to nuclear energy.

j. Provides direction in the name of Chief of Naval Operations by acting in Research, Development, Test and Evaluation matters related to, but not limited by, the following:

(1) Joint Chiefs' of Staff actions.

(2) Planning for and conduct of all types of warfare.

(3) Support of Research, Development, Test and Evaluation shore activities.

(4) Organization, administration, training, and support of Naval Reserve.

(5) Science and technology.

(6) Hydrographic, oceanographic, aeronautical, navigational, geodetic, meteorological, and logistic information.

(7) Naval manpower requirements.

(8) Impact of advancing technology on strategic plans and policies.

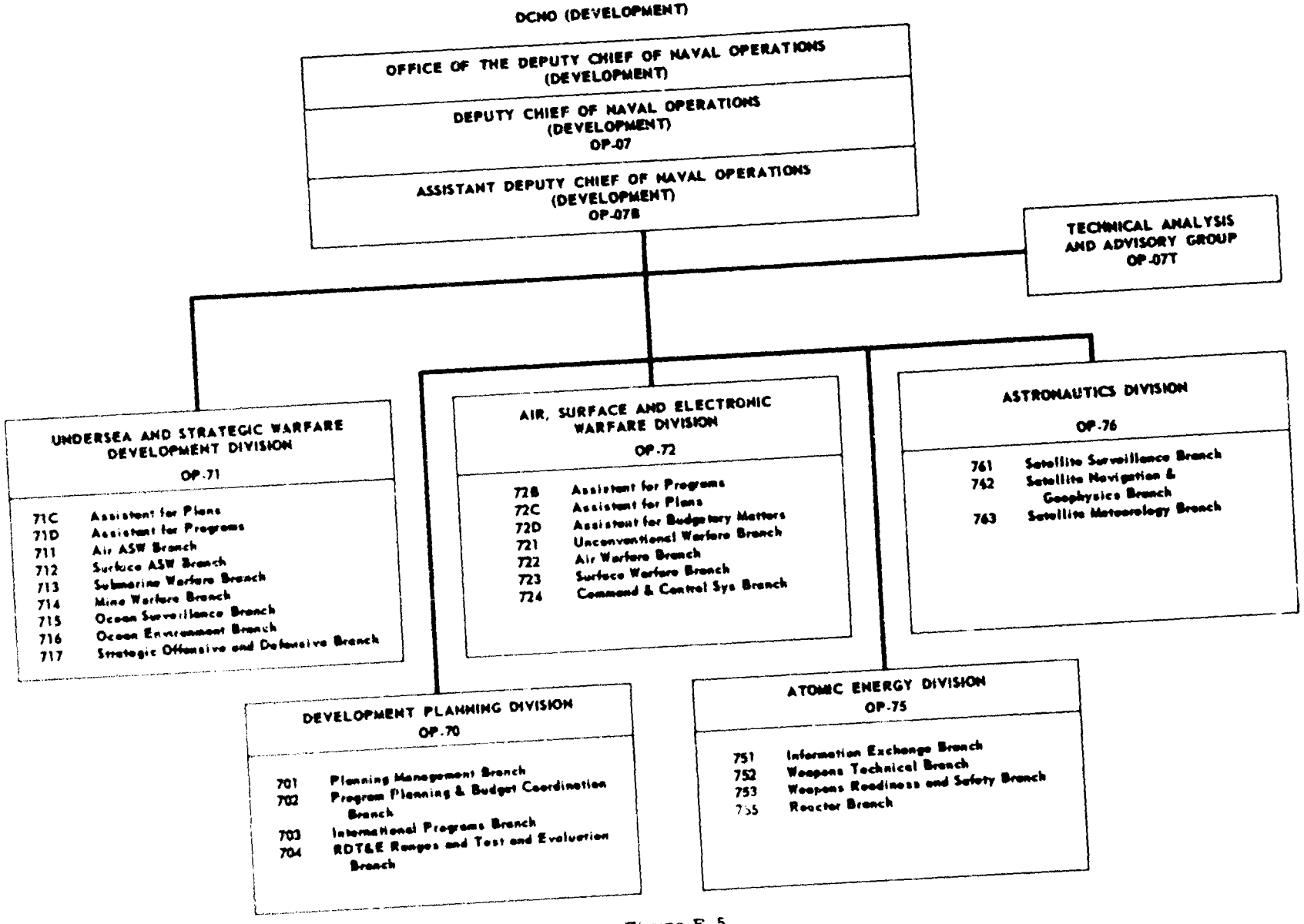

DCNO (DEVELOPMENT)
OFFICE OF THE DEPUTY CHIEF OF NAVAL OPERATIONS (DEVELOPMENT)
DEPUTY CHIEF OF NAVAL OPERATIONS (DEVELOPMENT) OP-07
ASSISTANT DEPUTY CHIEF OF NAVAL OPERATIONS (DEVELOPMENT) OP-07B
TECHNICAL ANALYSIS AND ADVISORY GROUP OP-07T
UNDERSEA AND STRATEGIC WARFARE DEVELOPMENT DIVISION OP-71
71C Assistant for Plans
71D Assistant for Programs
711 Air ASW Branch
712 Surface ASW Branch
713 Submarine Warfare Branch
714 Mine Warfare Branch
715 Ocean Surveillance Branch
716 Ocean Environment Branch
717 Strategic Offensive and Defensive Branch
AIR, SURFACE AND ELECTRONIC WARFARE DIVISION OP-72
72B Assistant for Programs
72C Assistant for Plans
72D Assistant for Budgetary Matters
721 Unconventional Warfare Branch
722 Air Warfare Branch
723 Surface Warfare Branch
724 Command & Control Sys Branch
ASTRONAUTICS DIVISION OP-76
761 Satellite Surveillance Branch
762 Satellite Navigation & Geophysics Branch
763 Satellite Meteorology Branch
DEVELOPMENT PLANNING DIVISION OP-70
701 Planning Management Branch
702 Program Planning & Budget Coordination Branch
703 International Programs Branch
704 RDT&E Ranges and Test and Evaluation Branch
ATOMIC ENERGY DIVISION OP-75
751 Information Exchange Branch
752 Weapons Technical Branch
753 Weapons Readiness and Safety Branch
755 Reactor Branch

Figure E-5

(9) Organization, training, and readiness of naval personnel and naval forces.

(10) Naval intelligence systems and Defense intelligence systems.

(11) Command, control, communications, cryptology, and radio frequency spectrum.

(12) Health and welfare of Navy personnel and their dependents.

(13) New training programs to ensure the efficiency of Navy personnel, including Naval Reserve, in peace or war.

(14) Navy Department Study Program.

(15) Automation, including automatic data processing systems.

(16) Management procedures and techniques.

(17) Operations research, systems analysis, and technology.

k. Provides policy guidance to and exercises technical direction of the Commander, Operational Test and Evaluation Force, in all matters relating to the Navy Research, Development, Test and Evaluation program, and maintains direct contact with this activity and the developing agencies to ensure the expeditious conduct of research, development, test and evaluation projects assigned to Fleet units.

l. Assists the Assistant Secretary of the Navy (Research and Development) in the direction, review and appraisal of all Navy Research, Development, Test and Evaluation Programs to ensure fulfillment of stated objectives.

E0454 The Technical Analysis and Advisory Group's (OP-07T) mission is to insure the continuing, progressive and significant improvement in the effectiveness of naval systems by providing a broad continuing technological overview of all phases of RDT&E conducted by the Department of the Navy.

E0455 Development Planning Division (OP-70). The mission of this Division is to manage the planning and budgetary responsibilities of the DCNO(D) with respect to the Navy RDT&E programs.

The formulation of these plans and programs is performed in collaboration with representatives of the Chief of Naval Research, and the Commandant of the U. S. Marine Corps, to arrive at a coordinated and integrated Department of the Navy RDT&E Program.

With the assistance of other OP-07 divisions, OP-70 provides plans and program/budget coordination.

OP-70 develops plans and policies for international cooperative R&D of military equipment for naval use and insures expeditious conduct of Test and Evaluation through OPTEVFOR.

E0456 Undersea and Strategic Warfare Division (OP-71), implements the responsibilities of DCNO(D) in the undersea and strategic warfare area.

E0457 Air, Surface and Electronic Warfare Division (OP-72), implements the responsibilities of DCNO(D) for those RDT&E programs in air, surface and electronic warfare.

E0458 Atomic Energy Division (OP-75) is the principal adviser to CNO in all matters pertaining to military application of nuclear energy. The Division initiates, follows up and coordinates through established agencies, naval action required to implement decisions and policies of the President, the Atomic Energy Commission, the Secretary of Defense, the Secretary of the Navy, and the Chief of Naval Operations with respect to the military application of atomic energy.

The Division is also responsible to DCNO (Fleet Operations and Readiness) for operational and readiness matters involving nuclear weapons and reactors.

E0459 Astronautics Division (OP-76), implements the responsibilities of the DCNO(D) for directing and coordinating the prosecution of astronautic research and development programs.

E0460 Assistant Chief of Naval Operations (Intelligence) (OP-92)

E0461 Mission. To serve as the principal staff advisor to the Secretary of the Navy and to the Chief of Naval Operations on intelligence and security plans and policy matters; to implement the responsibilities of the Chief of Naval Operations to develop, coordinate and promulgate policies, plans and programs for intelligence and security activities of the Department of the Navy; to represent the Department of the Navy on the United States Intelligence Board; and to advise and assist officials of the Department of the Navy in matters of protocol and liaison with foreign officials

E0462 RDT&E Function. Sponsors requirements for RDT&E of new and improved equipment and techniques related to the intelligence mission and collaborates on actions to fill these requirements.

E0470 Assistant Chief of Naval Operations (Communications) (OP-94)

E0471 Mission. To exercise, as the communications executive to the Chief of Naval Operations, overall authority, throughout the Department of the Navy, in matters pertaining to Communications, Cryptology, and the Radio Frequency Spectrum; to determine, review, validate and approve requirements for the Department of the Navy in those areas.

E0472 RDT&E Function. Coordinates as appropriate, R&D Requirements and Reporting Documents for communications and cryptologic Research and Development Programs. Reviews and comments on Research and Development Documents of other program sponsors with respect to communications, cryptologic, radio frequency spectrum and compatibility matters.

E0480 Director, Antisubmarine Warfare Programs (OP-95)

E0481 Mission. In accordance with the charter established by OPNAV NOTICE 5430, the antisubmarine warfare executive to the Chief of Naval Operations, OP-95 exercises centralized coordinating authority over all antisubmarine warfare planning, programming and appraising, in order to insure all integrated and effective antisubmarine warfare effort. He implements, in accordance with applicable statutes and General Order Number 5, the responsibility of the Chief of Naval Operations in all ASW matters pertaining to the determination of requirements, including development, the selection of work to be performed by the Chief of Naval Material, and the appraisal of work in progress for military worth and readiness.

E0482 Functions. The Director, ASW Programs is the coordinating authority for all requirements for ASW systems, weapons, equipment, components and related support material and is the coordinating authority for the preparation and promulgation of ASW programs and plans associated therewith.

He coordinates the preparation of, and, with the advice of the DCNO (Development), approves General Operational Requirements and Specific Operational Requirements for ASW systems, weapons and equipments and reviews and, with the advice of the Director, Navy Program Planning, recommends for the approval of the Chief of Naval Operations, all ASW plans and objectives, including research and development.

The Director reviews and, with the advice of the DCNO (Development), recommends approval for service use of ASW systems, weapons and equipments and/or authorization for procurement of ASW items in advance of service approval.

He evaluates, on a continuing basis, the status of ASW programs and projects as regards operational capability, timing and cost of the individual programs in relation to service requirements, priorities, overall balance within the total ASW program, and support of the Navy plans and policies. He initiates actions for changes in ASW programs and projects when appropriate.

In addition, he provides budgetary guidance to the OPNAV appropriation requests for ASW programs and coordinates with the OPNAV appropriation and/or major activity sponsors in all reprogramming actions which result in any change in ASW funding support levels.

Finally, the Director, ASW Programs, approves all actions emanating from OPNAV relative to ASW programs, including planning, programming, and budgetary allocations before they become effective.

E0490 Director Strategic Offensive and Defensive Systems (OP-97)

E0491 Mission. To exercise under the Vice Chief of Naval Operations, as the strategic offensive and defensive systems executive in the Office of the Chief of Naval Operations, centralized coordination over all strategic offensive and defensive force planning, programming, and appraising in order to ensure integrated and effective Navy strategic offensive and defensive concepts and force levels, and to implement in accordance with applicable orders and directives the responsibility of the Chief of Naval Operations in all strategic forces matters pertaining to the determination of concepts, requirements, including development, and the appraisal for military effectiveness of work in progress.

E0492 RDT&E Functions. Director, SODS, OP-97 is the source of planning guidance in the formulation of RDT&E objectives for the discipline of strategic offensive and defensive warfare. In concert with DCNO(D), OP-97 reviews and provides appropriate inputs to the RDT&E planning process (GORs, TSORs, SORs, PTAs, etc.).

E0500 Bureau of Naval Personnel

E0501 The Bureau of Naval Personnel is responsible for procurement, training, and distribution of naval personnel, issuing orders of SECNAV to individual officers; personnel accounting systems; welfare funds; Uniform Regulations; personnel travel, and estimates for funds necessary for pay and allowances.

E0510 Research and Development Activities. The Bureau's research and development program is planned and coordinated by the Personnel Research Division (see Figure E-6). It is conducted largely in-service, but with some contract support. The Division plans, coordinates, and directs the applied research in naval personnel administration, training, and manpower utilization, advises the Chief of Naval Personnel on needs for research projects, and evaluates related research conducted by other Government and private agencies for application to naval personnel administration and management. Research and development studies are carried out at the Naval Personnel Research Activity, San Diego, Calif.; at the Naval Personnel Program Support Activity, Washington, D.C., and under contract with universities, industry, and other groups.

E0520 Scientific Extramural Education. A research program in most aspects of engineering and the physical sciences supports the curriculum requirements of the Naval Postgraduate School. Approximately 80 members of the faculty engage part time in research in support of their professional development and to insure that the graduate instruction is current. At the same time, they supervise annually approximately 180 research problems undertaken by officer students. Many of these problems stem from the research activity of the faculty. The results of the research appear as publications in professional journals, theses, and research reports.

E0600 Bureau of Medicine and Surgery

E0610 Mission. The mission of the Bureau of Medicine and Surgery is to safeguard the health of the Navy; provide care and treatment for sick and injured members of the naval service (including Marine Corps) and their dependents; operate a training program for all categories of Medical Department personnel; maintain a continuing program of medical and

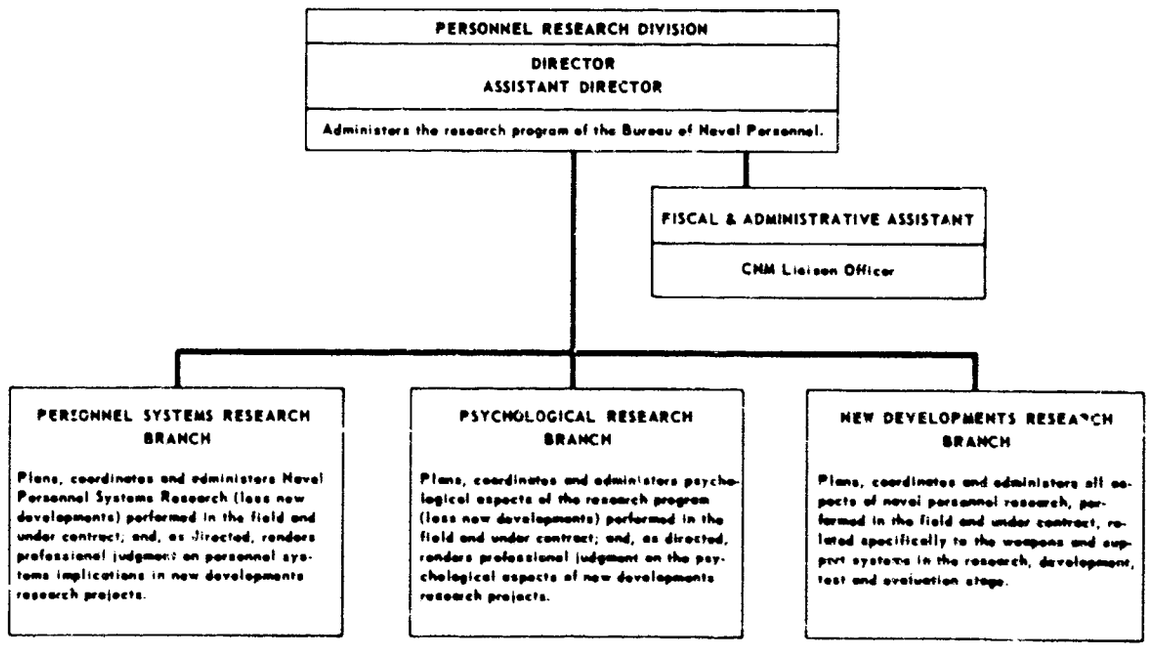


Figure E-6 - Personnel Research Division

dental research; maintain programs for the prevention and control of diseases and injuries; promote physical fitness in members of the Naval service; care for on-the-job injuries and supervise care, preparation, and interment of remains of deceased military and civilian personnel for whom the Navy is responsible.

E0620 Chief of Bureau (Surgeon General). The Chief of Bureau (the Surgeon General) (Code 1) is responsible for the supervision, direction, and coordination of the administrative and professional functions of the Bureau and through it the activities and facilities of the Medical Department ashore and afloat in accordance with the others and directives of the Secretary of the Navy, the Under Secretary, the Assistant Secretaries, and the Chief of Naval Operations, as provided in General Order No. 5.

E0630 Assistant Chief for Research and Military Medical Specialities. The Assistant Chief for Research and Military Medical Specialities (Code 7) is responsible for the development and projection and the direction of Medical Department programs relating to medical research, disease prevention and control, occupational health, biological, and chemical warfare defense, and submarine, and radiation medicine.

He coordinates Medical Department research and military medical specialty programs within the Bureau of Medicine and Surgery, the Bureau of Naval Personnel and with other Navy commands and offices, other Government agencies, civilian organizations and foreign governments. (See Figure E-7.)

E0640 The Research Division (Code 71) promotes, administers, and coordinates the medical research program of the Bureau. It maintains continuing liaison with other Bureau divisions on matters of mutual concern in order to keep advised of operational problems, stimulate interest in and awareness of research capabilities, and to cooperate in development of research proposals; coordinates such proposals with offices and agencies in and outside the Department of Defense having primary re ponsibility for such matters. The Division consists of an Office of the Division Director, and a Management Support Department located within the command organization of the Naval Medical Research Institute which consists of (a) a Scientific Program Management Division with Branches and Sections in: Military Specialties, Clinical Specialties and Human Effectiveness; and (b) an Administration and Resources Division with Branches in Resource Programming, Budget Control and Resource Planning.

The Office of the Division Director is responsible for the performance of all functions of the Research Division, but adopts no major policies, methods, or procedures without the approval of the Assistant Chief for Research and Military Medical Specialties. The Office consists of the Division Director, a Deputy Director, a Scientific Advisor, an Assistant for Development, an Assistant for Research Management, an Assistant for Basic Research, and such other personnel as may be assigned.

E0650 The Division Director, with the assistance of his staff:

a. Evaluates for approval, modification or disapproval all research proposals presented by activities under the management and/or control of the Bureau, and evaluates for Bureau interest and possible support proposals submitted by prospective civilian contractors.

b. Effects coordination between the various naval medical research activities and insofar as practicable with the medical and related research programs of other bureaus and the Office of the Chief of Naval Operations, Office of the Chief of Naval Material, Office of Naval Research, other government agencies engaged in similar research, and with certain agencies of approved foreign governments.

c. Suggests to field activities potentially profitable avenues of research in terms of present or anticipated naval needs, guided by the operational requirements promulgated by the Chief of Naval Operations, and program guidance and planning material issued by the Office of the Director of Defense Research and Engineering.

d. Collaborates with the Comptroller Division in developing the budget requirements for research, and recommends to the Comptroller Division allocations of funds to field activities and for contractual research.

e. Recommends nominations to the personnel divisions for appropriate representation on various research boards, committees and panels of the Office of the Secretary of Defense, as well as to various medical research boards, committees, and study panels of other government agencies as indicated.

f. Maintains appropriate liaison with the various divisions of the Bureau.

E0700 THE CHIEF OF NAVAL MATERIAL (CNM)

E0701 Responsibility and Authority. The responsibility and authority of the Chief of Naval Material is defined in General Order No. 5. As set forth in paragraph 8 of this General Order, "The Chief of Naval Material, under the Chief of Naval Operations, shall command the Naval Material Command . . . ."

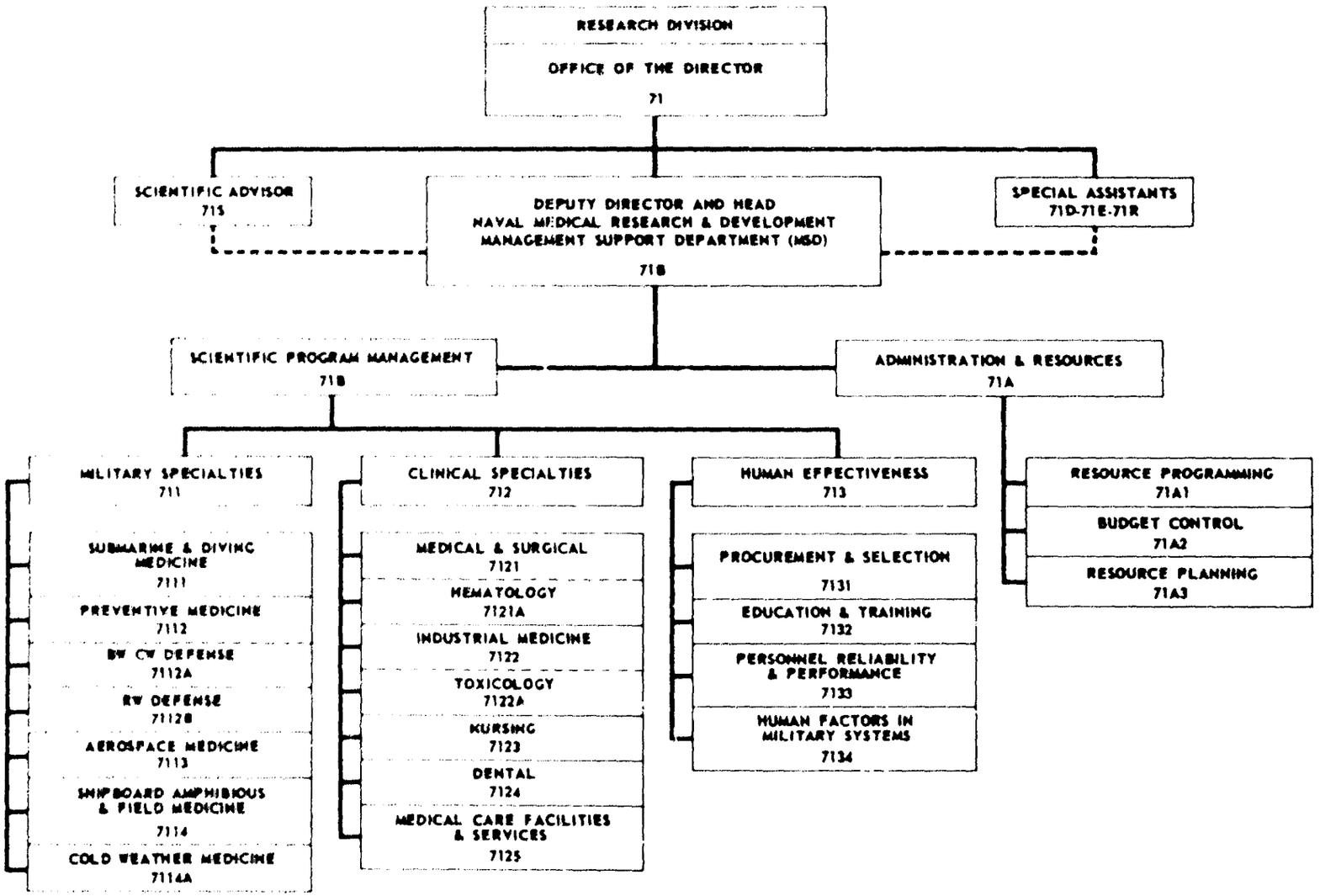


Figure E-7 - Bureau of Medicine and Surgery

The Naval Material Command (NMC) includes the Headquarters, Naval Material Command; six principal subordinate commands known as the "systems commands," which are:

the Naval Air Systems Command,
the Naval Electronic Systems Command,
the Naval Facilities Engineering Command,
the Naval Ordnance Systems Command,
the Naval Ship Systems Command,
the Naval Supply Systems Command;

the separately organized Project Management offices: and the shore (field) activities which are a part of the Naval Material Command.

Paragraph 8 of G.O. 5 further states that the general responsibility of the Chief of Naval Material, as set forth above, "includes the following specific responsibilities ...

a. To meet material support needs of the Operating Forces of the Navy for equipment, weapons or weapons systems, materials, supplies, facilities, maintenance, and supporting services, including the development, acquisition, construction, maintenance, alteration, repair, and overhaul of ships, aircraft, surface craft, weapons or weapons systems, materials, and facilities; all consistent with approved programs. Inherently, this includes the responsibility to plan for and develop the resource capabilities and readiness of the Naval Material Command to meet the needs of the Operating Forces of the Navy as determined by the Chief of Naval Operations. It also includes the responsibility to provide the Chief of Naval Operations with timely and adequate technical and economic data concerning the feasibility of meeting needs, including new capabilities to meet needs.

b. To be responsive directly to the Commandant of the Marine Corps in meeting those particular material support needs of the United States Marine Corps which are required to be provided by the Naval Material Command.

c. To plan for the utilization of resources in the performance of the work of meeting those material support needs of the Operating Forces of the Navy and of the Marine Corps which are provided by the Naval Material Command; and to distribute, direct, and supervise the performance of such work. Such work includes the development, procurement, acquisition, contracting, production, supply, maintenance, alteration, repair, overhaul, and disposal of naval facilities, including real estate and all improvements thereon and the operation of public utilities, except that this does not include the maintenance of Marine Corps facilities or the operation of their public utilities.

d. To provide the Chief of Naval Operations, and the Commandant of the Marine Corps, as appropriate, with timely advice concerning training and technical requirements essential for the operation and maintenance by naval personnel of new equipment under development; and, as appropriate, to provide the Operating Forces of maintenance of all equipment and weapons or weapons systems.

e. The Chief of Naval Material shall be responsive to the heads of other organizations in meeting their material support needs which are provided by the Naval Material Command.

Figure E-8 shows the organization of the Department of the Navy including the Chief of Naval Material and the organizations under his command. The six systems commands are discussed separately in paragraph E0800.

E0710 Headquarters, Naval Material Command. As a result of two extensive reorganizations, the Office of Naval Material has evolved into the Headquarters, Naval Material Command (NAVMAT). NAVMAT is broader in responsibility and authority than the "old ONM" as it existed prior to implementation of General Order No. 5 dated 20 October 1964 which had been issued by the Secretary of the Navy to effect some of the recommendations of the Review of Management of the Department of the Navy. With the issuance of General Order No. 5 dated 29 April 1966, the Chief of Naval Material is now the single, authoritative manager of naval material and reports directly to the Chief of Naval Operations.

Figure E-9 depicts the current organization of the Headquarters, Naval Material Command. The major portion of the functions of the "old ONM" were previously assigned to DCNM (Material and Facilities). Upon the recent establishment of the Naval Material Command, NAVMAT was reorganized and the functions of DCNM (M&F) were assigned to DCNM (Procurement) and DCNM (Logistics Support) in order to provide greater emphasis to logistics support.

The deputies discussed below provide for implementation of the assigned responsibilities discussed above in paragraph E0701.

E0711 Vice Chief of Naval Material. The Vice Chief of Naval Material is the principal assistant and advisor to the Chief of Naval Material, coordinating the activities of all the offices and Commands under the command of the Chief of Naval Material. He acts with full authority of the Chief of Naval Material except

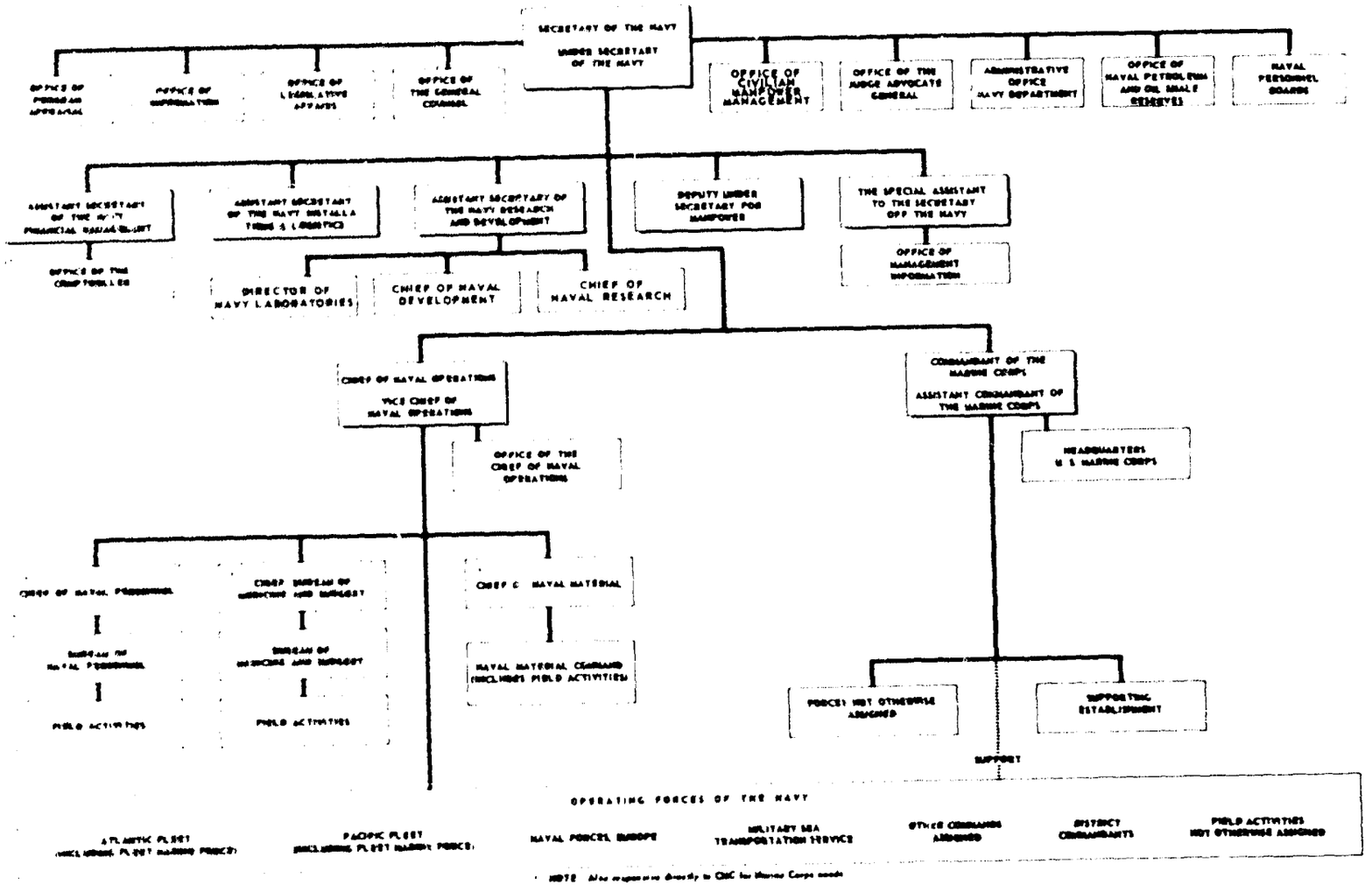


Figure E-8 - Department of the Navy

ORGANIZATION OF THE HEADQUARTERS, NAVAL MATERIAL COMMAND

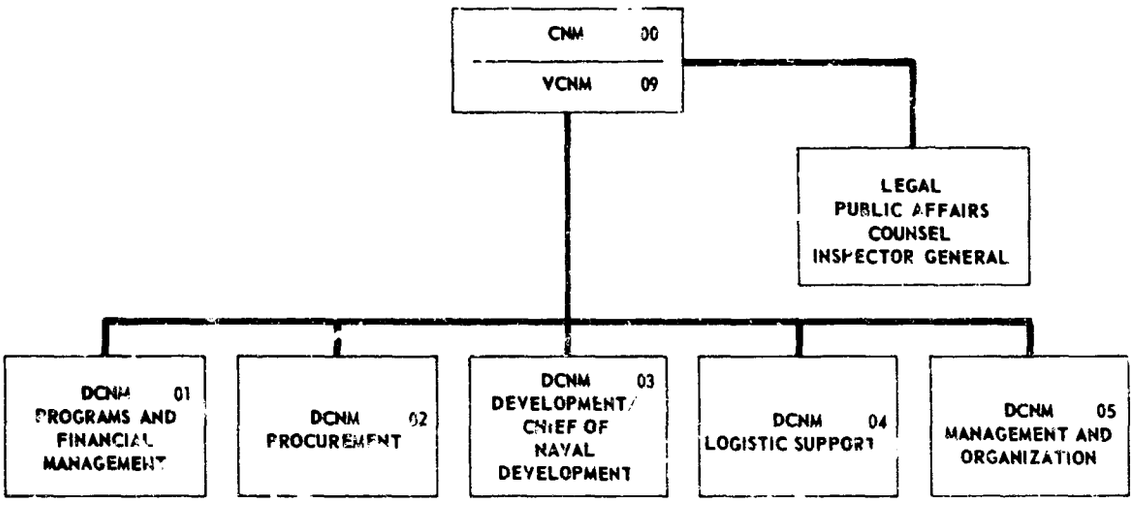


Figure E-9

in those responsibilities specifically reserved to the Chief of Naval Material by law or by higher authority. All action taken by him shall have the same force and effect as though taken by the Chief of Naval Material. In the performance of his duties, he shall be primarily responsible for the supervision and coordination of the Naval Material Command but shall recognize the right and duty of the Deputy Chiefs of Naval Material and the Systems Commanders to confer directly with the Chief of Naval Material on matters relating directly to their responsibilities.

E0712 Deputy for Programs and Financial Management [DCNM(P&FM)]. Within the Office of the Chief of Naval Material, the Deputy Chief of Naval Material for Programs and Financial Management has directive authority over the other Deputy Chiefs of Naval Material in program and financial management matters. Subject to procedures and policies established by the Comptroller of the Navy, he supervises the planning of program and supporting resources, budgeting, financial management systems, accountability for use of resources, performance, appraisal and management information systems and services, coordinates the activities of the other Deputy Chiefs of Naval Material in their supervision of program execution in their areas of responsibility, and administers expense budgets for major operating commands.

Figure E-10 depicts the organization of the staff of DCNM(P&FM).

The following specific responsibilities of DCNM(P&FM) are particularly significant to management of RDT&E.

c. Developing and presenting to appropriate authority, consolidated resource plans, using detailed plans of the systems commands and project managers, with the assistance of the other Deputy Chiefs of Naval Material, as appropriate.

d. Supervising the formulation, justification and execution of budgets to support the programs of the Naval Material Command.

e. Advising the Chief of Naval Material on the allocation and reprogramming of funds.

g. In collaboration with the other Deputy Chiefs of Naval Material, evaluating the status of programs as to performance achieved against money, time and effort expended.

i. Directing and coordinating the development and implementation of integrated management information systems and services for the Naval Material Command, including the application of management sciences and operations research techniques, the development of management procedures, and the control of related forms and reports.

n. Directing the administration of the Program Change Control System within the Naval Material Command and the implementation of

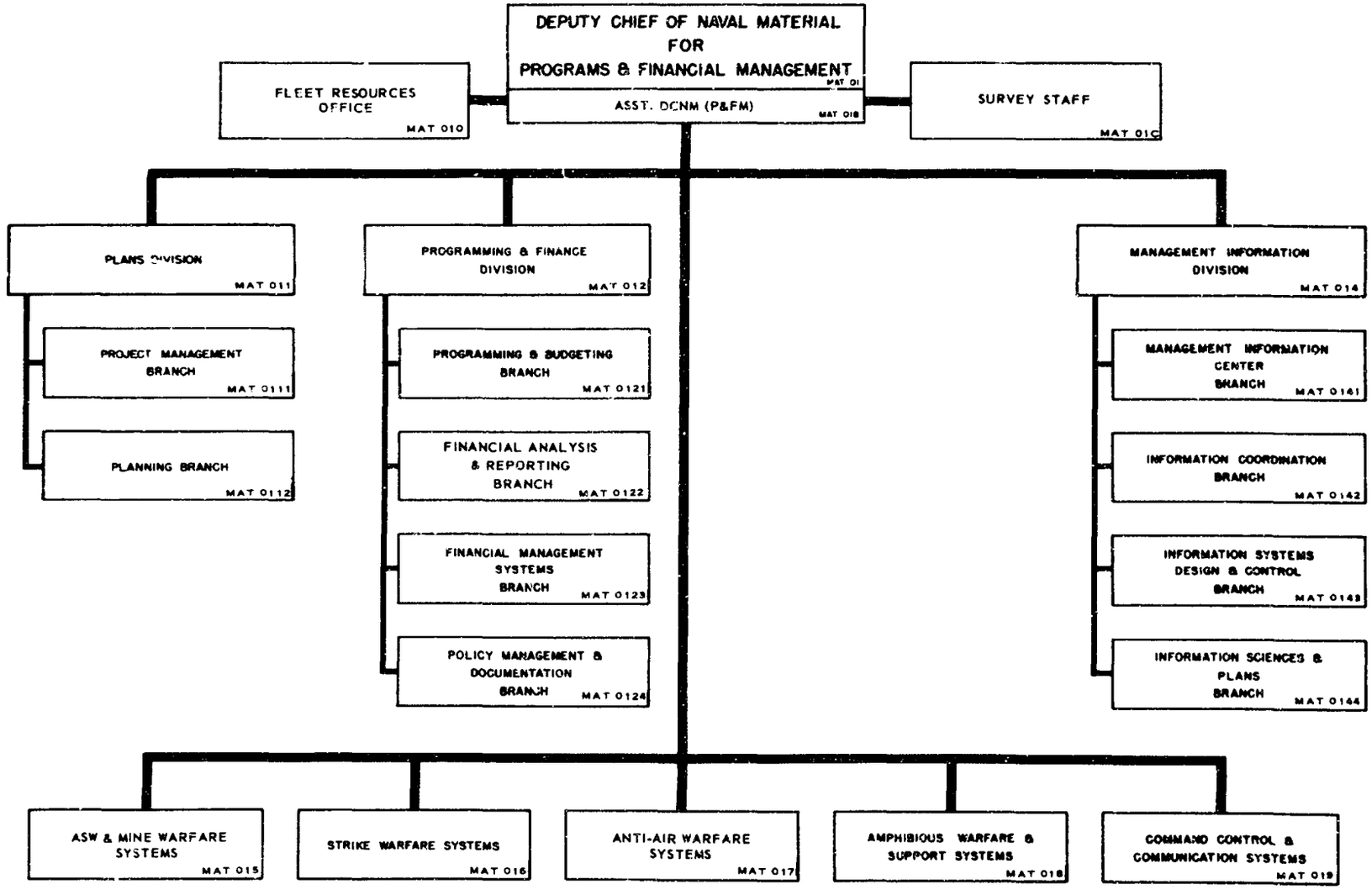


Figure E-10 - Deputy Chief of Naval Material for Programs & Financial Management

any required changes to the program and resource plans.

r. Issuing guidance and policy for conducting project management and the administration thereof including charters, organization, staffing, criteria for establishment and disestablishment of designated projects, management systems and reporting procedures in collaboration with the other Deputy Chiefs of Naval Material.

E0713 Deputy for Development/Chief of Naval Development. This official functions in a dual capacity. In one capacity, as Deputy Chief of Naval Material for Development, he assists the Chief of Naval Material in the implementation of his RDT&E responsibilities within the Naval Material Command. In his other role as Chief of Naval Development (CND), he functions as a staff assistant to the Assistant Secretary of the Navy (Research and Development) in relation to the entire RDT&E program of the Department of the Navy. The functions of the DCNM(D)/CND as set forth in SecNav Instruction 5430.67 are as follows:

a. Deputy Chief of Naval Material (Development).

1. Provides direction and management coordination of the RDT&E Program of the Navy Material Command in response to the requirements for material support established by CNO and CMC. Inherent in this general responsibility are the following specific responsibilities:

- Translates requirements from operational terms into technical planning guidance.
- Directs the conduct of technical, economic, and logistic feasibility studies of requirements received from higher authority for research and development in order to determine the capability of the NMC to meet those RDT&E requirements—coordinates these studies with personnel and training requirements appraisals with the advice and assistance of CNP, submits alternative technical approaches to indicate the ways in which the requirements can be met and, when necessary, recommends modifications of RDT&E requirements.
- Directs the preparation of detailed execution plans for RDT&E Projects to satisfy the requirements specified, and approves and transmits these plans to higher authority.
- Consolidates the approved RDT&E project execution plans from the systems commands into an NMC RDT&E Program, and prepares justifications thereof in support of presentation and defense of the Program to higher authority.
- Invites the advice and assistance of the Chief of Naval Personnel to determine the training facilities and program requirements, the number and skills of personnel, and personnel program change proposals necessary to support NMC developments for which introduction into the fleet is visualized. These requirements shall be included as a part of all Proposed Technical Approaches and Technical Development Plans and shall cover the operation and support of the component(s) during employment by the operational forces as well as during development, test, and evaluation. This responsibility will include provision of fiscal resources to CNP adequate to conduct the research and development effort under his responsibility to support the development project.
- Directs the implementation of the RDT&E Program of the NMC including the approval and reprogramming of funds within his authority and the resolution of problems arising between two or more commands in connection with the execution of projects.
- Appraises the NMC RDT&E Program as to performance achieved against funds, time, and effort expended; reports significant deviations from plans to CNO and offers advice on alternate courses of action; and recommends reconsideration of operational requirements when necessary, in order to insure the most effective use of available resources to meet the requirements of the Operating Forces.
- Directs the preparation of reports on RDT&E projects to keep higher authority aware of current progress and status and approves and transmits the report to ASN(R&D), CNO, and CMC.

2. Performs analyses of concurrency in development, when appropriate, for all naval

warfare system in advanced stages for which accelerated fleet introduction is under consideration. As a minimum this analysis will include the status, any required waivers of requirements, either interim or long range, the assessment of any restrictions and risks, the increased cost of production, and a definitive recommendation for any resultant and necessary additional support such as backup programs, funding, personnel, and logistic requirements.

3. Conducts special studies as may be assigned from time to time.

4. Provides technical and fiscal inputs to Navy studies.

5. Advises CNO of the requirements for technical intelligence data required by the NMC.

6. Maintains liaison with agencies engaged in research and development in order to achieve maximum benefit from efforts external to the Navy.

b. Chief of Naval Development.

1. The Deputy Chief of Naval Material (Development) in the Office of the Chief of Naval Material shall also act as the Chief of Naval Development.

2. Coordinates the Navy's Exploratory Development Program, for ASN(R&D), which responds to the GOR's and other guidance from the CNO and CMC. This general responsibility includes the following:

- After consultation with CNR, CNP, and Chief, BUMED, promulgates the Exploratory Development Requirements (EDR) which establishes the groupings under which exploratory development will be classified for programming, in response to the GOR's and other guidance received from CNO.
- Collaborates with the CMC, CNR, CNP, and Chief, BUMED to ensure that new ideas, concepts, and technical advances are thoroughly appraised as to opportunities afforded for increased Naval warfare capabilities, and prepares, annually with the assistance of CNR, a current assessment of projections of technology within the various Exploratory Development Areas for use by ASN (R&D), CNO, and CMC.
- Receives the plans for Exploratory Development from the CMC, CNP, CNR, and Chief, BUMED, along with those of the NMC; appraises the overall balance of the program with respect to the limits imposed by fiscal, scientific, technological, and facility resources, recommends changes to ASN(R&D) as appropriate, and prepares presentations in defense of the program to higher authority as directed by ASN(R&D).
- Recommends to ASN(R&D) increased attention and funding of ongoing exploratory development projects, if appraisal so indicates, as well as the curtailment or cancellation of ongoing exploratory development projects when appraisal indicates resources devoted to those projects would yield greater military worth if applied to alternative research and development opportunities.

3. Provides assistance to CNR in formulating a coordinated Navy-wide naval research program which responds to the long-range needs of the Department of the Navy.

4. Provides staff assistance to ASN (R&D) with regard to technical, economic, and logistics appraisal of the Navy's development effort and technical and scientific assistance to CNO and CMC. This general responsibility includes the following:

- Contributes to the technical and material context of warfare studies and planning documents when requested.
- Conducts special studies as may be assigned from time to time.

The organization of the staff of DCNM(D)/CND is presented in paragraph E0720.

c. Assistant Oceanographer of the Navy for Ocean Engineering and Development

The Deputy Chief of Naval Material (Development) has the additional responsibility as Assistant Oceanographer of the Navy for Ocean Engineering and Development. In this capacity he is responsible for that effort in research, development, and technical support of operations to advance the use of the world's oceans and their boundaries, including the bottom, in the specific areas of effective utilization of "man-in-the-sea" and such other advanced deep ocean technology and engineering as Project SEA BED.

E0714 Deputy for Logistics Support

The Deputy Chief of Naval Material for Logistics Support is responsible for the effectiveness of all Naval Material Command logistic support for naval material and equipments in the production, introductory or operational life cycle phases; and for the preliminary logistic and related personnel planning that takes place in the NMC during the planning and development phases. He develops, coordinates, promulgates and appraises the implementation of logistic support policies including: standardization, configuration control, maintenance, spare parts, priorities, supplies, support equipment, facilities, transportation and international logistics.

E0715 Deputy for Management and Organization. "The Deputy Chief of Naval Material for Management and Organization supervises the organization, management and utilization of manpower, administrative facilities and supporting services in the Naval Material Command. In the fulfillment of his responsibilities, the Deputy Chief of Naval Material (Management and Organization) develops and initiates the promulgation of policies in matters concerning organization, management engineering, management of military and civilian manpower, and evaluation of performance."

E0716 Deputy for Procurement

The Deputy Chief of Naval Material for Procurement develops and, as authorized, promulgates, effectuates and conducts continuing surveillance over the implementation of department-wide policy and methods of procurement, contracting and contract administration for material and services. He supervises the execution of policy for assigned functional programs in these areas which are under the control of ASTSECNAV (I& L).

E0720 Organization of the Staff of DCNM(D)/CND

The DCNM(D)/CND directs and carries out his responsibilities through three Division Directors as shown in Figure E-11. The staffs of these divisions operate interdependently. Each draws upon the knowledge, competence, and information produced by or germane to the operations of the other groups to provide the completed staff work required to carry out the mission of the office.

E0721 Exploratory Development Division (MAT 31). The Director, Exploratory Development Division (Code MAT 31) is responsible to the Deputy Chief of Naval Material (Development) for providing direction and management coordination of Naval Material Command planning; for execution and appraisal of the Exploratory Development Program. He is a principal staff assistant to the Deputy Chief of Naval Material (Development) in the discharge of his responsibilities as the Chief of Naval Development. The responsibilities of the Director, Exploratory Development Division are prosecuted through direction, coordination and supervision of the efforts of the Assistant Director for plans, the Assistant Director for programs, the Target Surveillance/Command Control Branch, the Weaponry Branch, the Naval Vehicles Branch and the Support Technology Branch. The discharge of these responsibilities requires close day to day work relationships with the Technical Analysis and Advisory Group of DCNO(D), the Naval Applications Group and Naval Analysis Group of ONR, the chief scientists of the material commands and the scientific advisor to the Deputy Chief of Staff for R&D of the Marine Corps as well as the directors of the other divisions of the DCNM(D) staff and other staff groups in the office of the CNM.

E0722 Systems Development Division (MAT 032). The Director, Systems Development Division is responsible for coordinating and supervising the planning, execution, and appraisal of the Naval Material Command advanced development, engineering and operational systems development, and system test and evaluation programs responsive to the requirements of CNO and CMC for new or improved weapons systems, ship, aircraft, space and support systems and associated equipment.

He is responsible for coordination of the NMC Systems Development effort with the Office of the Deputy Chief of Naval Operations (Development). These responsibilities are discharged through four Warfare Systems Directorates and three Staff Branches as shown on Figure E-11. The discharge of these responsibilities requires close day-to-day working relationships with the Project Sponsors in the Office of the Chief of Naval Operations, the Staff of ASN(R&D), the Staff of DDR&F, Designated Project Managers, Systems Command Project Officers and Managers as well as Directors at other Division of the DCNM(D) staff and other staff groups in the Headquarters, Naval Material Command.

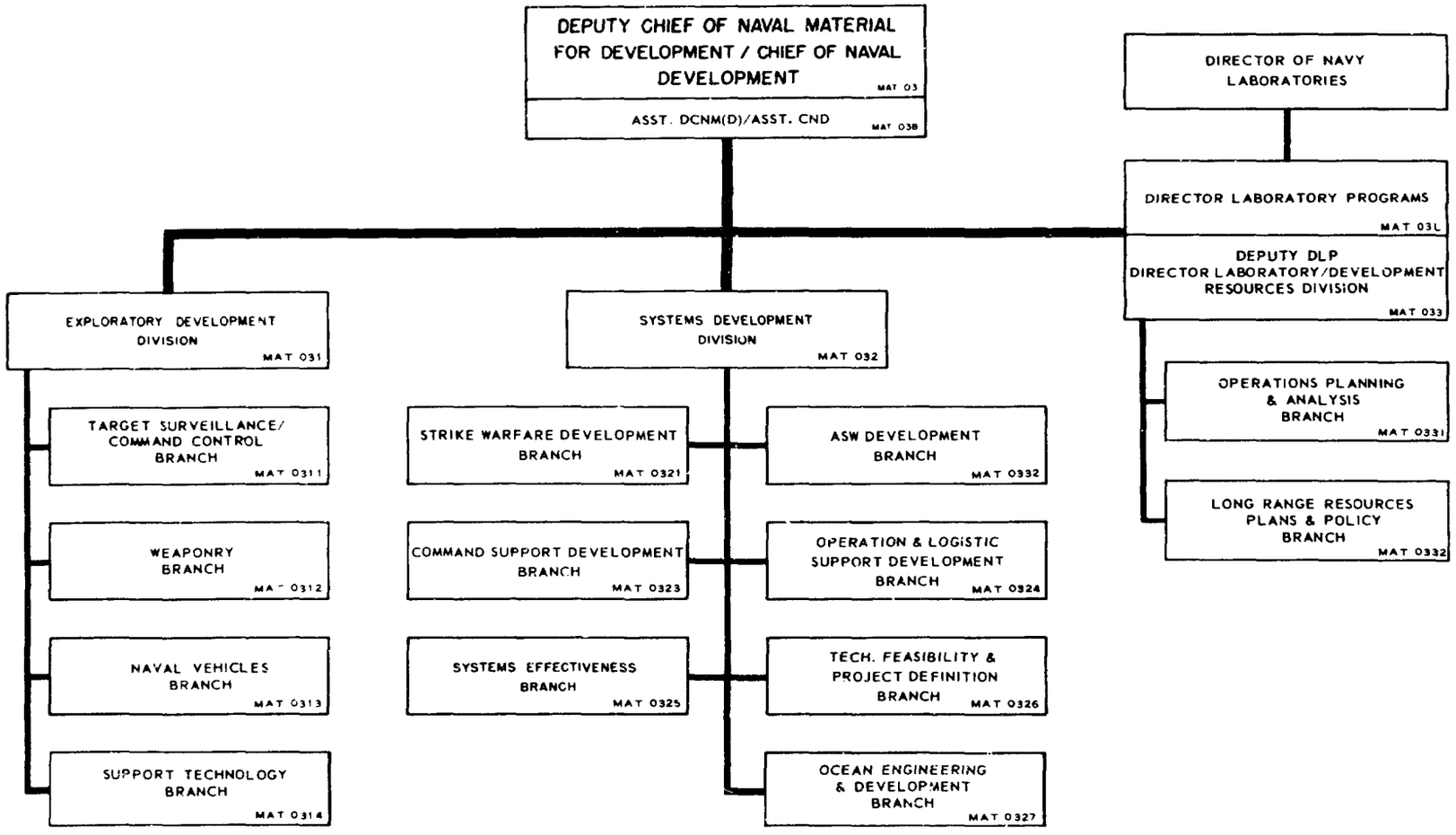


Figure E-11 - Deputy Chief of Naval Material for Development

E0723 Director of Laboratory Programs (DLP/MAT 03L)

The Director of Laboratory Programs (DLP) coordinates with other staff elements within NAVMAT on laboratory matters concerning personnel, facilities, operations, programs, and other aspects involved in the execution of his responsibilities. DLP is in the staff of the Deputy Chief of Naval Material (Development) (DCNM(D)). DLP acts as special advisor to the Chief of Naval Material on matters concerning management of the RDT&E field activities complex within the Naval Material Command.

E0724 Laboratory/Development Resources Division (MAT 033)

The Director, Laboratory/Development Resources Division is responsible to the Director of Navy Laboratories and the Deputy Chief of Naval Material (Development) through the Director of Laboratory Programs for the optimum utilization and management coordination of the following RDT&E field activity resources: Manpower, i.e., the numbers and skills of personnel, including their Navy-funded training; Development Activities, i.e., the laboratories, test stations, ranges, etc., used in the prosecution of the approved RDT&E programs; and Facilities, the supporting RDT&E installations and equipment used in the prosecution of the approved RDT&E programs.

The responsibilities of the Director, Laboratory/Development Resources Division are prosecuting as directed by DLP through direction, coordination and supervision of the efforts of the Operations Planning and Analysis Branch and the Long Range Resources Plans and Policy Branch. The discharge of these responsibilities requires close working relationships with the Office of the ASN(R&D) through the Director of Navy Laboratories; Office of Management Information; Office of Naval Research, the Shore Activities Development and Control Division, the Development Programs Division, and the Development Facilities, Astronautics and Ranges Division of OPNAV; the Training Management Division of BUPERS; the Commander Operational Test and Evaluation Force; the Laboratory Management functionaries of the Naval Material Command; the Director of the other divisions of DCNM(D) and other staff groups in the Office of the Chief of Naval Material; and the research resource management counterparts of the Army Material Command and the Air Force Systems Command.

The Laboratory/Development Resources Division, in addition to the above responsibilities, provides staff support to the Director of Laboratory Programs (DLP) in carrying out his responsibilities within NAVMAT, and thereby also provides staff support to the Director of Navy Laboratories under ASN(R&D) in carrying out his Navy-wide functions.

ANNOTATED REFERENCE LIST

General Order No. 5 dated 29 April 1966, Assignment and Distribution of Authority and Responsibility for the Administration of the Department of the Navy. GO 5 is the fundamental document on the organization and administration of the Department of the Navy. It defines the broad responsibilities of the Chief of Naval Material.

SECNAV INST 5430.67, "Assignment of responsibilities for research, development, test, and evaluation," assigns specific duties and responsibilities to the Chief of Naval Operations (CNO), Commandant of the Marine Corps (CMC), Chief of Naval Material (CNM), Chief of Naval Development, Chief of Naval Research (CNR), Chief of Naval Personnel (CNP), and the Chief of the Bureau of Medicine and Surgery in the implementation of the Department-wide responsibilities of the Assistant Secretary of the Navy (Research and Development).

SECNAV INST 5000.21A, "Project Management in the Department of the Navy" states policy for the designation, organization and management of designated project in the department of the Navy.

E0800 DUTIES AND RESPONSIBILITIES OF SYSTEMS COMMANDS IN THE NAVAL MATERIAL COMMAND

E0801 The Naval Material Command

a. Composition. The Naval Material Commands includes the Headquarters, Naval Material Command; six principal subordinate commands, known as the "systems commands," which are:

the Naval Air Systems Command,

the Naval Electronic Systems Command,

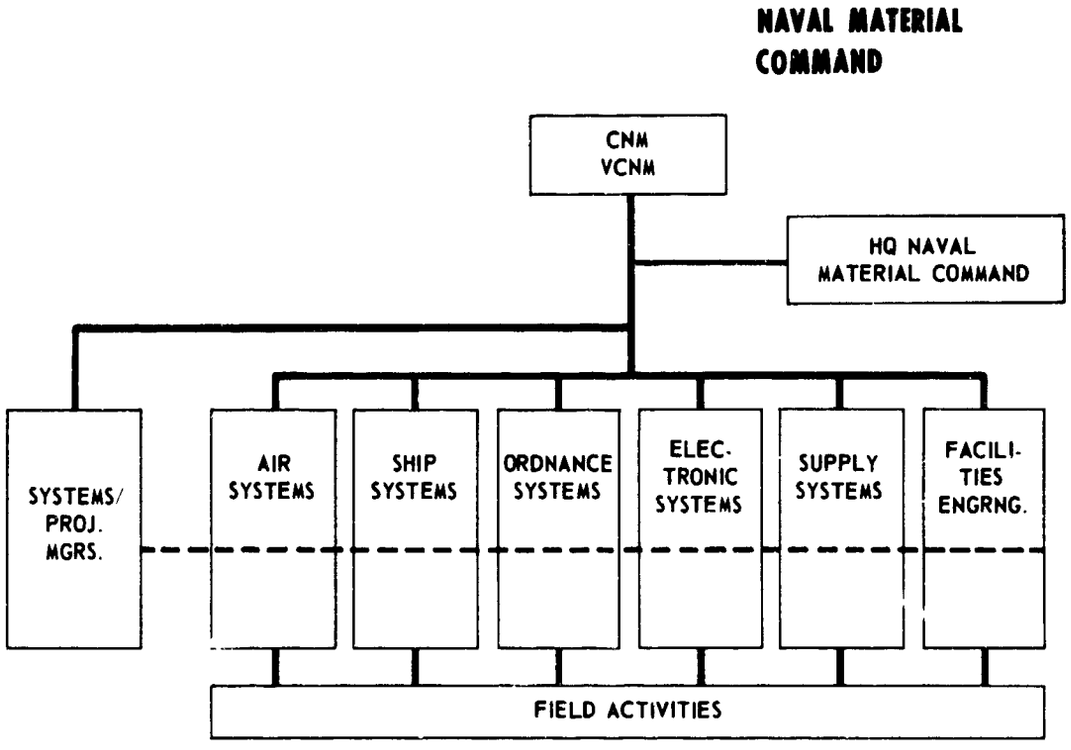


Figure E-12

the Naval Facilities Engineering Command,

the Naval Ordnance Systems Command,

the Naval Ship Systems Command,

the Naval Supply Systems Command;

the separately organized Project Management offices; and the shore (field) activities which are a part of the Naval Material Command. (See Figure E-12.)

b. Command Structure. The Chief of Naval Material Under the Chief of Naval Operations commands all activities of the Naval Material Command. The chain of command within the Naval Material Command normally runs from the Chief of Naval Material to the Commanders of the principal subordinate commands. Project management charters for selected weapons, equipments, or systems designated by the Chief of Naval Material or higher authority for intensified management procedures will include where necessary special command, management, and operating relationships in conformance with promulgated policy.

c. Special Support Functions. The Chief of Naval Material may provide through the principal subordinate commands support, as defined in General Orders No. 5 and 19, for selected shore (field) activities not under his command and not assigned to him for primary support; this support may include, but shall not be limited to, internal organization and procedures, and the utilization of personnel, funds, materials, and facilities, or elements as a part thereof.

E0802 Authority Over Organizational Matters

a. Subject to the approval or guidance of the Secretary of the Navy, through the Chief of Naval Operations, the Chief of Naval Material is authorized to organize and determine the responsibilities of the Systems Commands.

b. Under the Chief of Naval Material, the Systems Commanders are responsible for the utilization of resources by, and for the operating efficiency and work of activities included in their respective commands. Except as restricted

by law or higher authority, the Systems Commanders may assign appropriate authority and responsibility and may organize their respective headquarters organizations and field activities. However, they are not authorized to establish or disestablish field activities.

E0803 Material Advisory Council. There is a Material Advisory Council, under the Chairmanship of the Chief of Naval Material comprised of the Vice Chief of Naval Material, the Commander, Naval Air Systems Command, the Commander, Naval Electronic Systems Command, the Commander, Naval Ordnance Systems Command, the Commander, Naval Ship Systems Command, the Commander, Naval Supply Systems Command, the Commander, Naval Facilities Engineering Command as members, and the Deputy Chief of Naval Material (Programs and Financial Management) as Executive Director. The Council will be an advisory body to the Chief of Naval Material and serve as a means of enhancing communications with and between the Systems Commanders on matters of mutual interest. It does not supplant the normal administrative process of the Naval Material Command. The Executive Director is responsible for coordinating and preparing the agenda for meetings, supervising appropriate staff support and presentations, and insuring that appropriate action is initiated reflecting decisions of the Chief of Naval Material on Council deliberations.

E0804 Operating Relationships

a. Formal communications, request, and reports may be made directly between the Systems Commands and activities outside the Naval Material Command, except as otherwise provided by the Chief of Naval Material, but he shall be informed as an information addressee on all such correspondence or by other appropriate means on matters which affect his responsibilities for total performance of the Naval Material Command. The informal flow of information directly between the Systems Commands and activities outside the Naval Material Command, to supplement formal procedures and contribute to better decisions is authorized and encouraged.

b. Communications, request and reports among the Systems Commands is made directly between such commands unless otherwise prescribed, but the Chief of Naval Material is kept fully informed of matters affecting his responsibilities. There should be a mutual exchange of information among the Systems Commands concerning all matters that require cooperation and coordination among them.

E0805 Material Support Responsibilities of the Principal Subordinate Commands (Systems Commands)

a. Each Systems Command provides for and meets those material support needs of the Department of the Navy that are within the assigned "material support" responsibility of such command. This includes responsibility:

(1) To plan for and develop the resource capabilities and readiness to meet material support needs of the Operating Forces of the Navy, the Marine Corps, and other offices and organizations, for which the command is assigned responsibility; to assist the Chief of Naval Material in providing the Chief of Naval Operations, the Commandant of the Marine Corps, or other offices and organizations, with timely and adequate advice on the technical and economic feasibility of meeting such needs; and to keep them informed of new capabilities to meet needs which may, or may not, have been previously expressed.

(2) To plan for the utilization of resources in the performance of the work of meeting the material support needs of the Operating Forces of the Navy, the Marine Corps and other offices and organizations, for which the command is assigned responsibility; to perform such work; and to budget for such work except where it is budgeted for by the Marine Corps or is funded by other means. Subject to procurement assignments and other assignments and limitations by higher authority, such work includes, as appropriate, but is not limited to:

(a) the research, design, development, test, technical evaluation, acquisition, procurement, contracting, production, construction, manufacture, inspection, fitting out, supply, maintenance, alteration, conversion, repair, overhaul, modification, and advance base outfitting of naval material for which the command is assigned responsibility;

(b) obtaining and operating facilities as necessary for the performance of such work; and

(c) all appropriate functions pertinent thereto, such as storage, distribution, issue, disposition, and salvage of naval material, and establishing specifications, providing operating standards, providing for training by manufacturers as necessary for material support, and providing technical guidance as provided in paragraph E0811.

(3) To evaluate and report to the Chief of Naval Material upon the adequacy of naval and

commercial facilities to meet the needs and anticipated needs of the Department of the Navy for which the command has responsibility.

(4) Subject to the requirements of law and higher authority, to control and account for appropriated funds and authorized civilian personnel ceilings allocated for the performance of the command's work, including the sound expenditure management, and utilization thereof; and to prepare estimates for funds and manpower required to carry out approved plans and directives.

(5) To perform such additional functions and tasks as may be necessary to provide for and meet material support needs within the command's assigned responsibility.

b. Each Systems Command is responsible for the material effectiveness of items for which it has material support responsibility.

E0806 Project Management

The Chief of Naval Material may designate project managers to conduct intensified management. Each project manager receives a charter establishing the scope of his authority, responsibility, and operating relationships with the Systems Commands. Commanders of the Naval Systems Commands provide appropriate staffs and support for project managers appointed by the Chief of Naval Material to conduct intensified management of projects designated by him. They also organize, staff and support, within their respective commands, project management offices when intensified management is needed to accomplish desired objectives, or as directed by the Chief of Naval Material.

E0807 Work for Other Departments, Agencies and Governments

Consistent with applicable regulations, and directions and assignments by the Chief of Naval Material, the Systems Commands, as appropriate, perform their normal or specially assigned functions in connection with items procured for, or the execution of programs carried on with, other military departments, government agencies, or foreign governments. Examples of such procurement and programs include: coordinated military procurement such as single department procurement and plant cognizance contract administration; military assistance/ international logistics programs; and defensive equipping of merchant ships.

E0808 Procurement of Material and Services

a. Subject to procurement assignments and limitations imposed by the Chief of Naval Material and higher authority, each Systems Command is responsible for the acquisition of materials and services required for the performance of its assigned responsibilities; and for deciding the extent to which it will procure items not requisitioned from other departments or agencies and the extent to which it will request the other Systems Commands to procure such items.

b. The Commander of each Systems Command is designated a contracting officer with authority to procure, in accordance with applicable regulations, materials and services for which he is responsible; and, except when prohibited by statute or applicable regulation, to delegate that authority as may be necessary.

E0809 Coordination and Conduct of Research

a. To carry out these responsibilities the systems commands perform research and development in all technological supportive to their missions. The Systems Commands and designated project offices furnish (copy to the Chief of Naval Material) to the Chief of Naval Research such information relating to their research projects and programs as the latter may request. They in like manner furnish to the Chief of Naval Research information relative to budget estimates for research within their respective fields of authority in order that he may effectively coordinate the research program and discharge his other responsibilities with respect thereto.

b. The Systems Commands assume such responsibilities as may be delegated to them by the Chief of Naval Research in connection with research contracts with educational institutions, provided such delegation is approved by the Chief of Naval Material.

E0810 Coordination of Exploratory Development and Laboratories

a. The Systems Commands furnish to the Chief of Naval Development (Deputy Chief of Naval Material (Development)) such information relating to exploratory development projects and programs as the latter may request. They likewise furnish to him information relative to budget estimates for exploratory development within their respective areas of responsibility in order that he may effectively supervise the exploratory development program within the Naval Material Command.

b. The Systems Commands are responsive to and support the Director of Navy Laboratories (Director of Laboratory Programs in the Headquarters Naval Material Command) in

the fullfillment of his responsibilities for the management of Navy research and development laboratories. They refer to the Director of Navy Laboratories for advance review all plans for establishment or disestablishment of, or significant changes in, any laboratory concerned with research or development.

E0811 Administrative and Technical Guidance and Assistance

a. Technical guidance and assistance is specialized or professional service performed or professional direction exercised through the promulgation of policies and procedures in technical matters.

b. The Systems Commands provide the Operating Forces of the Navy, the Marine Corps, the Naval Material Command, and other offices and organizations with appropriate guidance and assistance on technical matters within their respective areas of assigned responsibility. Such guidance and assistance covers, as appropriate, but is not limited to, the operation, repair, overhaul, alteration, maintenance, upkeep and handling of equipment and systems, weapons, weapons systems, aircraft, explosives, vessels, craft and other assigned items, including training equipment; supply management, publications and printing, resale and food service; and facilities maintenance management.

c. The Systems Commands provide the Chief of Naval Operations, the Commandant of the Marine Corps, the Chief of Naval Personnel and other components of the Department of the Navy, as appropriate, with timely advice concerning training and technical requirements essential for the operation and maintenance by naval personnel of new equipments under development.

E0812 Personnel; Officer Specialists and Corps

The Commanders of the Naval Systems Commands are responsible to the Chief of Naval Material for providing professional technical advice in the areas of technology under their purview, and for the maintenance of the highest professional competence among their civilian employees, enlisted personnel, and officer specialists or corps which they sponsor.

E0813 Personnel and Training Support

The Systems Commands are responsible for the timely provision of equipment, technical data and end use documentation required to support the training of personnel of other commands, bureaus, offices, or departments in the operation and maintenance of material for which the Systems Commands have support responsibilities.

E0820 Naval Air Systems Command (See Figure E-13)

E0821 Material Support Responsibilities

Except as otherwise provided by the Chief of Naval Material, the Naval Air Systems Command is responsible for the following:

a. Performing material support functions (as described in E0805) with respect to:

(1) Navy and Marine Corps aircraft, complete, including components thereof and fuels and lubricants therefor;

(2) Air-launched weapon systems, complete, and components thereof, but not including torpedoes and mines except for the airborne aspects thereof;

(3) Airborne electronics, complete;

(4) Air-launched underwater sound systems;

(5) Airborne pyrotechnics;

(6) Astronautics, including project management of SPASUR;

(7) Airborne mine sweeping equipment;

(8) Aircraft drone and target system;

(9) Catapults, arresting gear and visual landing aids;

(10) Land-based targets for air weapons;

(11) Photographic and meteorological equipment;

(12) Training and special and general support equipment for the foregoing;

(13) Active and reserve air systems maintenance and support.

E0822 Air Systems Integration Responsibility

The Naval Air Systems Command is assigned total systems responsibility with respect to aircraft weapons systems, to be exercised in accordance with system integration plans to be developed jointly with other Systems Commands or Project Managers who are assigned responsibility for other supporting systems.

E0823 Technical Guidance and Assistance

In addition to providing other technical guidance and assistance as appropriate in connection

NAVAL AIR SYSTEMS COMMAND HQ

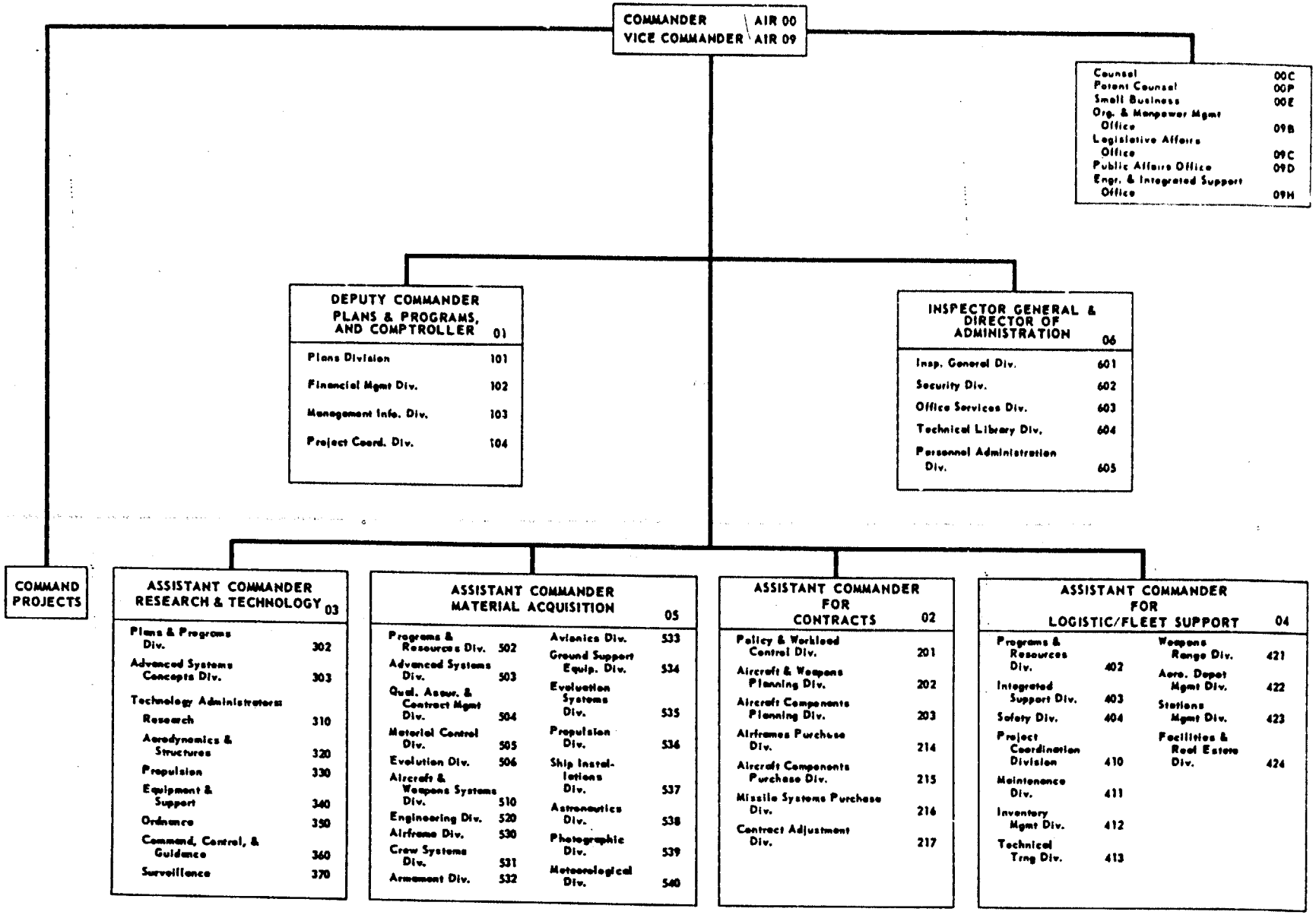


Figure E-13

with its assigned material support responsibilities, the Naval Air Systems Command shall provide comprehensive technical guidance covering aviation safety.

E0824 Assistant Commander for Research and Technology (See Figure E-14)

The Assistant Commander for R&T is responsible for the planning and execution of programs for defense research, exploratory development and advanced development in those technological and functional areas used for the development of the military systems and equipment assigned to the Naval Air Systems Command. In addition to performing the above functions for research and technological work executed under the direction of his group, he is also responsible for developing and coordinating plans, programs and budgets for such research and exploratory and advanced development work as may be executed under the supervision of other NASC groups or field activities. Exploratory and advanced developments on aircraft and weapon systems undergoing Formal Concept Formulation or equivalent will normally be planned and implemented by the Assistant Commander for Material Acquisition and coordinated with the balance of the exploratory and advanced developments by the Assistant Commander for Research and Technology. The responsibilities of the Divisions and Technology Administrations under the Assistant Command for Research and Technology are as follows:

a. Plans and Programs Division: Is responsible for long range plans and objectives, current plans analysis, progress reporting and overall program appraisal, program formulation and execution, financial management and laboratory liaison of the Naval Air Systems Command Research and Technology Programs (NASC R & T).

b. Advanced Systems Concepts Division: Is responsible for the planning, programming and execution of advanced systems studies, analyses and investigations prior to Formal Concept Formulation. These studies will provide necessary guidance for the formulation and management of exploratory and advanced developments. Also studies will provide feasible alternative advanced concepts based on technologies managed by the Technology Administrators. Advanced Systems Concepts will be developed through studies, analyses and investigations for subsystems state-of-the-art projections and through assistance and information gathered from the Technology Administrators, MATACQ Group, OPNAV, Laboratories, other military services and industry. Advanced Systems will be evaluated against the GORs and threats to provide guidance for future system/subsystem program planning in NASC, CNM, and CNO.

E0825 Technology Administrators

The Functional Technology Administrators are responsible for the planning and execution of programs for defense research, exploratory development and advanced development in assigned technological and functional areas. The specific responsibilities of the Technology Administrators are as follows:

a. Research Administrator: Is responsible for performing the above functions in the following defense research and technological areas; chemical, physical, electronic and biological sciences as appropriate; engineering and fluid mechanics and energy conversion as appropriate.

b. Aerodynamics and Structures Administrator: Is responsible for performing the above functions in the following functional and technological areas: aircraft, missile, and aircraft/store combinations, aerodynamics, flight dynamics, control, and performance; weapon ballistics; aircraft hydrodynamics; aircraft and missile structures; materials and associated processes; and related technologies.

c. Propulsion Administrator: Is responsible for performing the above functions in the following functional and technological areas: aircraft engines and associated fuels, lubricants and components; missile and weapon propulsion and associated propellants; gun propellants; personnel eject rockets; the operation of the Chemical Propulsion Information Agency; and related technologies.

d. Equipment and Support Administrator: Is responsible for performing the above functions in the following functional and technological areas: mechanical and electrical airborne equipment; secondary power systems; instrumentation; environmental protective systems; human factors; escape systems, aircrew equipment; aircraft launch and recovery systems; aircraft ground support equipment; test and evaluation of equipment; general engineering techniques; and related technologies.

e. Ordnance Administrator: Is responsible for performing the above functions in the following functional and technological areas: warheads and fuzes for guided missiles, bombs, rockets, and guns; biological and chemical weapons; pyrotechnics; cartridge actuated devices; nuclear weapons acceptance, safety and

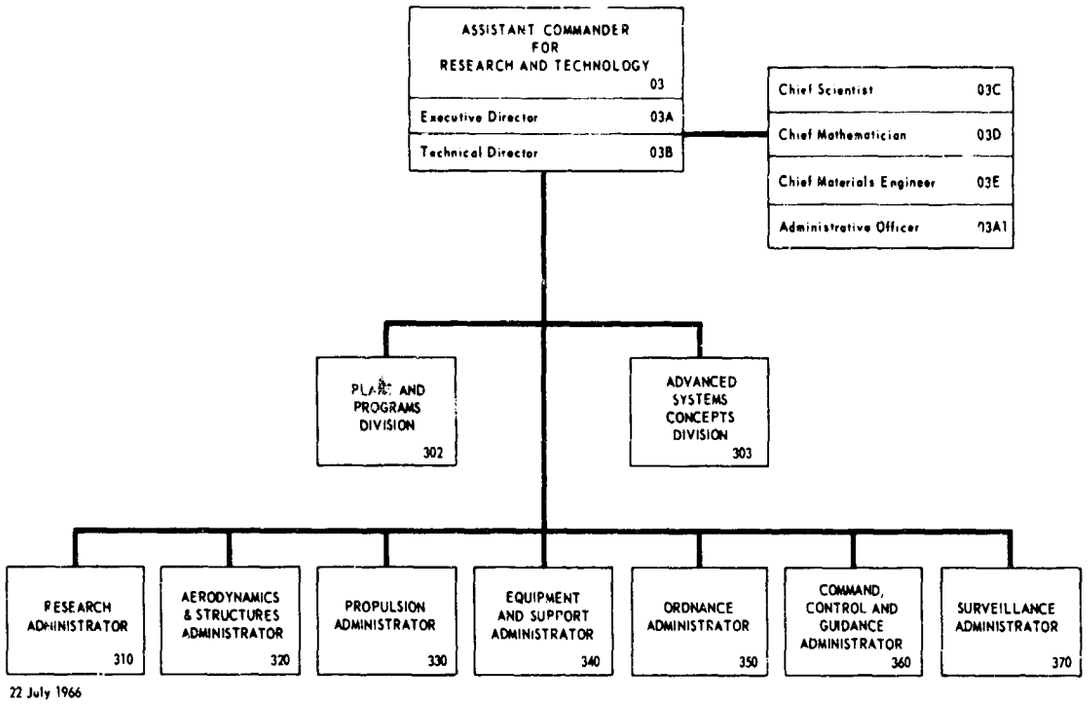


Figure E-14 - Assistant Commander for Research & Technology

adaption kits; launching and suspension equipment for all airborne weapons and designated stores; aircraft equipment for arming and rearming of aircraft; and related technologies.

f. Command, Control and Guidance Administrator: Is responsible for performing the above functions in the following functional and technological areas: command and control techniques and systems for aircraft and weapons; weapon fire control techniques and systems; missile guidance techniques and systems; and related technologies.

g. Surveillance Administrator: Is responsible for performing the above functions in the following functional and technological areas: detection, localization and classification techniques and systems for use in antisubmarine warfare and general reconnaissance; mine countermeasures; environmental sciences, including oceanography; and related functional areas. The Administrator is additionally responsible for coordination of the R&T programs of the Astronautics, Photography and Meteorology Divisions of the Assistant Commander for Material Acquisition.

E0830 Naval Electronic Systems Command (See Figure E-15)

E0831 Material Support Responsibilities

Except as otherwise provided by the Chief of Naval Material, the Naval Electronic Systems Command is responsible for the following:

a. Performing material support functions (as described in E0805) with respect to:

(1) Shore (ground) electronics, complete (except Marine Corps tactical)

(2) Shipboard electronic equipment (less antenna systems when not an integral part of the basic equipment) under system control of the Ship Systems Command, as follows: communications; IFF; ECM; navigation aids

(3) SOSUS

(4) Material support of Air Systems Command for following electronics equipment: navigation aids; air traffic control; meteorology

(5) Space programs as follows: SATCOM and material support of SPASUR

(6) Shorebased strategic data systems: OPCON centers

NAVAL ELECTRONIC SYSTEMS COMMAND

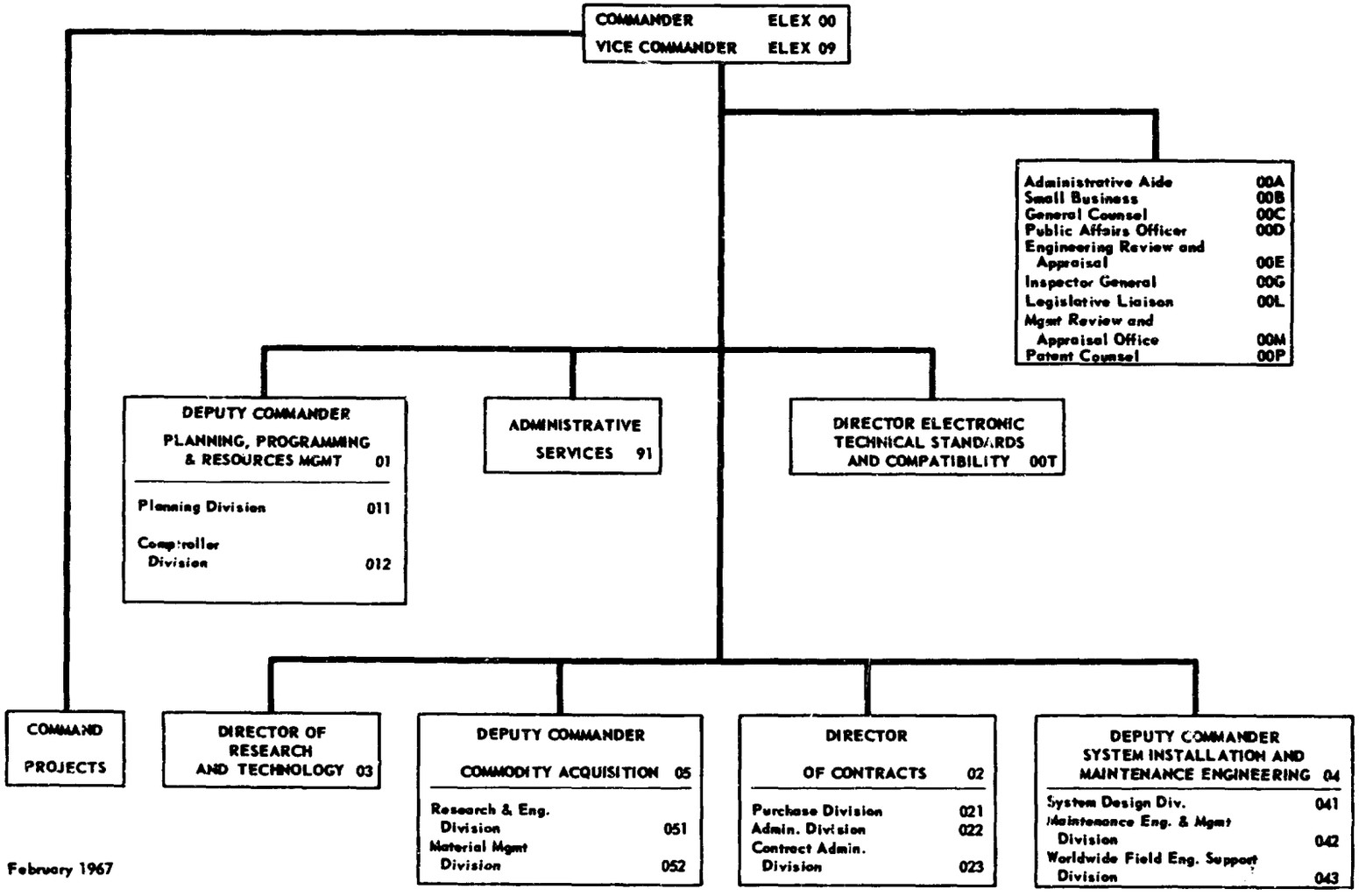


Figure E-15

(7) Data-link systems (external to ships and aircraft)

(8) Radiac equipment

(9) General-purpose electronic test equipment and common components, techniques and services

(10) Electronic systems not otherwise assigned

E0832 Technical Authority, Guidance and Assistance

In addition to providing other technical guidance and assistance as appropriate in connection with its assigned material support responsibilities, the Naval Electronic Systems Command is the single technical authority for electronics standards and compatibility. The Naval Electronic Systems Command is the single point of contact within the Naval Material Command on electronics matters to the extent required to act authoritatively for the Naval Material Command on such technical matters. This responsibility includes policy formulation for the Chief of Naval Material and executive direction to the extent delegated or specified by the Chief of Naval Material.

E0833 Research and Technology Directorate (See Figure E-16)

The Director of Research and Technology is responsible for the planning, programming, and directing of the research, development, test and evaluation program under the purview of the Command. He is also responsible for providing technical support to other elements of the Command and other commands within assigned areas of responsibilities. The responsibilities of the Divisions under the Director, Research and Technology are as follows:

a. Research and Technology Planning Division: Directs the formulation, analysis, presentation, defense, justification and provides financial management control of the Command's RDT&E program.

b. Warfare Systems Division: Plans, directs, and provides coordination of the execution of the Command's RDT&E programs and projects in the areas of communications, components, surveillance, navigation, and ECM and provides support to other commands as required.

E0840 Naval Facilities Engineering Command (See Figure E-17)

E0841 General Duties and Responsibilities

The Naval Facilities Engineering Command provides support to the Operating Forces of the Navy, the Marine Corps, other components of the Naval Material Command, and other offices and organizations in the general area of shore facilities and related material and equipment. Except as otherwise provided in NAVMAT Note 5460 or by the Chief of Naval Material, the Commander, Naval Facilities Engineering Command, as the Navy's Single Executive for Facilities Management and Related Services, is responsible for the following:

a. Performing appropriate material support functions (as described in E0805) with respect to:

(1) public works, floating cranes, amphibious pontoon equipment, fleet moorings, and fixed surface and subsurface ocean structures;

(2) utilities;

(3) construction, transportation (including automotive and railway), and wright-handling equipment, except that of the Marine Corps and such equipment as is assigned to another command, bureau or office; and

(4) materials and appliances for defense ashore against chemical, biological, and radiological warfare, except instruments for detection and measurement of radioactivity.

b. Maintenance of grounds, buildings and structures (Class I and Class II property) and related services assigned, except at activities of the Marine Corps, and other specifically excluded activities.

c. Operation and maintenance of utilities and automotive and construction equipment, except at activities of the Marine Corps, and other specifically excluded activities.

d. The planning, design, construction, acquisition and disposal of family housing; and, except for Marine Corps supported activities, the management, operation and maintenance of family housing.

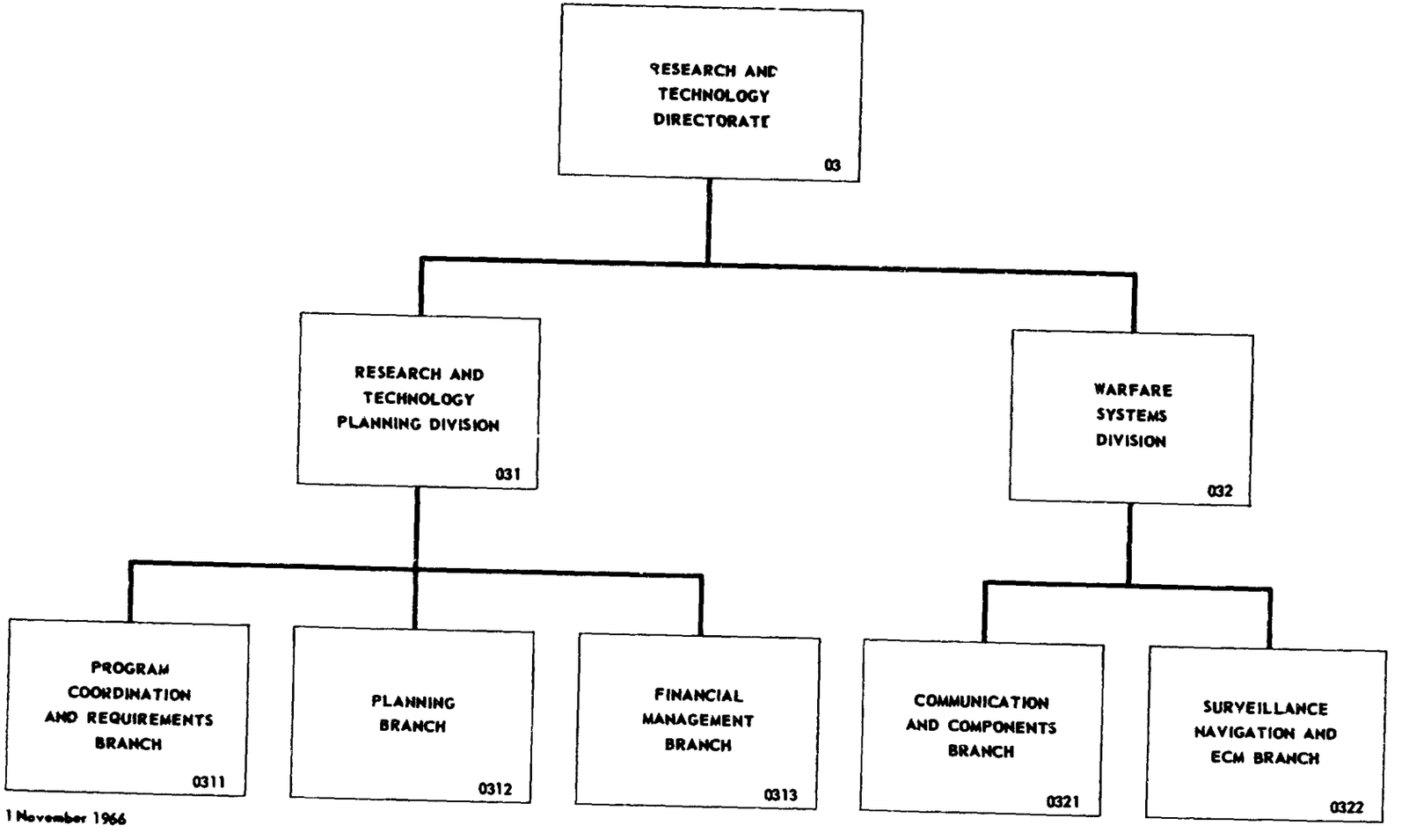


Figure E-16 - Research and Technology Directorate

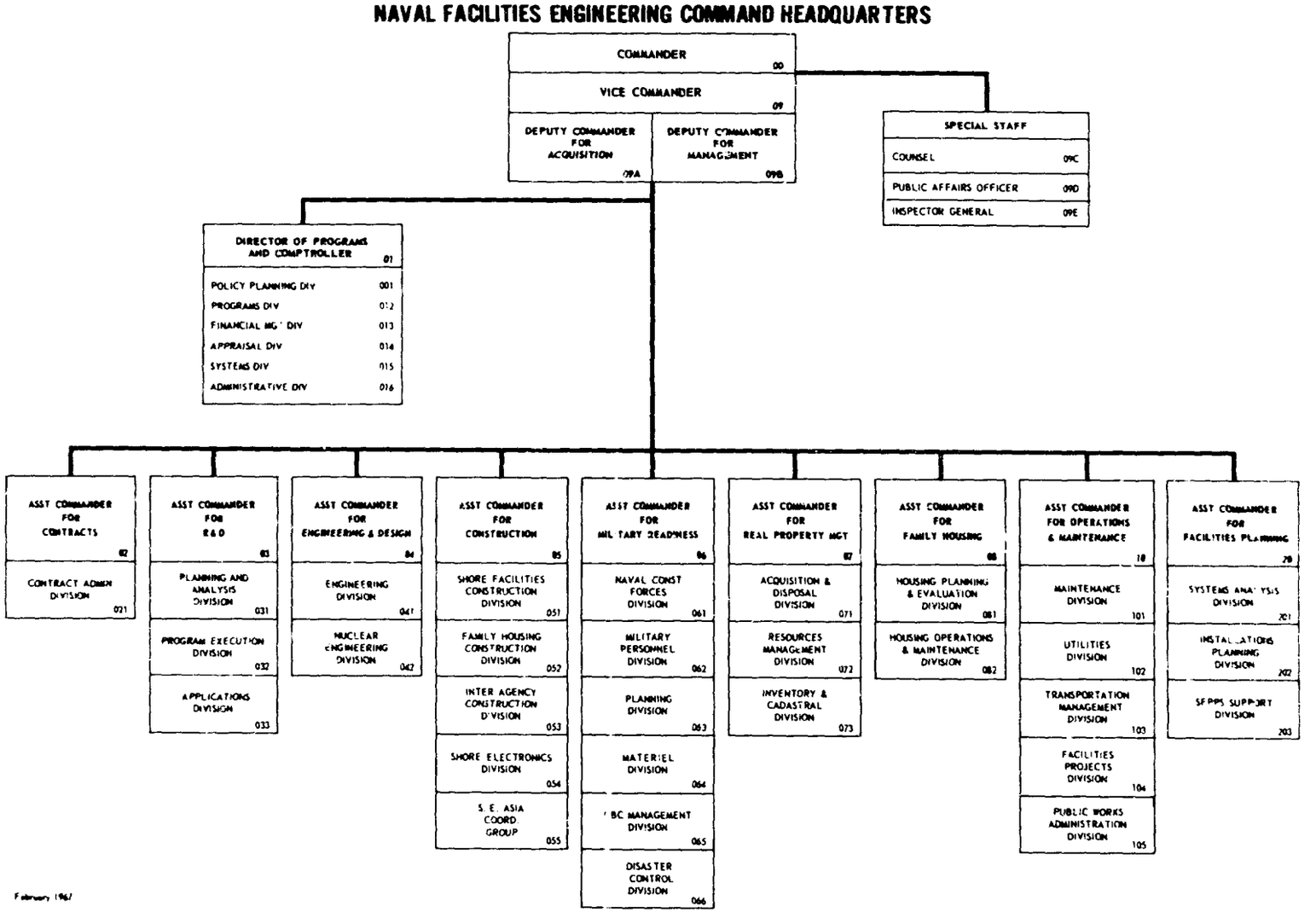

NAVAL FACILITIES ENGINEERING COMMAND HEADQUARTERS
COMMANDER 00
VICE COMMANDER 09
DEPUTY COMMANDER FOR ACQUISITION 09A
DEPUTY COMMANDER FOR MANAGEMENT 09B
SPECIAL STAFF
COUNSEL 09C
PUBLIC AFFAIRS OFFICER 09D
INSPECTOR GENERAL 09E
DIRECTOR OF PROGRAMS AND COMPTROLLER 01
POLICY PLANNING DIV 001
PROGRAMS DIV 012
FINANCIAL MG' DIV 013
APPRAISAL DIV 014
SYSTEMS DIV 015
ADMINISTRATIVE DIV 016
ASST COMMANDER FOR CONTRACTS 02
CONTRACT ADMIN DIVISION 021
ASST COMMANDER FOR R&D 03
PLANNING AND ANALYSIS DIVISION 031
PROGRAM EXECUTION DIVISION 032
APPLICATIONS DIVISION 033
ASST COMMANDER FOR ENGINEERING & DESIGN 04
ENGINEERING DIVISION 041
NUCLEAR ENGINEERING DIVISION 042
ASST COMMANDER FOR CONSTRUCTION 05
SHORE FACILITIES CONSTRUCTION DIVISION 051
FAMILY HOUSING CONSTRUCTION DIVISION 052
INTER AGENCY CONSTRUCTION DIVISION 053
SHORE ELECTRONICS DIVISION 054
S.E. ASIA COORD GROUP 055
ASST COMMANDER FOR MILITARY READINESS 06
NAVAL CONST FORCES DIVISION 061
MILITARY PERSONNEL DIVISION 062
PLANNING DIVISION 063
MATERIEL DIVISION 064
'BC MANAGEMENT DIVISION 065
DISASTER CONTROL DIVISION 066
ASST COMMANDER FOR REAL PROPERTY MGT 07
ACQUISITION & DISPOSAL DIVISION 071
RESOURCES MANAGEMENT DIVISION 072
INVENTORY & CADASTRAL DIVISION 073
ASST COMMANDER FOR FAMILY HOUSING 08
HOUSING PLANNING & EVALUATION DIVISION 081
HOUSING OPERATIONS & MAINTENANCE DIVISION 082
ASST COMMANDER FOR OPERATIONS & MAINTENANCE 10
MAINTENANCE DIVISION 101
UTILITIES DIVISION 102
TRANSPORTATION MANAGEMENT DIVISION 103
FACILITIES PROJECTS DIVISION 104
PUBLIC WORKS ADMINISTRATION DIVISION 105
ASST COMMANDER FOR FACILITIES PLANNING 20
SYSTEMS ANA' YSIS DIVISION 201
INSTAL ATIONS PLANNING DIVISION 202
SFPPS SUPPORT DIVISION 203
February 1967

Figure E-17

e. The inspection and approval of design and construction of items, provided at Government expense, at privately operated establishments that would constitute public works or public utilities if constructed at a naval shore activity.

f. Acquisition, inventory, disposal, outleasing and, except for the Marine Corps, inleasing of real estate; and the management of excess real property.

g. Determining and authorizing the rates of sale of utility services to private parties, other Government agencies, and welfare activities within the Department of the Navy.

h. Managing the Navy's Natural Resources Program, including developing programs and procedures, publishing standards and technical data, and coordinating and providing technical assistance for natural resources management, within policies established by higher authority.

i. Administering the assignment and utilization of automotive vehicles and construction equipment, except for the Marine Corps, for other specifically excluded activities, and for specialized types assigned to other commands, bureaus or offices; and maintaining a record of the location of all automotive vehicles of the Department of the Navy, and assigning Navy registration numbers thereto.

j. Sponsoring and administering the Environmental Pollution Control Program at all Naval Shore activities, except Marine Corps.

k. Administering the programs for collateral equipment for specified facilities, including personnel support facilities, for Naval Shore activities, except Marine Corps.

l. Providing engineering and technical services for the development and use of nuclear shore power plants and radioisotope power devices for Navy application.

E0842 Technical Guidance and Assistance

The Naval Facilities Engineering Command shall provide appropriate technical guidance and assistance in connection with the responsibilities setforth above.

E0843 Assistant Commander for Research and Development (See Figure E-18)

The Assistant Commander for Research and Development is responsible for the formulation and execution of a program providing a balance of research, development, test and evaluation effort leading toward optimum improvement in the scientific, technical and engineering capabilities to meet the Command's responsibilities in new environments and weapons system support. He supervises and controls the Program Coordination Office, Planning and Analysis Division, Program Execution Division, and the Applications Division which are responsible for the following:

a. Program Coordination Office. The Program Coordination Office provides administrative support to the overall research and development program in areas of budget formulation, assignment and obligation of funds, personnel resources, contract administration and reports.

b. Planning and Analysis Division. To determine and formulate areas wherein research, development, test and evaluation capabilities can support Navy and Command interests; to study requirements and deficiencies; and to formulate research, development, test and evaluation programs in those areas, designed to provide the optimum improvement in techniques, materials, maintenance and operation of the Naval Shore Establishment; to acquire, assemble, interpret and disseminate research, development, test and evaluation information resulting from completed efforts and from efforts currently under way; and to follow up on the application of such results to Naval Facilities Engineering Command problems.

c. Program Execution Division. To execute the research, development, test and evaluation effort of the Command; to review program findings and recommend implementation thereof; to prepare the research, development, test and evaluation budget; to provide scientific and technical back-up justifying the annual budget submission for the Command's research, development, test and evaluation program, and to assign and monitor the research, development, test and evaluation program of the U. S. Naval Civil Engineering Laboratory.

d. Applications Division. To serve as the Command's focal point for constant communication with and liaison between field activities and headquarters in the areas of R and D responsibilities; to improve and expedite the evaluation of new ideas, concepts, procedures, new materials and equipment and to furnish this information to the cognizant organization for technical review and appropriate dissemination; to study technical problems unique to the field divisions and PWD's and to translate requirements into research proposals deemed appropriate for inclusion in the annual program.

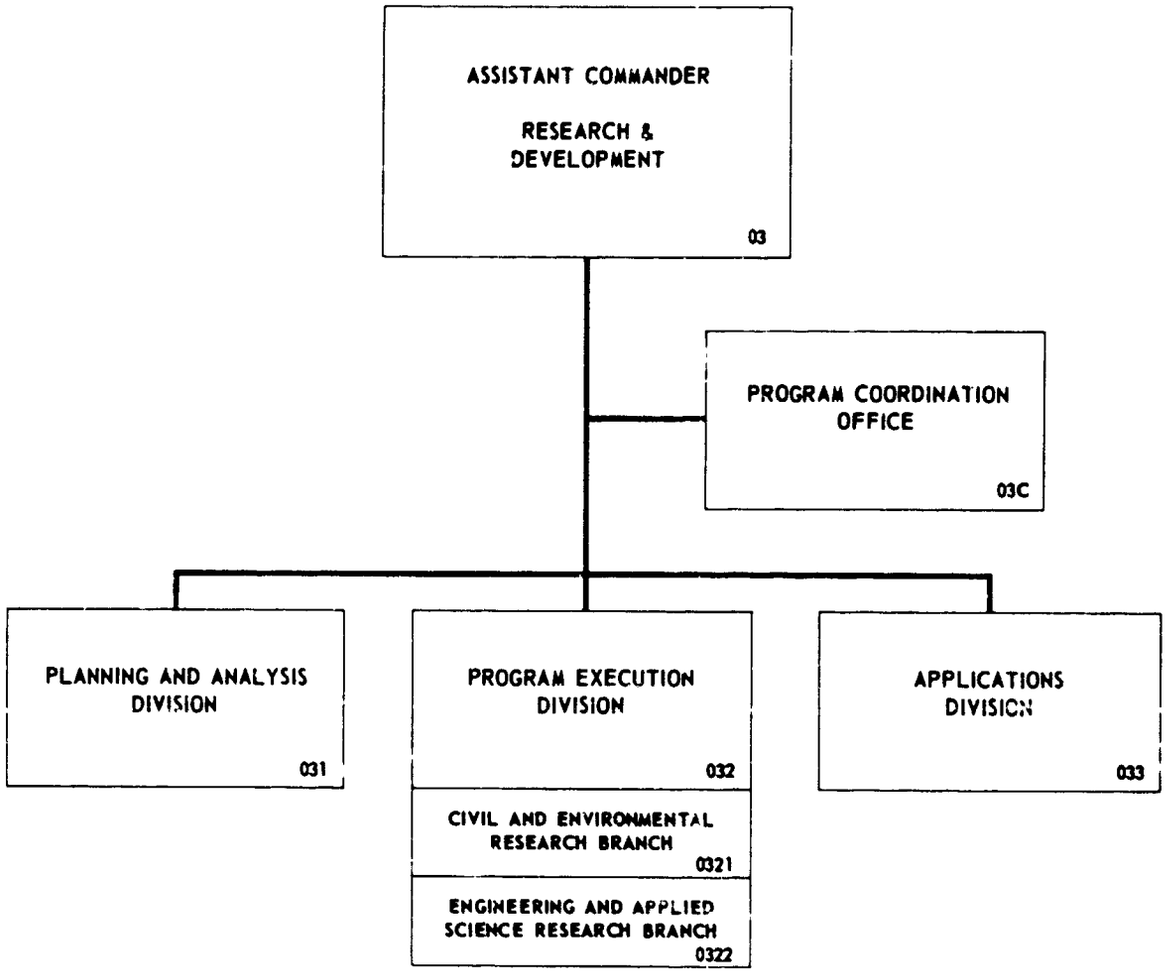


Figure E-18 - Assistant Commander for R&D

E0850 Naval Ordnance Systems Command (See Figure E-19)

E0851 Material Support Responsibilities

Except as otherwise provided by the Chief of Naval Material, the Naval Ordnance Systems Command is responsible for the following:

a. Performing material support functions (as described in E0805) with respect to:

(1) Surface launched and underwater launched ordnance, complete shipboard weapons systems and components thereof, including, but not limited to, guns, ammunition, missiles, torpedoes, mines, fire control equipment, fire control radar, weapons direction equipment, fire control switchboards, launchers and expendables;

(2) Air-launched mines and torpedoes, except airborne aspects thereof;

(3) Small arms, infantry equipment, harbor defense equipment, ship pyrotechnic devices, and demolition materials;

(4) Seaborne targets, towed or drone;

(5) Special support equipment, and training equipment, as appropriate, for the foregoing.

b. Programming and control of requirements for ship-mounted sonar and ordnance aspects of three dimensional radar systems in regard to performance, configuration control and technical characteristics.

c. Research and exploratory development (non-system oriented) for all explosives, propellants and actuating technology therefor.

NAVAL ORDNANCE SYSTEMS COMMAND HQ

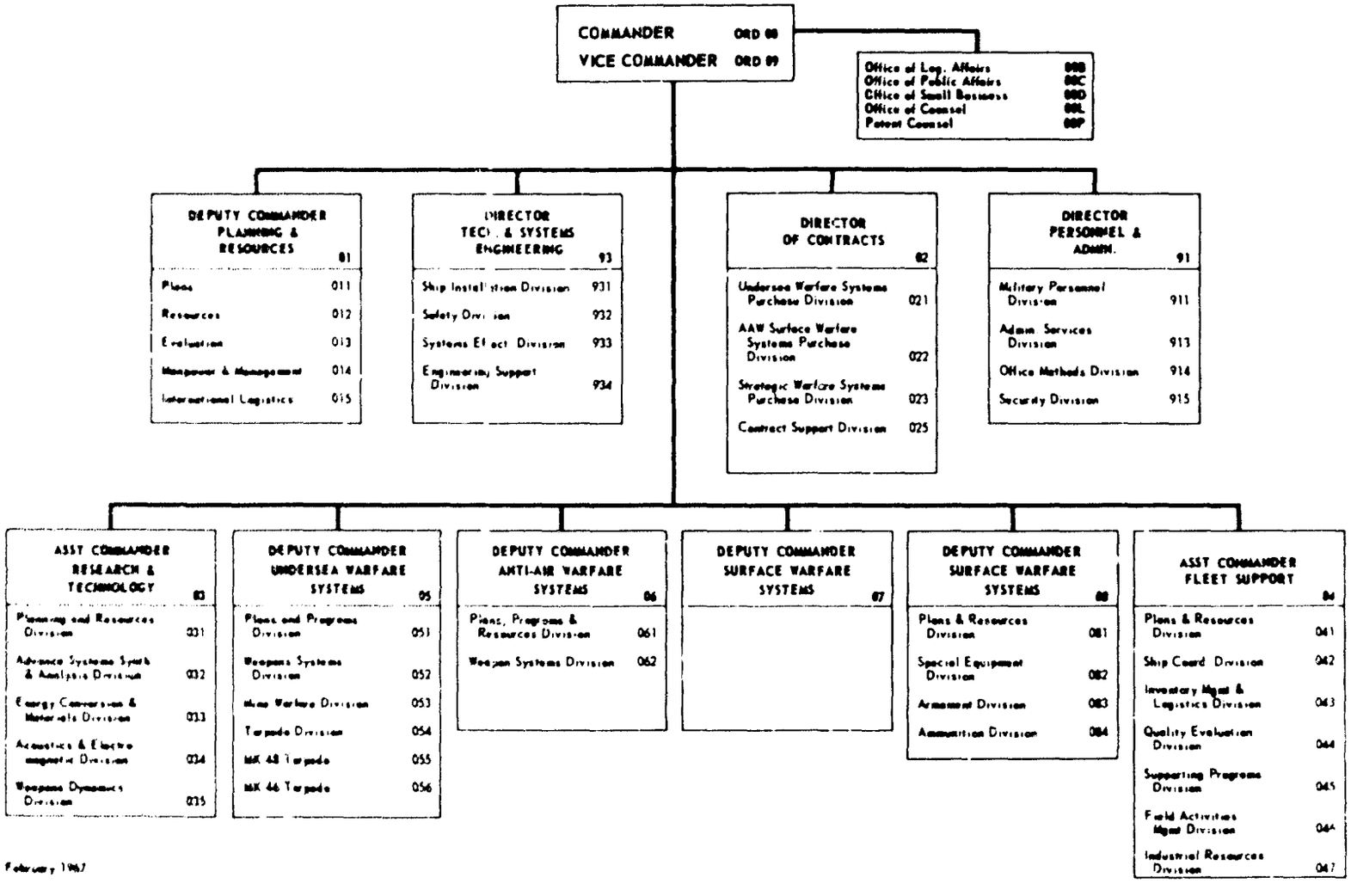


Figure E-19

d. Explosive ordnance demolition; and

e. Developing safety procedures for explosive ordnance disposal; for research, development, design, specifications, standardization, and related actions with respect to special tools and equipment for such disposal; and for contracting for such tools and equipment for service use.

E0852 Ordnance Systems Integration

The Naval Ordnance Systems Command is responsible for systems integration of ship ordnance systems assigned, to be exercised in accordance with system integration plans to be developed jointly with other Systems Commands or Project Managers who are assigned responsibility for supporting systems.

E0853 Technical Authority, Guidance and Assistance

In addition to providing other technical guidance assistance as appropriate in connection with its assigned material support responsibilities, the Naval Ordnance Systems Command is the single technical authority for explosive safety. The Naval Ordnance Systems Command will be the single point of contact within the Naval Material Command on explosive safety matters to the extent required to act authoritatively for the Naval Material Command on such technical matters. This responsibility includes policy formulation for the Chief of Naval Material and executive direction to the extent delegated or specified by the Chief of Naval Material. (Explosive safety, as used in this article, includes conventional as well as nuclear component explosive safety.)

E0854 Research and Technology Directorate (See Figure E-20)

The Research and Technology Directorate is responsible to the Commander, Naval Ordnance Systems Command, for providing overall coordination of Research, Exploratory Development and Advanced Development throughout the Command; for planning, programming and directing Research and Exploratory Development throughout the Command; and for executing Research, Exploratory Development and Advanced Development not otherwise assigned; for providing technical support to other elements within the Command and to other Commands within assigned areas of cognizance; and for control of those financial resources assigned to the Command which are required to discharge the above responsibilities. The responsibilities of the Divisions under the Director, Research and Technology are as follows:

a. Plans and Resources Division: Is responsible for translating program requirements into financial plans; preparing budget estimates for RDT&E Categories I, II, and III; development and preparation of all plans, intermediate and long range for support of RDT&E Categories I, II, and III; allocating and controlling funds to support the approved programs for Naval Research, Exploratory Development and Advanced Development; required reprogramming actions; progress reporting; program and financial management; laboratory management and industrial and Naval Research and Development Information System (NARDIS) liaison; and for coordinating and controlling administrative matters within the Research and Technology Directorate.

b. The Advanced Systems Synthesis and Analysis Division (ORD-032): Is responsible for providing system synthesis and analysis for the initiation of advanced developments, for assessing the import of technological trends and innovations and interacting with planning activities to reflect those changes in Naval planning; for the coordination of the Navy's Technological Forecasts; for providing the liaison in those areas of intelligence that are of a scientific and technical nature.

c. The Energy Conversion and Materials Division (ORD-033): Is responsible for providing overall coordination on a Command-wide basis for its technical area of interest for research, exploratory development and advanced development, for planning and directing research, exploratory development and advanced development assigned to the Division, for providing technical support to other elements within the Command and to other Commands within its assigned areas of cognizance. The principal technical areas of interest are propellant/propulsion for Ordnance items such as missiles, projectiles, and torpedoes; explosives and detonation phenomena; pyrotechnics and cartridge-activated devices; materials; and all devices and systems for the generation, regulation, and storage of electrical energy.

d. The Acoustics and Electromagnetics Division: Is responsible for providing overall coordination on a Command-wide basis for its technical area of interest for research, exploratory development and advanced development, for planning and directing research, exploratory development and advanced development assigned to the Division, for providing technical support to other elements within the Command and to

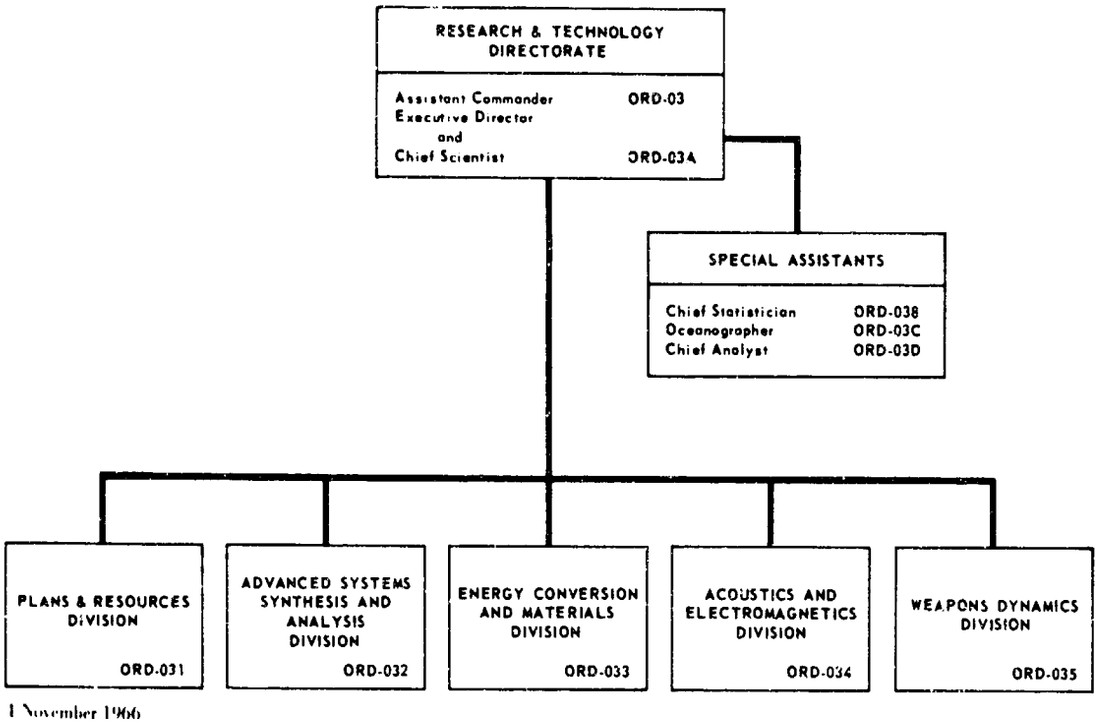


Figure E-20 - Research and Technology Directorate

other Commands within its assigned areas of cognizance. The principal technical areas of interest are Acoustic Counter-Countermeasures, Electromagnetic Counter-Countermeasures, Guidance and Control Technology and Components, Acoustic and Electromagnetic Phenomena and related Components.

e. The Weapons Dynamics Division: Is responsible for providing overall coordination on a Command-wide basis for its technical area of interest for research, exploratory development and advanced development, for planning and directing research, exploratory development and advanced development assigned to the Division, for providing technical support to other elements within the Command and to other Commands within its assigned areas of cognizance. The principal technical areas of interest are Flight Dynamics (including Aerodynamics, Hydrodynamics, Ballistics, Structures, and Launching) and Armament Effectiveness (including Warheads, Fuzes, Weapon Effects, Mines, Explosive Ordnance Disposal, and Safety).

E0860 Naval Ship Systems Command (see Figure E-21)

E0861 Material Support Responsibilities

Except as otherwise provided by the Chief of Naval Material, the Naval Ship Systems Command is responsible for the following:

a. Performing material support functions (as described in E0805, hereof) with respect to:

(1) ships, submersibles, amphibious craft and vehicles, boats, floating drydocks, target ships and craft including submersibles, bathyscaphes, underwater labs and shelters, rescue chambers and vehicles, hydrofoil craft, ground effect machines, service craft and other surface and subsurface craft of the Navy, degaussing equipment and facilities and ship-related material not otherwise specifically assigned; but excluding service craft assigned to the Naval Facilities Engineering Command and excluding Commissioned (USS) and in-service (USNS) ships administratively assigned to the Military Sea Transportation Service, except for material support directed by the Chief of Naval Operations;

(2) shipborne components and systems, not otherwise assigned, including:

NAVAL SHIP SYSTEMS COMMAND HQ

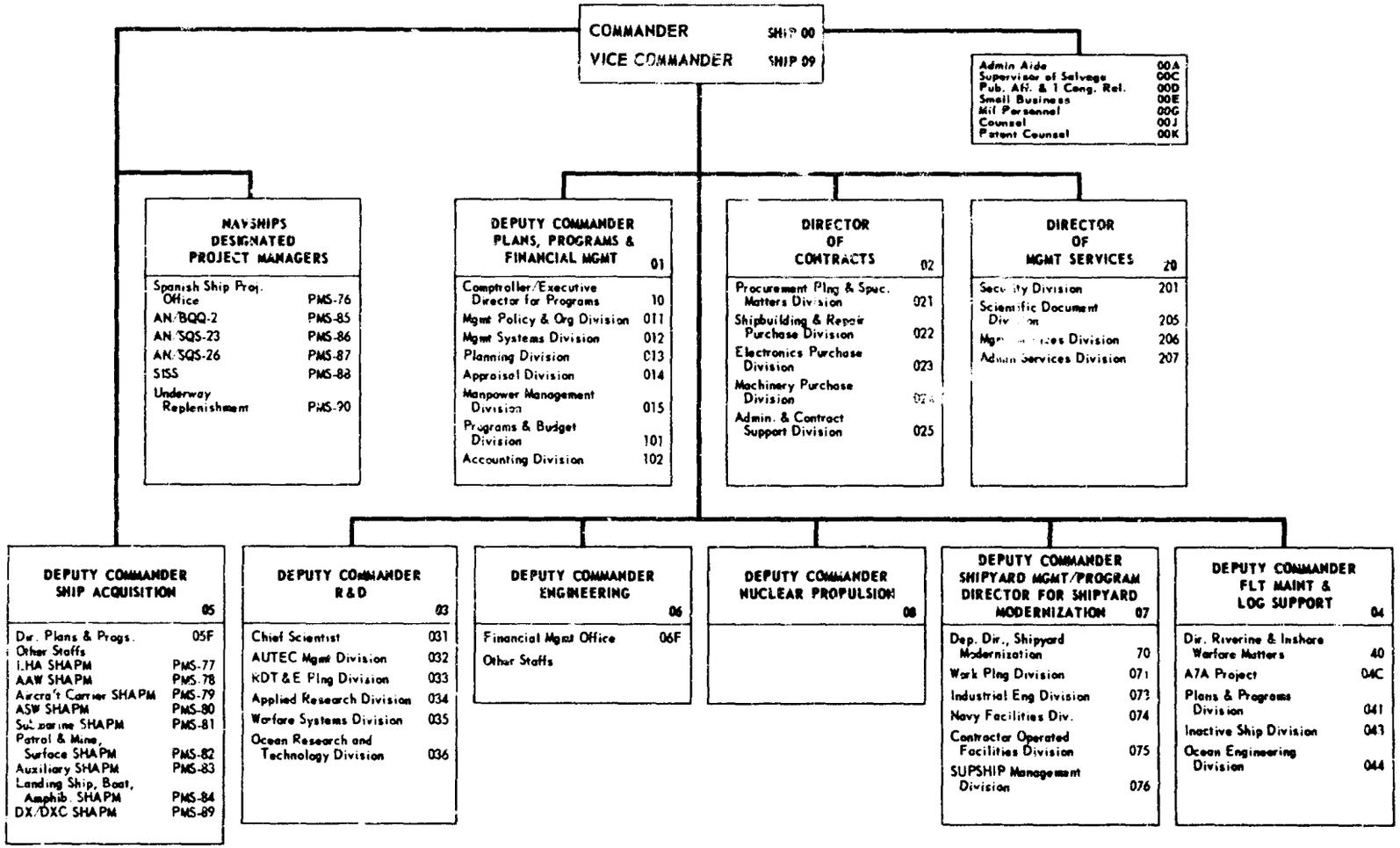


Figure E-21

(a) propulsion

(b) auxiliary power generating and distribution system

(c) navigation equipment

(d) sonar research, engineering, acquisition and support subject to the Ordnance Systems Command responsibilities described in Part E.1.b.

(e) search radar

(f) NTDS

(g) mine sweeping equipment

(h) antenna design and integration

(i) habitability and environmental control features

(3) materials and appliances (i) for defense against chemical, biological, and radiological warfare in ships and other waterborne craft, and (ii) for mine countermeasures, except for airborne mine countermeasures;

(4) respiratory protective devices, diving equipment, submarine rescue methods and equipment, and submarine escape training facilities;

(5) equipage for the towing and salvaging of disabled, sunken and stranded ships and crafts;

(6) training material as appropriate for the foregoing

b. Conduction and coordinating studies and investigations associated with the phenomena of radiological contamination and decontamination against radioactivity; and providing data necessary for the exercise of development, application, and procurement responsibilities assigned to other bureaus and offices in these fields.

c. Establishing the specifications (including those for inspection) necessary to insure the desired quality of fuel and lubricants for use in propulsion and auxiliary machinery and equipment in naval ships.

d. The procurement of services from salvage agencies outside the Navy; also supervision of major operations involving salvage of stranded and sunken ships and craft.

e. Maintaining current the official lists of all ships and craft (except aircraft), including service craft of the Navy, showing their classification, characteristics, and other pertinent data; and publishing these lists periodically for the information of the Department of the Navy.

f. The coordination within the Navy and technical review of merchant ships plans submitted by the Maritime Administration for determination of their suitability for conversion or use in time of war or national emergency or their desirability for national defense purposes.

g. Active and reserve ship maintenance and support.

E0862 Ship Systems Integration and Coordination

The Naval Ship Systems Command is assigned total system integration responsibility with respect to ships and craft for which it has material support responsibilities, to be exercised in accordance with system integration plans to be developed jointly with other Systems Commands or Project Managers who are assigned responsibility for weapons or other shipboard systems. The Naval Ship Systems Command is also assigned responsibility for coordinating ship material support functions assigned to and discharged by other Systems Commands to the extent required for adequate acquisition and support of the ship as an engineering and functional whole.

E0863 Technical Guidance and Assistance

In addition to providing other technical guidance and assistance as appropriate in connection with its responsibilities enumerated above, the Naval Ship Systems Command:

a. establishes methods and procedures for salvaging stranded and sunken ships and craft and for the drydocking of all naval ships and craft; and

b. prepares and issues safety precautions and instructions in connection with the safety of ships and craft.

E0864 Coordination of Shipbuilding, Conversion and Repair

a. As Navy Coordinator of Shipbuilding, the Commander of the Naval Ship Systems Command has authority to:

(1) issue direction, as may be necessary, direct to other commands and offices concerned in order to effect the timely delivery of needed materials and technical information for

which they are responsible at the specified shipbuilding and ship repair activities; and,

(2) represent the Department of the Navy's interests in ship design, shipbuilding and in shipbuilding facilities of other Government agencies and of private industry.

All written orders or instructions relating to the coordination of shipbuilding for the Department of the Navy issued by the Navy Coordinator of Shipbuilding are considered as emanating from the Chief of Naval Material, the Chief of Naval Operations, and the Secretary of the Navy.

The Vice Commander of the Naval Ship Systems Command is Assistant Coordinator of Shipbuilding.

b. As Coordinator of Shipbuilding, Conversion and Repair for the Department of Defense, the Commander of the Naval Ship Systems Command is responsible for:

(1) planning and coordinating shipbuilding, conversion and repairs for ships and other watercraft of the Department of Defense to obtain the best utilization of available facilities within the continental limits of the United States for a national emergency or mobilization; and,

(2) representing the Department of Defense in coordinating such matters with the U. S. Maritime Administration and other Government agencies.

Such coordination of shipbuilding is not restricted to any particular period of time. Coordination of conversion and repair becomes effective upon the initiation of hostilities or upon the declaration of a national emergency and continues during wartime or the emergency. The order of shipbuilding, conversion and repair for ships and craft of the Department of Defense is in accordance with priorities established by the Chief of Naval Operations.

c. By virtue of an interagency agreement dated 9 November 1955, the Coordinator of Shipbuilding, Conversion and Repair (DOD) is the Coordinator of Ship Repair and Conversion for the Department of Defense and the Department of Commerce (see DODINST 5030.8 of 30 July 1956). In this additional capacity, the Commander of the Naval Ship Systems Command plans for the repair and conversion in the shipyards of continental United States of ships under the control of the Department of Defense, the Department of Commerce, or of friendly nations, as provided in the interagency agreement.

E0865 Deputy Commander for Research and Development (See Figure E-22)

The Deputy Commander for Research and Development is responsible to the Commander, Naval Ship Systems Command, for acting as the focal point in the Naval Ship Systems Command for all matters relating to RDT&E program and budget formulation; planning the long-range RDT&E Program; formulating and assuring execution of the RDT&E program; presenting and defending the program to higher authority; and providing Program Management under Research, Exploratory, Advanced, Engineering, Management and Support, and Operational Development through assigned Technical Agents (Naval Ship Engineering Center, Labs, or Contractors); and managing the Atlantic Undersea Test and Evaluation Center (AUTEC). The responsibilities of the Divisions under the Deputy Commander for Research and Development are as follows:

a. The AUTEC Management Division: Is responsible for managing the Atlantic Undersea Test and Evaluation Center (AUTEC); serving as the focal point for all matters concerning AUTEC; coordinating, reviewing, and approving programs for development, use, and future expansion of AUTEC; forecasting requirements and future objective, and promulgating plans to meet their objectives; coordinating and reviewing proposed technical programs and formulating, submitting and defending the RDT&E budget for AUTEC.

b. The RDT&E Planning Division: Is responsible for administering, coordinating, and analyzing the Command's RDT&E program and budget; presenting and defending the program to higher authority; formulating long range planning for research and development; performing financial manager functions for the RDT&E program.

c. The Applied Research Division: Is responsible for providing RDT&E program management for ship systems, subsystems, and components, including the following areas: ships research, propulsion, gas turbines, other machinery, electrical and hull equipment and systems; energy sources, logistics and habitability; submarine safety and underway replenishment program; all materials, fuels, and lubricants; hull structure, protection, fabrication, and non-destructive testing; use of computers in ship design and construction, and ship silencing.

d. The Warfare Systems Division: Is responsible for providing RDT&E program management in the following areas: command support including communications, air and surface

NAVAL SHIP SYSTEMS COMMAND

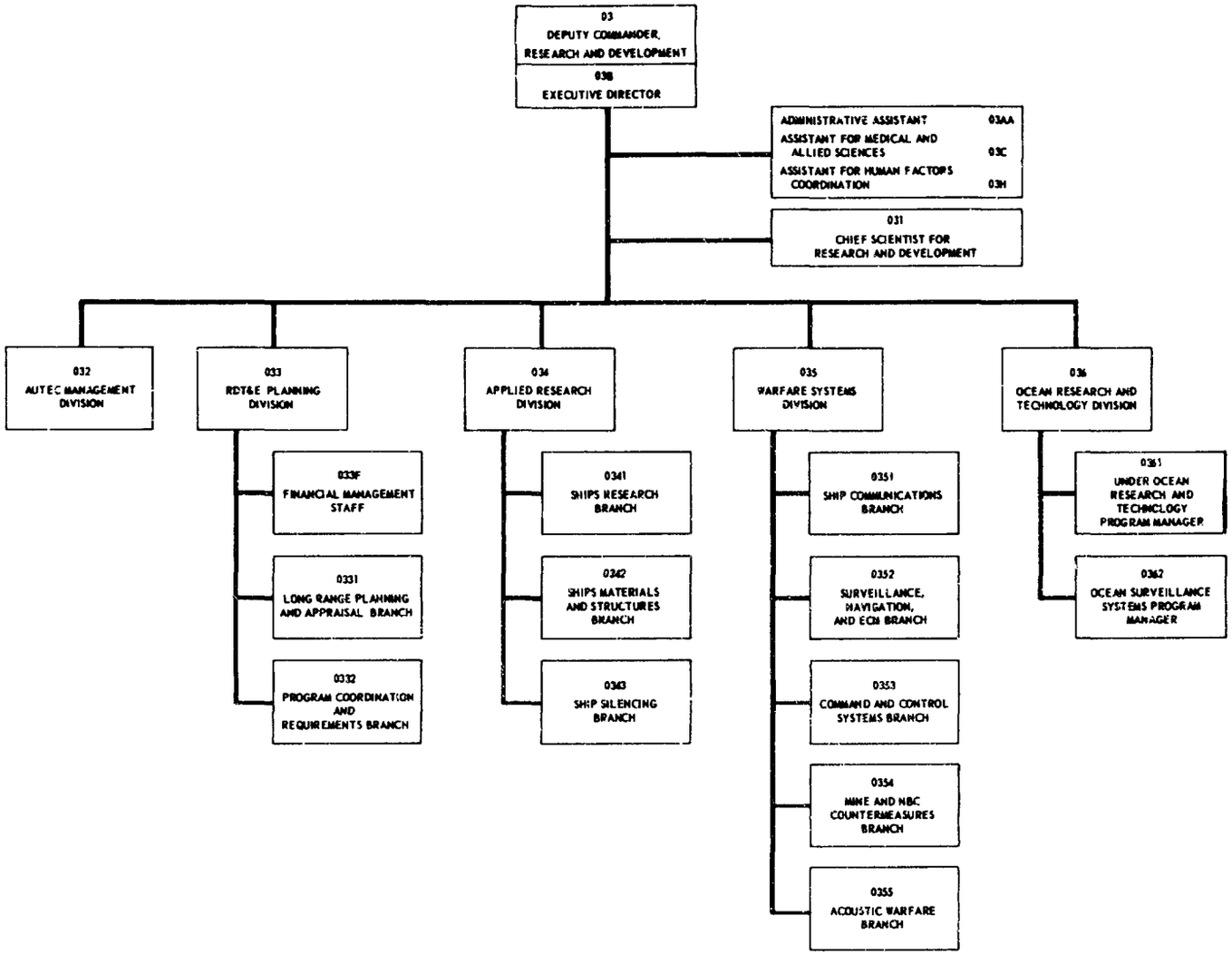


Figure E-22

surveillance, display and data processing, navigation, and ship electronic systems integrations, detection and countermeasures including NBC defense, ship electronics countermeasures and mine countermeasures; command and control systems including NTDS and shipboard command systems; diving and underwater survival and equipment; inshore underseas warfare; and acoustic warfare systems, including acoustic and torpedo countermeasures devices and studies.

e. The Ocean Research and Technology Division: Is responsible for providing RDT&E program management in the following areas: undersea research, technology, salvage, and engineering; associated submarines, vehicles, habitats, platforms, equipment, devices, techniques, analyses, experimental programs, concepts, facilities, and ocean surveillance systems.

E0866 Naval Nuclear Propulsion

a. There is designated within the Naval Ship Systems Command a Deputy Commander for Nuclear Propulsion. He is assigned the responsibility within the Department of the Navy for all technical matters pertaining to nuclear propulsion of U. S. naval ships and craft. This responsibility includes, but is not limited to, the following:

(1) research and development pertaining to naval nuclear propulsion development;

(2) design, specifications, construction, inspection, certification, test, refueling, overhaul and conversion of naval nuclear propulsion plants;

(3) design, specifications, development, procurement, test, installation, maintenance and disposition of all nuclear systems and components used in naval nuclear propulsion plants and any special maintenance and service facilities related thereto;

(4) insuring proper control of radioactivity associated with naval nuclear propulsion plants in order to protect the health and safety of naval personnel and the general public;

(5) all aspects of reactor plant safety related to naval nuclear propulsion plants; and,

(6) providing, as appropriate, technical assistance to the Chief of Naval Personnel in the selection, training and qualification of personnel for operating and maintaining naval nuclear propulsion plants.

b. The Naval Nuclear Propulsion Program is a joint Department of the Navy and Atomic Energy Commission program. By agreement with the Atomic Energy Commission, the Deputy Commander for Nuclear Propulsion also serves as the Director, Division of Naval Reactors, Atomic Energy Commission. He keeps the Atomic Energy Commission and Advisory Committee on Reactor Safeguards properly informed with regard to naval nuclear propulsion matters.

c. In order to fulfill his responsibilities to the Atomic Energy Commission, the Deputy Commander for Nuclear Propulsion has direct access to the Secretary of the Navy, the Chief of Naval Operations and the Chief of Naval Material on matters relating to naval nuclear propulsion.

E0870 Naval Supply Systems Command (See Figure E-23)

E0871 General Duties and Responsibilities

Except as otherwise provided by the Chief of Naval Material, the Naval Ship Systems Command is responsible for the following:

a. Providing supply management policies and methods (technical guidance) for navy material to activities of the Navy and Marine Corps, including: provisioning, cataloging, inventory management, distribution, materials handling, traffic management, transportation, packaging, preservation, receipt, storage, issue and disposal functions. In the performance of the above responsibility as it pertains to naval material, the Commander, Naval Supply Systems Command utilizes the material management experience and capabilities of the other Systems Commands, derived from the accomplishment of their assigned material support responsibilities.

b. Providing staff assistance to the Assistant Secretary of the Navy (Installations and Logistics) in matters relating to supply, distribution and disposal of naval material; and, in collaboration with the Commandant of the Marine Corps, providing departmental coordination action in the preparation of departmental directives and positions on such matters having common application to both Navy and Marine Corps material.

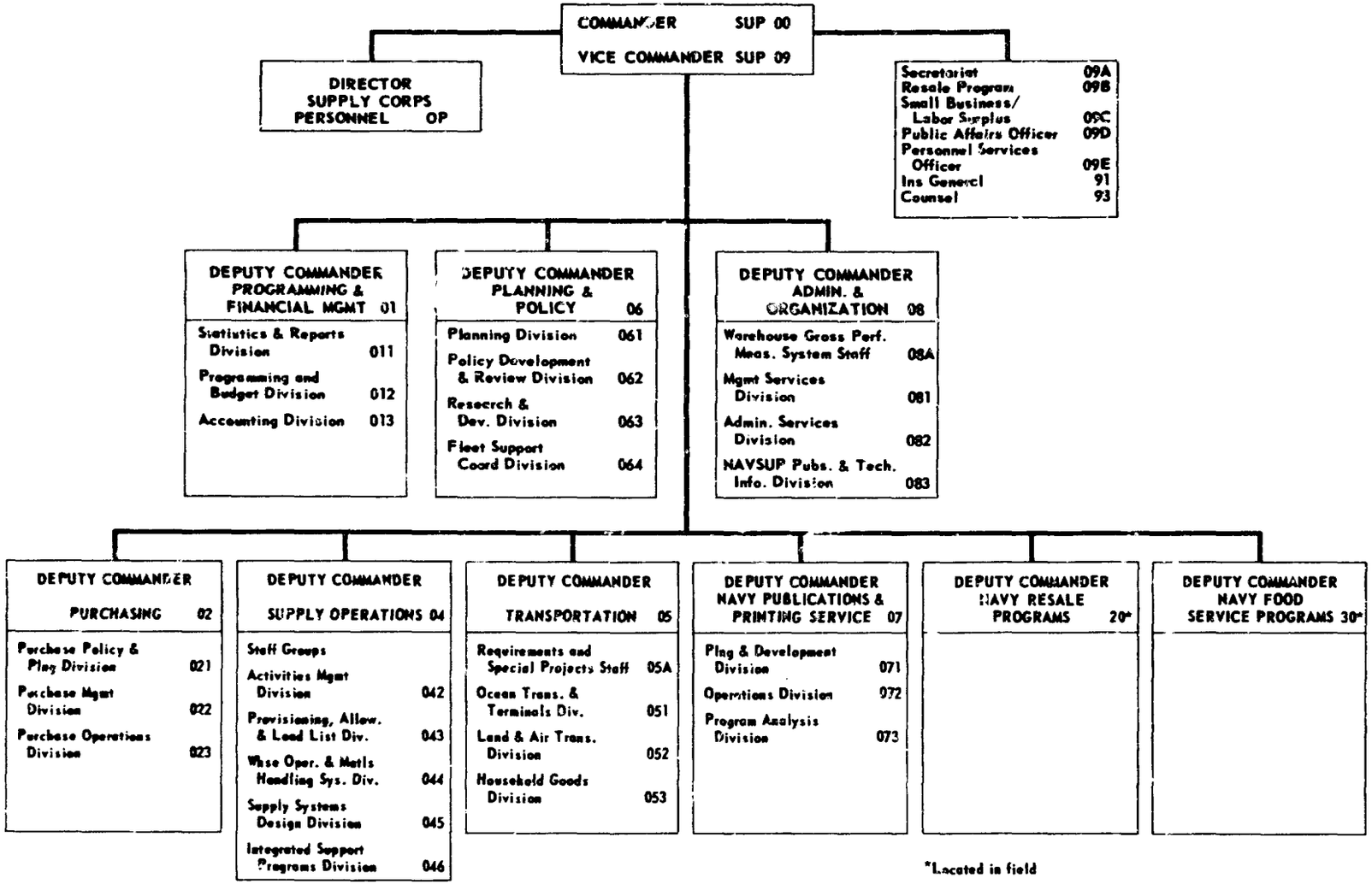
c. Administering:

(1) the Navy Supply System;

(2) the Navy Publications and Printing Program;

(3) the Navy Resale Program;

NAVAL SUPPLY SYSTEMS COMMAND HQ



*Located in field

February 1967

Figure E-23

(4) the Navy Ration Law;

(5) the Navy Stock Funds

(6) field purchasing conducted pursuant to authority delegated by the Commander of the Naval Supply Systems Command;

(7) supply, budgetary, fiscal and statistical functions in support of assigned military assistance/international logistics programs; and

(8) a centralized program to control the utilization of Navy storage facilities.

d. Performing appropriate material support functions (as described in paragraph E0805) with respect to:

(1) materials handling equipment not otherwise assigned;

(2) special clothing not otherwise assigned;

(3) food; and,

(4) naval material for which such responsibility is not otherwise assigned.

e. Performing supply management functions with respect to items of naval material which are assigned to the Naval Supply Systems Command for that purpose.

f. The maintenance of official stores accounts for navy material in store entrusted to the custody of an accountable officer.

g. The management, funding, and control, worldwide, of the transportation of navy property and the authorization and administration of the transportation and storage of property of naval and civilian personnel consistent with responsibilities assigned to the Single Manager agencies for transportation.

h. The research and development efforts associated with the functions, methods, equipments and materials assigned.

i. Providing technical guidance with respect to preparation and service of food in general messes except at naval hospitals, and providing assistance in the planning and layout of supply spaces ashore and afloat.

j. The data processing applications for supply management within the Naval Material Command.

E0872 Procurement Responsibilities

a. The Naval Supply Systems Command has cognizance of the procurement of materials and services throughout the Department of the Navy for which no other procuring activity, office or command is otherwise delegated procurement authority. In the discharge of this responsibility, the Commander, Naval Supply Systems Command may delegate appropriate procurement authority to personnel, both within and without his command, whom he designates as contracting officers. Such authority shall be exercised in accordance with limitations, and requirements prescribed by the Commander, Naval Supply Systems Command and applicable regulations. Subject to such limitations and requirements as may be prescribed by him or by higher authority, the Commander, Naval Supply Systems Command may also authorize the heads of activities under his command to redelegate their procurement authority, or a portion thereof, to responsible personnel within their respective activities whom they designate as contracting officers.

b. Within the limits of its capabilities, the Naval Supply Systems Command will procure materials and services for other Navy procuring activities when requested to do so. The Naval Supply Systems Command is responsible for conducting the formalities of procurement by formal advertising for other navy procuring activities to the extent provided in applicable regulations.

E0873 Technical Guidance and Assistance

In addition to providing other technical guidance and assistance as appropriate in connection with the responsibilities set forth above, the Commander, Naval Supply Systems Command, as the Navy's supply manager, shall be responsible for the development and supervision of the Navy Supply System as an integrated and comprehensive entity combining into one overall system those supply and distribution systems that function on the basis of centralized control of item assets and are composed of inventory managers, distribution activities and methods of operation and have as their objective responsible and efficient material support of the Operating Forces of the Navy, the Naval Material Command, and other offices and organizations.

E0874 Deputy Commander, Planning and Policy (See Figure E-24)

The Deputy Commander, Planning and Policy is responsible for conceiving, recommending and promulgating the basic policies, plans and objectives for accomplishment of NSUPSC missions. He also directs Navy appraisal of supply policies and programs in the Naval establishment. Reponsibility for research and development under the Deputy Commander, Planning and Policy lies with: the Research and Development Division which is responsible for the development and administration of the research and development efforts related to Naval Supply Systems Command. Provides NAVSUP input in the design, construction, conversion or alteration of supply facilities for ships from concept formulation stage to delivery to the fleet. Provides administrative direction to the Navy Clothing and Textile Research Unit.

ANNOTATED REFERENCE LIST

NAVMAT NOTE 5460 dtd 1 May 1966. Preliminary Organization Manual—Naval Material Command.

E0900 COMMANDANT OF THE MARINE CORPS (CMC)

The Commandant of the Marine Corps is directly responsible to the Secretary of the Navy for the administration, discipline, internal organization, unit training, requirements, efficiency, readiness and for the total performance of the Marine Corps. Figure E-25 shows the relationship of the CMC to his primary organization related to RDT&E.

E0910 Deputy Chief of Staff

Research Development and Studies (RD&S)

The Deputy Chief of Staff (RD&S) is responsible to the Commandant for coordination of the total Research, Development and Studies effort. This responsibility is "to develop, in coordination with the other Services, the doctrines, tactics, techniques, and equipment employed by landing forces in amphibious operations. The Marine Corps has primary interest in the development of those landing force doctrines, tactics, techniques and equipment which are of common interest to the Army and the Marine Corps."

In fulfilling these R&D responsibilities three courses of action are available to the Deputy Chief of Staff (RD&S). These courses are:

*a. Unilateral programs

b. Incorporation of requirements into other services developments

c. Use of end items developed by other services where feasible.

The Marine Corps R&D budget requirements are submitted and justified to the Assistant Secretary of the Navy for R&D for integration into the Department of the Navy R&D budget.

The Deputy Chief of Staff (RD&S) is assisted in his functions by the Headquarters Staff. Each office contributes in those areas which logically fall under their staff cognizance. For instance G-3 is responsible for establishing requirements, and the Deputy Chief of Staff (Air) is responsible for the monitoring of aircraft and aviation ordnance material developments to support requirements.

The Deputy Chief of Staff (RD&S) is also assisted in his functions by the Marine Corp Operations Analysis Group, whose mission is to furnish analytical services to the Marine Corps in operations research, systems analyses and cost effectiveness studies.

E0920 Coordinator, Marine Corps Landing Force Development Activities

The Commandant, Marine Corps Schools is designated the Coordinator, Marine Corps Landing Force Development Activities (CMCLFDA), and is the field representative of the Commandant of the Marine Corps, subject to his policy guidance and direction, for development, in coordination with the other Services, of those phases of amphibious operations that pertain to the doctrines, tactics, techniques, and equipment used by the landing forces. He is responsible for, but not limited to, the following specific RDT&E functions within the Marine Corps.

a. Review the MMROP and R&D Annex thereto annually, and recommend appropriate changes with respect to matters pertaining to research and development including concepts of operations, material, organization and R&D objectives.

*Maximum utilization is made of equipment developed by the other Services and unilateral development is undertaken only when Marine Corps needs cannot be met by such development or the items appropriately fall under Marine Corps' responsibility to develop equipment to be employed by landing forces in amphibious operations.

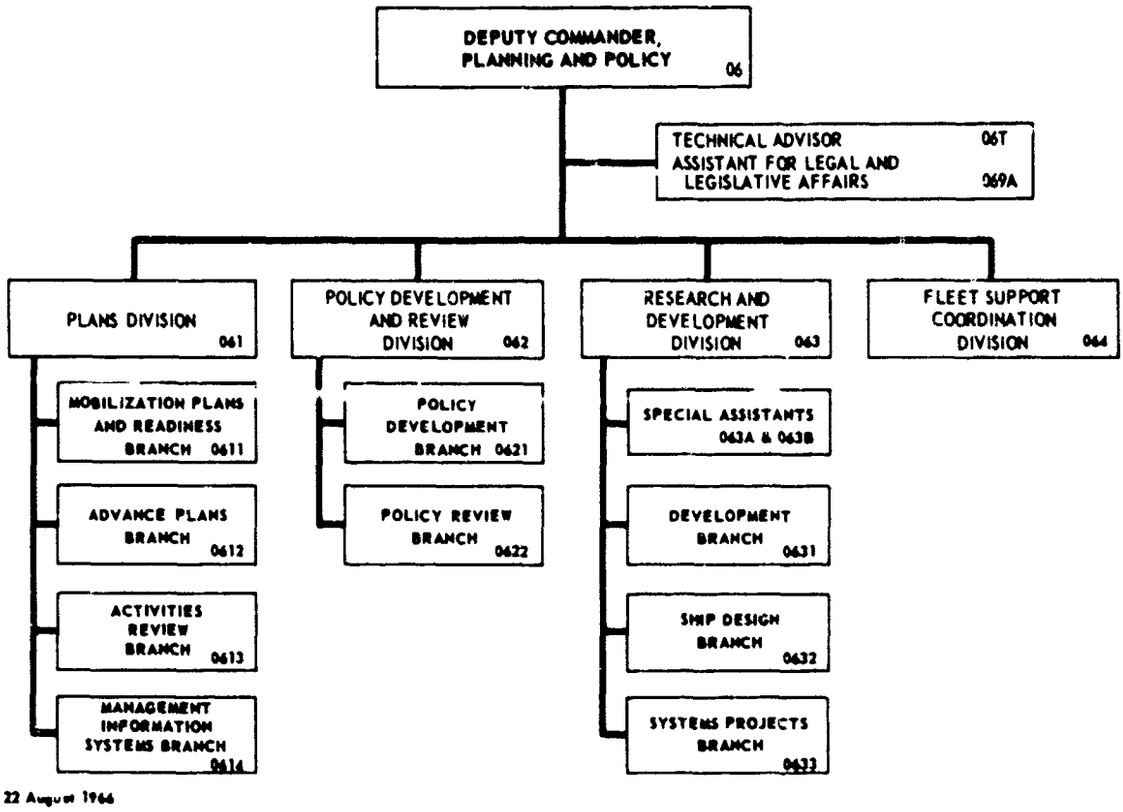


Figure E-24 - Deputy Commander Planning & Policy

b. Recommend General Operational Requirements, Specific Operational Requirements, and Exploratory Development Requirements.

c. Recommend study projects as the need becomes apparent and upon approval by CMC, conduct or coordinate, studies as assigned. This includes studies requiring specialized assistance from external agencies.

d. Conduct/coordinate Service Tests, Evaluations and Troop Tests as directed by CMC. Coordinate the establishment of Engineer Tests and evaluate the results as directed by CMC.

e. Prepare, coordinate, and conduct, with the FMF, those Service Tests, Evaluations, and Troop Tests as required, subject to obtaining CMC approval for any tests not previously directed.

f. Monitor the status and capabilities of equipment and systems development by other services which may be applicable to the Marine Corps and make recommendations concerning Marine Corps interest and participation.

g. Recommend, and, when directed, prepare such publications as may be required to set forth the doctrine, tactics, and techniques to be employed by landing forces in amphibious operations; and, prepare such publications as may be additionally necessary and authorized in order to introduce or implement doctrine, tactics, techniques, organizational structures or materiel to be employed by Marine Corps forces.

h. Recommend annually an input to the Marine Corps R&D Program Document as relates to over-all program description, major objectives, GOR's, SOR's, EDR's, matching materiel developments, studies and Troop Tests.

i. Recommend annually an input to the Marine Corps Troop and Organization Program Document as relates to the organization

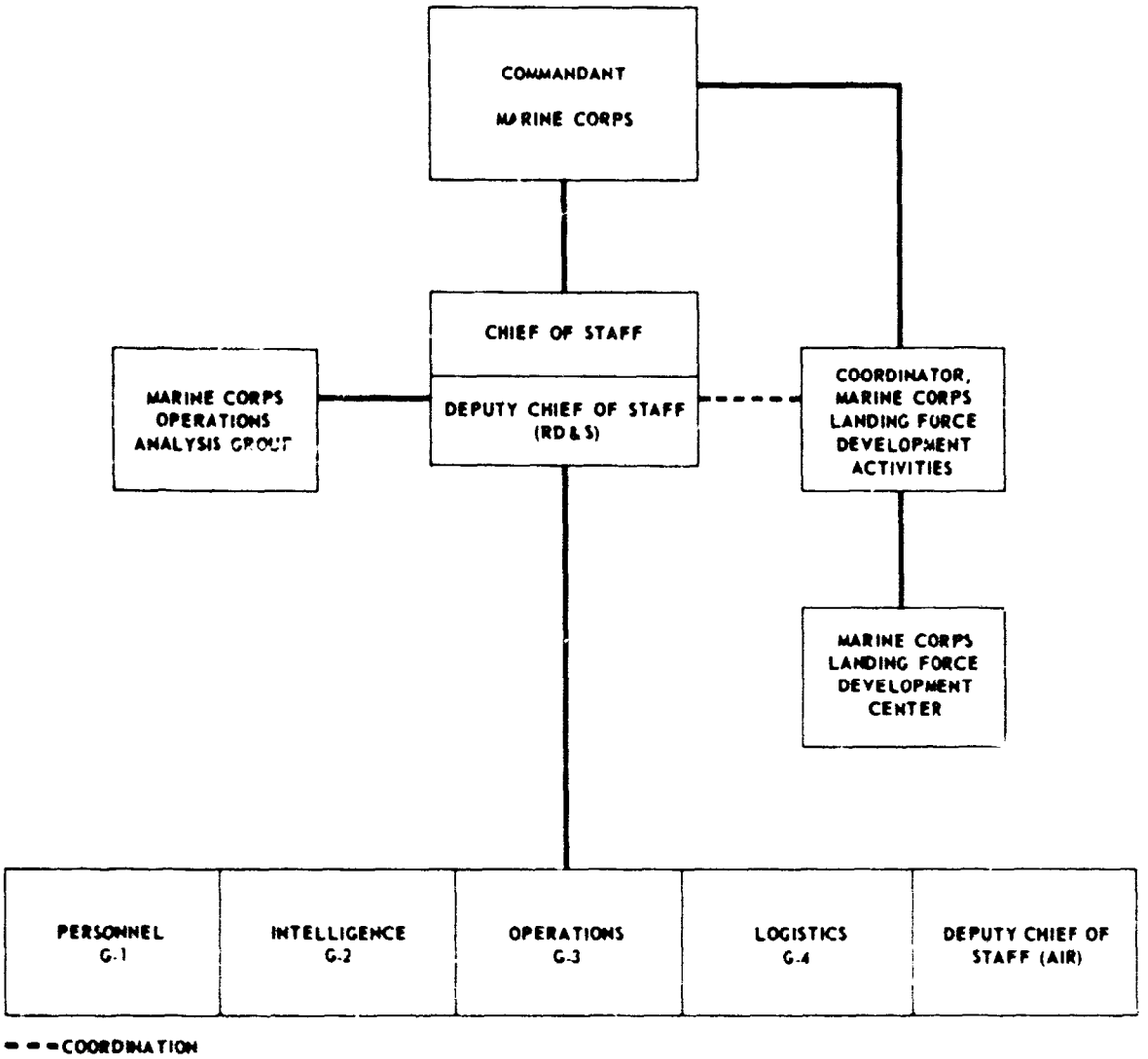


Figure E-25 - Marine Corps RD&S

equipment and concept of employment of the Fleet Marine Forces.

E1000 CHIEF OF NAVAL RESEARCH (CNR)

The Chief of Naval Research (CNR) reports directly to the Assistant Secretary of the Navy (Research and Development) and is one of his principal advisors.

E1001 Functions.

a. Conducts research in augmentation of and in conjunction with the research and development conducted by the respective bureaus and other offices and activities of the Department of the Navy. This general responsibility includes the following specific responsibilities:

- CNR is responsible for Navy participation in all joint service scientific studies and for the special warfare laboratories associated therewith and coordination and administration of similar studies which are confined to broad naval interests. CNR may authorize other naval activities to assume such responsibilities because of special circumstances. Financial responsibility for the above research projects is assumed by the Office of

Naval Research and the various bureaus and offices of the Department of the Navy in proportion to their interest.

- CNR is responsible for negotiation, preparation, execution, administration, and scientific and technical cognizance of all research contracts with education and non-profit institutions.

- CNR may establish such field offices as he deems necessary to carry out his responsibilities.

- In collaboration with the developing agencies, CNR conducts such exploratory development projects as may be necessary to ensure an orderly transition from research to development.

b. Coordinates the Naval Research Program, for ASN(R&D), which enhances the potential of science to advance the long-range technological capabilities of the Operating Forces. This general responsibility includes the following:

- Advise ASN(R&D) on research matters and such other matters as the Assistant Secretary may direct.

- Survey the world-wide findings, trends, potentialities and achievements in research and development, keep ASN(R&D) and CNO advised thereon, disseminate such information as appropriate to interested bureaus and offices within the Department of the Navy, and to other governmental or private agencies.

- Collaborate with CNM, CNP, and CND, and Chief, BUMED to insure that new ideas, concepts, and technical and scientific advances are appraised thoroughly as to opportunities afforded for increased naval warfare capabilities.

- Represent ASN(R&D) on research matters of Navy-wide interest in dealings with other Government agencies, industrial concerns, educational and scientific institutions, and other organizations and individuals.

- Coordinate the research program of the Naval Establishment and promulgate requirements for research to other bureaus and offices.

- Collaborate with CNO and CNM in the preparation of the RDT&E Program insofar as research requirements are concerned and advise ASN(R&D) and CNO in the formulation of the entire RDT&E program.

c. Provides budgeting, accounting, and related reporting services for ASN(R&D) required for his management and control of the RDT&E appropriation and the services required by CNO and CNM to fulfill their responsibilities in the planning and programming of the RDT&E program. The format for the annual RDT&E budget submittals is prescribed by ASN(R&D). CNR consolidates and summarizes the annual RDT&E budget submittals of the development agencies.

d. Supervises, administers, and controls all activities within or on behalf of the Department of the Navy relating to patents, inventions, trade-marks, copyrights, royalty payments, and similar matters. CNR appoints qualified persons to serve as Patent Council and to furnish all necessary legal advice and services in regard to problems relating solely to the foregoing matters. The General Counsel for the Department of the Navy provides CNR with legal advice and services that may be necessary in regard to other matters. In addition, CNR establishes such offices in the systems commands, bureaus or other naval activities as he deems necessary to carry out his functions with respect to the control of patent and related matters.

e. Comments and makes recommendations to ASN(R&D) prior to final action on all proposals within the Department of the Navy for establishment of, abolishment of, or significant changes in the capacity to perform research or development at any shore establishment of the Navy or any Government-owned, contractor-operated establishment.

f. Performs such duties with regard to the development and procurement of training aid devices as may be assigned by ASN(R&D).

g. The Chief of Naval Research is assigned additional responsibility as Assistant Oceanographer of the Navy for Ocean Sciences. In this capacity he is responsible for that effort in research, development and technical guidance required in support of operations to advance the knowledge of the physical chemical biological geological nature of the world's oceans and their boundaries (surface and bottom).

E1002 Navy Automated Research and Development Information System (NARDIS)

On 3 January 1964, the Assistant Secretary of the Navy (R&D) established the basis for the Navy Automated Research and Development Information System (NARDIS) and delineated the broad responsibilities for its operations as a responsibility of CNR.

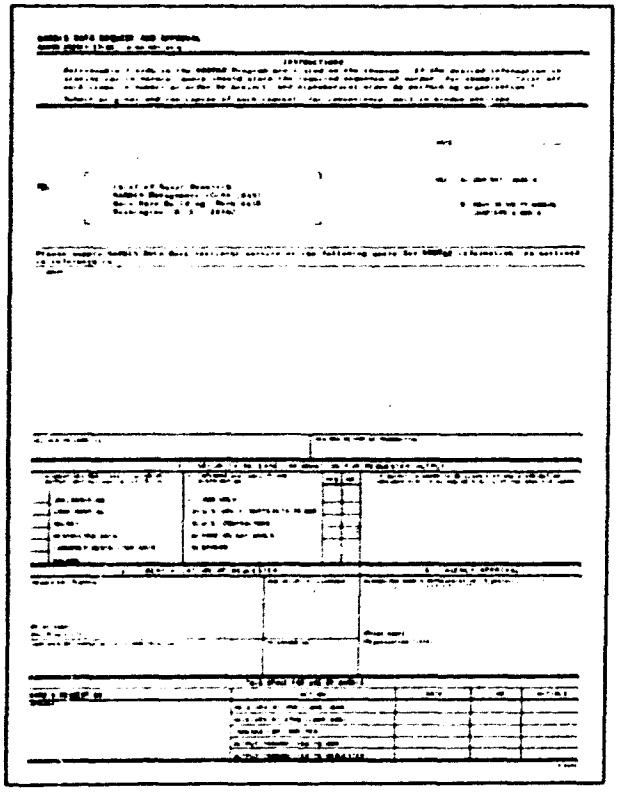
An agreement was reached between the Commander, Ship Systems Command (then Bureau of Ships) which established the capability for the operation of NARDIS at the Naval Ship Research and Development Center (NSRDC) (then the David Taylor Model Basin). NSRDC then formed a task force to determine the operational procedures and to assist in the organization of NARDIS. NARDIS provides the work unit resumes required by DDR&E to DDC, and will furnish technical and management information to authorized users, as determined by the Chief of Naval Research and the Chief of Naval Development.

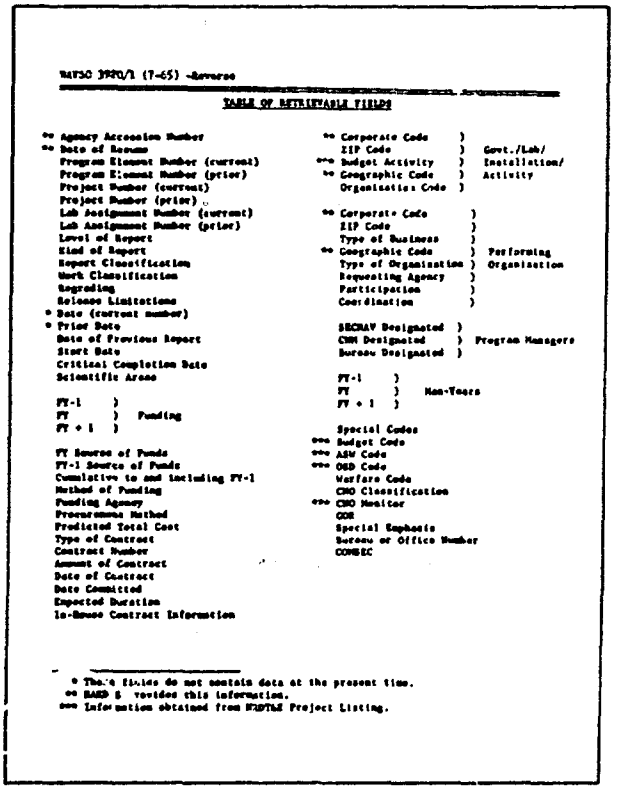
In January 1965, DDR&E directed, by DOD-INST 7720.13, that work unit elements of the DD Form 1498 (Research and Technical Resume) be submitted to the DDC within fifteen (15) working days after the acceptance of an assignment by an in-house laboratory or the signing of a contract by the Government and the contractor. These data elements are in the form of a copy of the DD form 1498 and its equivalent on magnetic tape, from NARDIS.

The original design of NARDIS included most of the data elements on the DD Form 1498 (Research and Technical Resume) and other data elements which were applicable only to the Navy for its management needs. The DD Form 1498 data elements and the Navy management data elements were combined into 2 Navy data formats. (See Figures E-26a and E-26b.) This format is employed by NARDIS for obtaining input data for computer storage and retrieval. The data bank consists of the DD Form 1498 and the NARDIS RDT&E Supplement (NDW-TMB-952).

The basic instruction for the reporting of technical and management information on the on-going RDT&E at the "work-unit" level is SECNAVINST 3900.32 which promulgates DOD-INST 7720.13. Input details are given in ONR INST 3900.34. At present, the reporting applies only to the Research and Exploratory Development Categories of the Navy RDT&E Program.

The information to be reported is to serve a two-fold purpose: (1) provide the information





NAVSO 3900/1 (7-65) -Reverse

TABLE OF RETRIEVABLE FIELDS

** Agency Accession Number
** Date of Receipt
Program Element Number (current)
Program Element Number (prior)
Project Number (current)
Project Number (prior)
Lab Assignment Number (current)
Lab Assignment Number (prior)
Level of Report
Kind of Report
Report Classification
Work Classification
Regrading
Release Limitations
* Date (current number)
* Prior Date
Date of Previous Report
Start Date
Critical Completion Date
Scientific Areas

FY-1)
FY) Funding
FY + 1)

FY Source of Funds
FY-1 Source of Funds
Cumulative to and including FY-1
Method of Funding
Funding Agency
Procurement Method
Predicted Total Cost
Type of Contract
Contract Number
Amount of Contract
Date of Contract
Date Committed
Expected Duration
In-House Contract Information

** Corporate Code)
ZIP Code) Govt./Lab/
*** Budget Activity) Installation/
** Geographic Code) Activity
Organization Code)

** Corporate Code)
ZIP Code)
Type of Business)
** Geographic Code) Performing
Type of Organization) Organization
Requesting Agency)
Participation)
Coordination)

SECNAV Designated)
CNR Designated) Program Managers
Bureau Designated)

FY-1)
FY) Man-Years
FY + 1)

Special Codes
*** Budget Code
*** ASW Code
*** OSD Code
Warfare Code
CNO Classification
*** CNO Monitor
COR
Special Emphasis
Bureau or Office Number
COMSEC

* This field does not contain data at the present time.
** NARDIS provides this information.
*** Information obtained from NAVMAT Project Listing.

Figure E-26a

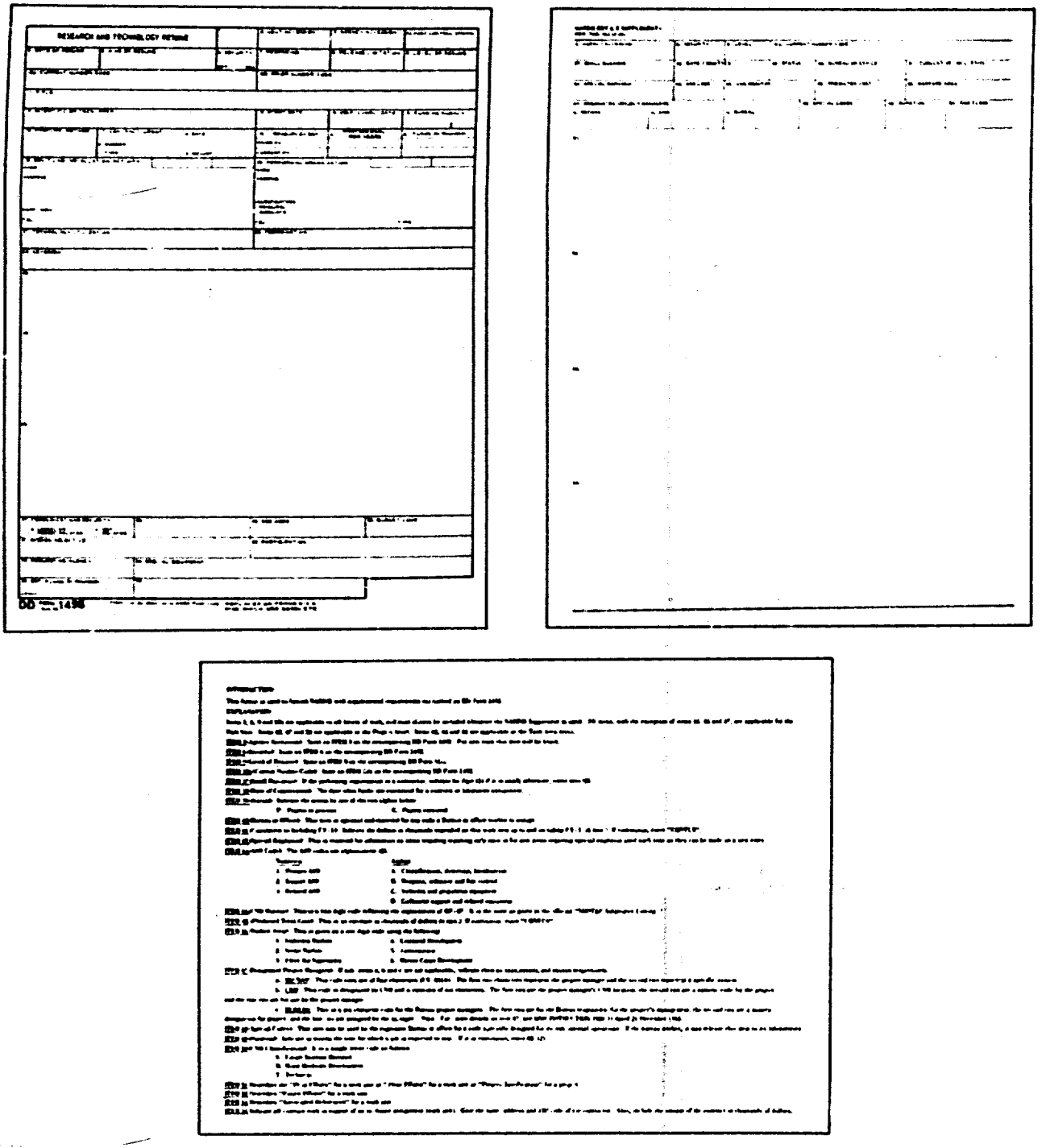


Figure E-26b

for the requirements of DDR&E, and (2) provide information for the management of the RDT&E Program within the Navy and its component activities. Specifically, it will provide all echelons of the Department of the Navy with (1) ready and timely access to basic technical and management data on the Navy's research and exploratory development work currently in progress, and (2) a common base for coordination and correlation. Other information on NARDIS and DD Form 1498 is given in paragraphs 0615 and 0623.

REFERENCE

SECNAVINST 3900.32 "Reporting of on-going work in the Research and Exploratory Development Categories at the Work Unit Level," March 31, 1965 CH-2, 18 January 1966.

ONRINST 3900.24 Navy Automated Research and Development Information System (NARDIS); "work unit data input requirements and procedures for," 24 May 1965, CH-1, 16 August 1965.

ONRINST 3920.4 Navy Automated Research and Development Information System (NARDIS); "procedures for making requests of," 19 July 1965.

OPNAVINST 3910.16A "Preparation of DD Form 1498 (Research and Technology Resume) for reporting RDT&E Planning," 19 January 1966.

E1010 Office of Naval Research (ONR) (Code 100) (Section I)

E1011 Mission. The mission of the Office of Naval Research is to encourage, promote, plan, initiate, and coordinate naval research to provide for the maintenance of future naval power and the preservation of national security; to conduct naval research in augmentation of and in conjunction with research and development conducted by the respective bureaus and other agencies and offices of the Department of the Navy.

In addition to conducting research and development in augmentation and in conjunction with the R&D programs of other agencies and offices of the Navy, the Chief of Naval Research exercises management and technical control of the Naval Research Laboratory, the U.S. Naval Training Device Center, Naval Biological Laboratory, and Office of Naval Research Branch Offices located in Boston, Chicago, Pasadena, and London, England.

E1012 Staff Assistance for CNR. To assist the Chief of Naval Research in performing his duties two staff organizations are available: 1. Naval Research Advisory Committee (Ia) (Code 103), and 2. Special Assistants (Ib). Functions of these are as follows:

a. Naval Research Advisory Committee (Code 103). As the Navy Department's senior research advisory group, the Committee advises the Secretary of the Navy, the Chief of Naval Operations, and the Chief of Naval Research with respect to research and its utilization by the Navy, and on questions of policy on Navy-wide problems in science. Members of the Committee are also available for consultation on particular technical problems within their special areas of competence.

b. Special Assistants duties are indicated in Figure E-27.

E1020 Assistant Chief for Research (See Figure E-28)

General. The Assistant Chief for Research is detailed from the active list of the Navy to direct, under the Chief of Naval Research, a program of research through contracts with universities, other non-profit institutions and government and industrial laboratories. This Contract Research Program is in augmentation of and in conjunction with the research and development conducted by other activities of ONR, the Systems Commands, Bureaus and other agencies and offices of the Navy Department. Its objective is to insure the continued improvement and increased effectiveness of naval equipment and operations. In the absence of the Assistant Chief for Research the senior military officer within his organization will assume his military responsibilities.

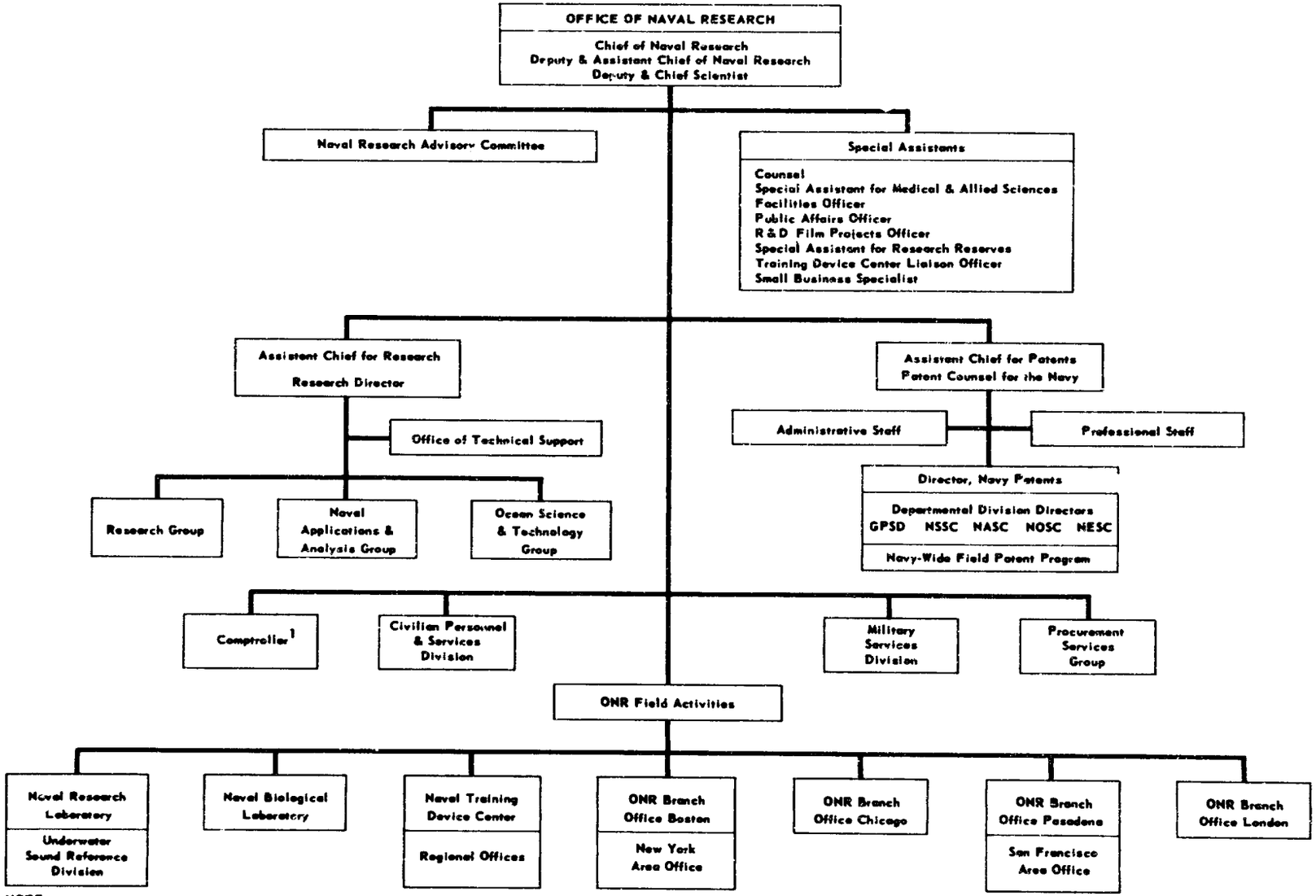
Mission. Plans and directs the ONR Contract Research Program to assure maximum advance recognition of the effects of scientific and technological progress on naval warfare and maximum guidance of scientific and technological programs to meet the future needs of the operating forces. Assists the Chief of Naval Research in his responsibilities for encouraging, promoting, planning, initiating, and coordinating naval research. Provides for the smooth transition of significant research results into fleet or field needs.

Functions

1. Provides for the overall management of the Naval Research Group, the Naval Applications and Analysis Group, and the Ocean Science and Technology Group.

2. Provides for a continuing survey of the broad area of naval warfare, and of the scientific and engineering fields which may in the future significantly affect such warfare, identifying trends and predicting changes.

3. Prepares budget estimates for, and exercises continuing control over, funds made available to the Contract Research Program.



NOTE:

1. Special Asst. (Financial Management) within the Office of the Asst. Secretary of the Navy (Research & Development).

Figure E-27 - Office of Naval Research

21 April 1967

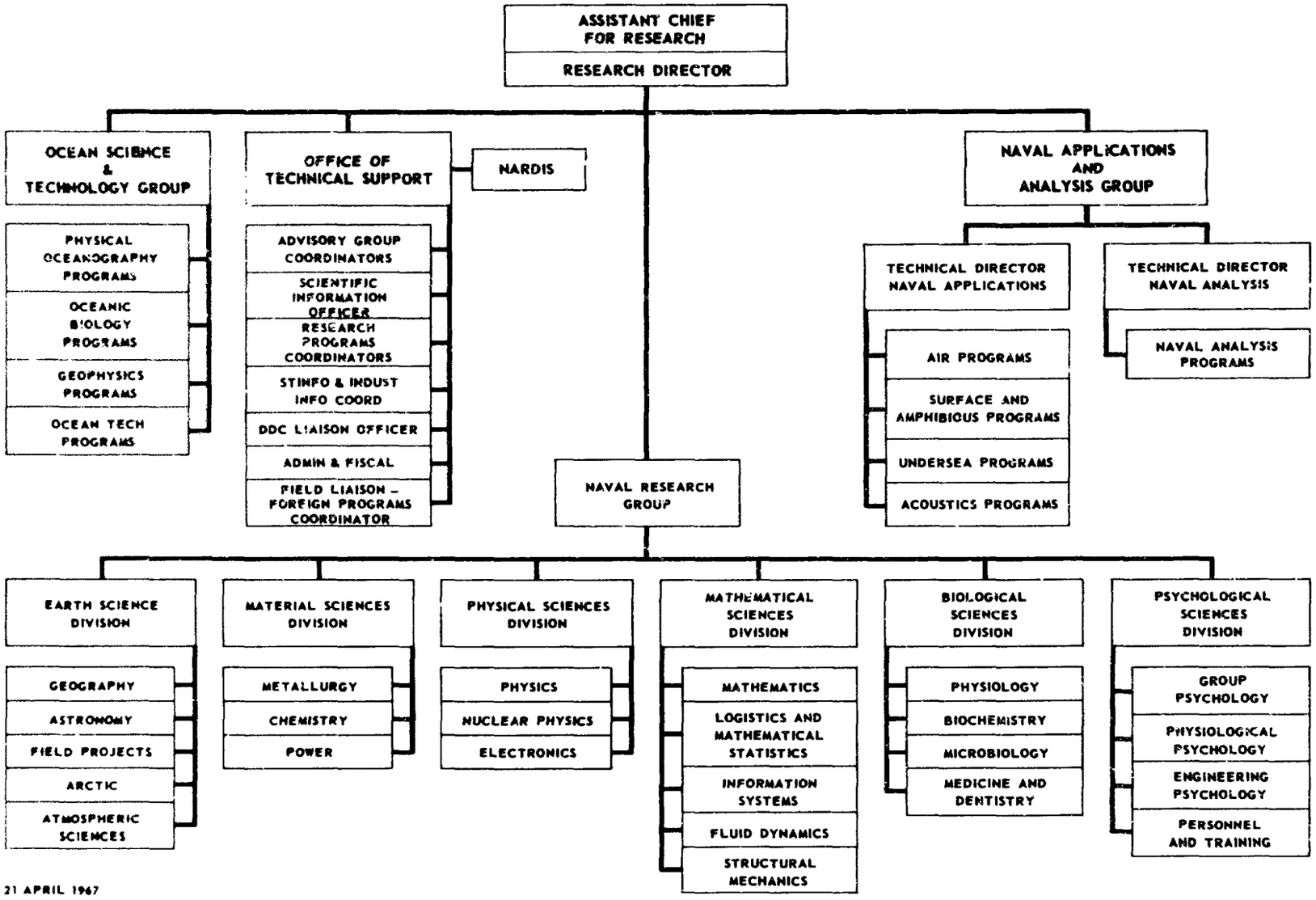


Figure E-28 - Assistant Chief for Research

4. Furnishes technical guidance to the branch offices to insure that their scientific assistance augments and supports the Contract Research Program and its requirements.

5. Insures adequate dissemination and exchange of technical information resulting from the Contract Research Program, within the Naval Establishment and Department of Defense.

6. Provides staff assistance to the Chief of Naval Research.

E1021 Research Director

General. The Research Director of the Office of the Assistant Chief for Research is the senior scientist in the Office of the Assistant Chief for Research, exercising scientific supervision over the Groups, under the administration of the Assistant Chief.

Mission. Is responsible for the overall scientific program conducted by the Office of the Assistant Chief for Research. Insures that this program is technically balanced, maintained at a high quality, and meets the long and short term needs of the Navy. In addition, has overall responsibility for the coordination of the basic and applied research program with outside groups, for the scientific policy and operations and for the relationship to the Branch Office Scientific Departments.

Functions

1. Provides scientific and intellectual leadership in program development and direction to the scientists attached to the Naval Research Group, the Naval Applications and Analysis Group, the Ocean Science and Technology Group, and the Branch Office scientific staffs.

2. Reviews, guides, coordinates, and evaluates the scientific programs of the Groups.

3. Coordinates, through integration and projection, the basic and applied research programs within the Department of the Navy and with other government agencies, university and industrial research groups.

4. Obtains the interest, support and cooperation of high level scientists and chief officials of research and educational institutions and laboratories, in order to carry through to completion research and systems analysis programs, as well as an occasional radical exploratory development, sponsored by ONR and other commands, bureaus and offices of the Navy Department.

5. Identifies outstanding research, systems analysis, and focal exploratory development needs of the Department of the Navy to insure fleet supremacy.

6. Guides and reviews policies and procedures established to insure full dissemination of latest scientific information through the Department of Defense and other appropriate agencies as well as scientific groups in industry and universities.

7. Advises the Assistant Chief for Research in the administration of the technical programs under his jurisdiction and on the implications of scientific programs and discoveries on naval warfare.

8. Furnishes information and advice to the Deputy and Chief Scientist and the Assistant Chief for Research on matters with respect to pending legislation which will affect the scientific program of the Navy.

9. Represents the Office of Naval Research on top government and scientific committees and before other scientific groups, and to the scientific world, in general, in matters relating to the research programs of the Navy.

E1030 Office of Technical Support

Mission. The Office of Technical Support provides support, including personnel and fiscal, to the six research Divisions, the Naval Applications and Analysis Group, and the Ocean Science and Technology Group of the Contract Research Program. This Office is responsible for the navy-wide scientific and technical information activities including scientific information activities relating to the Contract Research Program, coordination of foreign programs in several areas of research and development, and domestic and foreign field liaison.

Functions

1. Formulates incisive plans and programs for satisfying administrative, budgetary, and personnel requirements.

2. Maintains the navy scientific and information activities, including NARDIS and I.EX, to facilitate and assure that they are completely compatible throughout the Navy and with other services and groups on a DOD-wide basis.

3. Implements on-site technical evaluations of independent research and development programs for industrial companies assigned to

the Navy under provisions of the Armed Services Procurement Act XV.

4. Coordinates several areas of foreign research and development involving DOD Programs of Cooperation with Allies in Research and Development of Defense Equipment; i.e., Data Exchange Agreements and Cooperative Research Programs. This involves related financial management. Additional coordination of highly selective foreign programs is carried on as assigned; i.e., US-UK Scientific Exchange Program and SACLANT ASW Centre.

5. Coordinates all replies to Congressional inquiries received in the Office of Naval Research and maintains liaison with both DOD and Navy Office of Legislative Affairs.

6. Maintains continuing liaison with military and scientific staff of all organizational units of ONR.

E1040 Director, Ocean Science and Technology Group

Mission. The Director, Ocean Science and Technology Group is responsible to the Chief of Naval Research and to the ASN(R&D) for the Navy's research program in oceanography which includes basic and applied research in the physical, geological, chemical, and biological characteristics of the oceans, and for research relating to engineering techniques required to explore and exploit the oceans. The functions of the Group are to encourage, sponsor, initiate, plan, administer, and coordinate research under this program.

Functions

1. The Director, Ocean Science and Technology Group, is responsible for planning, organizing, directing and coordinating the ONR program in Ocean Science and Technology.

2. Serves as the Chief Advisor in his field to the ACR, the Chief Scientist, the Chief of Naval Research, the ASN(R&D), the other personnel at the Secretarial level within the Navy, the Department of Defense and other agencies.

3. Plans the scientific organization and its administration and direction of effort; assigns cognizance of problems and proposals to members of the Group; directs the scientific programs of the Group including encouraging, initiating, evaluating, planning, administering, and coordinating fundamental and applied research in oceanography; surveys, analyzes, and evaluates the results of research in geophysics; initiates and directs the assembly of these results and determines their application to navy problems.

4. Administers and oversees the administration of a far-flung system of field activities under contract to the Office of Naval Research which cover the North American Continent and circumscribe it with oceanographic and geophysical laboratories. In this capacity, he is responsible for participating with various laboratories in planning field expeditions and providing leadership and encouragement to the undertaking of expeditions of interest to the Navy. He is responsible for coordinating operations of the laboratories and providing the machinery for the exchange of scientific information and ideas. His program activities involve the active participation of the following laboratories:

The Woods Hole Oceanographic Institution
The Laboratory of Oceanography
The Narragansett Marine Laboratory/University of Rhode Island
The Chesapeake Bay Institute/Johns Hopkins
The University of Miami Oceanographic Laboratory
The Texas A and M Oceanographic Department
The Scripps Institution of Oceanography
The Department of Oceanography, University of Washington
The Institute of Geophysics, University of California
The Department of Geology and Geophysics at MIT
The Lamont Geological Observatory, Palisades, New York
The Hudson Laboratories, Dobbs Ferry, New York
The Department of Oceanography, Oregon State University
The Tudor Hill Laboratory, Bermuda
The Navy Sofar Station, Bermuda
The Marine Biological Laboratory

5. Coordinates basic and applied research in his field throughout the Navy. In this connection, he sits as Deputy to the Chief of Naval Research on the Navy's Oceanographic Plans and Policy Board.

6. Plans, assesses, and obtains equipment and logistic support for expeditions in fields of interest to the Group. Many expeditions are joint efforts of service or non-service origin. In the case of the former, the Director selects scientists qualified to do the necessary work and obtains their cooperation in defining the scope of the expedition and participating in the

scientific aspects. He may assign a member of his Group to take an active part in the expedition. From time to time he directs geophysical aspects of field activities in cooperation with another ONR Scientific Group.

E1050 Naval Research Group, Division Directors

General. Within the Naval Research Group are six Divisions, each having responsibility for broad scientific and technical areas. These Divisions are:

Earth Sciences
Material Sciences
Physical Sciences
Mathematical Sciences
Biological Sciences
Psychological Sciences

Each Division Director supervises a number of Branches and is responsible for the technical content and balance of the program.

Mission. Within a Division's assigned technical area the Division Director is responsible for encouraging, promoting, planning, initiating, and directing a program of contract research and development in support of naval technology and operations and for coordinating such research with related programs in the Naval Establishment.

Functions

1. Assume the responsibility for the quality of the programs within their areas and their applicability to naval needs.

2. Determine the emphasis and direction of the work of the Division.

3. Participate, through the Program Council and the Executive Council, in all major decisions affecting the three Groups.

4. Coordinate the Division program with that of other Divisions as appropriate.

5. Promote optimum interaction between scientific research and operational needs.

6. Maintain liaison with scientific and technical activities at home and abroad in their technological areas.

E1051 Branch Heads, Naval Research Group Divisions

General. The Branches of the Naval Research Group are the major organizational elements within the six Divisions constituting the Naval Research Group and are the key operating units in the Contract Research Program of the Naval Research Group. Branches are established in areas of major research interest.

Mission. Each Branch Head is responsible to his Division Director for encouraging, promoting, planning, initiating, and conducting a program of research, in his assigned area, which is technically sound and of a nature to provide maximum support to the current and future operational needs of the Navy.

Functions

1. Maintain an awareness of naval requirements, development efforts, and problems in order to determine where research may contribute to their successful solution or prosecution.

2. Maintain an awareness of research effort within their areas in order to determine important areas needing additional support and to exploit new ideas which might contribute to naval development efforts and operations.

3. Initiate and administer a program of contract research within the scientific or technical areas assigned, and assume full scientific responsibility for the technical quality of their programs.

4. Disseminate throughout ONR and to authorized interested agencies scientific information obtained from sponsored programs and from other sources in accordance with established policy and procedures.

5. Stimulate the interest of scientists in naval problems and promote Navy interest in and use of scientific research.

E1060 Director, Naval Applications and Analysis Group

Mission. The Director, Naval Applications and Analysis Group is responsible to the Assistant Chief for Research for the overall content and administration of Naval Applications and Analysis Group research, exploratory development, and systems studies programs, directed toward optimization of advanced and unique naval warfare concepts and systems evolved from advances in science and technology.

Functions

1. Examines, in a systematic and uninhibited manner, the Navy's operational capabilities

for the sake of identifying critical weaknesses whose remedy calls for analysis or research and development.

2. Makes known, on a continuing basis, the results of this activity to the appropriate components of the Naval Research Groups.

3. Conducts systematic uninhibited contract studies and research and exploratory development programs exploring the feasibility and possible engineering realization of revolutionary improvements in systems and procedures in naval warfare suggested by continual assessment of research and development advances and trends and evaluation of their possible contributions to Navy and Marine Corps systems.

4. Disseminates results of technical analyses, experimental investigations, and studies to appropriate naval and other users and researchers.

5. Encourages an effective and cohesive approach to naval warfare and Systems problems through Department of Defense, industry, and university contacts and exchange of program information and plans.

6. Supports and encourages the development and use of improved analytical, experimental, and operations research techniques.

7. Determines the emphasis and direction of the programs of the Naval Applications and Analysis Group.

E1061 Technical Director for Naval Applications

Mission. The Technical Director for Naval Applications is responsible to the Director, Naval Applications and Analysis Group for all technical aspects of the naval applications research and development programs.

Functions

1. Serves as Acting Director, Naval Applications and Analysis Group, in the absence of the Director.

2. Assumes responsibility on behalf of the Director, Naval Applications and Analysis Group, for insuring that the Naval Applications Program is:

a. Technically balanced and of the highest quality.

b. Directed to meet the long and short range needs of the Navy.

c. Under efficient technical administration.

3. Assumes overall responsibility within the Group for technical information policy and procedures pertinent to the Naval Applications Program.

4. Stimulates initiation of, and guides, a Contract Research Program that forces interaction between basic and fundamental research and fleet operational needs and capabilities.

E1062 Technical Director for Naval Analysis

Mission. The Technical Director for Naval Analysis is responsible to the Director, Naval Applications and Analysis Group, for all technical aspects of the naval analysis studies and operational analysis programs.

Functions

1. Provides scientific and intellectual leadership in program development and direction to the personnel responsible for the Naval Analysis Program.

2. Examines in a systematic and uninhibited manner, the Navy's operational requirements and capabilities to identify critical weaknesses, and promotes the initiation of studies of corrective measures.

3. Continually assesses research and development advances and trends as to their possible contributions to Navy and Marine Corps systems; proposes the study, analysis and evaluation of appropriate concepts, systems and programs.

4. Encourages an effective and cohesive approach to navy systems problems through navy-wide contacts and exchange of program information and plans.

5. Acts as technical advisor for overall Office of Naval Research Naval Analysis Program to ensure that the programs, as a package, are responsive to the needs of the Navy and the responsibilities of the Chief of Naval Research.

6. Promotes the effective coordination of the Naval Analysis Program with the technical programs of the Office of Naval Research and other activities.

7. Assumes responsibility on behalf of the Director, Naval Applications and Analysis Group, for insuring that the Naval Analysis Program is:

a. Technically balanced and of the highest quality

b. Directed to meet the long and short term needs of the Navy

c. Under efficient technical administration.

8. Assumes overall responsibility within the Group for technical information policy and procedures pertinent to the Naval Analysis Program.

E1070 Office of Assistant Chief of Naval Research for Patents (Code 300) (Section VII).

1. To insure complete coordination in all areas of patents related to the Navy the Office of Assistant Chief of Naval Research for Patents was established.

a. The Office of the Assistant Chief for Patents has management and technical control of the Navy Patent Organization, which consists of departmental and field organizational units located throughout the naval establishment. Moreover, the Office as established is responsible for advising on technical patent matters.

b. Management Responsibility. Under his management responsibility the Assistant Chief for Patents assigns the functions for carrying out the missions of the Navy Patent Organization, determines the size of complements, approves all positions and personnel for these positions and budgets for and provides funds required by the Patent Organization for furnishing necessary services. In the case of the material commands, management control over the Field Patent Branches is exercised through the Systems Commanders. See Figure E-29.

c. Technical Responsibility. Under his technical responsibility the Assistant Chief for Patents is responsible to the Chief of Naval Research for the supervision, administration, and control of all activities within or on behalf of the Department of the Navy relating to patents, inventions, trade-marks, copyrights, royalty payments and matters connected therewith and for coordinating such activities with the research, development, and procurement activities of the Navy, and in technical matters for policy at the departmental level.

2. Mission. The mission of the Office of Assistant Chief of Naval Research for Patents is to advise the Chief of Naval Research on the formulation of Navy patent policy, to interpret and present the policy of the Navy with respect to patents, inventions and related matters, and to exercise management and technical control over the Navy Patent Organization.

3. Functions. The professional functions retained by the Office of the Assistant Chief of Naval Research (Patents) for carrying out the above mission are as follows:

(1) Policy.

a. Formulates, with approval of the Chief of Naval Research, the policy of the Navy with respect to patents, inventions, trademarks, copyrights, royalty payments and matters connected therewith.

b. Interprets the policy of the Navy with respect to patents, inventions, trademarks, copyrights, royalty payments and matters connected therewith.

(2) Legislation.

a. Makes recommendations for the need for legislation relating to patents, inventions, trademarks, copyrights, royalty payments and matters connected therewith and presents those views before Congressional committees.

Under the Assistant Chief for Patents:
1. General Patent Services Division (Code 320)
2. NOSC Patent Division (Code 340)
3. NSSC Patent Division (Code 350)
4. NASC Patent Division (Code 360)
5. NESC Patent Division (Code 370).

E1080 Office of the Comptroller (Code 500)

E1081 Mission. The Comptroller of the Office of Naval Research serves a triple role as 1. Special Assistant (Financial Management) within the Office of the Assistant Secretary of the Navy (Research and Development), 2. as Navy-wide Comptroller responsible to the Chief of Naval Research for the financial management of the Navy-wide "Research, Development, Test and Evaluation, Navy" Appropriation, and 3. bureau type Comptroller for the financial administration of programs directly under the cognizance of the Office of Naval Research.

E1082 Functions. The functions of the Office of the Comptroller for carrying out its responsibilities are as follows:

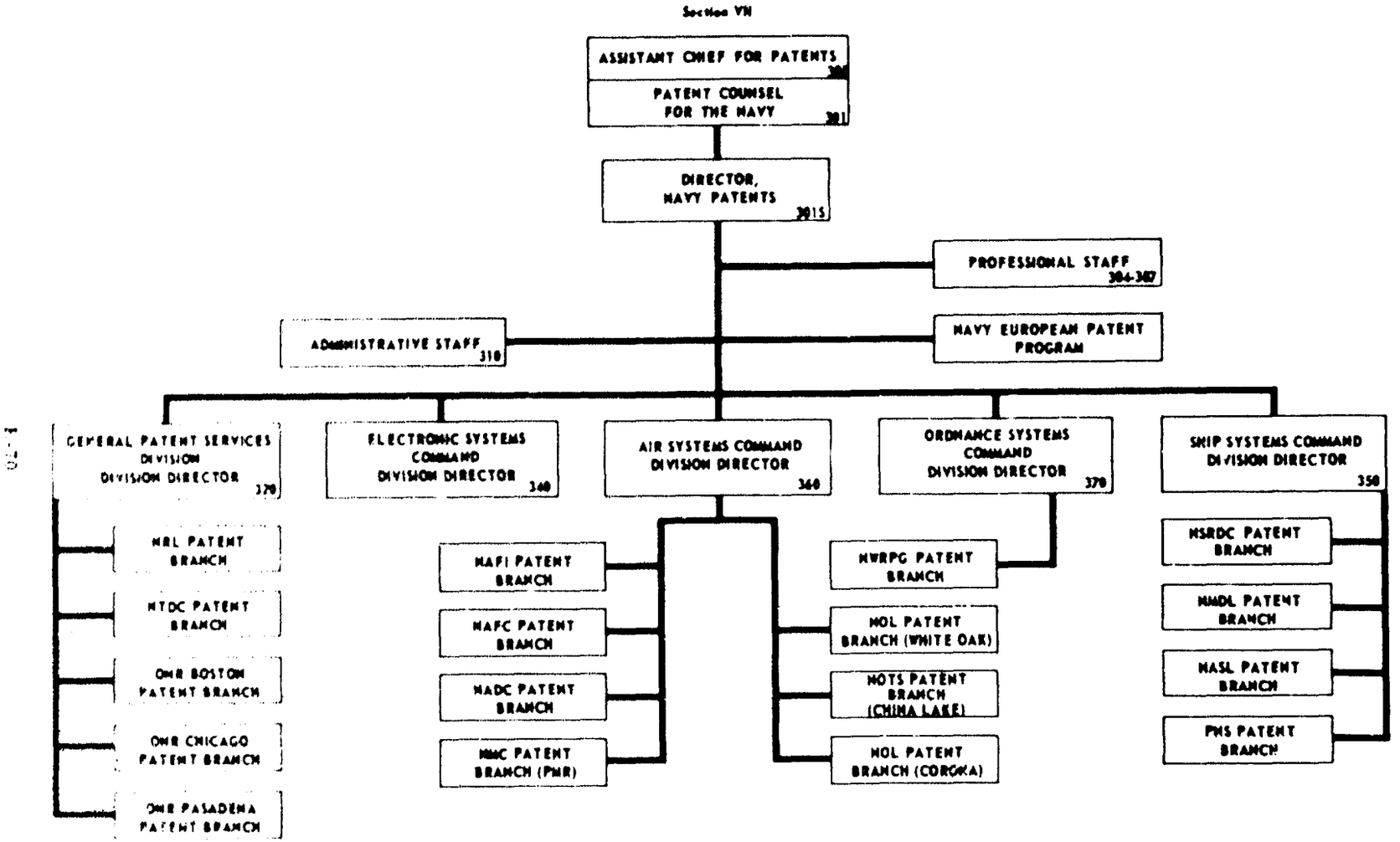


Figure E-29 - Assistant Chief for Patents

a. Coordinated Staff Service.

1. Responsible for coordinating and integrating the several financial functions to provide a sound financial system that will contribute to the efficient, economical, and effective management of the Navy-wide research, development, test, and evaluation program. This integrated financial system provides for meeting legislative requirements of Congress, as well as requirements of other agencies, such as the Office of the Comptroller of the Navy, the Office of the Secretary of Defense, the Bureau of the Budget, and the Department of the Treasury.

2. Provides technical guidance and direction in financial matters in support of the planning and programming responsibilities of the Assistant Secretary of the Navy (Research and Development), Deputy Chief of Naval Operations (Development), the Chief of Naval Development, and the Chief of Naval Research.

b. Budgeting.

1. Prescribes budget policies and procedures for the appropriation Research, Development, Test, and Evaluation, Navy.

2. Provides guidance and issues instructions to the Naval Material Command and bureaus for preparation of the budget in support of the approved program objectives.

3. Reviews financial requirements and justifications for the RDT&E program and coordinates the preparation of the budget estimates for submission, after review and approval by the Assistant Secretary of the Navy (Research and Development), to the Secretary of the Navy, the Office of the Secretary of Defense, the Bureau of the Budget, and to Congress.

4. Conducts a continuous review of the execution of the approved budget plans and programs.

5. Reviews and submits apportionment requests to Office of the Secretary of Defense and to the Bureau of the Budget and recommends the allocation of apportioned and other funds to the bureaus and offices.

6. Recommends such readjustments in funding through revised allocations as may be appropriate.

c. Accounting. Develops, prescribes, and supervises the execution of principles, policies, and procedures to be followed in fiscal accounting for the research, development, test, and evaluation program. These accounting systems are designated to provide full disclosure of the financial results of operations to meet the requirements of both internal management and external agencies; adequate obligation, expenditure, and other financial information needed for management purposes; and reliable and prompt accounting data furnished in a manner useful for preparation and support of budget estimates and in execution of the budget.

d. Program Analysis. Measures and analyzes the rate of obligations and expenditures against the budget plan; evaluates financial performance, and trends against approved programs and budget plans and schedules; and reports to the Assistant Secretary of the Navy (Research and Development), Deputy Chief of Naval Operations (Development), Navy Comptroller, and other top management personnel variances therefrom, together with the facts and figures necessary to assist in decision-making. The financial program analysis function is performed with the perspective of keeping top management informed not only as to current status but also as to projected status of basic program objectives, plans, and schedules.

e. Progress Reports and Statistics.

1. Responsible for the development of policy and general systems of statistical and progress reporting with respect to budget and fiscal matters.

2. Provides a central point for the receipt and review of requests for statistical data received from within the Navy, from the Office of the Secretary of Defense, and from other Government agencies.

E1083 Organization. The organization of the Comptroller's Office is set forth in Figure E-30.

E1090 Scientific and Technical Information (STINFO) Program

The mission of the Navy's STINFO program, under the direction of the Chief of Naval Research, is to provide maximum dissemination of useful scientific and technical information to potential users. The program is designed to satisfy Navy needs but also falls within the structure of the DOD STINFO Program.

The Navy's STINFO Program is comprised of many information elements and activities assigned specific functions. A discussion of these and adjunct activities follows:

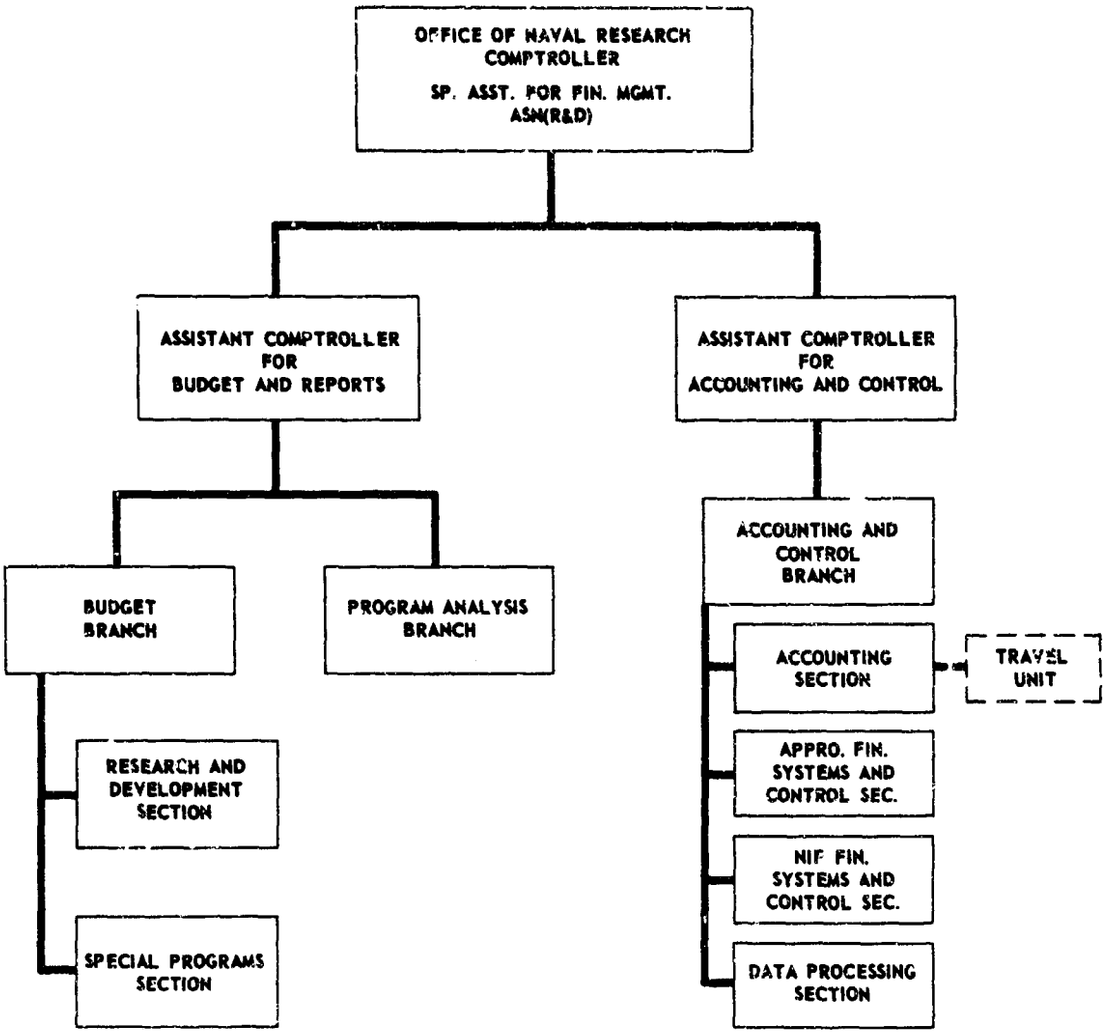


Figure E-30 - Office of Naval Research Comptroller

a. Information Analysis Centers. There are 21 specialized information centers, staffed by specialists in a particular scientific discipline, which disseminate information as well as reports to facilitate the exchange of scientific and technical information. As part of its information program, the Navy supports 5 of them as listed below:

1. Shock and Vibration Information Center
2. Chemical Propulsion Information Center
3. Hibernation Information Exchange
4. Infrared Information and Analysis Center
5. National Oceanographic Data Center

More detailed information on these and other Centers is available in ONR Booklet ONR-23, Directory of DOD Information Analysis Centers.

b. Research Libraries. Each systems command, bureau, laboratory and Navy field activity engaged in research has its accompanying research library. It is the specific mission of each of these libraries to provide current and adequate scientific literature for its personnel for reference, research and study; to make such literature readily available, and to encourage and promote its use. The libraries are staffed by professional personnel and provide comprehensive coverage in their respective subject areas. In addition, modern tech-

niques of deep subject indexing and automated information storage and retrieval procedures are being initiated or used to serve the user better. Examples of this include Project Sharp at Naval Ship Research and Development Center (formerly DTMB) for the Ships Systems Command, and libraries at NOL (White Oak) and NOTS (China Lake) NRL, NEL, and the Oceanographic Office.

c. Conferences and Symposia. A vital part of the Navy's STINFO Program is in the area of special committees, groups, symposia, meetings and conferences. These specialized meetings are designed to reach the large segment of professional personnel in industry, colleges and universities, non-profit organizations, the military services, and other government agencies interested in the results and operations of Navy research, development, test and evaluation. Frequently throughout the year, the Department of the Navy sponsors and co-sponsors a great variety of symposia covering various areas of research. These gatherings range in level from TOP SECRET to UNCLASSIFIED, and from groups of a dozen or so, to more than a thousand participants. One of the principal objectives of the Navy's program is to encourage its scientists, engineers and professional personnel, to the maximum extent possible, to present papers, and participate in formal and informal exchanges of information at local and national professional society meetings. Personal visits and contacts and other avenues of direct communications are considered to be of prime importance in the information program.

d. Contracts. As discussed in Chapter VII considerable procurement of research and development is effected by contract. In implementing its responsibility for monitoring research contracts and grants, world-wide as well as nationally, ONR has established a series of branch offices to serve as contact points for the coordination of these contract activities. There are three of these branch offices and two area offices located in the United States. In addition, there are 22 ONR Resident Representatives located at universities and other locations to give guidance and assistance on proposals, patents, and contract procedures as well as for contract administration purposes.

e. Patents. One of the major areas of the exchange of scientific and technical information is the Navy Patent Organization in ONR, which is designed to perform this function for the entire Naval Establishment. This organization provides for the supervision, administration and control of patents and related matters, insuring protection of Navy rights and avoiding Navy infringement on the intellectual property of others. The Patent Organization, and its divisions, provides procurement counseling, handles patent infringement claims, and coordinates field operations and patent solicitation. An exchange of ideas and information is provided within the organization through the Branch Office and Resident Representatives by their assistance on patent matters as well as other technical information problems.

f. Scientific Journals. The publication of research results in scientific journals continues to be a significant element in the information program. The Navy, to emphasize the importance of this aspect, has established a uniform policy regarding the payment of costs in support of such publication activities by Navy employers and contractors. The Navy also supports, in addition to publication in professional society, journals, the following for example:

1. Technical Journals

   (a) Navy Research Logistics, Quarterly - Office of Naval Research

   (b) Navy Technical Forum - Office of Naval Research (Classified) (No longer published after 31 Dec 1966)

   (c) Quarterly Report: Foundation Research Projects; Naval Ordnance Laboratory, Corona

2. Technical Journals and Secondary Journals

   (a) Report of NRL Progress - Naval Research Laboratory

   (b) U. S. Navy Journal of Underwater Acoustics - Office of Naval Research (Classified)

   (c) Naval Research Reviews - Office of Naval Research

3. Scientific and Technical Information NEWSLETTER - Office of Naval Research

g. Research Reports. The reporting and disseminating of the results of both in-house and contractor performed Navy R&D programs is of prime importance. In accordance with existing directives, the R&D results are published and selectively distributed in a large assortment of official publications. These research reports are produced at the source to

meet Navy and DOD standards. (See adjunct activities 2)

h. Photographic Media. Photography has become a significant part of the Navy's STINFO program. The medium is employed in all environments, recording information faster than can be observed by a human and more distinctly than can be described in words. Navy directives provide for the use of photographic products for information and evaluation purposes, and encourage the making of technical films by research activities. For years, the Chief of Naval Operations has produced quarterly classified films containing information on technical developments by the Navy. These are exhibited throughout the Naval Establishment.

i. Translation Activities. The Navy Department has, for many years, been a participating member in the CIA Translation Survey. This service makes available current English translations and reduces possible duplication. The Office of Naval Intelligence is the coordinating center for naval activities engaged in this program. The Navy also contributes copies of its translations to the Defense Documentation Center (DDC) and to the clearing house for Federal Scientific & Technical Information (formerly OTS) for further release to other government agencies and to the general public.

j. Information Research. For the past several years, the Navy has been engaged in studies for more effective use of scientific and technical information as a tool for management and planning. An example of the results of such effort is the Navy Automated Research and Development Information System (NARDIS) (See E1002). The Navy also carries on a research and development program toward the goal of improved effectiveness of dissemination and utilization of scientific and technical information. Some of this research is oriented toward specific types of information retrieval and dissemination systems, such as technical libraries, management data control, and military command-control systems; but many of the investigations point simply toward fuller understanding of the subject and eventual improvement of the general state of the art. The technical community is kept abreast of papers in the field through various media including "The Digital Computor Newsletter" and the annual "Information System Summaries" both published by ONR. In pursuing its own research the Navy also keeps close watch on similar programs sponsored by other federal agencies.

k. Gathering of Scientific Information - Domestic and Foreign. The final activity in the Navy's STINFO program is the gathering of information on research in Europe, evaluating the research, and supplying the information and evaluations to key persons engaged in research for the Navy. This work has been carried on for a number of years by a staff of American scientists headquartered in the ONR Branch Office, London. These scientists periodically visit research establishments and attend conferences throughout free Europe. The information is transmitted through various sources, one of which is the numerous publications on foreign research which are made available to the Defense community through channels within the military Departments and DDC.

1. Adjunct Activities

1. Specialized Groups. The commands, bureaus and offices, and the laboratories are staffed with professionally qualified people directing the publication and library functions in support of their technical missions. These professionals on their own initiative have formed regional organizations to pool their experiences to achieve by education and persuasion goals akin to those of the DOD program. There is a Council of Libraries, East Coast Navy Laboratories and a council with similar aims for the West Coast Navy Laboratories. There are both an East Coast and a West Coast Navy Interlaboratory Committee on Editing and Publishing (ILCEP). These organizations hold meetings with timely discussions about twice a year and there is considerable interchange of ideas between East and West Coast groups. In addition these groups publish monographs on subjects of interest. These groups work closely with the respective East and West Coast Councils of Senior Scientists of Navy Laboratories. The Councils consisting of the civilian Technical Directors of the Navy laboratories, have discussions on technical information problems on the agenda of almost every meeting.

2. Publications and Printing. On 11 September 1946, the Secretary of the Navy established a Navy Publications and Printing Control Committee of three members with broad authority over all matters concerning publications and printing. For many years, this Committee, under the chairmanship of the Administrative Assistant to the Secretary of the Navy, was an active force in the Navy's publications program in all categories. Through several evolutionary steps, the word "policy" has now been substituted for the word "control" in the Committee's title, and the Committee has been designated an advisory committee to the Assistant Secretary of the Navy (Installations and Logistics), who is currently assigned responsibility for policy supervision of printing and publications in the

Department of the Navy. The Chairman of the Committee is now the Vice Chief of Naval Material, and the membership has been expanded to include representatives of the Chief of Naval Operations, the Commandant of the Marine Corps, the Comptroller of the Navy, and Chief of Naval Material (Naval Material Command). The Director, Navy Publications and Printing Service, is designated as the Committee's Technical Advisor and Recorder.

In its role as an advisory committee to the Assistant Secretary of the Navy (Installations and Logistics), the Navy Publications and Printing Policy Committee considers and recommends action upon any matter relating to the policy, control or administration of publications and printing in the Department of the Navy which he may cause to be referred to it. The Committee also recommends for adoption appropriate measures to assure that publications and printing requirements of the Department are met; and to remedy any neglect, delay, duplication, impropriety, or waste in the planning preparation procurement, production, or distribution of publications and printed or duplicated matter financed in whole, or in part, by Department of Navy funds, or produced or procured in its behalf. To aid it in fulfilling this mission, the Committee frequently requests the assistance of technical ad hoc subcommittees comprised of representatives of the publications and printing control organizations of the Navy Department components. The Committee and its subcommittees are concerned with all Navy publications and printing, whether accomplished by Government plants or by contractors, and they are therefore concerned with that printing and duplicating resulting from research, development, test, and evaluation.

The RDT&E reports which are prepared in-house or through contractor programs are printed, through the facilities of the Navy Publications and Printing Service, at some 24 Navy Publications and Printing Service Offices throughout the 50 states, as well as at the Defense Printing Service, Washington. Additional printing facilities, located in eight continental Naval laboratories also directly support their individual programs. In addition, the Navy printing plant at the Naval Support Activity, London, plays a considerable support role. The Government Printing Office also regularly furnishes services, particularly in the printing of research periodicals, through programs established by the Navy Publications and Printing Service.

3. Project LEX. In order to provide for effective communications and understanding of terms used to describe scientific and technical subjects, a DOD project, popularly called Project LEX, has been established to provide for standardization through the development of a DOD-wide technical thesaurus. ONR has been designated as the DOD organization responsible for the preparation of this single authoritative interdisciplinary publication in this ongoing program.

In addition to scientific or technical meetings and symposia the primary aim of which is the mutual exchange of information in certain scientific or technical areas, the Navy also sponsors meetings in cooperation with other organizations such as NSIA, IEEE, AIAA, etc., where the primary aim is to acquaint the industrial community with Navy R&D problems. Examples of these include:

1. Industrial Procurement Conferences - with the objective of informing industry of procurement opportunities available to them, particularly small businesses and firms in labor surplus areas.

2. Research and Development Clinics - with the objective of presenting technical information on research and development problems in selected areas of technology of prime interest to the Navy.

3. Advance Planning Briefings - for Industry with the objective of providing industry with an understanding, both of the defense advance planning process and of future plans which will affect industry.

4. Defense Documentation Center (DDC) - although not a part of the Navy Program it is important to point out that DDC serves two important functions. First, it provides a centralized depository for DOD scientific and technical reports and makes secondary distribution of such reports (see E0133) and second, it maintains a computerized data bank of the ongoing DOD research and exploratory development program as reported on the DD Form 1498.

STINFO REFERENCES

DOD Instruction 5129.43 dated 22 January 1963 "Assignment of Functions for the Defense Scientific and Technical Information Program"

SECNAVINST 3900.21 dated 4 February 1963 "Assignment of Functions for the Defense Scientific and Technical Information Program"

SECNAVINST 3900.23 dated 16 May 1963 "Assignment of Functions for the Defense

Scientific and Technical Information Program"

DOD Instruction 5100.45 dated 28 July 1964
"Centers for Analysis of Scientific and Technical Information"

SECNAVINST 3900.31 dated 13 October 1964
"Centers for Analysis of Scientific and Technical Information"

DOD Instruction 5100.38 dated 29 March 1965
"Defense Documentation Center for Scientific and Technical Information"
(Previous version dated 19 March 1963)

SECNAVINST 3900.24A dated 4 August 1965
"Defense Documentation Center for Scientific and Technical Information"
(Previous version dated 19 March 1963)

DOD Instruction 7720.13 dated 27 January 1965
"Reporting of Current Research and Exploratory Development Effort at the Work Unit Level"

SECNAVINST 3900.32 dated 31 March 1965
"Reporting of On-Going Work in the Research and Exploratory Development Categories at the Work Unit Level"

DOD Instruction 3200.8 dated 7 March 1966
"Standards for Documentation of Technical Reports Under the DOD Scientific and Technical Information Program"
(Previous version dated 18 February 1964)

SECNAVINST 3900.29A dated 14 June 1966
"Standards for Documentation of Technical Reports Under the DOD Scientific and Technical Information Program"
(Previous version dated 18 February 1964)

E1100 COMMITTEES

E1110 The President's Science Advisory Committee

Function. To advise the President on matters of national importance pertaining to or affected by developments in science and technology. It serves as a means for mobilizing the best scientific and technical expertise and bringing it to bear on problems and issues of concern to the President. It is broadly concerned with the application of science and technology to the strengthening of national security and to the achievement of civil goals, as well as with the health of the American scientific effort.

Composition.

a. Members. The chairman is currently the Special Assistant to the President for Science and Technology.

Seventeen eminent scientists and engineers from non-government scientific communities.

b. Staff. The President's Science Advisory Committee and the Special Assistant to the President share the same staff located in the Office of Science and Technology.

Procedure. The PSAC meets monthly for approximately two days. It has no operating responsibilities, with most of its work being accomplished through panels, which include both regular Committee members and other engineers and scientists from outside the Committee. Some of these are standing panels, others are organized around a specific subject of immediate concern. The panels are responsible to the Committee. The reports of the Committee and the panels are sent to appropriate agencies. The full committee has the option of reporting directly to the President.

Relationships. The Special Assistant to the President for Science and Technology and the President's Science Advisory Committee supplement each other's work.

Typical outputs. Provided a comprehensive analysis of the environmental pollution problems confronting the country to assist the development of government policy, programs, and organization.

Identified major opportunities for new programs in marine technology and science and recommended measures to effect a national ocean science and technology program.

Conducted technological studies of anti-submarine warfare, military aircraft and strategic military systems.

Issued reports include:

Use of Pesticides
Cotton Insects
Restoring the Quality of our Environment
Handling of Toxicological Information
Effective Use of the Sea
The Space Program in the Post-Apollo Period
Computers in Higher Education

E1120 The Defense Science Board

Function. The Defense Science Board advises the Secretary of Defense, through the Director of Defense Research and Engineering (DDR&E), on overall research and engineering matters of interest to the Department of Defense, and provides long-range guidance in these areas.

Composition.

a. Members. The Chairman and Vice Chairman are appointed by the Secretary of Defense upon recommendation of DDR&E.

Members ex officio are the chairman or other head, or his designee, from:

The Army Scientific Advisory Panel
Naval Research Advisory Committee
Air Force Scientific Advisory Board
General Advisory Committee of the Atomic Energy Commission
The National Academy of Sciences
National Aeronautics and Space Administration
The National Science Foundation
The National Bureau of Standards

b. Members-at-Large. Not more than twenty in number, selected on the basis of their preeminence in the fields of research and engineering, as necessary to represent the interests of the respective offices of the Director of Defense (R&E).

c. Staff. An Executive Secretary and supporting staff are provided by the Director of Defense Research and Engineering upon recommendation of, or with concurrence of, the chairman of the Defense Science Board.

Procedure. The Board's agenda is responsive to requests or assignments from the Secretary of Defense or the Director of Defense Research and Engineering. It may use flexible procedures necessary to accomplishing its mission. The principal working arm of the Board is an Executive Committee of Board members, including the Chairman and the Vice Chairman. This Committee, together with special subcommittees established in agreement with the DDR&E, generates most of the Board's business. It acts upon problems and projects submitted to the Board or originated by it, and reports on its actions at each Board meeting.

The Board as a whole and the Executive Committee work through the Chairman with the Director of Defense Research and Engineering to establish ad hoc subcommittees to review and advise on problems that arise, collaborating as needed with military departments and civilian agencies.

Relationships. The Defense Science Board is the senior technical advisory group in the Department of Defense.

Typical outputs. The Board renders advice on specific systems and weapons, only down to such details as fulfill the requirements of the two offices it serves. It considers the problems of research management in terms of policy development.

It advises on preferred administrative practices for the effective execution of defense research, development, test and evaluation.

It advises on desirable scope, balance and the substance of research, development, engineering, testing, and evaluation that should be pressed by the Department of Defense, viewed in full consideration of current civilian programs.

It evaluates the effectiveness of projected weapons systems in meeting military requirements. It aids in utilizing new knowledge, and in rapid translation of scientific opportunities in weapons.

REFERENCE

DOD DIR. 5129.22 of Apr. 10, 1961, "Defense Science Board Charter," Ch. 1, Feb. 14, 1963 and Ch. 2, Aug. 3, 1966.

E1121 DOD Council on Technical Data and Standardization Policy.

Function. To coordinate and provide policy guidance for standardization activities and for the acquisition, use, and dissemination of scientific, engineering, and logistic data by elements of DOD.

Composition.

Chairmen. Co-Chairmen are the Deputy Director, Defense Research and Engineering and the Assistant Secretary of Defense (Installation and Logistics).

Vice-Chairman is the Assistant Director for Engineering Management, ODDR&E.

Members.

Assistant Secretary of the Navy (R&D)
Assistant Secretary of the Navy (I&L)
Assistant Secretary of the Army (R&D)
Assistant Secretary of the Army (I&L)
Assistant Secretary of the Air Force (R&D)
Assistant Secretary of the Air Force (I&L)
Director, Defense Supply Agency

Staff. Staff support is provided by the office of the Vice-Chairman of the Council, the Assistant Director for Engineering Management, ODDR&E.

Working Group. An informal working group which assists the Vice-Chairman is composed of:

Assistant Director (Engineering Management), ODDR&E
Director of Technical Information, ODDR&E
Deputy Assistant Secretary of Defense (I&L) (Supply & Services)
Deputy Assistant Secretary of Defense (I&L) (Materiel)
Deputy Assistant Secretary of Defense (I&L) (Procurement)
Deputy Assistant Secretary of Defense (I&L) (Equip. Maint. & Readiness)
The Director, Office of Technical Data and Standardization Policy is Chairman of the Working Group

Procedure. The Vice-Chairman, with the assistance of the working group, coordinates the activities of their DOD offices with respect to those matters subject to review and approval by the Council, and advises the Council regarding such actions.

The Council meets when called by the Co-Chairmen. The responsibilities of the Council are (1) to approve all principal projects; (2) to initiate or terminate projects; (3) to review the progress and results of this work; (4) to recommend manpower and financial requirements in accordance with procedures prescribed by the Assistant Secretary of Defense (Comptroller) and Assistant Secretary of Defense (Manpower) respectively; (5) to recommend organizational structure changes; and (6) to formulate policies for promulgation through DOD directives and instructions, and revisions to the Armed Services Procurement Regulations.

Relationships. The Council was established by Deputy Secretary of Defense memorandum dated March 6, 1964, subject, "Establishment of the Department of Defense Council on Technical Data and Standardization Policy" and reports its progress to the Deputy Secretary. The composition of the Council facilitates coordinated DOD-wide action and policies and its authority ensures its control over DOD-wide policy and procedures concerned with its technical data functions, including those for research and development.

DOD Instruction 5010.13, Subject: "Technical Data and Standardization Management" dated December 28, 1964, outlines the basic procedures and responsibilities for the management of the technical data and standardization programs and also outlines the relationships between the DOD Council on Technical Data and Standardization Policy, the working group of the Council, the functional managers, the military departments and other Defense components.

Output. Typical outputs of the Council are expected to include approvals or disapprovals of proposed actions, recommendations for organizational changes, proposals for policy promulgation by DOD Directives and Instructions or Regulation revision, etc.

E1130 Naval Research Advisory Committee

Function. As the Navy Department's senior research advisory group, the Committee advises the Secretary of the Navy, the Chief of Naval Operations, and the Chief of Naval Research with respect to research and its utilization by the Navy, and on questions of policy on Navy-wide problems in science. It advises in particular on trends and potentialities of research relating to naval operations and administration of departmental research and development programs.

Composition.

Chairman and Vice Chairman are both appointed by the Assistant Secretary of the Navy (Research and Development).

Members. The fifteen members of the Committee are persons in civilian life who are preeminent in the fields of science, research, and development work. They are appointed by the Secretary of the Navy and serve for such term or terms as he may specify. One member must be from the field of medicine.

The following ex officio members are also regular attendees of the meetings: ASN(R&D), DCNO(D), CNR, CND, CS(ONR), DCS(RD&S) USMC, and the DNL. Other attendance is by invitation as appropriate.

Staff. The Chief of Naval Research designates a member of his staff to act as the Executive Secretary to the Committee. The Executive Secretary is the focal point of liaison, direction, and policy guidance for the Committee's activities. Additional staff is provided as required.

Procedure. Meetings are held regularly four times a year and at such other times as called by the Secretary of the Navy or the Chairman. The agenda, prepared by the Chairman and staff, includes presentations of interest to the Committee, and items arising from requests for Committee advice. The bureaus and systems commands provide information and access to facilities as needed by the Committee for execution of its work. From time to time the Chairman establishes subcommittees to conduct specific studies. A subcommittee may include persons who are not members of the Committee; however, the Chairman of a subcommittee is always a member of NRAC.

Relationships. The Naval Research Advisory Committee is the senior scientific advisory group for the Navy. Title 10 USC 5153 authorized the Secretary of the Navy to establish a Naval Research Advisory Committee.

Typical Outputs. Advice is given to the Secretary of the Navy, the Chief of Naval Operations, the Chief of Naval Research, the Chief of Naval Development, and the Director of Naval Laboratories. Recommendations are submitted either by letter or in report form, or can be expressed verbally.

E1140 Chief of Naval Operations Advisory Board (CAB)

Functions.

a. To advise and make recommendations to the Chief of Naval Operations with respect to Department of the Navy programs and their budgetary and manpower implications and such other matters as the Chief of Naval Operations may direct (in collaboration with the Commandant of the Marine Corps in those cases wherein the Marine Corps has an interest).

b. To insure that Program Objectives of the Navy are in consonance with approved strategic concepts, plans and policies; to advise the Chief of Naval Operations as may be necessary to insure a proper statement of reasonably attainable military objectives.

c. To examine the Navy budget submission, recommending adjustments as necessary, in order to reduce to the minimum differences between it and the Navy Comptroller's recommendations to the Secretary of the Navy.

d. Advise the Chief of Naval Operations on recommendations of the Standing Committee on Shipbuilding and Conversion, the Ship Characteristics Board, the Standing Committee for Shore Facilities, the Military Construction Review Board, the Research and Development Review Board and other OPNAV Boards when referred to the CAB.

Composition.

Chairman. Vice Chief of Naval Operations.

Members.

Director, Navy Program Planning (Vice Chairman)
Assistant Vice Chief of Naval Operations/ Director of Naval Administration
Deputy Chief of Naval Operations (Manpower and Naval Reserve)
Deputy Chief of Naval Operations (Fleet Operations and Readiness)
Deputy Chief of Naval Operations (Logistics)
Deputy Chief of Naval Operations (Air)
Deputy Chief of Naval Operations (Plans and Policy)
Deputy Chief of Naval Operations (Development)
Director of Antisubmarine Warfare Programs
Chief of Naval Material
Deputy Comptroller
Assistant Commandant of the Marine Corps

Associate Members. (Required when "Full" CAB meeting is called, or as individually requested.)

Chief of Naval Personnel
Commander, Naval Facilities Engineering Command
Commander, Naval Supply Systems Command
Commander, Naval Ships Systems Command
Commander, Naval Air Systems Command
Commander, Naval Electronics Systems Command
Commander, Naval Ordnance Systems Command

Chief of the Bureau of Medicine and Surgery
Commander, Military Sea Transportation Service
Chief of Industrial Relations
*Assistant Deputy Chief of Naval Operations (Manpower)
*Assistant Deputy Chief of Naval Operations (Naval Reserve)
Assistant Chief of Naval Operations (Intelligence)
Assistant Chief of Naval Operations (Communications)
Chief of Naval Research
Naval Inspector General
Assistant Comptroller, Director of Budget and Reports
Director, Long-Range Objectives Group
Director, Office of Program Appraisal
Director, Systems Analysis Group
Director, Offensive and Defensive Systems
Director, Ship Characteristics Division
Representative of the Marine Corps as designated by the Commandant

Secretary. Director, General Planning and Programming.

Alternates are to be designated who shall be empowered to act for a Member or a requested Associate Member who is unable to attend.

Procedure. Administrative procedures will be prescribed by the Chairman. The Secretary is authorized to act in the handling of routine business. He will prepare the agenda and provide administrative services in connection with the meetings, and will keep the minutes and such other records as are prescribed by the Chairman. A file of the complete minutes of each meeting is kept. Results or highlights of the minutes will be distributed to the Members and, when pertinent, to the Associate Members. Meetings of the CAB will be scheduled at the call of the Chairman.

Relationships. Direct liaison is authorized between the CAB, the commands, bureaus and offices of the Navy and Headquarters, Marine Corps, on all matters within the CAB purview.

REFERENCE

OPNAVINST 5420.2E, Chief of Naval Operations Advisory Board (CAB).

*Attend meetings when directed by Deputy Chief of Naval Operations (Manpower and Naval Reserve)

E1150 Chief of Naval Operations Program Planning Council (NPPC)

Background.

a. The CNO Program Planning Council is charged with reviewing, advising and making recommendations to the Director, Navy Program Planning with respect to the following:

1. The status of programs individually, and as they relate to each other, and adjustments therein.

2. The effect on programs of proposed annual Department of the Navy budgets after preliminary budget mark-up proceedings have been completed by the Comptroller of the Navy and before proposed budgets are considered by the CAB.

b. In discharging his duties, the Director Navy Program Planning requires the advice of a group of authoritative representatives of the Deputy and Assistant Chiefs of Naval Operations.

Function. The functions of the CNO Program Planning Council are to review, advise and make recommendations to the Director, Navy Program Planning concerning:

a. Effectiveness of the Navy Program Planning.

b. Form and content of specific Program Planning documents (plans, programs, objectives, budgets, appraisals, studies).

c. Program adjustment to major program decision/guidance from the Secretary of Defense.

d. Program adjustment to major budget action by higher authority.

e. Program adjustment to correct major deficiencies revealed by Program Appraisal.

When appropriate, the NPPC may perform the foregoing for the CAB.

Composition.

Chairman (ex-officio). Director, Navy Program Planning.

Members.

Director, General Planning and Programming (Executive Chairman)

Assistant Chief of Naval Operations (Administration)
Assistant Chief of Naval Operations (Intelligence)
Director, Long Range Objectives Group
Assistant Chief of Naval Operations (Communications)
Assistant Deputy Chief of Naval Operations (Manpower)
Assistant Deputy Chief of Naval Operations (Naval Reserve)
Assistant Deputy Chief of Naval Operations (Fleet Operations and Readiness)
Assistant Deputy Chief of Naval Operations (Logistics)
Assistant Deputy Chief of Naval Operations (Air)
Assistant Deputy Chief of Naval Operations (Plans and Policy)
Assistant Deputy Chief of Naval Operations (Development)
Deputy Chief of Staff (Plans and Programs) Marine Corps
Deputy Director, Antisubmarine Warfare Programs
Director, Systems Analysis Group

Alternates. The concept of the Council requires the personal participation of members whenever possible. However, if absence of a member is unavoidable, an alternate will be designated.

Associate Members.

Deputy Chief of Naval Material (Programs and Financial Management)
Assistant Comptroller, Director of Budgets and Reports
Director, Office of Program Appraisal
Deputy Chief of Naval Personnel
Deputy Chief, Bureau of Medicine and Surgery
Deputy Chief, Military Sea Transportation Service
Deputy Chief of Naval Research
Director, Field Support Activity
Vice Commander, Naval Air Systems Command
Vice Commander, Naval Electronics Systems Command
Vice Commander, Naval Facilities Engineering Command
Vice Commander, Naval Ordnance Systems Command
Vice Commander, Naval Ships Systems Command
Vice Commander, Naval Supply Systems Command

Staff. The Deputy Director, General Planning and Programming will act as Secretary, assisted by designated members of the staff of the Director, General Planning and Programming.

Procedure. The procedures to be followed and records to be kept will be similar to those in effect for the CAB. The Secretary is authorized to act in the handling of routine business. Meetings of the CNO Program Planning Council will be scheduled at the discretion of the Chairman.

Relationships. The CNO Program Planning Council will advise the Director, Navy Program Planning on the development and operation of an integrated Navy Program Planning System; and on program planning matters which have a major effect upon the programs of several sponsors. When considered appropriate the NPPC may act for the CAB.

Navy Program Planning matters frequently have a broad impact in the Navy Department, outside of the Office of the Chief of Naval Operations; consequently, associate membership is drawn from all interested commands, bureaus and offices to attend upon specific call of the Chairman.

REFERENCE

OPNAVINST 5420.54A (Ch. 2, July 13, 1966), Chief of Naval Operations Program Planning Council.

SECNAVINST 5420.128B established the Council and designated its Chairman and Membership.

E1160 Ship Characteristics Board

Function. Recommends to the Chief of Naval Operations the military, operational, physical and technical qualities and features of all naval ships.

Composition.

Chairman. An officer of flag rank assigned for duty in the Office of the Chief of Naval Operations (Op-36) for this purpose.

Members. One officer, preferably of flag rank, from each of the following offices of the Chief of Naval Operations and the technical commands:

DCNO (Manpower and Naval Reserve) (Op-01)
DCNO (Fleet Operations and Readiness) (Op-03) (Other than Chairman)
DCNO (Logistics) (Op-04)
DCNO (Air) (Op-05)
DCNO (Development) (Op-07)
Director, Long Range Objectives Group (Op-93)
ACNO (Communications) (Op-94)
Director, Anti-Submarine Warfare Programs (Op-95)
Director, Offensive and Defensive Systems Office (Op-97)
Commandant, U. S. Marine Corps (Note 1)
Commander, Ships Systems Command (Note 2)
Commander, Naval Ordnance Systems Command

Associate Members. The Permanent Staff, Ship Characteristics Board (Ship Characteristics Division) (Op-36) and one senior officer representative of each of the following:

Chief of Naval Personnel
President, Board of Inspection and Survey
Chief, Bureau of Medicine and Surgery
Commander, Air Systems Command
Commander, Electronics Systems Command
Commander, Facilities Engineering Command
Commander, Ordnance Systems Command
Commander, Supply Systems Command
Commandant, U. S. Marine Corps (Note 3)
Commander, Military Sea Transportation Service
C. O. Aviation Safety Center, Norfolk, Va.
C. O. Submarine Safety Center, New London, Conn.

Procedure. The SCB meets when called by the Chairman. These meetings are generally called to consider proposals prepared by the permanent staff. In developing proposals the staff is frequently aided by special panels of experts drawn from the organizations represented by the SCB members. Membership on these panels is on an ad-hoc basis and consists of those experts, both military and civil, best qualified to assist with the problem under consideration. On the average there are approximately five special panel meetings for every member of the SCB.

The Board's function is purely advisory and no recommendation provides a legal basis for action until officially promulgated by the Chief of Naval Operations.

Relationships. The Board is assigned under the Deputy Chief of Naval Operations (Fleet Operations and Readiness) (Op-03) who may disapprove any recommendations of the SCB and return them to the Board for further consideration.

Active liaison is maintained with the Fleet, Field and Headquarter Organizations in order to keep the Board fully informed of needs for improvement, available means of improvement and status of ships undergoing construction, conversion, or modification. In addition to its contacts through members of the SCB, the Chairman is authorized to call directly upon any naval command or activity for consultation, information, or recommendations regarding ship characteristics.

Typical outputs. Prepares OPNAV instructions setting forth the mission, tasks, and characteristics for new ships and conversions.

Prepares the Class Improvement Plan (CIP). This plan specifies and authorizes modifications and changes in equipment affecting military characteristics of active ships.

Maintains the Ship Improvement Guide, a catalog of all items recommended for consideration for inclusion in the Class Improvement Plan.

Acts as single point of contact between OPNAV and Ship Systems Command for all special studies—feasibility, cost, design—requested by the various divisions of the Office of the Chief of Naval Operations for execution by the Ship Systems Command.

As a result of advancing technology and changes in enemy weapons systems, the optimization of ship design has become more important and more difficult. Such optimization demands consideration of new technology, new concepts, weapons systems, etc., weighing trade-offs, and determining the best combinations of systems and subsystems. In order to obtain the best possible information required for the determination of ship characteristics, alternative solutions and their relative evaluation must be identified. Information to back up major decisions in regard

Note 1. Voting privilege only at such time as the Board has under consideration amphibious ships or other similar matters in which the Marine Corps has an interest.
Note 2. Direct representative of CNM.
Note 3. When not a member.

to the allocation of resources to design and construction must also be provided.

To achieve these objectives, DOD has requested that procedures for applying Concept Formulation and Contract Definition (DOD Directive 3200.9) be developed and initially be selectively applied to several new ship designs. In compliance, CNO issued an Advanced Development Objective calling for the establishment of procedures and the development of resources for achieving the intent of Concept Formulation in the Ship Development Sequence and the application of these procedures and resources to "specific ship types" as assigned by the Chief of Naval Operations, CNO.

The Landing Force Support Ship and the Mine Countermeasures Support ship have been designated as pilot models for the application of Concept Formulation.

Ultimately, procedures will be developed enabling Concept Formulation to be applied to all new ship designs meeting the criteria of DOD Directive 3200.9 and will provide a closer integration of the Navy R&D complex with the Ship Development activity.

REFERENCE

OPNAVINST. 5420.31A, "Appointment of the Ship Characteristics Board" (current modification) is basic charter.

E1200 TEST ORGANIZATIONS

E1210 Operational Test and Evaluation Force

E1211 Mission. Commander, Operational Test and Evaluation Force has primary responsibilities to the Chief of Naval Operations as directed in the following areas:

a. Test and Evaluation

1. Conduct the operational planning for the cognizant technical agency when the equipment or systems require a technical evaluation in an operational environment. Report on such tests as and when directed by the Chief of Naval Operations.

2. Plans for and conducts operational evaluations of weapon systems, support systems, components, and equipment to determine their ability to meet their specified performance requirements and their overall suitability for service use. Plan for and conduct concurrent operational tests and evaluations as and when directed.

3. Reports formally to the Chief of Naval Operations the results of operational evaluations and concurrent operational tests and evaluations, with recommendations in connection therewith.

4. Recommends to the Chief of Naval Operations training procedures, training aids, countermeasures, and basic tactical doctrine to be used, developed, or employed incident to evaluation programs conducted.

b. Development

1. When directed by the Chief of Naval Operations, assists with the provision of services and facilities those naval and extra-naval agencies engaged in development projects which require an operational environment involving the use of OPTEVFOR and other fleet units as assigned.

2. Coordinates the effort of OPTEVFOR and other fleet units as assigned in providing assistance to developing agencies in development projects and provide for the establishment of necessary liaison between the fleet units and the agencies concerned.

3. Insure that in prosecution of tasks of a development nature, careful planning and execution are directed to avoid unnecessary duplication of effort and nonessential or unprofitable use of fleet services.

4. As directed, submit to the Chief of Naval Operations, appraisal reports on specified development projects, including comments and recommendations.

5. As directed by the Chief of Naval Operations, insure validity and currency of certain specific supplements to the Naval Warfare Publication Series.

E1212 Organization.

a. The Operational Test and Evaluation Force, with headquarters at Norfolk, Virginia, is a fleet force under:

1. The Chief of Naval Operations for technical control and program guidance in the field of development, test and evaluation.

2. The Commander in Chief, U. S. Atlantic Fleet for administration.

3. CINCLANTFLT, CINCPACFLT for all operational matters under the purview of CINCLANTFLT, CINCPACFLT.

b. The Headquarters Staff. At the Headquarters, the staff of the Commander, Operational Test and Evaluation Force is organized along lines which give primary consideration to types of warfare and to project administration rather than along the lines of a standard Navy staff. Under this type of organization evaluation of equipments or systems is carried out within staff divisions manned by personnel with experience peculiar to the type of warfare for which their division is named. The Deputy COMOPTEVFOR Pacific and his staff division are located at the Naval Air Station, North Island, San Diego, California. He represents the Commander, Operational Test and Evaluation Force in matters pertaining to the Force in the Pacific Fleet area (Figure E-31).

c. The Operational Test and Evaluation Force is comprised of the following subordinate commands:

1. Norfolk Test and Evaluation Detachment. The function of the Norfolk Test and Evaluation Detachment is to test and/or evaluate shipboard weapon systems, support systems, components and equipments and to develop tactics and methods for their use as directed by Commander, Operational Test and Evaluation Force. This detachment is under the direct operational control of the Commander, Operational Test and Evaluation Force. Its operations normally are conducted in the Chesapeake Bay and Virginia Capes Operating Areas. When required for specific projects being prosecuted by NORVATEVDET, fleet units are assigned to the operational control of COMOPTEVFOR by CINCLANTFLT. Such units normally will then operate as a part of NORVATEVDET for the duration of the project operations for which assigned. Ships assigned to NORVATEVDET for operational control remain under the administrative control of their type Commanders.

USS GYATT (DD 712)

2. New London Test and Evaluation Detachment. The function of the New London Test and Evaluation Detachment is to test and/or evaluate antisubmarine warfare weapon systems as directed by the Commander Operational Test

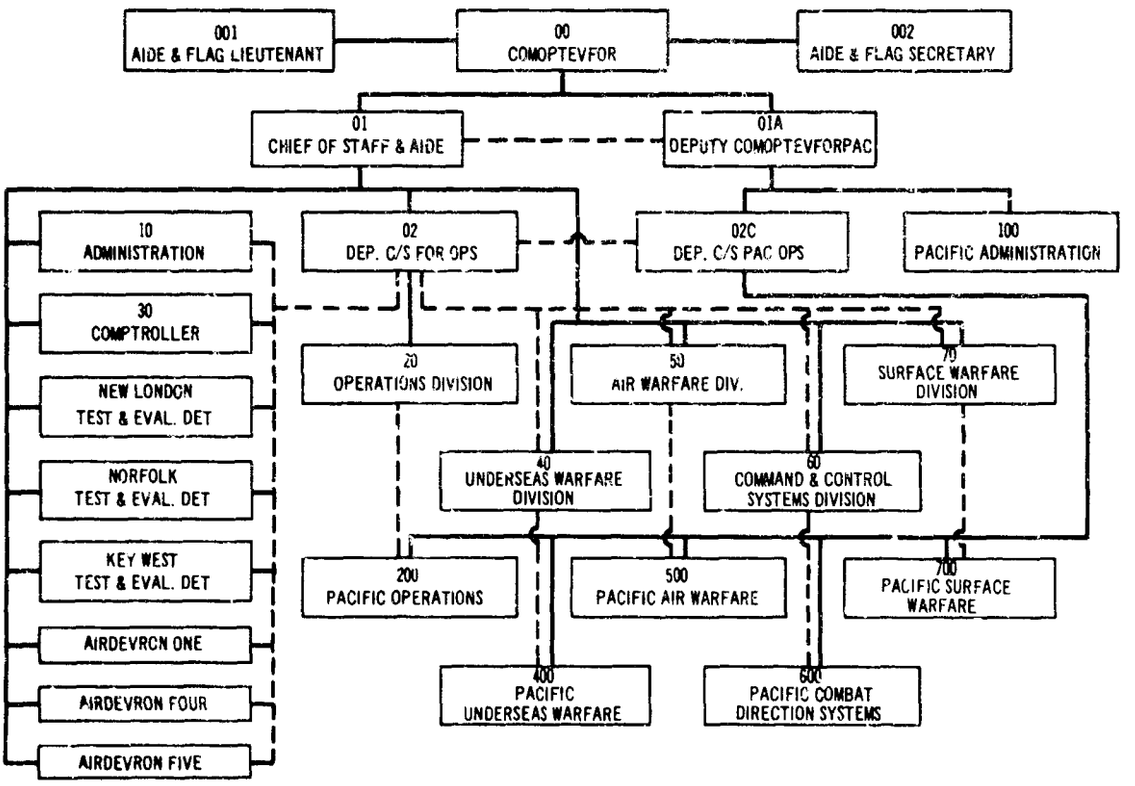


Figure E-31 - Commander, Operational Test and Evaluation Force

and Evaluation Force. The detachment is involved primarily in providing services to assist various Developing Agencies in the sea-phase of equipment development. Among the activities being served are:

The Office of Naval Research
The Naval Research Laboratory
The Underwater Sound Laboratory
Air Systems Command
Ship Systems Command
Ordnance Systems Command
Electronic Systems Command

Ships assigned to the detachment for operational control, remain under the administrative control of their type commander or district commandant, as applicable.

3. Key West Test and Evaluation Detachment (Key West, Florida). The function of the Key West Test and Evaluation Detachment is to test and/or evaluate surface ship anti-submarine weapon systems, support systems, components and equipments, mines and mine countermeasures, and to develop tactics and methods for their use, as directed by the Commander Operational Test and Evaluation Force. The Commander, Key West Test and Evaluation Detachment is the coordinator for all operations of Operational Test and Evaluation Force units in the Key West Area. The detachment is under the Operational and Administrative Control of COMOPTEVFOR. Ships assigned to the Key West Test and Evaluation Detachment for operational control, remain under the administrative control of their type commander or district commandant, as applicable.

4. Air Development Squadron One. The function of Air Development Squadron ONE, located at Key West, Florida, is to test and/or evaluate airborne anti-submarine weapon systems, support systems, components and equipment, and to develop tactics for their use, as directed by the Commander, Operational Test and Evaluation Force. Tests are conducted by utilizing aircraft assigned to the squadron for that purpose. The squadron is unique in that under one command there are grouped land planes, carrier types, fixed wing types and rotary wing types. The squadron assists with services and facilities, other naval and extra-naval agencies as directed. This squadron is under the operational control of the Commander, Operational Test and Evaluation Force, and under the administrative control of the Commander, Fleet Air, Key West.

5. OPTEVFORPAC Staff A Commander, Operational Test and Evaluation Force staff division under a Deputy Chief of Staff for Pacific Projects reporting to the Deputy COMOPTEVFORPAC is located at the Naval Air Station, North Island, San Diego, California. The qualifications of personnel assigned to this staff division are such as to permit supervision of all types of projects assigned to Commander Operational Test and Evaluation Force for prosecution in the Pacific Fleet area. The function of the Deputy Chief of Staff for Pacific Projects is to act as the representative of the Force Commander for OPTEVFOR matters in the Pacific Fleet and, when directed with West Coast agencies. In that capacity he maintains liaison with the Commander in Chief, U. S. Pacific Fleet, Pacific Fleet type, functional, and support commanders and when directed, heads of Pacific shore activities engaged in developmental work, including civilian contractors. He exercises staff cognizance as directed over OPTEVFOR projects being prosecuted in the Pacific Fleet area in that he administers, coordinates, supervises or prosecutes projects, and prepares proposed project plans and reports as required. When requested by CINCPACFLT, he renders assistance for Pacific Fleet assist projects. Ships assigned to the Deputy Commander for operational control remain under the administrative control of their type commander or district commandant.

USS BAYA (AGSS 318)
USS REXBURG (EPCER 855)
USS MARYSVILLE (EPCER 857)

6. Air Development Squadron Four. The function of Air Development Squadron FOUR, located at Point Mugu, Calif., is to test and/or evaluate all weather fighter weapon systems and air launched guided missile weapon systems including associated equipment and aircraft, as directed by Commander, Operational Test and Evaluation Force. Tests and evaluations are carried out with aircraft assigned to the squadron for that purpose and with the assistance of Pacific Fleet units assigned by the Commander in Chief, U. S. Pacific Fleet, when required for specific projects. This squadron is under the operational control of the Commander, Operational Test and Evaluation Force, and under the administrative control of Commander, Fleet Air, MIRAMAR.

7. Air Development Squadron Five. The function of Air Development Squadron FIVE is to develop airborne attack weapons systems, support systems and evaluate aircraft tactics, techniques and procedures for the delivery of airborne special weapons. This evaluation is carried out by operational tests with aircraft assigned to the squadron for that purpose and

with the assistance of Pacific Fleet units assigned by Commander in Chief, U. S. Pacific Fleet, when required for specific projects. The squadron works in close cooperation with the Naval Ordnance Test Station at China Lake to the mutual advantage of both organizations. Air Development Squadron FIVE is under the operational control of the Commander, Operational Test and Evaluation Force, and under the administrative control of the Commander, Fleet Air, ALAMEDA.

8. Fleet Development Groups. The Commander, Operational Test and Evaluation Force will supervise and direct the prosecution of CNO approved RDT&E projects assigned to such fleet development groups as are, or may be, established. In such cases commanders of these groups will report, when directed by the appropriate fleet Commander in Chief, to the Commander, Operational Test and Evaluation Force for additional duty in connection with the prosecution of projects so assigned. Groups currently in this category are:

Submarine Development Group TWO, Submarine Force, Atlantic Fleet

Destroyer Development Group TWO, Cruiser - Destroyer Force, Atlantic Fleet

Destroyer Development Group Pacific, Cruiser - Destroyer Force, Pacific Fleet

E1213 Operating Principles.

a. Establishment of Evaluation Project. When an item or product has been developed to the point where the Developing Agency will certify to CNO the readiness of the equipment for Operational Evaluation, then CNO will issue a Project Planning Directive to COMOPTEVFOR.

b. Types of Projects. Projects in support of test, evaluation and investigation of new developments by the Operating Forces are handled as specified below:

1. Technical Evaluation. This is the responsibility of the developing agency who may request assistance from OPTEVFOR when operational environment is desired or required to determine if the equipment meets design specifications and is ready for operational evaluation or service use. In the event that OPTEVFOR assistance is not necessary the developing agency will conduct this evaluation in Navy laboratories or field stations.

2. Operational Evaluation. This is the test and analysis of material under operating conditions, insofar as practicable, to determine the ability of the material to meet specified operational performance requirements or to establish suitability for service use.

3. Concurrent Evaluation. This is a combination of a and b above conducted concurrently to effect maximum economy of time, funds and fleet services.

4. Development Assist Test. This is testing of a system or equipment by fleet units to determine the direction in which an established development should advance.

5. Fleet Research Investigation. This is an examination of natural or special phenomena in the operational environment.

6. Fleet Operational Investigations. These are projects involving a development, examination, or comparison by the operating forces of tactical concepts, operating procedures or techniques.

Fleet Operational Investigations will be conducted by COMOPDEVFOR or by such other commands as designated by CINCLANTFLT or CINCPACFLT. Although material improvement recommendations may be forthcoming as a result of these investigations, the primary end products are procedures and tactics.

ANNOTATED REFERENCE LIST

OPNAV INST 4960.1C - "Test, Evaluation and Investigation of New Developments by the Operating Forces." Sets forth responsibilities and operating procedures for testing and evaluation, including investigation of new developments by the operating forces.

SECNAV Instruction 5430.67 - "Assignment of responsibilities for research, development, test and evaluation." This instruction assigns specific duties and responsibilities for administration of the Department of the Navy Research, Development, Test and Evaluation (RDT&E) program.

NAVMATNOTE 5460 dtd 1 May 1966. Preliminary Organization Manual-Naval Material Command.

APPENDIX F

RDT&E FIELD ACTIVITIES

The Navy's extensive in-house RDT&E field organization, unique in size and scope among the military Departments, provides an important portion of its RDT&E competence. This in-house technical competence is woven deeply into the Navy's heritage. Forerunners of the Naval Ship Research and Development Center, formerly the Marine Engineering Laboratory and the David Taylor Model Basin, existed in the early years of this century. The Naval Research Laboratory, the first laboratory devoted exclusively to research in the military sciences in the United States, traces its ancestry from recommendations of the Naval Consultant Board of 1916, Thomas A. Edison, Chairman.

The importance of in-house RDT&E Field Activities in providing technical competence needed by the Government in carrying out its various activities was stressed by the Committee on Government Contracting for Research and Development in its report to the President (Bell Report) of 30 April 1962. This Committee's findings were endorsed by the President as national policy.

The policies of the Department of Defense with regard to in-house RDT&E Field Activities have been stated by the Director of Defense Research and Engineering (DDR&E) and the Assistant Secretary of the Navy (R&D). Appropriate quotations from these sources are given below in Section F0100.

Current Navy policies and procedures for the management of research and development activities are presented in Section F0200. The final section of this appendix consists of a statement of the mission and other information on research and development activities.

F0100 THE ROLE OF THE IN-HOUSE RDT&E FIELD ACTIVITIES

The present complex of the Navy's in-house RDT&E Field Activities employs over 9,000 scientists and engineers. This complex represents an investment of about one billion dollars in land and buildings and an annual workload of about 550 million dollars or 30% of the annual Navy budget for RDT&E projects. Because of the great breadth of the Navy's military role, this complex performs a wide variety of essential tasks and missions ranging from basic research to the support of specialized equipment in the fleet.

The basic purpose of the Navy's in-house RDT&E Field Activities is to provide the present and future fleet with the most effective weapons and equipment possible.

The success of these systems and equipment is paramount to the effectiveness of the Operating Forces and the maintenance of the overall Navy defense posture. To fulfill their obligation to the Fleet and further enhance their overall value to the Navy, the laboratories must not only be on-going producers of science and technology but they must also be thoroughly alert to the present and future operational requirements of the Fleet. The Laboratories' job is to provide the most effective weaponry and shipboard equipment that men can operate in all the confusion and uncertainties that characterize the combat environment. To satisfy this requirement, it is mandatory that, first, the Laboratories must understand the operational problems of the Fleet as it is affected by the capabilities and limitations of its men and its organization, and, secondly, the activities must be so placed and so used that they have an important voice in systems decisions and planning.

Over the years the Navy has succeeded in building up activities of high quality and demonstrable effectiveness. Moreover, the Navy has been fortunate in recruiting and retaining within these activities first-rate scientists and engineers who have developed extensive knowledge and understanding of naval problems. In trying out new ideas, activity scientists have often joined the operating forces to work side-by-side with military personnel. Many activity projects which have led to improved weapons and operating equipment were inspired and made practical by such close contact with fleet units.

F0110 From the "Bell Report"

Excerpts from the Bell Report (Report to the President on Government Contracting for Research and Development, 30 April 1962).

There must be sufficient technical competence within the Government so that outside technical advice does not become de facto technical decision making.

. . . . . .

We believe it is highly important for the Government to be able to turn to technical advice from its own establishment as well as from outside sources. One major source of this technical knowledge is the Government-operated laboratory or research installation. ...A strong base of technical knowledge should be continually maintained within the Government service and available for advice to top management.

. . . . . .

No matter how heavily the Government relies on private contractors it should never lose a strong internal competence in research and development. By maintaining such competence it can be sure of being able to make the difficult but extraordinarily important program decisions which rest on scientific and technical judgments. Moreover, the Government's research facilities are a significant source of management personnel....

F0120 From DDR&E

Excerpts from "Research and Engineering in the Defense Laboratories," remarks by the Director of Defense Research and Engineering at the Naval Research Laboratory, Washington, D. C., October 19, 1961.

There are about four very good and clear reasons for performing RDT&E within the Defense Laboratories. I offer them not to defend the existence of our Defense laboratories so much as to delineate a few of their functions and thus help establish their method of operation.

First, the Defense laboratories should form a spearhead which must provide the Armed Forces with at least two essential services. (a) They must continuously investigate rapidly changing fields of science and engineering to find materials, techniques, processes and ideas which may prove to have some as yet undetermined military value. (b) In the course of their investigations in the fields of advanced technology, the Defense scientists and engineers must bring the problems of the Armed Forces before the broad scientific and technical community expressed in the terms of technical discourse.

Second, we require objective scientific and engineering advice on contract research and development programs. Most of the Defense RDT&E funds are expended on contract, and properly so. The advice of the Defense laboratories is critical not only because advice which is sensitive to the Government's interests generally must be available to management, but because that advice must be particularly sensitive to the needs of the military users. You know—but it is often forgotten—that it takes a long time to develop a sensitivity for the needs of the using forces.

Third, we need the laboratory organization to manage or help manage weapons system development and test programs. Experience has been a harsh teacher and we are aware that it is not always wise or economical to try either to have a large project directed by a military user who does not understand whether what he wants is feasible, or to let the contractor be his own director, or to set up a small management office without technical support. Often an organization with its own—even limited—development capability is required to assure effective management.

Fourth, we need the in-house laboratories as an essential part of the system of technical education for military officers. We recognize that without the actual experience of working in the laboratory it will not be possible to develop the cadres of technically proficient officers required for the operation of modern, rapidly changing armed forces and for the understanding needed to set military requirements in a military situation in many ways unrelated to any previous one.

F0130 From ASN(R&D)

Excerpts from testimony by the Assistant Secretary of the Navy (Research and Development) before the Military Operations Subcommittee of the House Committee on Government Operations, 16 August 1962.

In addition to the emphasis we have placed on the need for maximum support of our in-house laboratories, it is my feelings that we should strive for the following goals:

First, each laboratory must, in some way, be brought into close contact with the operating forces of the Navy. This contact can be as

direct as the support of fleet missile training at the Naval Missile Center, Point Mugu, or as indirect as the assignment of the personnel from the Bureau of Yards and Docks* to the Antarctic.

Second, each laboratory must be assigned actual technical tasks in its mission area in order that it maintain its technical competence by doing and not by just monitoring.

Third, we must be careful that all technologies of interest to the Navy are covered by sufficient in-house competence. For instance, in rapidly expanding use of computers, we must be sure that we do not take advantage of this technology solely through outside contacts but very carefully set aside enough in-house work that we may insure a future capability to evaluate effectively and to make good use of our new equipments.

Fourth, in a time when there is great competition for technically competent people because of this expanding effort, we must meet this demand by assigning sufficient in-house work in order that we, too, may compete for technical talent.

Fifth, where the competition in certain areas causes salary escalation, we must be prepared within our personnel structure to meet these problems head-on.

Sixth, in order that we are prepared to take advantage of new technology, we must keep a certain percentage of our effort unfettered and free to explore the frontiers of scientific activity. By this means, we are able to meet the challenge of shifting emphasis.

In these times which are characterized by a phenomenal activity in the fields of science and technology and rapidly shifting emphasis in warfare, it is imperative that we make a constant effort to retain in these laboratories a high quality of technical competence. We need the soundest technical advice and best judgment to provide the operating forces with the most advanced capabilities made possible by our achievements in research and development.

F0200 MANAGEMENT OF NAVY IN-HOUSE RDT&E FIELD ACTIVITIES

Extensive experience, particularly over the past two decades, in government, universities, non-profit organizations and industry, has shown that the effectiveness of each activity is directly related to the quality of its management.

*Now Naval Facilities Engineering Command

How to make the Navy Field Activities more effective has been the object of recent studies. ASN(R&D) in January 1965 stated:

"...the steps for strengthening the Navy's laboratories must have the following interrelated purposes:

a. To increase delegation of authority and responsibility to the laboratory level.

b. To give laboratories more voice in overall R&D planning and systems decisions.

c. To increase the active systems involvement of laboratories--from conception, to experiment, to use, and follow-through.

d. To increase the climate in the laboratory for scientific and technical vitality and supply more "elbow-room" for the pursuit of ideas generated there.

e. To minimize traumatic fluctuations in funding of programs so that coherence of effort within the laboratory can be maintained.

f. To give increased attention to overall policy and planning affecting laboratory matters."

To ensure accomplishment of these objectives, the civilian position of Director of Navy Laboratories was established to provide a focal point for the direction and management of the total Navy RDT&E field complex at the department level, and to ensure the optimum development and utilization of the Navy's RDT&E resources.

F0210 Organizational Relationships of the Director of Navy Laboratories (DNL)

The Director of Navy Laboratories (DNL) is the principal advisor to the Assistant Secretary of the Navy (Research and Development) (ASN(R&D)) for matters relating to the Navy-wide RDT&E field complex, and is coequal with the Deputy Chief of Naval Operations (Development), OP-07; the Deputy Chief of Staff (RD&S) Marine Corps; the Chief of Naval Research (CNR); and the Chief of Naval Development (CND). (See Figure F-1)

F0220 Duties, Authority and Responsibilities of the Director of Navy Laboratories (DNL)

The Director of Navy Laboratories (DNL) has, within the Navy-wide RDT&E field complex, the responsibility for and authority to:

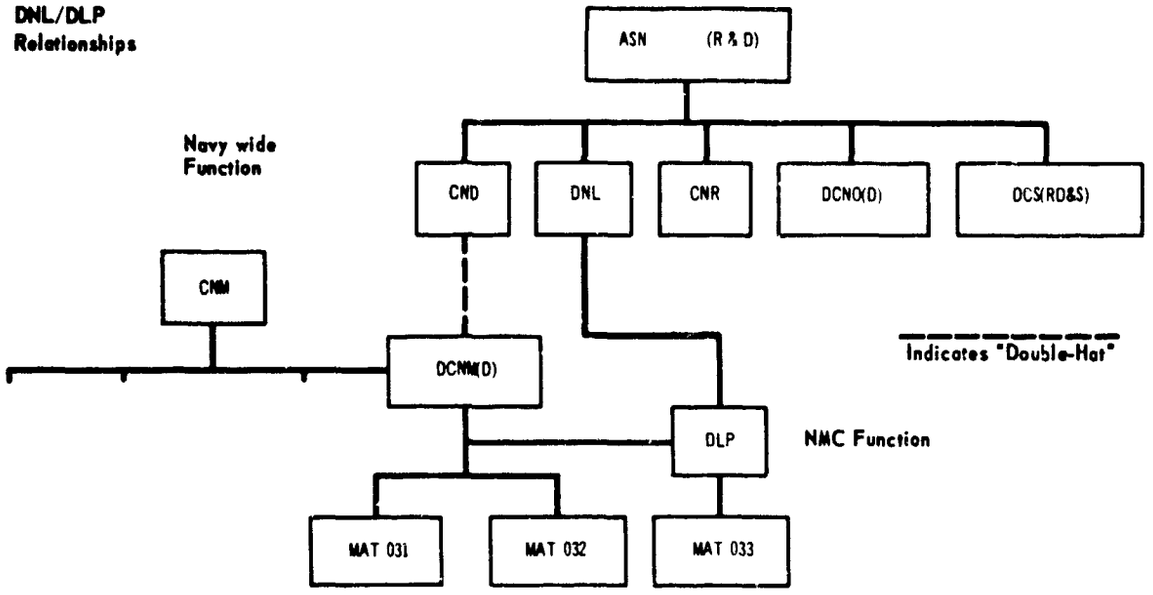


Figure F-1

a. Control the in-house Exploratory Development technical program and authorize the application of programmed funds.

b. Control and manage all in-house laboratory independent research (Foundational Research) and Independent Exploratory Development (FR/IED) programs and control and authorize the application of programmed funds.

c. Control the Management and Support program and authorize the application of programmed funds.

d. Advise the Assistant Secretary of the Navy (Research and Development) (ASN(R&D)) in the selection of key personnel, military and civilian, within the Navy RDT&E complex.

e. Act as focal point for the ASN(R&D) for laboratory problems relating to laboratory organization, management, programs, operations, facilities, staffing and other matters of significance.

f. Apprise the ASN(R&D) of RDT&E programs the priority and funding for which is considered to be incommensurate with technical potential and merit.

g. Assure optimum responsiveness of the Navy RDT&E field activities to the sponsoring commands, bureaus, offices, and program managers.

h. Direct and coordinate long-range planning of RDT&E resources.

i. Act as Chairman of the Advisory Group to the ASN(R&D) on Laboratory Matters.

j. Represent ASN(R&D) on laboratory policy matters.

k. Establish laboratory requirements and policies.

l. Establish the Navy RDT&E Military Construction program.

m. Determine the distribution of civilian personnel.

n. Initiate interlaboratory programs to develop, enhance, and expand laboratory personnel resources as may be necessary to correct deficiencies in required disciplines or skills.

o. Establish interlaboratory programs for the purpose of undertaking unified, independent, and concerted approaches to multidisciplinal problems which cross organizational boundaries.

The DNL works with and is supported by the Chief of Naval Material and laboratory management offices in the commands, bureaus, and offices of the Navy Department in the fulfillment of his responsibilities. He informs the

Chief of Naval Operations and the Commandant of the Marine Corps of RDT&E programs, laboratory management policies and procedures which may affect the capabilities of the RDT&E complex in support of the operating forces. He maintains close working relationships with the Chief of Naval Research and the Chief of Naval Development to be certain that the Fou dational Research and Independent Exploratory Development programs are properly considered in the review and appraisal of the research and exploratory development programs.

F0300 LISTING OF U. S. NAVY RDT&E FIELD ACTIVITIES

F0310 Activities Reporting to the Chief of Naval Operations

F0311 U. S. Naval Observatory

Location: Main Observatory, Washington, D. C.; stations at Flagstaff, Arizona, and Richmond, Florida

Mission: To make such observations of celestial bodies, natural and artificial, derive and publish such data as will afford to United States Naval vessels and aircraft as well as to all availing themselves thereof, means for safe navigation, including the provision of accurate time, and while pursuing this primary function, contribute materially to the general advancement of navigation and astronomy.

F0312 U. S. Naval Oceanographic Office

Location: Suitland, Maryland

Mission: To enhance the combat readiness of the Navy by providing oceanographic and navigational data, performing or recommending related research development testing and evaluation, supporting associated programs, and complying with statutary requirements.

F0313 Naval Command Systems Support Activity (NAVCOSSACT)

Location: U. S. Naval Station, Washington Navy Yard, Washington, D. C.

Mission: To support the Chief of Naval Operations, Secretary of the Navy, Secretary of Defense, Joint Chiefs of Staff and Commanders of major commands in the development and implementation of Navy sponsored command systems, including systems applications, techniques, standardization, evaluation, integration, testing and continuing programming, to provide such support in direct response to requirements determined by the Chief of Naval Operations or higher authority.

F0314 Fleet Numerical Weather Facility

Location: U. S. Naval Postgraduate School, Monterey, California

Areas of Responsibility: To provide numerical weather products on an operational basis peculiar to the needs of the Naval Establishment and to continue to develop and test numerical techniques in meteorology and oceanography applicable to Naval Weather Service analyses and forecasting problems.

F0315 Navy Weather Research Facility

Location: U. S. Naval Air Station, Norfolk, Virginia

Areas of Responsibility: Conduct applied research to translate the latest developments in analysis and forecasting into simplified and effective techniques for use by fleet meteorologists; to evaluate analysis and forecasting methods derived on a local basis from the experiences of personnel of widely separated units of the Naval Weather Service; and to devise new and improved techniques to solve analysis and forecasting problems arising from the Navy's use of new operational weapons.

F0320 Activities Reporting to the Chief of Naval Research

F0321 U. S. Naval Research Laboratory

Location: Main Laboratory, Washington, D. C.
Field Sites:
Chesapeake Bay Division, Chesapeake Beach, Maryland;
Hybla Valley Field Site, Alexandria, Virginia;
Maryland Point Observatory, Charles County, Maryland;

NRL Waldorf Annex, Waldorf, Maryland;
Stump Neck Field Site, Indian Head, Maryland;
Marine Corrosion Laboratory, Key West, Florida;
Naval Radio Station, Sugar Grove, West Virginia;
Transducer Calibration Facility, Dresden, Lake Seneca, New York
Underwater Sound Reference Division, Orlando, Florida

Mission: The mission of the Naval Research Laboratory is to conduct scientific research and development in the physical sciences and related fields directed toward new and improved materials, equipment, techniques, and systems for the Navy.

In its investigations of broad scientific areas, in considering these for potential military applications, and in furnishing to the naval systems commands and Secretariat expert consultative services relating to science and military systems, NRL functions as the corporate research laboratory of the Navy. Thus it provides a central focus of research activity that supports the Navy. When NRL findings and capabilities have borne fruit in particular areas, the results are made known to and used by not only the Navy but also the other armed services, the Advanced Research Projects Agency, the Atomic Energy Commission, and other agencies of the government.

Some principal elements of the research program include fundamental and applied work in electromagnetic wave propagation, underwater sound propagation, atmospheric light propagation, refractory metals and exotic materials for high-performance structures, surface chemistry, high-temperature lubricants, submarine air purification, chemical oceanography, structural design theory, metallurgy in all aspects of the sea environment, cryogenic physics, plasma physics, solar radiation and its effects on environmental phenomena near the earth, and acoustical standards.

F0322 U. S. Naval Training Device Center

Location: Orlando, Florida

Mission: To conduct research, development, production and provide logistic support of training equipment in response to requirements of the Naval training agencies and, to the extent funded, by the Army and Air Force.

This mission is accomplished through the Center's Research Directorate, including its Physical Science, Electronics, Visual Simulation, Computer and Psychological Laboratories, and by contract with commercial concerns and educational institutions.

F0323 U. S. Naval Biological Laboratory

Location: U. S. Naval Supply Center, Oakland, California

Administration and Operation: The staff of Naval Medical Research Unit #1 and a portion of the University of California School of Public Health are integrated with the personnel of the Naval Biological Laboratory to perform research under contract with the Office of Naval Research.

Mission: The broad mission of the NBL is to (1) conduct research on airborne infectious diseases important to military preventive medicine, (2) study the behavior of the agents of these diseases, and (3) conduct fundamental or applied research on other biological problems as directed by the Chief of Naval Research.

F0324 Hudson Laboratories, Columbia University

Location: Dobbs Ferry, New York

Administration and Operation: Operated under contract between ONR and Columbia University.

Mission: The Development of techniques which will reveal the presence and location of submarines. To develop this capability, the following programs are provided: (1) research in sound propagation to establish the capabilities and limitations of the sea for the transmission and reception of low frequencies; (2) determine the nature of ambient noise in the ocean and the noise output of submarines; (3) investigate the chemical and physical properties of sea water which might support non-acoustic detection systems and signal processing techniques as suggested by theoretical studies and experimental results. This program provides an area of exploratory development, principally in the field of low frequency passive detection techniques that produces outputs useful in many phases of the programs supported by the Naval Material Command.

F0325 Marine Physical Laboratory, Scripps Institution of Oceanography

Location: San Diego, California

Administration and Operation: Operated under contract between ONR and Scripps Institute.

Mission: The application of knowledge about the ocean, its boundaries, and the surrounding media to the solution of the Navy's problems in anti-submarine and pro-submarine warfare.

The program provides a broad base of capability in the basic sciences associated with anti-submarine warfare and tends to bring this capability directly to bear on problems of submarine detection and classification, underwater communications and navigation. Associated programs develop techniques needed to produce this capability. The output is techniques and information which is applicable in the design of systems or equipment.

F0326 U.S. Naval Arctic Research Laboratory

Location: Main Laboratory, Point Barrow, Alaska
Field Sites:
21 Land based field stations and one drifting station

Mission: The Naval Arctic Research Laboratory is a Navy-owned contractor-operated (University of Alaska) research facility and shares in the basic mission of accomplishing those programs of basic and applied research which contribute to successful Navy operations in arctic regions. The Laboratory per se has the more specific mission of providing expert guidance and coordination of field and laboratory research tasks assigned by the Chief of Naval Research and to provide for such tasks all forms of logistics support necessary to their success.

Th mission further includes indoctrination and training of administrative and scientific personnel for living and working in arctic areas; provision for welfare and safety of personnel development of novel techniques, methods and procedures for exploitation of potential arctic research; guarding and maintenance of government property; liaison between ONR and scientists in the Arctic; and advisory functions to ONR with regard to success of current programs and requirements for future research needs.

NARL's scientific program is oriented toward understanding of the ocean environment, its ice surface and its overlaying atmosphere. While a diversity of basic and applied sciences are supported physical/biological oceanography, geophysics and underwater acoustics receive greatest attention.

F0330 Activities Reporting to the Chief of Naval Material

The organizational relationship of the Naval Material Command activities is shown on Figure F-2.

F0331 U. S. Naval Air Development Center

Location: Johnsville, Pennsylvania

Areas of Responsibility:

Principal areas of RDT&E effort include:

1. Aeronautical electronic systems and components in areas of anti-submarine warfare, anti-air warfare, strike warfare, and electronic warfare.

2. Aircraft and missile aerodynamic analysis, targets, special aircraft configurations, missiles, aircraft control systems, ground support equipment, weapons, aircraft instruments and systems, and airborne photographic equipment systems.

3. Physiological aspects of acceleration on the human body.

4. Creation of new and/or improved concepts for naval warfare.

F0332 U. S. Naval Air Engineering Center

Location: Philadelphia, Pennsylvania

Areas of Responsibility:

1. In the Ship Installations area, perform research and development and applications engineering in aircraft launch and recovery systems; components and accessories for aircraft and guided missiles; visual landing aids for shipboard, airfields, seadromes and heliports; shipboard suitability of aircraft; aircraft suitability of all naval vessels which tend, support, or carry aircraft; air-launched and ship-launched weapon shipboard suitability and satisfactory installation.

2. Perform design, performance and reliability tests of aircraft propulsion systems, power systems, related components, accessories, fuels and lubricants.

3. Perform research, development, evaluation, and tests on materials and processes involved in the construction, overhaul, maintenance and operation of naval aircraft.

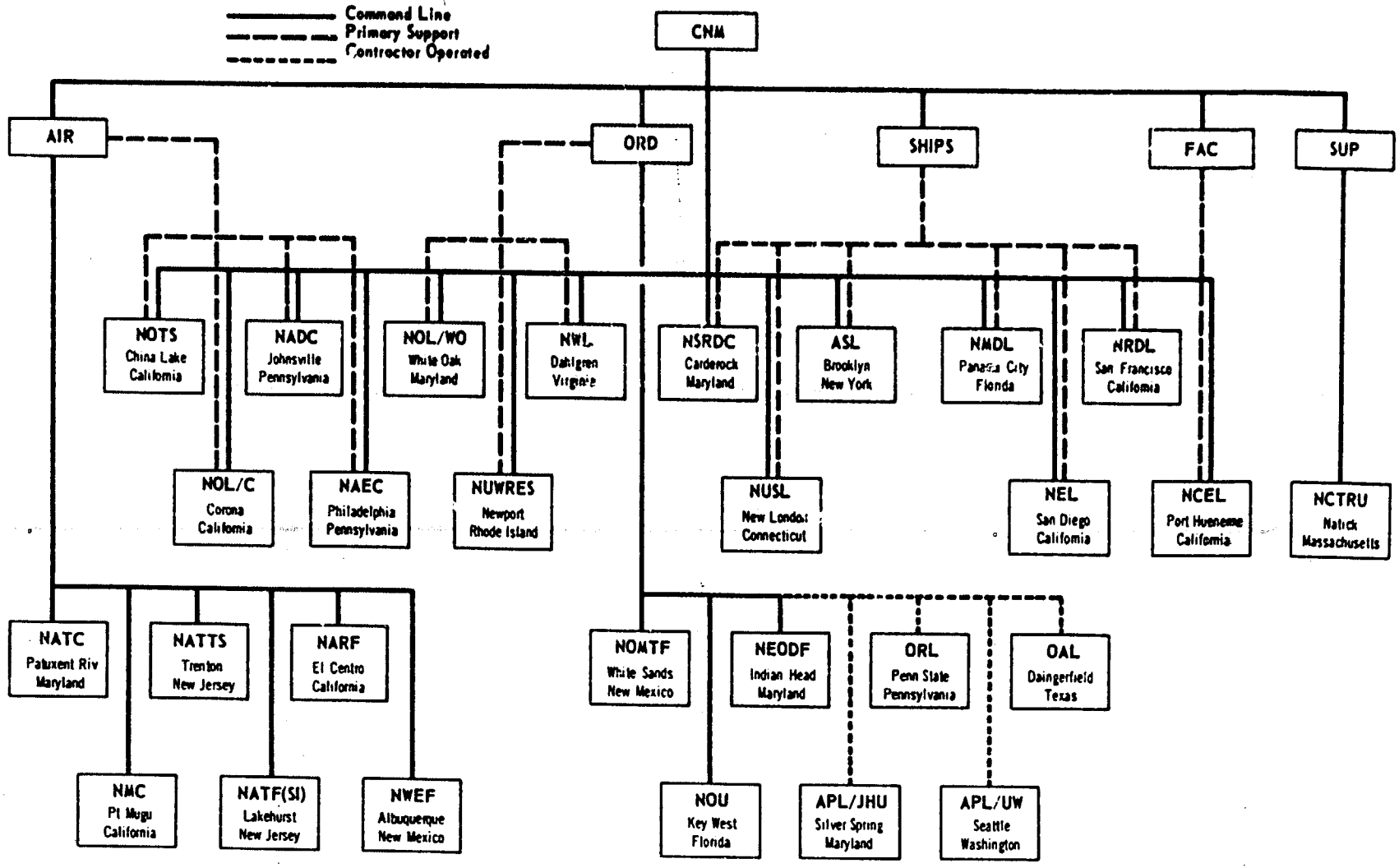


Figure F-2 - Chief of Naval Material

4. Perform research and development on all types of airframe structures and structural components.

5. Perform research, design, development, test, and operational evaluation of personal and safety equipment for Naval aircrewmen.

F0333 U. S. Naval Applied Science Laboratory

Location: U. S. Naval Base, Brooklyn, New York

Areas of Responsibility: Perform applied RDT&E in fields of:

1. Electronics - optimization of effectiveness, availability, reliability, and maintainability of ship electronic systems;

2. Materials Sciences - development of new and improved electrical insulations and dielectrics to meet specific Naval shipboard needs;

3. Physical Sciences - development of improved techniques, devices and systems for ship communications and navigation and biological/chemical warfare defense;

4. Navigation - Analysis, exploration and experimentation in gyroscopic and automatic control phenomena, as applied to inertial navigation, ultra precise navigational equipment and techniques, electro-mechanical control, and precise data transmission.

F0334 U. S. Naval Civil Engineering Laboratory

Location: Port Hueneme, California

Areas of Responsibility:

1. Perform research and develop, test and evaluate techniques, equipment, materials and structures for shore facilities, deep ocean facilities, advanced bases and amphibious operations.

2. Construction, operation and maintenance capabilities are extended to meet new requirements and to improve the effectiveness of all facilities-type support.

3. The program encompasses the broad fields of civil, mechanical, electrical, chemical and nuclear engineering; chemistry, physics, mathematics and electronics.

F0335 U. S. Naval Ship Research and Development Center

Location: Main Laboratory, Carderock, Maryland

Field Sites:
Annapolis Division, Marine Engineering Laboratory, Annapolis, Maryland;
Underwater Explosions Research Division, Portsmouth, Virginia;
High Speed Phenomena Division, Langley, Virginia;
U. S. Navy Ship Research and Development Test Facility, Bayview, Idaho.

Areas of Responsibility: Perform fundamental and applied research and development in the fields of hydromechanics, aerodynamics, structural mechanics, mathematics, acoustics, and related fields of science to:

1. Determine the most suitable and desirable shapes and forms to be adopted for United States ships, aircraft, underwater weapons, and missiles, including the investigations of related design problems;

2. Develop design parameters for propulsion devices, hydrofoils, mines, countermeasures, torpedoes, and similar devices;

3. Develop the aerodynamic characteristics of aircraft, missiles and components thereof for satisfactory flight in the subsonic, transonic, supersonic, and hypersonic speed ranges;

4. Develop design data for and design methods to obtain ship structures of minimum weight with maximum resistance to service loads and operational environmental conditions, including consideration of weapons effects;

5. Develop means to reduce underwater noise of ships and weapons of the United States Navy;

6. Develop mathematical methods and high speed computer techniques for application to the solution of naval problems in the fields of engineering, data processing, management data analysis, operations research, and related fields; and

7. Develop advanced concepts in logistics.

Also perform RDT&E in the field of naval shipboard machinery systems, auxiliary systems,

and related fields of science and engineering, including the following fields of technology:

1. Propulsion, auxiliary, and special-purpose machinery systems; pneumatic, hydraulic, and mechanical devices; atmosphere-conditioning, refrigeration, heat exchange, and chemical-treatment devices and processes; reliability; safety and endurance; stresses and strains; and causes of machinery failures.

2. Electrical systems; electrical power generation; ship control systems; magnetic fields, and automatic degaussing control.

3. Ship Machinery Silencing.

4. New and unique energy sources or energy conversion systems.

5. Friction and wear, lubrication, bearings, seals.

6. Special alloy development.

F0336 U. S. Navy Electronics Laboratory

Location: San Diego, California

Areas of Responsibility:

1. Perform research and development in the application of electronics and related fields of science and engineering, including radio, radar, sonar, oceanography, and instrumentation for and analysis of environmental weapons effects and human factors, to the solution of naval operating problems.

2. Objectives of such work are analyses, scientific and engineering data, techniques, designs, specifications, and prototype equipments and systems, aimed toward major improvements of the Navy's capability in undersea, air and surface warfare and general operations.

3. These objectives are supported by: operations research, employment analysis, systems analysis and design; environmental research in oceanography, the atmosphere, and the arctic; research on propagation through all useful media; investigation of human psychophysiological responses and their relation to operator effectiveness; investigation of data processing, signal detection, and computer science and technology; development of electronic equipments and systems.

F0337 U. S. Navy Mine Defense Laboratory

Location: Panama City, Florida

Areas of Responsibility:

1. Perform research, development, test and evaluation in: (a) mine defense, (b) acoustic and torpedo countermeasures, (c) in-shore warfare, and (d) related fields of science and engineering.

2. Investigate all influences that are used or may be expected to be used to actuate mines and develop countermeasures and gear to defeat them.

3. Study and analyze problems of torpedo countermeasures, and develop countermeasures which may be used in defeating existing and anticipated types of torpedoes.

F0338 U. S. Naval Ordnance Laboratory

Location: Corona, California

Areas of Responsibility: Execute the following major programs:

1. Conduct research, development, and evaluation on fuzes for Navy guided missiles, including safety certification for Fleet use and documentation necessary for production and employment.

2. Conduct foundational and applied research in the physical sciences directed toward improved materials, devices or techniques having potential application to current or future naval ordnance.

3. Conduct research, development, and evaluation on guided missile systems to reduce their susceptibility to interference and countermeasures.

4. Conduct analysis, design, development and testing of new concepts and techniques in missile guidance systems.

5. Conduct research and development of advanced electronic instrumentation systems and system components, particularly in the fields of telemetry, miss distance measurement and data transmission.

F0339 U. S. Naval Ordnance Laboratory

Location: White Oak, Maryland

Areas of Responsibility: Execute the following major tasks related to naval weapons:

1. Plan and conduct foundational and applied research programs in aero-ballistics, acoustics, explosives, magnetic materials, and other fields of physics and chemistry.

2. Plan and conduct programs concerned with applied research, design, development, test, and technical evaluation of complete ordnance systems, assemblies, components, and materials principally in the fields of missiles, nuclear weapons, mines, depth charges, torpedoes, fuzes, bombs, pyrotechnics, fire control, and guidance.

3. Develop the design of new devices, components and weapons, evaluating design and testing models as necessary to insure that the end product will satisfy all essential and prescribed operational requirements.

F0340 Field Activities Reporting to the Chief of Naval Material (continued)

F0341 U. S. Naval Ordnance Test Station

Location: China Lake, California

Areas of Responsibility: Execute the following:

1. Research in chemistry, physics, mathematics, oceanography, astronautics, combustion aerodynamics, thermodynamics, hydrodynamics, propellants and propulsion, explosives, warhead technology, ignition and igniters, pyrotechnics, search and detection, guidance and control, acoustics, electronics, and materials;

2. Feasibility studies and/or demonstrations in the areas of air weapons, underwater weapons, limited warfare, fleet ballistic missile concepts, atomic weapon requirements; deterrence concepts and space technology;

3. Development, test, and evaluation of components such as propulsion systems and units, warheads, pyrotechnics, destructors, instrumentation, equipment, payloads, guidance and control devices, new propellants, new explosives, ignitors and squibs, and packaging;

4. Development, test and evaluation of major weapons and systems for air, surface, and underwater.

F0342 U. S. Naval Radiological Defense Laboratory

Location: San Francisco, California

Areas of Responsibility:

1. Perform basic and applied research on nuclear and thermal radiation from nuclear explosions, natural and controlled nuclear processes, and nuclear accidents and incidents, including chemical, physical and biological processes and effects, associated phenomena and dispersion and contaminating effects of radioactive materials.

2. Develop and evaluate radiac devices and systems, shielding equipment and materials, medical countermeasures for modification of the biological effects of radiation, and reclamation and decontamination procedures and countermeasures.

3. Conduct composite evaluations of nuclear situations, including interrelated effects such as blast and shock.

4. Prepare data for technical and operational manuals and training.

5. Develop use of radioisotopes and other tracer techniques in the above technological and scientific areas.

F0343 U. S. Navy Underwater Sound Laboratory

Location: New London, Connecticut

Areas of Responsibility: Principal RDT&E responsibilities include:

1. Sonar ocean surveillance systems for continental defense against missile-launching submersibles.

2. Complete sonar detection, attack, and communication systems for our submarine forces.

3. Anti-submarine detection systems for surface craft.

4. Submarine radio communications systems.

5. Underwater acoustic research.

6. Optical communication systems.

7. Fleet Ballistic Missile Command Communications.

F0344 U. S. Naval Weapons Laboratory

Location: Dahlgren, Virginia

Areas of Responsibility: Execute the following RDT&E programs:

1. Warfare Analysis - develop mathematical models simulating the various phases of amphibious warfare.

2. Astronautics - computation and analysis of the motion of artificial satellites.

3. Exterior ballistics - prime agency for Navy, fulfilling the Fleet's requirements for aiming data for weapons systems.

4. Fleet Ballistic Missile System - provide all guidance data, analyze effectiveness of warheads in terms of damage to the target and penetration of enemy defenses.

5. Warhead Research and Development - for air and surface target weaponry.

6. Cartridge Actuated Devices - for aircraft personnel escape, aircraft stores ejection, missiles, space applications, and underwater ordnance.

7. Target Vulnerability and Damage Studies; Hazards of EMR to Ordnance; B/C Warfare - development of standards and techniques for safe handling, transportation, and operational employment of weapons and for detection and decontamination; electromagnetic compatibility of weapons with other equipment; weapon safety—stockpile-to-target sequence.

F0345 U. S. Naval Underwater Weapons Research and Engineering Station

Location: Newport, Rhode Island

Areas of Responsibility:

1. Plan and conduct programs concerned with applied research, design, development, engineering, testing and evaluation of underwater weapon systems and components, principally in the fields of torpedoes, torpedo tubes and launching devices, underwater fire control systems, explosive echo ranging systems, practice charges or signals, and harbor defense nets.

2. Plan and conduct foundational and applied research in acoustics, electronics, propellants, hydroballistics and associated scientific fields.

3. Exercise direction of new developments of weapons, tubes and launchers, and fire control systems.

4. Design, improve and maintain the dynamic underwater weapons testing and measurement ranges; conduct torpedo firings; provide salvage and weapon recovery diving services; provide torpedo firing and recovery services.

F0350 Activities Reporting to the Commander, Naval Air Systems Command

F0351 U. S. Naval Aerospace Recovery Facility

Location: El Centro, California

Areas of Responsibility:

1. As the U. S. Navy portion of the Joint Parachute Test Facility of the Department of Defense, to perform development, test, and evaluation of: (a) parachutes and related assemblies, human escape methods and systems; (b) retardation and recovery systems and rescue, survival and personnel safety equipment; (c) stabilization, retardation, and recovery systems for lay-down type weapons, aircraft, missile, and capsule assemblies, special logistics aerial delivery methods, techniques and equipment.

F0352 U. S. Naval Air Test Center

Location: U. S. Naval Air Station, Patuxent River, Maryland

Areas of Responsibility:

1. Perform carrier suitability trials, stability and control trials, engine performance trials, hydrodynamic trials and associated tests to determine the flying qualities and suitability of an aircraft for its intended mission.

2. Perform accelerated field service trials of all new aircraft and their complete equipment to evaluate their service suitability and maintenance problems.

3. Evaluate all avionic, electrical, inertial, photographic, armament, and ordnance equipments and their special support equipments to determine by technical analysis and flight tests their capability, reliability, and suitability for service use.

4. Administer the U. S. Navy Test Pilot School.

F0353 U. S. Naval Air Test Facility (Ship Installations)

Location: Lakehurst, New Jersey

Areas of Responsibility:

1. Perform evaluation of aircraft launching, recovery, and visual landing aids systems and related equipment including determination of operating limits, operating procedures, suitability of the equipment to operate with existing service-type aircraft and missiles, mechanical and performance reliability, maintenance methods, and general capabilities and limitations.

F0354 U. S. Naval Air Turbine Test Station

Location: Trenton, New Jersey

Areas of Responsibility:

1. Evaluate aircraft propulsion systems and their components and accessories through simulated environmental and operational tests, through engineering analysis and through disassembly, analytical inspection and reassembly of test engines.

2. Perform applied research, development and engineering work pertaining to improvements or corrections of defects in aircraft propulsion systems and their components and accessories.

3. Conduct research studies and perform experimental laboratory investigations to develop new evaluation procedures and technical requirements for incorporation in specifications used in the procurement and performance evaluation of aircraft gas turbine propulsion systems, their components and accessories.

F0355 U. S. Naval Missile Center

Location: Point Mugu, California

Areas of Responsibility:

1. Perform test and evaluation of naval airborne tactical data systems and components.

2. Perform Board of Inspection and Survey trials for integrated naval weapon systems in accordance with Board of Inspection and Survey Directives.

3. Perform research and development for advanced simulation, instrumentation, environmental test techniques, and improved serviceability and reliability characteristics of missile weapon systems.

4. Develop new techniques and procedures for the evaluation of weapon and data systems.

5. Provide aircraft maintenance, targets, photographic services and technical information services to the Pacific Missile Range. Provide other laboratory, flight or technical services to range users.

6. Provide target services for the development and evaluation testing of Navy guided missile weapon systems.

F0356 U. S. Naval Weapons Evaluation Facility

Location: Albuquerque, New Mexico

Areas of Responsibility:

1. Perform evaluation studies on nuclear weapons systems and associated equipment as to the acceptability for naval use, particularly with regard to safety, reliability, operability, compatibility, and suitability throughout the stockpile-to-target sequence.

F0357 Other Naval Air Systems Command Activities

Other activities reporting to the Commander, Naval Air Systems Command that perform certain assigned RDT&E functions are:

Naval Airborne Project PRESS Operations Group, Pearl Harbor, Hawaii
Naval Air Mine Defense Development Unit, Panama City, Florida
Weapons Systems Analysis Office, Quantico, Virginia

F0360 Activities Reporting to the Commander, Naval Ordnance Systems Command

F0361 Applied Physics Laboratory

Location: Silver Spring, Maryland

Administration: Operated under contract between NAVORDSYSCOM and the Johns Hopkins University.

Areas of Responsibility:

1. Perform basic and applied research, operations analysis and tactical assessment, development, test and evaluation of weapons systems, particularly surface-launched missile systems and subsystems.

2. Perform basic research in the fields of propulsion, aerodynamics, materials, electronics, navigational satellites, adaptive mechanisms and physics.

F0362 Applied Physics Laboratory

Location: University of Washington
Seattle, Washington

Administration: Operated under contract between NAVORDSYSCOM and the University of Washington.

Areas of Responsibility:

1. Perform exploratory development and testing of acoustic transducers and devices, materials and targets; torpedo magnetic influence exploders.

2. Perform investigations of three-dimensional underwater tracking ranges applicable to weapon studies, ship alignment, and fleet exercise use.

F0363 U. S. Naval Explosive Ordnance Disposal Facility

Location: Indian Head, Maryland

Areas of Responsibility:

1. Perform research, development, test and evaluations in technical matters concerning explosive ordnance disposal, and rendering safe procedures for conventional and special weapons, guided missiles, biological and chemical munitions, tools, equipments and techniques both U.S. and foreign, as required to discharge the Navy's responsibility to the DOD, and to The Department of the Army and the Department of the Air Force in matters relating to explosive ordnance disposal.

F0364 U. S. Naval Ordnance Missile Test Facility

Location: White Sands Missile Range, New Mexico

Areas of Responsibility:

1. Ground test and flight test guided missiles

2. Maintain, modify, evaluate and operate ground components of guided missile and rocket systems and tactical test equipment

3 Support the Naval Research rocket program and other small rocket programs at White Sands Missile Range

4. Support Navy Test programs by participating in flight test planning, placing requirements on the range and handling the collection and distribution of test reports

5. Perform liaison and direct coordination between Navy test agencies and the Integrated Range Staff and operating divisions.

F0365 U. S. Naval Ordnance Unit

Location: Key West, Florida

Areas of Responsibility:

1. Perform pre-production and evaluation tests and provide supporting services in connection with development, test, evaluation and analysis of ordnance equipment (principally underwater).

2. Provide logistic and technical support to OPTEVFOR for operational evaluations in the Key West area.

F0366 Ordnance Aerophysics Laboratory

Location: Daingerfield, Texas

Administration and Operation:

Operated under contract between NAVORD-SYSCOM and General Dynamics/Pomona.

Areas of Responsibility:

1. Provide test facilities, associated data reduction, model fabrication services, and engineering support for the research, development, and production testing of propulsion systems, aerodynamic models, missiles and configurations.

F0367 Ordnance Research Laboratory

Location: Pennsylvania State University
University Park, Pennsylvania

Administration: Operated under contract between NAVORD SYSCOM and Pennsylvania State University.

Mission: Conduct fundamental studies, research and development of underwater weapons (principally torpedoes), including theoretical and experimental studies in acoustics, electronics, and hydromechanics associated with torpedo control and guidance systems.

a. Research and development in the field of Naval Weapon Systems, particularly Undersea Warfare Systems, and in associated fields of interest, including training in applicable fields of endeavor directed toward increasing the technical knowledge and understanding of phenomena, and to extend the knowledge and theories into practical applications for experimental and feasibility demonstration purposes.

b. Consultation, liaison, training and assistance to other Naval facilities and contractors, to extend and incorporate the results of the program at the Ordnance Research Laboratory into useful end products for the Navy.

F0370 Activities Reporting to the Chief, Bureau of Medicine and Surgery

F0371 Naval Medical Field Research Laboratory

Location: Marine Corps Base, Camp Lejeune, North Carolina

Areas of Responsibility:

1. Conduct basic research, applied research development and testing in the dental, medical and allied sciences, with particular emphasis on those problems peculiar to amphibious and field medicine.

2. Laboratory studies are being made in the fields of bacteriology, physiology, psychology, virology, personnel protection, equipment tests and development.

F0372 U. S. Navy Medical Neuropsychiatric Unit

Location: U. S. Naval Base, San Diego, California

Areas of Responsibility:

1. Conduct research in the field of neuropsychiatry as it applies to the naval service. Emphasizes programs in preventive psychiatry, psychophysiology, neurology and personnel selection.

2. Program currently in progress are assessment of psychiatric effectiveness of naval personnel, development of preventive psychiatry programs, neurology, and neuropsychiatric selection of personnel.

F0373 Naval Medical Research Institute

Location: National Naval Medical Center, Bethesda, Maryland

Areas of Responsibility:

1. Conduct basic and applied medical research that contributes to the health, safety and efficiency of naval personnel.

2. Performs exploratory and advanced development on problems peculiar to shipboard, submarine, diving, aviation and preventive medicine.

3. Provide technical and management support to the Bureau of Medicine and Surgery.

4. Current programs have three major objectives: provide information for improved clinical support of the naval service; disease prevention; and adaption of men to the operational environments associated with naval service.

F0374 Naval Submarine Medical Research Laboratory

Location: U. S. Naval Submarine Base, Groton, Connecticut

Areas of Responsibility:

1. Conduct medical research and development on problems peculiar to shipboard, submarine, and diving medicine.

2. Research is conducted in auditory problems, human factors engineering, personnel assessment, physiology, and vision.

F0375 Naval Medical Research Units

a. Naval Medical Research Unit No. 1

Location: University of California, Berkeley, California

Areas of Responsibility:

1. Conduct medical research in airborne infectious diseases.

2. Participate in such portions of the Naval Biological Laboratory research investigations as may be considered (by the Commanding Officer, NAMRU-1) to be in the interest of the Bureau of Medicine and Surgery.

3. Fields of investigation are virology, aerobiology, bacteriology, mycology, epidemiology and ecology, biophysics and engineering.

b. Naval Medical Research Unit No. 2

Location: Taipei, Taiwan

Areas of Responsibility:

1. Provide medical research, essential information on diseases and medical problems of military significance, and the bilogical knowledge required for controlling the animal and insect disease vectors of the Far East.

2. Research is conducted in the fields of tissue culture, pathology, biochemistry,

protozoology, medical zoology, clinical medicine, entomology, helminthology, bacteriology and virology.

c. Naval Medical Research Unit No. 3

Location: Cairo, Egypt

Areas of Responsibility:

1. Perform needed medical research work on diseases of military importance that are endemic and epidemic in the Middle East and Africa.

2. Research is conducted on such diseases as hepatitis, typhoid fever, paratyphoid fever, typhus fever, relapsing fever, brucellosis, plague, bilharzin, the dysenteries, kala-azar and virus diseases. Dental research is also conducted.

d. Naval Medical Research Unit No. 4

Location: U. S. Naval Hospital, Great Lakes, Illinois

Areas of Responsibility:

1. Conduct research into the etiology and modes of transmission of the acute communicable diseases of the respiratory tract and to develop and test methods for the control and treatment of these diseases.

2. Basic approach involves descriptive, analytical, and experimental epidemiology with supportive clinical and laboratory investigations.

F0376 U. S. Naval Aerospace Medical Institute

Location: U. S. Naval Aerospace Medical Center, Pensacola, Florida

Areas of Responsibility:

1. Conduct training of aviation medical personnel and research in aviation and space medicine, aviation psychology, and in allied fields, and evaluate aeromedical equipment.

2. Support the Naval Air Training Command in the selection, indoctrination and instruction of non-medical aviation personnel.

3. Provide professional and consultation services in aviation medical matters are required.

4. Research is conducted in the varied fields of biochemistry, biometrics, biophysics, cardiology, medical electronics, neurophysiology, acoustics, physical chemistry, physiology and psychophysiology.

F0377 U. S. Navy Toxicology Unit

Location: National Naval Medical Center, Bethesda, Maryland

Areas of Responsibility:

1. Provide technical and specialized services in the fields of operational toxicology and health engineering as related to toxicity problems encountered aboard ships, and in the design and use of new weapon systems.

2. Develop and provide biological data necessary for determining permissible limits so that precautionary measures, conductive to good-health practice, may be prescribed.

3. The following studies are being conducted: long and short-term inhalation studies; acute and chronic studies (oral, skin, ocular) on new propellants to develop safe handling procedures; shipboard studies on air contaminates; and special studies on equipment and material taken aboard submarines which may generate contaminants.

F0380 Activities Reporting to the Chief of Naval Personnel

F0381 U. S. Naval Personnel Research Activity

Location: U. S. Navy Electronics Laboratory, San Diego, California

Areas of Responsibility:

1. Plan and conduct research and development in personnel operations and behavioral sciences.

2. Develop new concepts and improved methods for acquiring, classifying, training, distributing, and retaining personnel and for maximizing the utilization of Navy manpower resources.

F0390 Activities Reporting to the Commander, Naval Supply Systems Command

F0391 Navy Clothing and Textile Research Unit

Location Natick Laboratories, U.S. Army Natick, Massachusetts 01760

Mission: Conduct research, development, test and evaluation in clothing, textiles and related materials, including uniforms and special clothing for occupational and environmental protection of Naval personnel. Conduct a collateral program in technical and engineering support for standardization of clothing and textiles, and preparation, maintenance and validation of specifications governing their procurement.

ANNOTATED REFERENCE LIST

SECNAV INST 3900.13A, "Management of Navy Research and Development Laboratories," establishes policies and procedures for the management and operation of Navy in-house laboratories.

SECNAV INST 5340.77, establishes the Director of Navy Laboratories and defines his duties, responsibilities, and operating relationships.

NAVMAT INST 5430.26, establishes the Director of Laboratory Programs and defines his duties, responsibilities, and operating relationships.

NAVEXOS P-2445, Research and Development Facilities Located at U. S. Naval Shore Activities, is a comprehensive compendium of information on Navy laboratories. It constitutes a centralized source of information on the type and capabilities of major R&D equipment and facilities located at Naval Activities. This classified publication is available on a need-to-know basis.

APPENDIX G
(RESERVED)

APPENDIX H

PROMOTING EFFECTIVENESS AND ECONOMY

This appendix touches on some of the various management concepts, techniques and programs currently in use by DOD and the Navy to improve utilization of funds and promote effectiveness and economy. Also included are several specific leads as to where advice and/or assistance may be obtained to aid the RDT&E manager in improving the cost-effectiveness of operations conducted under his leadership.

The responsibility and need for economy in defense are covered in the first section with subsequent sections devoted to methods or programs. The Value Engineering, Work Simplification, Paperwork Management and Systems Analysis sections provide specific techniques. These techniques in some cases may be utilized by amateurs or personnel with little training for simple jobs. In other techniques and/or more complicated problems the services of a qualified or experienced practitioner will be required.

The Beneficial Suggestion Program provides a means for encouraging and rewarding employee participation in improving effectiveness and economy.

The DOD Cost Reduction Program provides a means for reporting and measurement of the effectiveness of management in meeting cost reduction goals. The successful application of management improvement techniques listed here, as well as others, will be reflected in satisfactory performance under this reporting program.

H0100 INTRODUCTION

H0110 Management Responsibility

The immediate responsibility for maintaining effective resource utilization lies within the command itself. The Commanding Officer's responsibility as defined in the Navy Regulations, paragraph 050.4 ..."A Commander shall take all practicable steps to maintain his command in a state of readiness to perform its mission."

The achievement and maintenance of effective resource utilization (manpower, equipment, materials and dollars) is not something done to a command; neither is it something done for a command. Command must do it for itself.

President L. B. Johnson had the following to say in his 18 January 1965 message to Congress.

> We shall continue to maintain the military forces necessary for our security without regard to arbitrary or predetermined budget ceilings. But we shall continue to insist that those forces be procured at the lowest possible cost and operated with the greatest possible economy and efficiency. ...
>
> Defense expenditures in the years ahead must continue to be guided by the relentless pursuit of efficiency and intelligent economy.
>
> There is no necessary conflict between the need for a strong defense and the principles of economy and sound management. If we are to remain strong ...
>
> - Outmoded weapons must be replaced by new ones,
> - Obsolete equipment and installations must be eliminated,
> - Costly duplication of effort must be eliminated.
>
> We are following this policy now, and so long as I am President, I intend to continue to follow this policy. ...

Secretary of the Navy Paul Nitze had the following to say on the DOD Cost Reduction Program.

> "The Department of the Navy fully supports President Johnson's pledge to the Congress. Cost reduction and economy must increasingly become our way of life. Every organization, every ship and every person associated with the Navy and Marine Corps from my office down will participate in this program."

H0120 Economy in Defense

The following excerpts from a speech by Charles J. Hitch, principal author of The Economics of Defense in the Nuclear Age, and former Assistant Secretary of Defense (Comptroller), provide an insight into the "way of looking at problems" which underlies the DOD Programming System. It also provides background on the DOD Cost Reduction Program approach to improving effectiveness and economy in Department of Defense operations.

. . . I think it is essential that we all have a common understanding of the term "economy." Economy in defense does not mean scrimping on essentials. It does not mean buying the cheapest equipment. And it does not mean a smaller defense budget. . . . Economy in defense, as we use the term, means getting the most defense capability out of any given level of resources or, conversely, providing a given level of defense for the least amount of resources. Thus, economy in defense is concerned with the efficient use of resources.

Economy and efficiency are two ways of looking at the same problem. If a manufacturer has a fixed budget and his goal is to maximize his production, we say that he has the problem of using his resources efficiently. But if his production goal is fixed, his problem is to economize on the use of resources, that is, to minimize his cost. These may sound like different problems but, in fact, they are logically equivalent. For any specific situation, the choices that would maximize the attainment of an objective for a given budget are the same choices that would minimize the cost of attaining that same objective. . . . If Missile X is the system that provides maximum deterrence with a $10 billion Strategic Retaliatory Forces budget, it is also the missile which most economically achieves that level of deterrence.

It is clear, therefore, that there need be no conflict of interest between a comptroller who is supposed to be interested in economizing and a military commander who is supposed to be interested in military efficiency - except in the determination of the size of the over-all budget or the dimensions of the military objectives to be achieved. With regard to the size of the defense budget, the problem is essentially to decide how much of other things to sacrifice in the interest of military strength. This is the problem of the allocation of resources at the national level. Here is where a balance must be struck among all our national objectives—defense, space, foreign aid, domestic programs, and the tax burden. But in all decisions on how to spend the military budget, on what kinds of equipment and forces to implement what kind of strategy, there is no basic conflict between economy and efficiency.

From the point of view of Defense management, strategy, technology and economy are three interdependent elements of the same problem. Strategies are ways of using budgets or resources to achieve military objectives. Technologies serve to define and limit the possible strategies. The economic problem is to choose that strategy -- including the forces, equipment and everything else necessary to implement it -- which is most efficient or economical, keeping in mind that the strategy which is the most efficient will also be the most economical. Thus, strategy and cost are as interdependent as the front and rear sights of a rifle. One is no more or less important than the other. Therefore, the job of economizing, which some would delegate to budgeteers and comptrollers, cannot be distinguished from the whole task of making military decisions.

So, too, the performance or military effectiveness of a given piece of military equipment cannot logically be considered apart from its cost. All too often there is a tendency in the Defense Department to deal with military requirements, including the desired performance characteristics of military equipment, in absolute terms. But military requirements, whether quantitative or qualitative, can be judged only in relation to their costs.

For example, the ability of one aircraft to fly ten knots faster than another must be weighed against the cost of achieving the ten knots extra speed and the value of the other objectives that could be achieved with that extra cost. I am sure you are all familiar with the concept of diminishing returns. This principle is just as applicable to the economics of defense as it is in other spheres. Typically, each additional increment of performance entails a more than proportionate increase in cost, or conversely, each additional increment of cost produces a proportionately smaller increment of performance. As the limits of performance are attained, the diminishing return curve begins to flatten out. Where on this curve the cutoff should be made is a matter of judgment on which equally competent people will differ. But rarely, indeed, will it make sense to continue until the curve becomes flat.

Good quantitative analysis can provide the data needed for such a decision, but it cannot

substitute for judgment. A two percent increase in performance might, in one man's judgment, be worth a half billion dollars; and in another man's judgment, the cost would be entirely excessive. But the important point is that people who talk about performance in absolute terms (i.e., we want the best regardless of cost) are simply not facing up to the facts of life. In a world in which resources are scarce, spending more for one weapon system means foregoing something else, even if it be civilian consumption. We cannot escape the necessity of weighing performance against cost, and the other things that we would have to do without or do with less.

Let me hasten to add that this does not mean that the less expensive weapon is necessarily the most economical. Quite the contrary. A more expensive weapon is frequently far more effective and thus, both cost and effectiveness considered, the more economical. All we are saying is that both cost and effectiveness must be considered together in reaching a decision on a weapon system.

This problem is no different than the one you have to face in your own business decisions. The fact that one machine can produce twenty percent more than another has to be weighed against any additional costs involved, in order to determine which is the more economical. The principle is the same in defense, except that in private business you are guided by the market prices of what you buy and sell, whereas in government, while we buy in markets, we don't sell in them, and, therefore, we have to determine the worth of added performance by analysis or judgment.

Once this approach to defense decision-making is accepted, the importance of good systems analysis or cost effectiveness studies is immediately apparent. The decisions can be no better than the data upon which they are based.

A good case in point is our experience in the SKYBOLT program. When it was decided to undertake this development, the then current estimates of costs, the foreseeable technical problems, and the predicted performance characteristics and operational availability made SKYBOLT seem a logical choice for the defense suppression role during the remainder of this decade and on into the 1970's. As time passed, however, the cost estimates proved to be quite unreliable. The cost was estimated by the Air Force as late as 1960 at about $200 million for development and about $700 million for procurement. By early 1961 the figure for development had increased to $391 million. By the end of that year, the development cost projections had risen to $493 million and those for procurement to over $1,400 million. Again, last July the Air Force increased its procurement cost estimate to $1,770 million. Thus, even the Air Force estimate for SKYBOLT at the time of its cancellation stood at over $2-1/4 billion, exclusive of warheads. Indeed, we believe that SKYBOLT would have become nearly a $3 billion program.

As a result, SKYBOLT lost whatever advantage it once promised over alternative systems. The cost per missile on an alert bomber would have approximated $4 million, close to the incremental initial investment cost for a MINUTEMAN complete with its blast resistant silo. In view of MINUTEMAN's greater flexibility, accuracy, its much lower vulnerability and faster time to target, it was just good sense to meet our extra missile requirements by buying MINUTEMAN.

It is interesting to note that the cost of MINUTEMAN, too, was grossly underestimated initially. I have been informed that the first time that program was presented at the OSD level the cost, including all necessary training and support, was estimated at $1 million per missile deployed in a hardened site. Admittedly, this low unit cost was projected on the basis of a larger program than has thus far been announced and the technical sophistication of the missile now in the program was not then envisaged. Still, the cost per deployed MINUTEMAN is now several times greater than originally estimated. Fortunately, on a cost/effectiveness basis it is still a very good choice.

In this connection, we recognize that systems analysis involving complex new technologies is particularly difficult. Military worth or effectiveness is, at best, extremely hard to measure. Reliable quantitative data often are not available even for established systems, and where such data are available there is usually no common standard for equating different dimensions of effectiveness.

Therefore, the preferred alternative can rarely, if ever, be determined simply by the application of a formula. Instead, we must rely on painstaking, step-by-step analysis, making our decisions and commitments in manageable increments, while we draw further data and guidance from experience.

While we can afford to be fairly liberal, as indeed we are, in our application of funds to basic and applied research, and even to the areas of exploratory and advanced development, we must weigh very carefully our commitments

to engineering development where hundreds of millions and, indeed, billions of dollars may be involved in a single program. The Defense Department certainly wants to make its contribution to research -- the accumulation of fundamental knowledge which we will have to draw on over the years. We will also want to finance exploratory developments of critically needed techniques and components, particularly those which we think will be the "pacing" items in future weapon system developments. Frequently, we may want to explore more than one possible path to a desired goal. Then, under advanced developments, we will want to configure some of these techniques and components into systems, in order to demonstrate their technical feasibility and potential for military application.

As a general rule, only after we have taken these steps are we ready to consider engineering development, that is, the development of an operational weapon system. It is at this point that technical feasibility must be related to military objectives and to the cost, not only of developing the weapon system but also of producing, deploying and operating it. Before the Defense Department commits itself to the development of a weapon system involving large amounts of resources, we want to be reasonably confident that, if technically successful, the contribution of the system to our over-all military capabilities will be worth its cost. And here again I am talking about its full cost. Therefore, we cannot base the decision simply on the research and development cost, since in the typical case it would make little sense to incur that cost unless we are reasonably certain that we want to produce and deploy the system.

I mentioned earlier the application of the principle of diminishing returns to the problem of performance. This principle also applies to the determination of the size of the force to be supported. The fact that additional numbers of a given weapon system will contribute to our over-all combat effectiveness is not a sufficient basis to guide a decision on the size of the force. We must also consider the cost of the additional quantity. As we continue to add to the force already planned, each increment of force beyond a certain point begins to produce a smaller increment of combat effectiveness for the same cost. In other words, the curve begins to flatten out. True economy in defense requires that we stop adding to the force at the point in the curve where additional numbers begin to yield rapidly decreasing returns in combat effectiveness.

Here, as in the case of performance, a large element of judgment is involved. Just where on the curve further additions to the force should be cut off depends upon the decision-maker's evaluation of how much the last increment of military effectiveness is worth. Good quantitative analysis is invaluable in establishing the shape of the curve but it cannot substitute for judgment in selecting the cut-off point. Thus a cost effectiveness analysis might show that an additional expenditure of $10 to $12 billion for a new reconnaissance strike aircraft might increase our capability to destroy an enemy target system by "X" percent, but whether the "X" percent increase in military effectiveness is worth $10 to $12 billion is a judgment that has to be made at the highest level of government with the help of the best military, political and economic advice.

Up to this point I have been talking about economy in defense at the planning and programming level. There is another level at which economy and efficiency must be sought and that is in the execution of the program and in the day-to-day operations of the Defense establishment. It is at this level that Secretary McNamara's cost reduction program is aimed...

I believe it is fair to say that no cost reduction effort ever launched by the Department of Defense has been better planned, more intensively supervised or more fully supported by top management than the one inaugurated... [in 1962].

It was Secretary McNamara's conviction that true economy in defense could be obtained only by attacking the entire spectrum of logistics activities and wherever possible in such a way that actual progress could be measured. To this end, specific time phased targets have been established for some... [26] areas of logistics management. In turn, these targets have been broken down by military department and then further subdivided for smaller organizational elements or commands within each military department or agency.

Performance against these goals, in terms of savings actions effected, are reported on a regular schedule. Under the ground rules which we have laid down, these "savings" must stem directly from the application of new or intensified management practices, and must be fully documented and measured in terms of quantity, unit price and total dollar value. Finally, these savings must be subject to verification. ... This validation is now being accomplished by the audit staffs of the military departments and ... [DOD].

... This Cost Reduction Program is based on a number of concepts and principles,

most of which I know are familiar to you. Certainly, before we can intelligently decide what to buy, we must determine what is really needed, and, in the defense program, what is needed must be directly related to realistic and soundly conceived military plans and policies. To this end, we have taken steps to ensure that, in calculating our requirements, we have sound, unified plans, attainable logistics objectives and realistic pipeline replacement and consumption factors.

... In any meaningful sense, procurement of excessive quality, which we call "gold-plating," is just as wasteful as procurement of excessive quantities. I know that many contractors have already established "value engineering" programs directed to the elimination from our specifications of requirements not necessary to the proper function of an item for military purposes. To a very considerable extent, we depend on the initiative taken by contractors to bring to our attention questionable and costly specifications. We believe that this is an area in which we have only just scratched the surface and, in the future, you may expect a much increased interest on our part in your value engineering efforts.

Once we know what we need, the next problem is to procure it at the lowest price considering, of course, quality and delivery dates. Experience has demonstrated that very large savings can be achieved by increasing competition. We estimate these savings at about 25¢ on each dollar shifted from non-competitive to competitive procurement. One method with which I know you are familiar is the 'breaking out' of high value and high usage spare parts for separate procurement from the end item. We recognize that we are requesting a great deal from our prime contractors when we ask their help in this effort, but we believe that, in the long run, it will make for a more vigorous and healthy industry. Sole source procurement, although it cannot always be avoided, does serve to deaden the competitive spirit which has contributed so much to the efficiency of American industry. In addition, we are trying to introduce competition at an earlier stage in the procurement process, thereby avoiding a price premium on the first large-scale production buy. . . .

One of the most important sources of savings lies in reducing the use of cost-plus-fixed-fee [CPFF] contracts. Not only does the CPFF contract lack incentives for economy, it contributes importantly to an all too familiar phenomenon which I discussed earlier, namely, some programs costing several times the original estimate. Where CPFF is the rule, interest in costs tends to atrophy, as does the necessity and capability to estimate cost. Therefore, we are convinced that where firm fixed price contracting is not feasible some system of reward and penalty must still be found. This requires the use of incentive type contracts in which the contractor's fee is increased if he betters the contract price or specified performance goals or, conversely, is reduced or eliminated entirely if he fails to meet the contract targets.

Let me point out that in emphasizing incentives, the Department of Defense is not trying to reduce the profit margin. If anything, the average profit rate is probably too low. As Secretary McNamara told the House Appropriations Defense Subcommittee earlier this year when asked about defense contractors' profits, [Even] . . . if they were cut in half, total procurement costs would be reduced by 1-1/2 percent. The opportunity for potential savings lies in attacking the 97 percent of the sales dollar represented by costs. This is our objective.

... An equally important part of our cost reduction program is our effort to reduce the day-to-day costs of operating the Defense establishment. One significant aspect of this effort has been our program for closing unneeded bases, ... Another opportunity for potential savings lies in the simplification of our internal procedures and the reduction of the reporting requirements which we levy on you as contractors.

Still another area where we believe increased management effort can yield large savings is the maintenance of equipment, a function on which we currently spend about $11 billion annually. . . .

There are other areas for potential savings which are now being studied. When the studies are completed, separate goals will be established for them. In this connection, we welcome and invite any and all ideas you may have for improving the economy and efficiency of the Defense effort. . . .

H0200 DOD/NAVY COST REDUCTION PROGRAM

H0210 Purpose

SECNAV INST 5200.17 outlines the purpose of the DOD Cost Reduction Program. It states: "It is the policy of the Department of Defense to develop

the force structure necessary to our military requirements without regard to arbitrary budget ceilings; and procure and operate this force at the lowest possible cost. To assist in implementing this policy, a Department of Defense Cost Reduction Program in the procurement and logistics area has been established with three broad objectives:

1. Buy only what is needed to achieve balanced readiness.

2. Buy at the lowest sound price.

3. Reduce operating costs."

H0220 Applicability

Every military and civil official ordered to a position of management responsibility in any activity under DOD can expect to be involved in the DOD Cost Reduction Program. The Secretary of the Navy in SECNAV INST 5200.17 stated the action required as: "All management levels within the Department of the Navy are directed to give full and enthusiastic support to the DOD Cost Reduction Program and to ensure that all personnel are fully indoctrinated as to the necessity for achieving the maximum cost reductions possible without impairing Navy effectiveness."

H0230 Reporting Requirements

As part of the program, DOD has assigned dollar goals to each agency which in turn have established requirements down through the various levels. Each activity will have specific goals assigned and be measured on reporting against these goals.

Goals and reporting will be in the applicable areas of the twenty-six reporting areas now established by DOD. These areas are subgroupings of the three major areas covered in paragraph H0210.

The detailed information on the reporting categories, goals, and report format can be found in SECNAV INST 5200.17.

The last part of the speech by C. J. Hitch (paragraph H0120 of this appendix) provides additional information on the DOD Cost Reduction Program.

H0300 NAVY WORK SIMPLIFICATION PROGRAM

H0310 Purpose

The Naval Work Simplification Program has been initiated in order to help any command in carrying out the responsibility of maintaining optimum personnel utilization. This program is designed to assist management in solving work problems, eliminating wasteful human effort, improving methods, and thereby making better use of manpower assigned. Work simplification is a common sense approach for locating and solving work problems. Procedures for work simplification are outlined in NAVPERS 18359.

The organized application of common sense to work can not only effect substantial improvements, but it will also lay the groundwork for the effective employment of more sophisticated techniques. After work simplification has cleaned up all the problems which can be solved through common sense, outside help can be used to advantage. It is not only wasteful to use "experts" on problems which can be easily solved through common sense but without the climate needed for effective do-it-yourself work simplification, the more sophisticated tools are worse than useless.

H0320 Techniques

There are many techniques for improving work methods, some of which are now being used formally or informally in various naval commands. The Navy Work Simplification Program covers five of the principle techniques which are considered to be most helpful to naval units. These five techniques have been tested on a large scale in government and industry, and were successfully applied to work operations at several large naval installations. These techniques may be defined as follows:

H0321 Work distribution analysis is designed to give a clear picture of the entire organizational component, and to point out information in such manner that better methods and procedures will become apparent that will lead

to equitable division of work, reasonable workload, and elimination of unnecessary tasks. The main instrument used in this technique is the Work Distribution Chart.

H0322 Work count analysis shows volume of work. It assists in determining personnel needs, in distributing work, and in determining methods which should be used. It is used with the Work Distribution Chart and helps to obtain the proper relationship between volume of work and the number of personnel doing the work. It is a method for determining the time necessary to perform a task.

H0323 The flow process analysis is a method for analyzing the flow of work. The desired result of this analysis is to arrive at a better method which will include less time, shorter distances, a better sequence, and fewer steps in the work flow. The instrument used in this analysis is the Flow Process Chart. This chart provides for a systematic array of facts arranged so as to show the step-by-step procedure in the flow of work.

H0324 Motion analysis is the technique which shows how to achieve the best results with the least physical effort. It is designed to demonstrate means for the elimination of useless motions, and reduction of physical effort involved, and to increase personnel and production efficiency. It reveals the possible need for revision of work area and sequence of physical motions, and the possible need for additional equipment.

H0325 Layout analysis is a technique which permits an evaluation of the arrangement of physical properties of a work area in order to make better use of available space, personnel, and equipment and to provide better working conditions and a better flow of work. This technique provides a method for putting the other techniques into effect. It helps to facilitate rather than hinder the distribution and flow of work.

H0400 VALUE ENGINEERING

H0410 Definition

In SECNAVINST 4858.2 Value Engineering is defined as "... an organized effort of intensive appraisal of all the elements of design, manufacture or construction, procurement, inspection, installation, operation and maintenance of an item and its components, including the applicable specifications and operational requirements, in order to achieve the necessary performance, maintainability and reliability at minimum cost."

H0420 Purpose

The purpose of Value Engineering is the reduction of costs. SECNAVINST 4858.2 elaborates on this purpose with "The continually increasing prices for weapons and weapon systems and the ever increasing need for new systems of greater complexity and wider performance ranges make it necessary that all possible measures be taken to reduce costs. Value engineering has proved itself to be one of the most effective programs for obtaining efficient and effective functioning of parts, components and equipments at minimum costs."

The DOD Handbook H111 goes on to point out that "Experience has demonstrated the effectiveness of Value Engineering in reducing cost without compromising the quality and reliability of defense hardware."

H0430 Applicability

The policy of the Department of the Navy as stated in SECNAVINST 4858.2 is "... to recognize and support existing value engineering programs and to foster the initiation of additional value engineering programs throughout the activities of the Department, including the Marine Corps, and by industrial activities serving the Navy."

H0500 NAVY PAPERWORK MANAGEMENT PROGRAM

H0510 Purpose

The Navy Paperwork Management Program is an important part of the continual effort to reduce costs. Creation, duplication, handling and storage of paperwork is a significant cost factor in Navy management. This program is directed at keeping these costs to a minimum. The objective of the Paperwork Management Program as stated in SECNAV INST 5210.8 is: "... maximum results in paperwork operations with a minimum expenditure of manpower and money.

The objective is achieved through the application of interrelated management techniques."

H0520 Techniques

The management techniques used as covered in SECNAV INST 5210.8 are:

H0521 "Reports management is the improvement of necessary reports and related procedures; control of the creation of new reports; and the elimination of unnecessary reports.

H0522 "Directive systems is the standardization and simplification of methods for issuing and maintaining directives and other similar issuances in order to 1. Eliminate those which duplicate, overlap or conflict. 2. Identify gaps in written policy and procedures. 3. Improve the coverage of directives. 4. Preclude duplicate writing, printing, and distribution. 5. Improve reference aids. (See Appendix B of this Guide.)

H0523 "Correspondence management is the streamlining and improvement of correspondence through the use of form letters, correspondex systems, and other shortcuts; and the standardization of correspondence practices in accordance with the Navy Correspondence Manual, and through the development of supplements thereto and other written guides.

H0524 "Record systems is the development and installation of improved procedures and systems for receiving, organizing, processing, using and maintaining records; the establishment of controls for classifying, filing and segregating records; and the development of documentation techniques and reference services.

H0525 "Records disposition is the systematic preservation and security of valuable records and the orderly disposal (either through destruction or transfer to a Federal Records Center) of those records which have outlived their usefulness to current operations.

H0526 "Microphotography is a technique to aid in the creation of records, the speeding of administrative processes, and in the storage of classified and/or long-term records.

H0527 "Office equipment management is the proper selection and effective utilization of office equipment and labor-saving devices to provide for efficient record processes and paperwork operations."

H0600 BENEFICIAL SUGGESTION PROGRAM

H0610 Purpose

The Beneficial Suggestion Program is an effective means to promote economy. This program is one of several under the Federal Incentive Awards Program whose purpose as stated in Instruction 450 of the Naval Civilian Personnel Instruction (NCPI) is: "... to assist management in improving the operation of the Federal Government. This purpose may be served in the following ways:

"1. Soliciting and securing the participation of all employees in the management improvement effort through the use of employee incentives.

"2. Making optimum use of the available manpower, money, and materials through the utilization of employee suggestions and superior accomplishments.

"3. Recognizing and rewarding employees who, either individually or in groups, by their suggestions, inventions, and superior accomplishments, have contributed to the efficiency, economy, or other improvement in Government operations."

H0620 Program Support

Support for an effective suggestion program must start at the top and be active at all levels of supervision. NCPI 450 points this fact out by stating "The Navy Incentive Awards Program is a management program and, if continuous employee interest is to be maintained, the program must be actively supported and promoted by management. The task of supporting and promoting the program is not the sole responsibility of the incentive awards staff or the committee; it is a joint responsibility of every level of supervision and management."

H0630 Establishment and Operation

The details of a suggestion program are outlined in NCPI 450. Standard NAVEXOS

forms are available in stock and promotional materials are supplied by the Office of Civilian Manpower Management.

H0640 Cost of Awards

The cost for awards under the Navy Incentive Awards Program are paid out of the Navy Management Fund and not charged to the local office or activity unless it is under the Industrial Fund system.

H0650 Coordination with Other Management Programs

"An incentive awards program can complement other management programs and, if used effectively, it can be an invaluable asset in helping management achieve the objectives of its other management programs. Programs such as work simplification and methods improvement provide improvement techniques while awards provide the incentive for employees to utilize these techniques to a higher degree."

NCPI 450 goes on to point out the value of the program in promoting safety, improved activity-community relations and recruitment.

H0700 MANAGEMENT ASSISTANCE

H0710 Sources

The Navy has many sources of expert management assistance. Management offices staffed with Management Analysts and/or Industrial Engineers exist at most bureaus, offices, systems commands, and field activities. Fleet Work Study Groups have been established in both Fleets. Each Naval District Headquarters has a management assistance office available to both shore and Fleet units within the Naval District. A not to be neglected source is the junior officers, many of whom have been trained as industrial engineers or have received training in analysis techniques as a part of a business education.

The Administrative Office, Navy Department, provides guidance and technical assistance in the area of administrative management programs.

H0711 District Management Assistance Office (DMAO). The Management Assistance Office in each District has been specifically directed to provide help in management improvements. As an example in the Paperwork Management Program SECNAV INST 5210.8 states their responsibility to: "... provide paperwork management program guidance and technical assistance to activities within their respective districts, and upon request, to the Operating Forces."

The DMAO is equipped to provide material and instructors to present a wide variety of management improvement training courses.

H0712 Local activity management staff. As part of the organization of most large offices and field activities, there is an individual or staff with the assigned responsibility for management improvement programs and studies. The services of this group should be utilized to the fullest. Any assistance obtained from outside the activity should be obtained through the local management staff who should also participate as part of any special management study team.

H0713 The Navy Management Review, an official publication of the Department of the Navy devoted to better management, is published monthly by the Office of Management Information and provides many useful and worthwhile ideas and leads on improving management.

H0720 Use

Management assistance personnel can be used in many different phases of improving the operating performance and the utilization of resources. These phases include such things as inspections, evaluation, personnel training, and staff studies in the management area. In what ever capacity used these personnel should be used only to complement the line management personnel and should be used as part of a team effort. Local participation is essential for the effective accomplishment of any management improvement program.

Local and district directives should be consulted for the exact assigned duties and the services available from the management offices.

H0730 Cost

There is no cost charged to an activity for the services provided by DMAO personnel.

H0740 Support

The ability of any management staff or team to do a job is directly related to the support and backing received from top management. Outside assistance should only be requested when full cooperation and support is planned.

H0800 SYSTEMS ANALYSIS

H0810 Introduction

The following discussion is reprinted, with permission, from The Economics of Defense in the Nuclear Age by Charles J. Hitch and Roland N. McKean.

The essence of economic choice in military planning is not quantitative analysis: calculation may or may not be necessary or useful, depending upon the problem and what is known about it. The essential thing is the comparison of all the relevant alternatives from the point of view of the objectives each can accomplish and the costs which it involves; and the selection of the best (or a "good") alternative through the use of appropriate economic criteria.

H0820 Elements of an Economic Analysis

The elements of a military problem of economic choice, whether its solution requires advanced mathematics, high-speed computing equipment, or just straight hard thinking, are therefore the following.

H0821 An objective or objectives. What military (or other national) aim or aims are we trying to accomplish with the forces, equipments, projects, or tactics that the analysis is designed to compare? Choice of objectives is fundamental: if it is wrongly made the whole analysis is addressed to the wrong question. For instance, we might assume that the sole objective of air defense is the slaughter of enemy aircraft: if in fact one of its major objectives is the early identification of an enemy attack and the provision of tactical warning to United States targets, the force we selected is unlikely to be either optimal or efficient.

H0822 Alternatives. By what alternative forces, equipments, projects, tactics, and so on, may the objective be accomplished? The alternatives are frequently referred to as systems because each combines all the elements—men, machines, and the tactics of their employment—needed to accomplish the objective. System A may differ from System B in only one respect (for example, in number of bombs per bomber), or in several (number of bombs per bomber, number of strikes, and so on), but both are complete systems however many elements they have in common. The great problem in choosing alternatives to compare is to be sure that all the good alternatives have been included. Frequently we lack the imagination to do this at the beginning of an analysis; we think of better alternatives (that is, invent new systems) as the analysis proceeds and we learn more about the problem. The invention of new and better systems in this fashion is indeed one of the principal payoffs from this kind of analysis.

H0823 Costs or resources used. Each alternative method of accomplishing the objective, or in other words each system, involves the incurring of certain costs or the using up of certain resources (these are different phrases to describe the same phenomena). Costs are the negative values in the analysis (as the objective are positive values). The resources required may be general (as is commonly the case in problems of long range planning), or highly specific (as in most tactical problems), or mixed.

H0324 A model or models. Models are abstract representations of reality which help us to perceive significant relations in the real world, to manipulate them, and thereby predict others. They may take any of numerous forms. Some are small-scale physical representations of reality, like model aircraft in a wind tunnel. Many are simply representations on paper—like mathematical models. Or, finally, they may be simple sets of relationships that are sketched out in the mind and not formally put down on paper. In no case are models photographic reproductions of reality; if they were, they would be so complicated that they would be of no use to us. They have to abstract from a great deal of the real world—focusing upon what is relevant for the problem at hand, ignoring what is irrelevant. Whether or not one model is better than another depends not on its complexity, or its appearance of reality, but

solely on whether it gives better predictions (and thereby helps us to make better decisions). In systems analyses models of one type or another are required to trace the relations between inputs and outputs, resources and objectives, for each of the systems to be compared, so that we can predict the relevant consequences of choosing any system.

H0825 A criterion. By "criterion" we mean the test by which we choose one alternative or system rather than another. The choice of an appropriate economic criterion is frequently the central problem in designing a system analysis. In principle, the criterion we want is clear enough: the optimal system is the one which yields the greatest excess of positive values (objectives) over negative values (resources used up, or costs). But as we have already seen, this clear-cut ideal solution is seldom a practical possibility in military problems. Objectives and costs usually have no common measure: there is no generally acceptable way to subtract dollars spent or aircraft lost from enemy targets destroyed. Moreover, as in two of the cases above, there may be multiple objectives or multiple costs that are incommensurable. So in most military analyses we have to be satisfied with some approximation to the ideal criterion that will enable us to say, not that some system A is optimal, but that it is better than some other proposed systems B, C, and so on. In many cases we will have to be content with calculating efficient rather than optimal systems, relying on the intuitive judgment of well-informed people (of whom the analyst may be one) to select one of the efficient systems in the neighborhood of the optimum.

H0830 "Way of Looking at Problems"

It cannot be stated too frequently or emphasized enough that economic choice is a way of looking at problems and does not necessarily depend upon the use of any analytic aids or computational devices. Some analytic aids (mathematic models) and computing machinery are quite likely to be useful in analyzing complex military problems, but there are many military problems in which they have not proved particularly useful where, nevertheless, it is rewarding to array the alternatives and think through their implications in terms of objectives and costs. Where mathematical models and computations are useful, they are in no sense alternatives to or rivals of good intuitive judgment, they supplement and complement it. Judgment is always of critical importance in designing the analysis, choosing the alternatives to be compared, and selecting the criterion. Except where there is a completely satisfactory one-dimensional measurable objective (a rare circumstance), judgment must supplement the quantitative analysis before a choice can be recommended.

ANNOTATED REFERENCE LIST

Cost Reduction Program

SECNAV INST 5200.17, establishes and implements the Department of the Navy Cost Reduction Program as the Department of the Navy's participation in Department of Defense and Bureau of the Budget Cost Reduction Programs.

OPNAV INST 7720.1A, promulgates instructions concerning Navy Operating Forces (less Marines) and CNO-supported Shore (Field) Activities participation in project THRIFT and the Navy Cost Reduction Program.

Work Simplification

NAVPERS 18359, "Work Simplification for Naval Units—Procedures and Use," describes in detail the program, its five areas, how to perform the techniques and examples of each.

Value Engineering

DOD Handbook H111, "Value Engineering," gives a complete picture of the program including methodology, criteria of application, management review and action, organization, training, motivation and incentives, and program control.

SECNAV INST 4858.2, states the Navy policy on Value Engineering Programs and assigns the areas of responsibility within the Navy.

NAVMAT INST 4858.2/DOD INST 5010.8, emphasizes the need for increased attention to the Value Engineering Programs and establishes concepts, policy, and responsibilities within the Department of Defense.

Paperwork Management

SECNAV INST 5210.8, Paperwork Management Program for the Department of the Navy," states the objective of the program, the responsibilities for its administration and the management techniques to be applied

SECNAV INST 5213.10A, "The Management of Forms in the Department of the Navy," states the policy and responsibilities for the management of forms.

SECNAV INST 5213.9, "Management of Reports in the Department of the Navy," states the policy and responsibilities for the management of reports.

AO INST 5213.31, "Guide to Forms Management, Department of the Navy," sets forth the basic principles and techniques of forms management and provides guidance on their further development application.

SECNAV P5212.5, "Disposal of Navy and Marine Corps Records," describes policies and procedures for the disposal program and promulgates Navy-wide authorized retention standards for naval records.

Beneficial Suggestion

NCPI 450 "Incentive Awards," gives all the details required to establish and maintain a beneficial suggestion program as part of the Navy Incentive Awards Program.

Management Assistance

SECNAV INST 5430.12B, redefines the mission, functions, and responsibilities of the Administrative Office, Navy Department.

General

NAVSANDA Publication 405, "Bibliography for the Management Analyst," provides a comprehensive cross reference on publications available in the management improvement area.

APPENDIX I

CHARTS

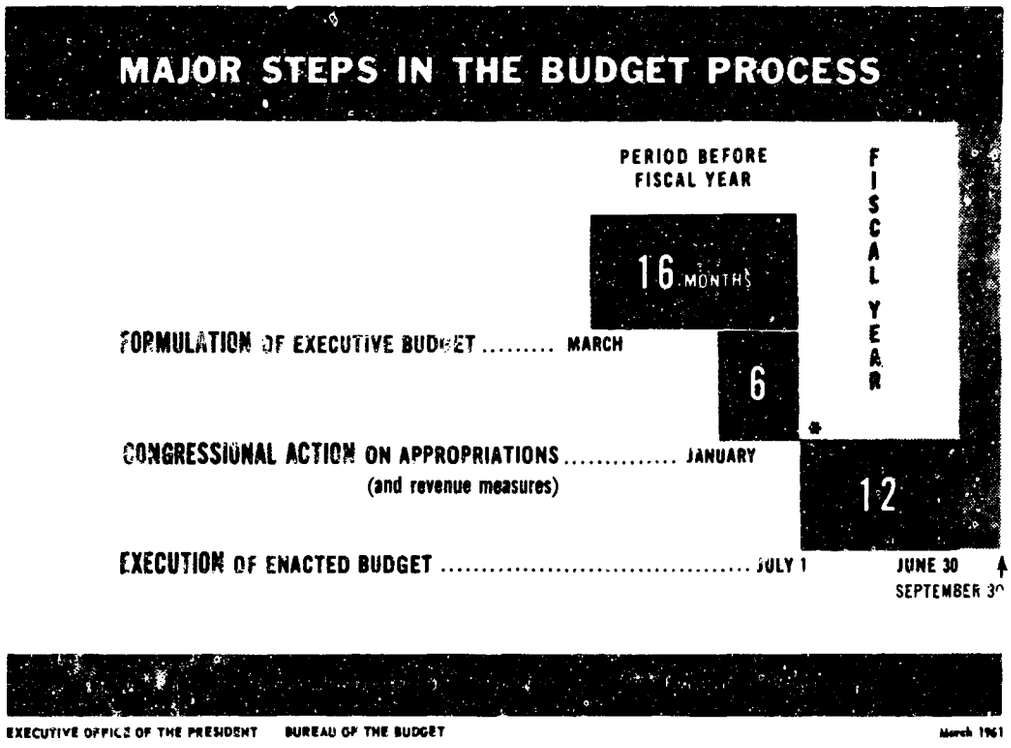
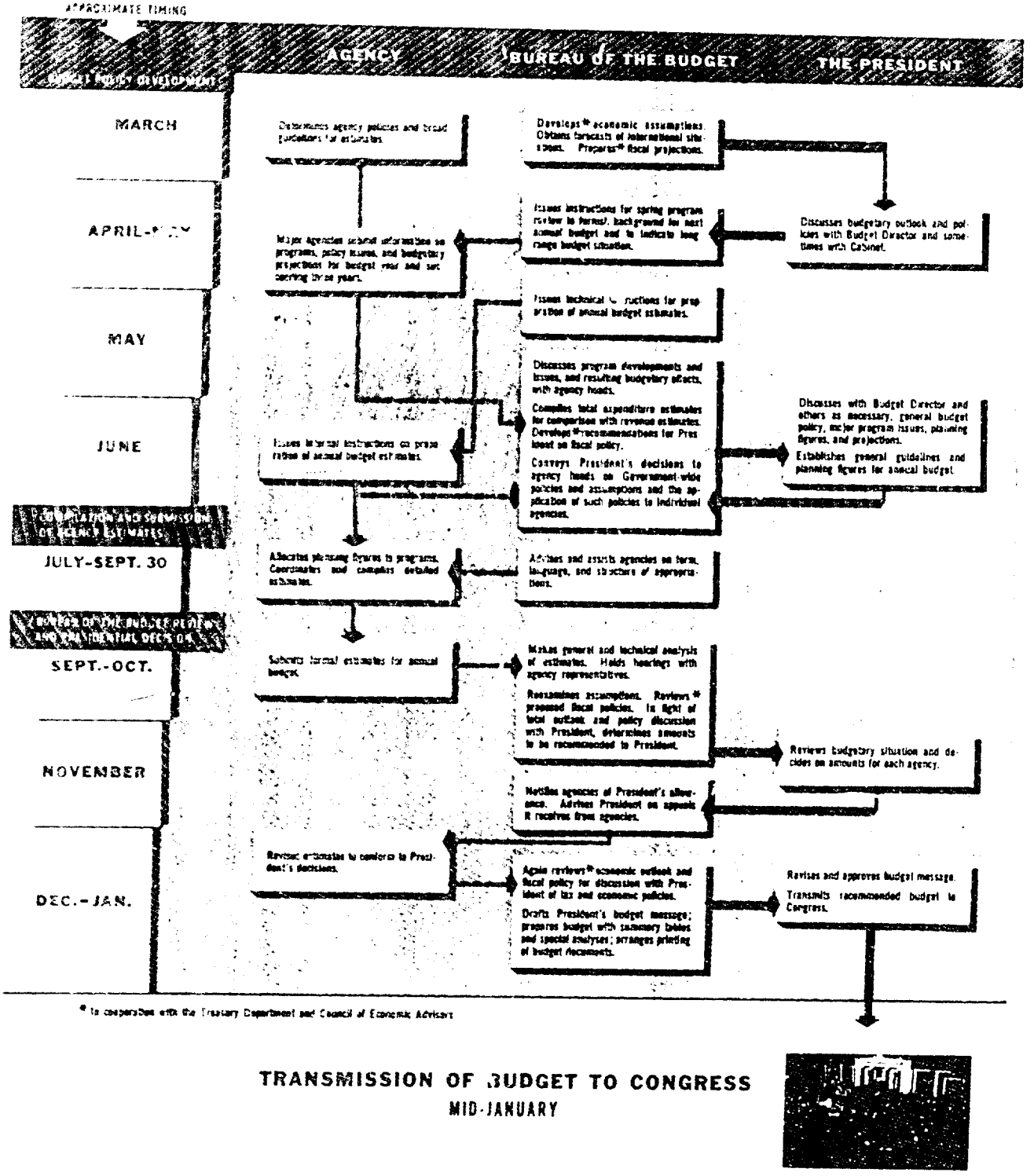

MAJOR STEPS IN THE BUDGET PROCESS
PERIOD BEFORE FISCAL YEAR
16 MONTHS
FISCAL YEAR
FORMULATION OF EXECUTIVE BUDGET ..... MARCH
6
CONGRESSIONAL ACTION ON APPROPRIATIONS ..... JANUARY
(and revenue measures)
12
EXECUTION OF ENACTED BUDGET ..... JULY 1
JUNE 30
SEPTEMBER 3
EXECUTIVE OFFICE OF THE PRESIDENT BUREAU OF THE BUDGET
March 1961

Chart 1

FORMULATION OF EXECUTIVE BUDGET

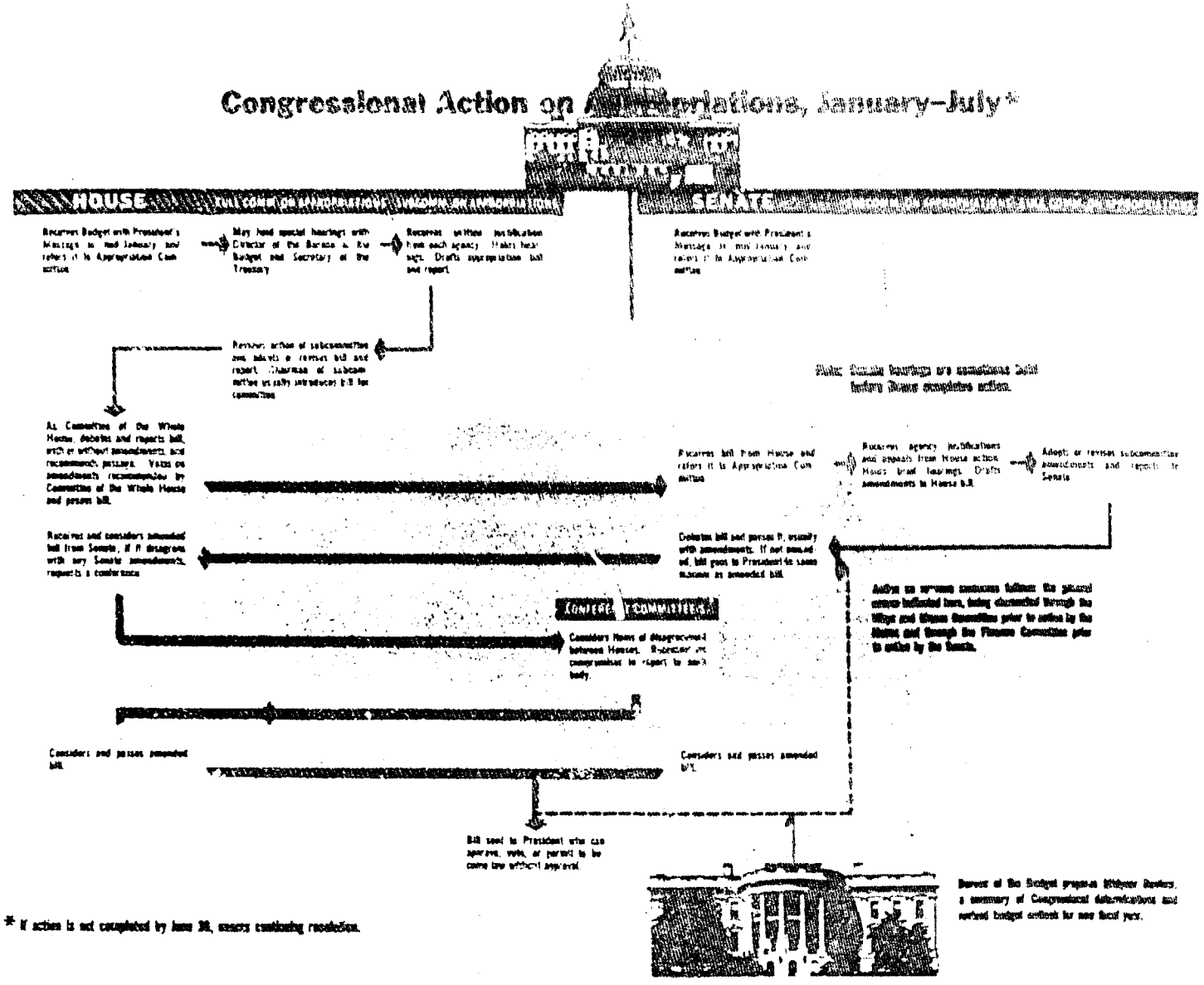


TRANSMISSION OF BUDGET TO CONGRESS
MID-JANUARY

EXECUTIVE OFFICE OF THE PRESIDENT • BUREAU OF THE BUDGET

JULY 1962

Chart 2



EXECUTIVE OFFICE OF THE PRESIDENT BUREAU OF THE BUDGET

March 1961

Chart 3

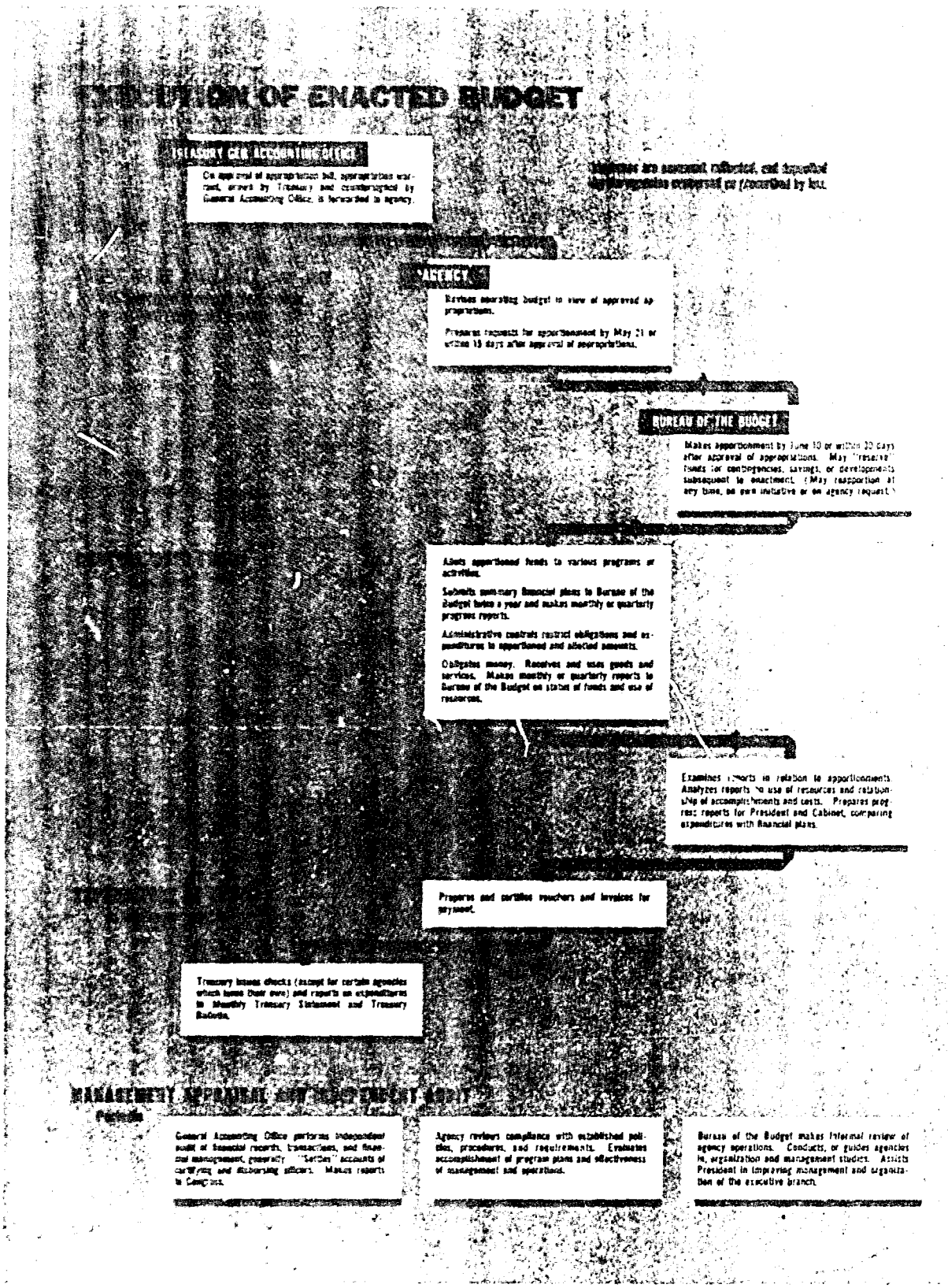
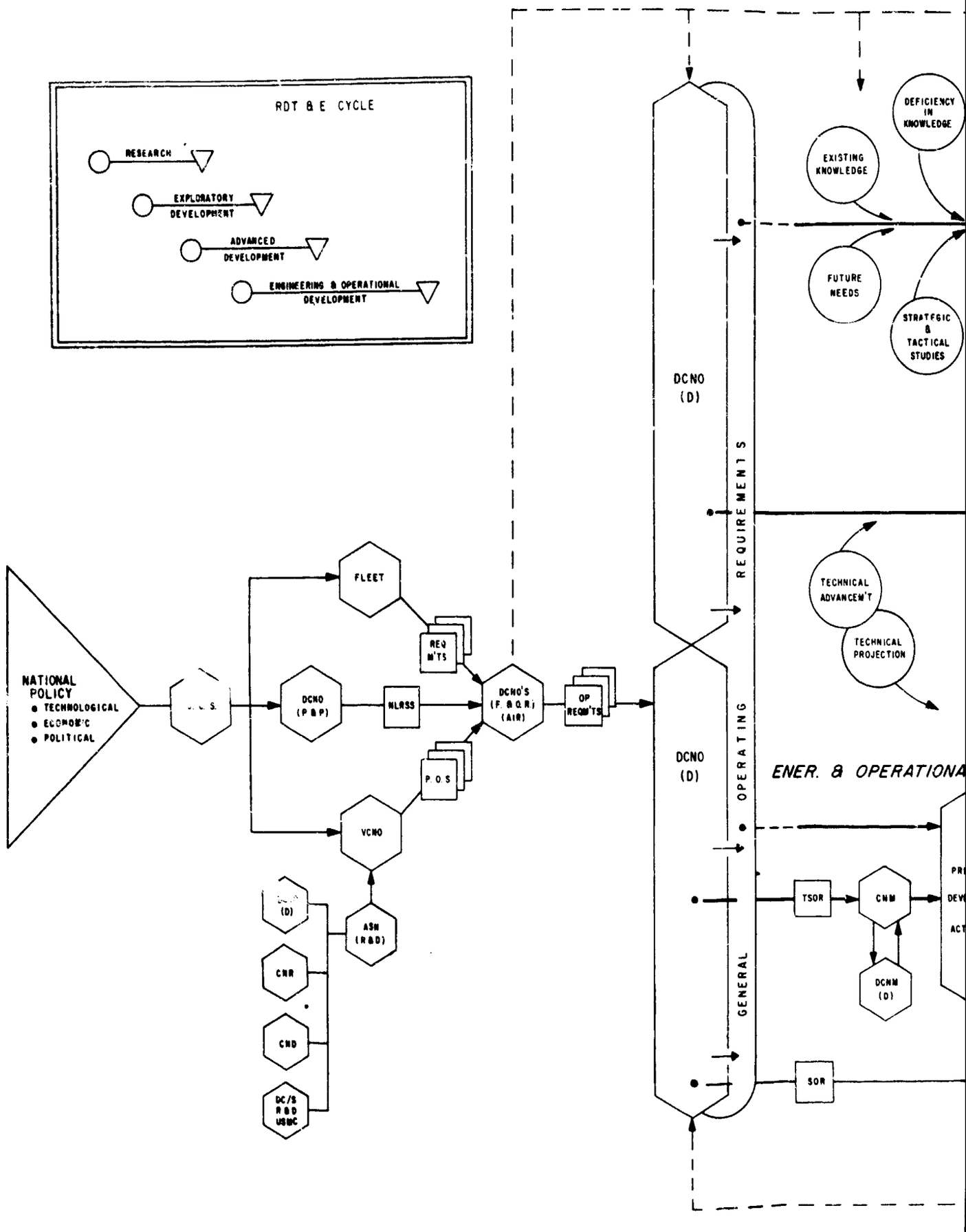

EXECUTION OF ENACTED BUDGET
TREASURY GEN. ACCOUNTING OFFICE
On approval of appropriation bill, appropriations warrant, signed by Treasury and countersigned by General Accounting Office, is forwarded to agency.
Receives apportioning budget in view of approved appropriations.
Prepares requests for apportionment by May 21 or within 10 days after approval of appropriations.
BUREAU OF THE BUDGET
Makes apportionment by June 10 or within 30 days after approval of appropriations. May "reserve" funds for contingencies, savings, or developments subsequent to enactment. (May reapportion at any time, on own initiative or on agency request.)
Allots apportioned funds to various programs or activities.
Submits summary financial plans to Bureau of the Budget twice a year and makes monthly or quarterly progress reports.
Administrative controls restrict obligations and expenditures to apportioned and allotted amounts.
Obligates money. Receives and uses goods and services. Makes monthly or quarterly reports to Bureau of the Budget on status of funds and use of resources.
Examines reports in relation to apportionment. Analyzes reports on use of resources and relationship of accomplishments and costs. Prepares progress reports for President and Cabinet, comparing expenditures with financial plans.
Prepares and certifies vouchers and invoices for payment.
Treasury issues checks (except for certain agencies which issue their own) and reports on expenditures in Monthly Treasury Statement and Treasury Bulletin.
MANAGEMENT APPRAISAL AND INDEPENDENT AUDIT
Periodic
General Accounting Office performs independent audit of financial reports, transactions, and financial management, generally "certifies" accounts of certifying and disbursing officers. Makes reports to Congress.
Agency reviews compliance with established policies, procedures, and requirements. Evaluates accomplishment of program plans and effectiveness of management and operations.
Bureau of the Budget makes internal review of agency operations. Conducts, or guides agencies in, organization and management studies. Assists President in improving management and organization of the executive branch.
EXECUTIVE OFFICE OF THE PRESIDENT BUREAU OF THE BUDGET
March 1961

Chart 4


RDT & E CYCLE
RESEARCH
EXPLORATORY DEVELOPMENT
ADVANCED DEVELOPMENT
ENGINEERING & OPERATIONAL DEVELOPMENT
DEFICIENCY IN KNOWLEDGE
EXISTING KNOWLEDGE
FUTURE NEEDS
STRATEGIC & TACTICAL STUDIES
DCNO (D)
REQUIREMENTS
TECHNICAL ADVANCEM'T
TECHNICAL PROJECTION
NATIONAL POLICY
• TECHNOLOGICAL
• ECONOMIC
• POLITICAL
FLEET
REQ M'TS
DCNO (P & P)
NLRSS
DCNO'S (F, S & O, R; (AIR)
OP REQM'TS
P. O. S
VCNO
ASN (R&D)
CNR
CND
DC/S R & D USMC
DCNO (D)
OPERATING
GENERAL
ENER. & OPERATIONA
TSOR
CNM
DCNM (D)
SOR

A

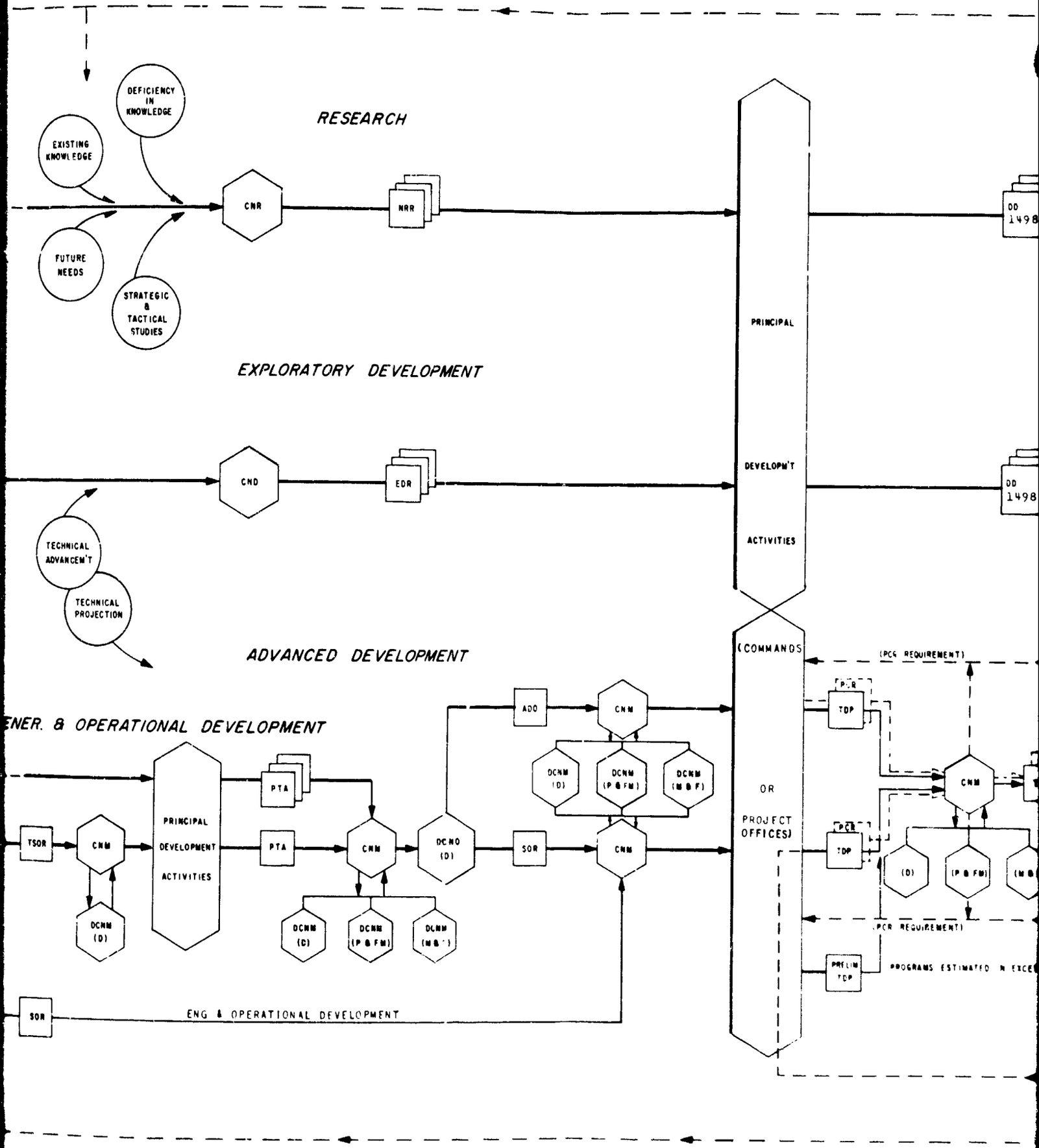


Chart 5 - RDT & E Cycle
I-5

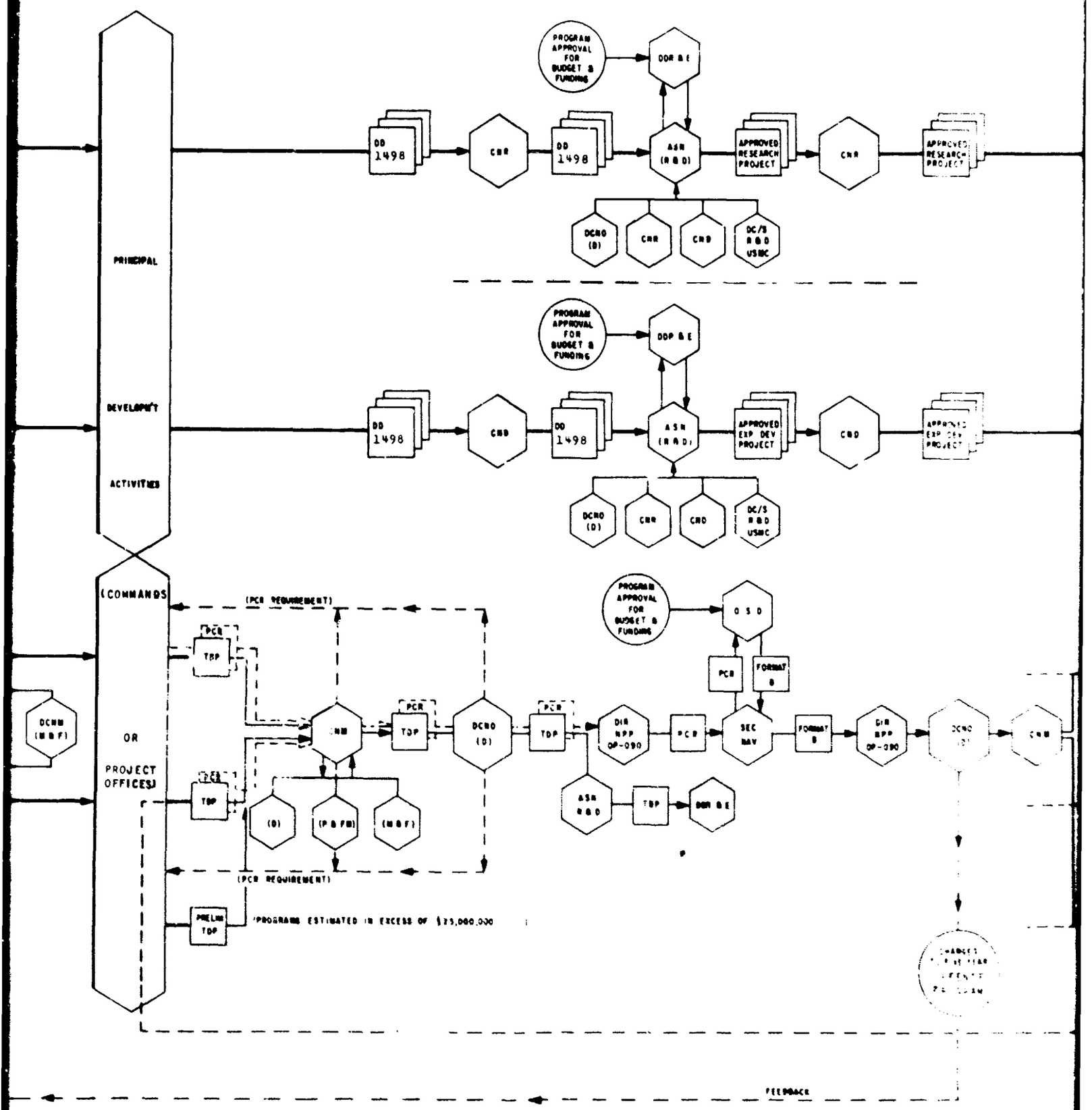
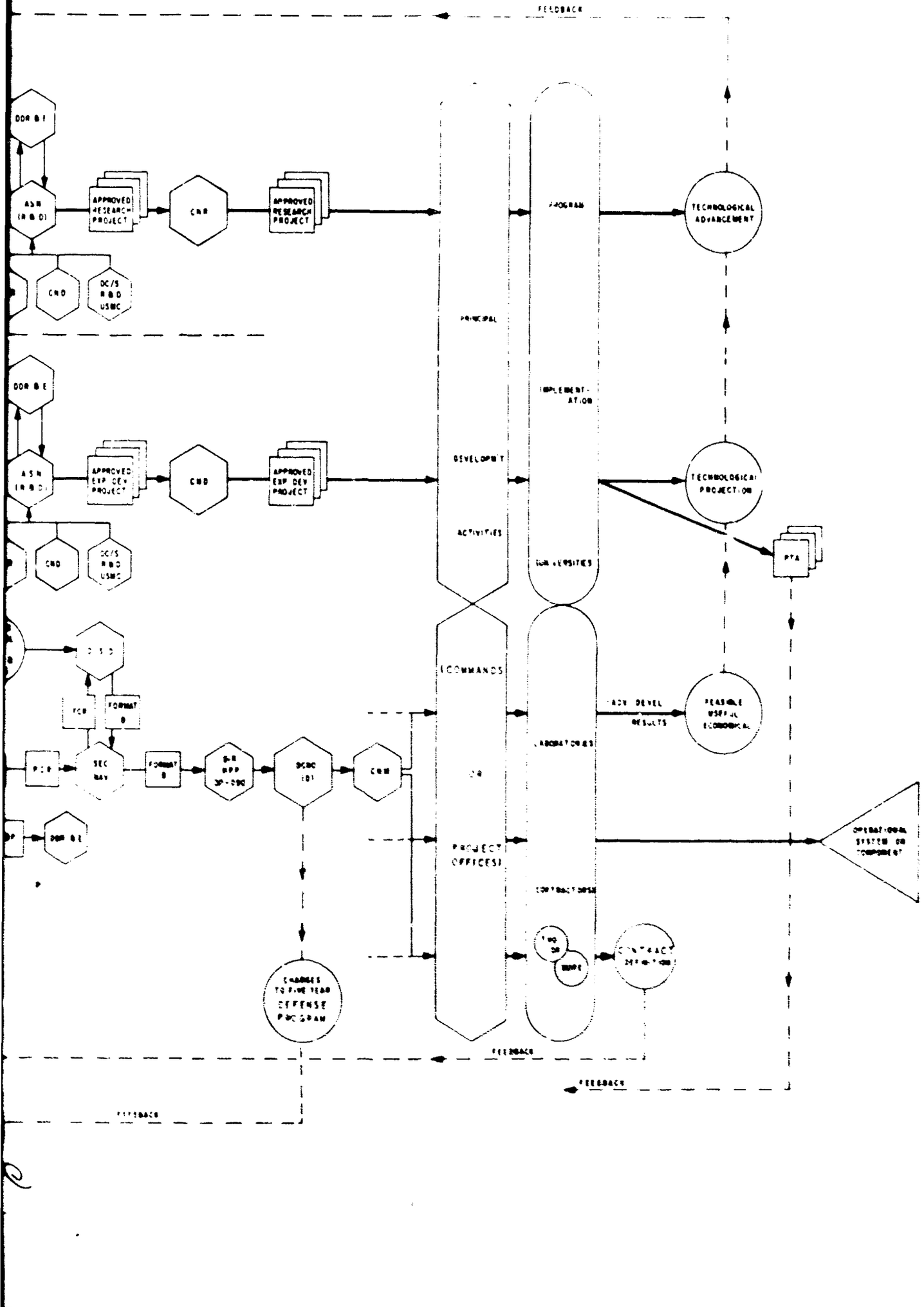
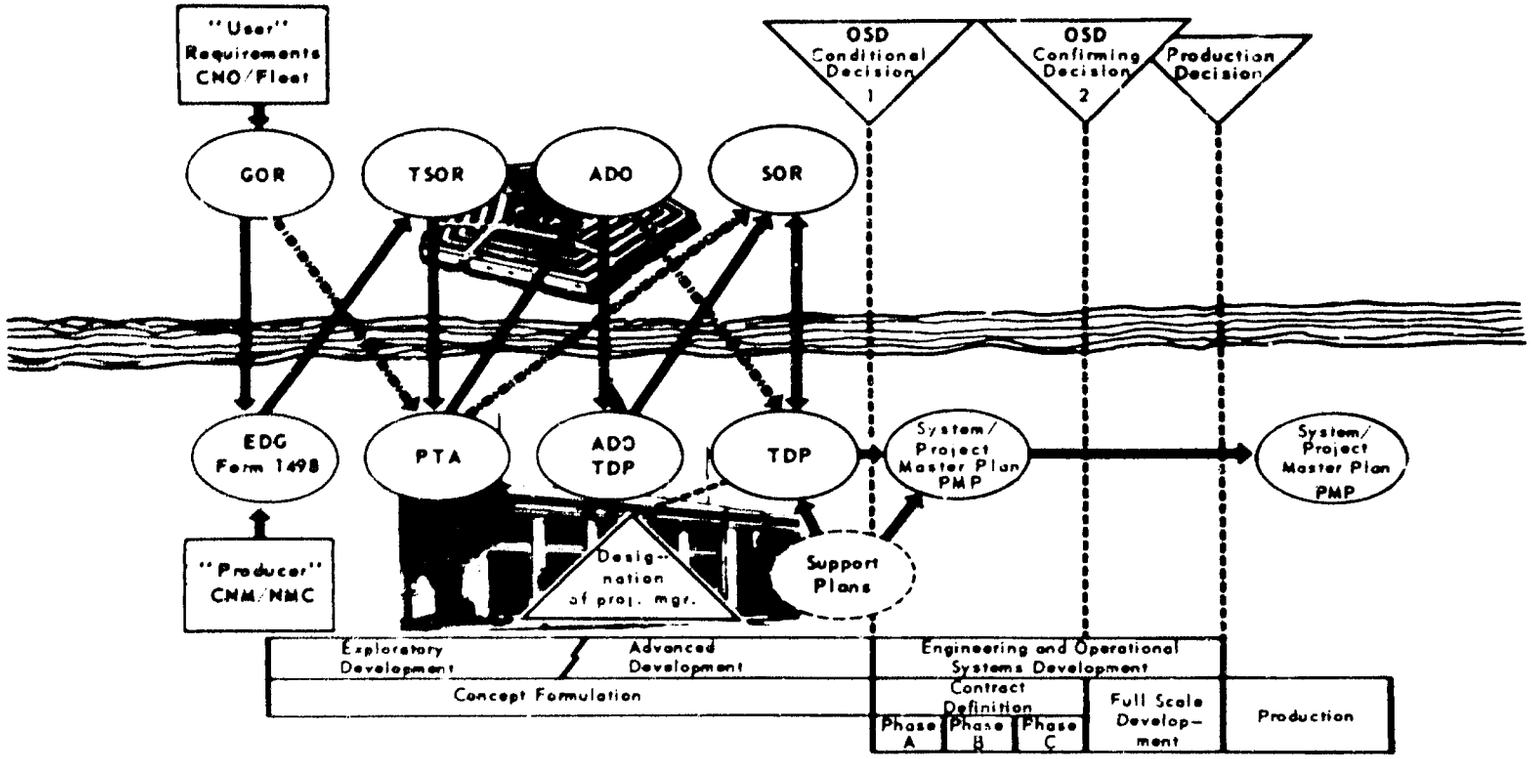


Chart 5 - RDT & E Cycle


FEEDBACK
DDR & E
ASN (R & D)
APPROVED RESEARCH PROJECT
CNR
APPROVED RESEARCH PROJECT
CND
DC/S R&D USMC
PRINCIPAL
PROGRAM
TECHNOLOGICAL ADVANCEMENT
DDR & E
ASN (R & D)
APPROVED EXP DEV PROJECT
CNR
APPROVED EXP DEV PROJECT
CND
DC/S R&D USMC
DEVELOPMENT
ACTIVITIES
IMPLEMENTATION
TECHNOLOGICAL PROJECTION
PTA
COMMANDS
LABORATORIES
PROJECT OFFICES
FEASIBLE USEFUL ECONOMICAL
CHANGES TO FIVE YEAR DEFENSE PROGRAM
FEEDBACK
FEEDBACK
FEEDBACK

1 July 1966

SYSTEMS PLANNING



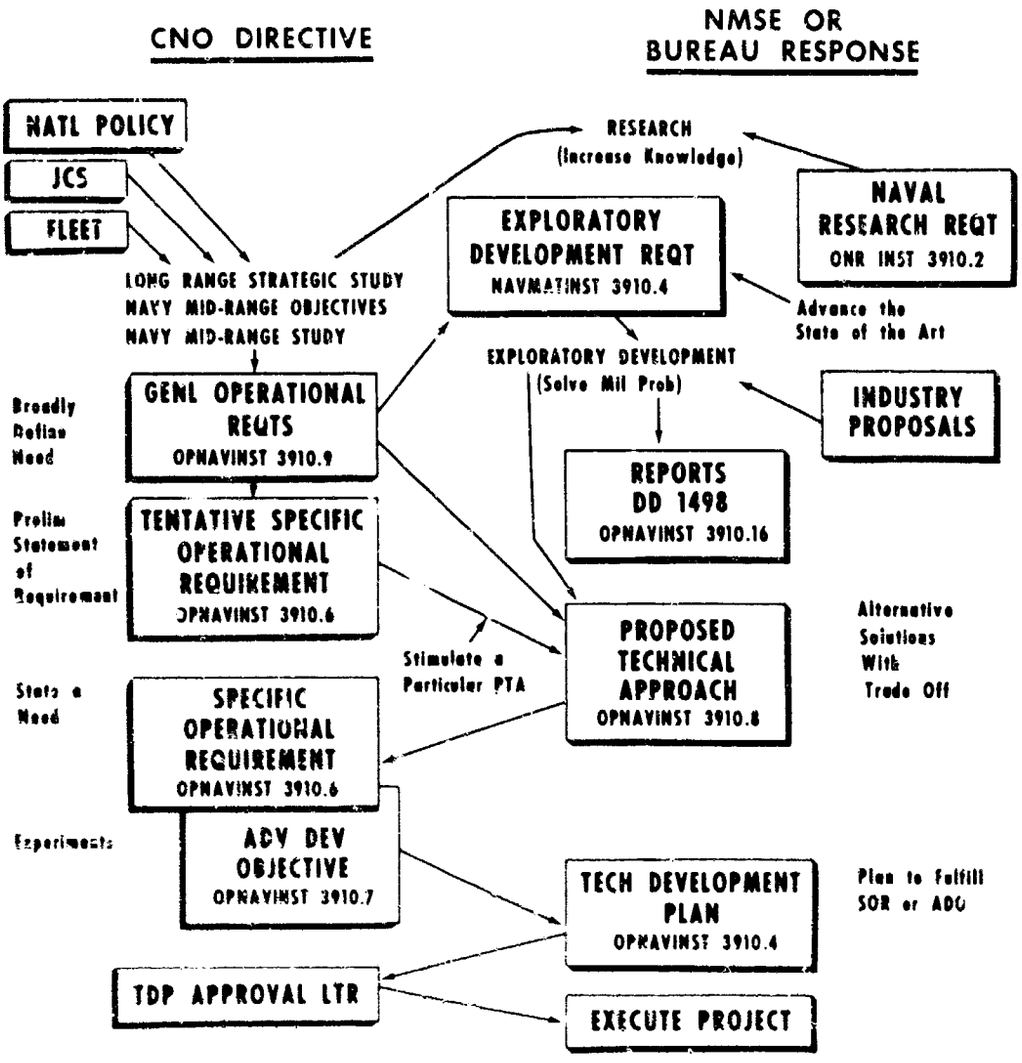
EDG Exploratory Development Goals
GOR General Operational Requirement
SOR Specific Operational Requirements
TDP Technical Development Plan
TGOR Tentative Specific Operational Requirements
PTA Proposed Technical Approach
ADO Advanced Development Objectives
Form 1498 Summary of Exploratory Development

——— Classic route if each step was taken in sequence (This is not always the pattern).
-·-·-·-·- Frequently taken short cuts

Chart 6

DOCUMENTATION OF REQUIREMENTS FOR DEVELOPMENT EFFORT

OPNAV INST 3900.8*



*All instruction numbers are shown without revision letters. Latest revisions apply.

Chart 7

APPENDIX J
OCEANOGRAPHIC PROGRAM

This appendix describes the mission and functions of the Oceanographer of the Navy in the management of the Naval Oceanographic Program.

J0100 OCEANOGRAPHER OF THE NAVY

J0110 Mission. SECNAVINST 5430.37 states, "The mission of the Oceanographer of the Navy is to act as the Naval Oceanographic Program Director for the Chief of Naval Operations, under the policy direction of the Secretary of the Navy, through the Assistant Secretary of the Navy (Research and Development) and to exercise centralized authority, direction and control, including control of resources, in order to insure an integrated and effective Naval Oceanographic Program."

J0200 NAVAL OCEANOGRAPHIC PROGRAM

J0210 Definition. The Naval Oceanographic Program encompasses that body of science, technology, engineering, operations, and the personnel and facilities associated with each, which is essential primarily to explore and to lay the basis for exploitation of the ocean and its boundaries for Naval applications to enhance security and support other national objectives. The Naval Oceanographic Program in this context includes three major functional program areas.

J0211 Ocean Science. That effort in research; development; and technical guidance in support of operations, to advance the knowledge of the physical/chemical/biological/geological nature of the world's oceans and their boundaries (surface and bottom).

J0212 Ocean Engineering and Development. That effort (other than above) in research, development, and technical support of operations to advance use of the world's oceans and their boundaries, including the bottom, in the following specific areas:

Location, identification, and description of conditions of distressed submarines;

Personnel rescue and escape from distressed submarines;

Underwater salvage and construction;

Location, recovery and/or neutralization of objects in any way related to national security;

Effective utilization of "man-in-the-sea;"

Inspection, maintenance, and repair of underwater emplacements; and such other advanced ocean technology and engineering such as Project SEABED, with the general objective of advancing our capability to use the ocean environment to maximum advantage in conduct of naval warfare, and permit operation at any location and time within the ocean.

J0213 Oceanographic Operations. That effort to provide oceanographic data, services, and operational support including hydrographic mapping, charting, and geodetic activities; and the initiation and direction of the technical support of operations involving underwater search and rescue, recovery, salvage, emplacements, and facilities.

J0300 Program Relationships. (See attached diagram).

ANNOTATED REFERENCE LIST

SECNAVINST 5430.79
Describes the Navy Department organization and responsibilities for the Naval Oceanographic Program.

OPNAVINST 5450.165
Assigns tasks and functions of the Oceanographer of the Navy.

NAVAL OCEANOGRAPHIC PROGRAM

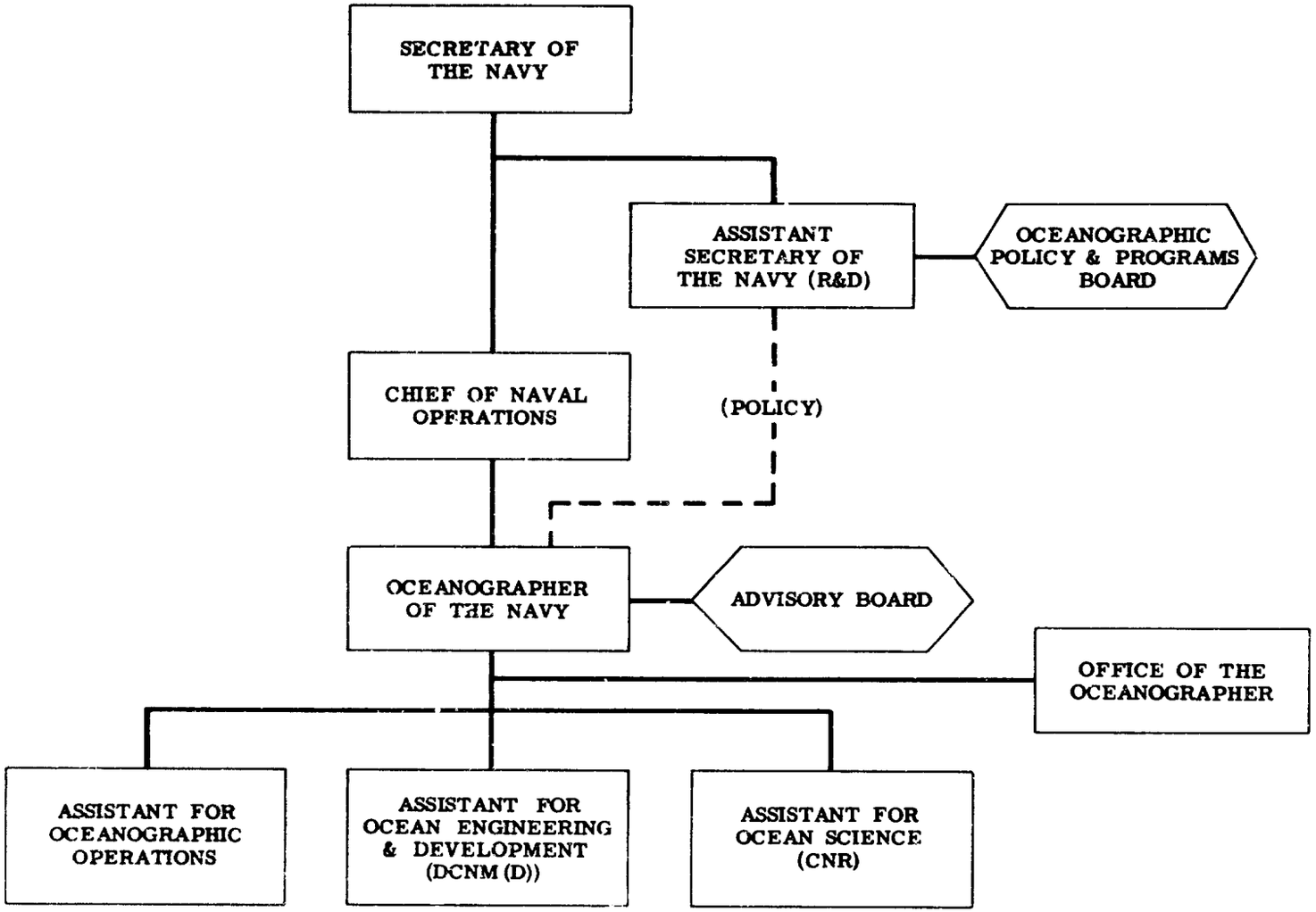


Figure J-1

INDEX

A

Advanced Development 0720, D0230
Objective (ADO)
Defined, described 0246

Advanced Procurement Plan (APP) . . . 0703

Advanced Research Projects Agency (ARPA)
Mission, Organization Function of E0111

Aggregation
As major subdivision of a program category C0630

Annex Material
Required in Budgeting process by NAVCOMPT 0433

Antisubmarine Warfare and Ocean Surveillance Division of CNO
RDT&E functions E0434

Antisubmarine Warfare Programs (OP-95)
Director of E0480

Apportionment and Allocation of Funds 0500

Apportionment Hearings 0502

Apportionment Request
DD Form 1105 0503
NAVCOMPT 0501
New Obligational Authority (NOA) 0503

Appraisal of RDT&E Effort 0600
0601, 0603, 0611

Appropriation Bill (House) 0471

Appropriation Manager 0410

Appropriations. 0421

Armed Services Procurement Regulation (ASPR) 0760, 0763
0764

ARTEMIS D0230

Assistant Secretary of Defense (Comptroller) (ASD(COMP)) . . . 0446

Assistant Secretary of Defense (Systems Analysis) (ASD(SA)) . . . 0447

Atlantic Undersea Test and Evaluation Center (AUTEC) E0865a

Atomic Energy Commission (AEC)
Functions of E0210

Audits and Reviews
Contract 0552
General Accounting Office 0551
Internal 0552

B

Balanced Budget
Concept of. 0431

Bell Report
Comments on the role of In-House laboratories (Quoted) F0110
Report to President on Government contracting for R&D . . . 0702, 0711
0712

Beneficial Suggestion Program
Coordination with other Management programs H0650
Cost of Awards H0640
Establishment & Operation. H0630
Program Support H0620
Purpose H0610

Board of Inspection & Survey (BIS) . . . 0647

Budget
Activities 0422
Backup material 0433
Development & justification 0460
Hearings 0471
0472, 0473, 0474, 0475
Justification 0432
Justification before Congressional Committees 0470
Schedules 0433
Summary Table 0433

Budget and Accounting Act of 1921
Additional function of Apportionment to save Funds 0500
Establishment of Bureau of Budget 0443
Establishment of General Accounting Office 0551
Prescribing chain of Command for official Comments on President's budget 0442

Budgetary Process 0430
Budgetary Structure 0420
Budgeting
ASD (Comp) participation in 0446
DCNO(D) function in 0454a
Guidance/procedure for 0433
Importance of Budgetary process . 0402
Mark-up 0410
Reclama 0410, 0432, 0441
Relationship between programming And Budgeting. 0401
Program Budget Decisions (PBD) . 0410
SECDEF participation in 0444
Terms and concepts 0410
Bureau of the Budget (BOB) 0443, 0500 0503, 0506
Circular 0501
Bureau - Industry Relationship 0714
Bureau of Medicine & Surgery (BUMED)
Assistant Chief for Research And Military Medical Specialties . . . E0630
Chief of Bureau (Surgeon General) E0620
Mission E0610
Research Division E0640
RDT&E responsibilities 0146
Bureau of Naval Personnel (BUPERS)
Mission E0501
Personnel Research Division E0510
Research & Development Activities E0510
RDT&E responsibilities 0145

C

Chief of Naval Development (CND). . . . E0713
Chief of Naval Material E0700, 0143
Chief of Naval Development
Deputy For Development (CND/ DCNM(D))
functions and responsibility . . E0713 0456b, 0474
organization of staff of . E0720, E0721 E0722, E0723
Deputy for Logistic Support function, Responsibility of . . . E0714
Deputy for Management & Organization
Organization, function of E0715
Deputy for P&FM
Organization, function of E0712
Responsibility of, in Budget process 0456a
Headquarters, Naval Material Command E0710
Logistics Support E0714
Management & Organization E0715
Chief of Naval Material--Continued
Procurement E0716
RDT&E responsibility of 0143, 0456
Responsibility & authority of E0701
Systems Commands E0800
Systems Development Division . . . E0722
Vice Chief of Naval Material
Function, Responsibility of . . E0711
Chief of Naval Operations 0454
Advisory Board 0454b, E1140
Antisubmarine Warfare & Ocean surveillance Division
Programs Director E0480
Mission E0481
Function E0482
RDT&E. E0434
Atomic Energy Division E0458
Deputy Chief of Naval Operations
Air
Mission E0441
RDT&E functions E0442
Development E0450
Mission E0451
Organization E0452
RDT&E functions and responsibilities. E0453
Technical Analysis & Advisory of E0454
Fleet Operations & Readiness. E0430
Mission E0431
RDT&E functions . . . E0432, 0141
Development Facilities
Astronautics & Range Division
Responsibilities of E0459
Development Planning Division
Responsibilities of E0455
Electronic Warfare & Command System Division
RDT&E functions E0436
Program Planning Council E1150
Program Planning, Navy,
Director of E0410
Mission E0411
Function. E0412
RDT&E responsibility of 0141, 0454
Ship Characteristic Board Function, Organization of E1160
Strike Warfare Division E0435
Submarine Warfare Division
RDT&E functions E0433
Undersea & Strategic Warfare Division E0456
Chief of Naval Personnel
RDT&E
Responsibility of 0145
Chief of Naval Research 0453a, 0150
Function, Responsibility of E1001
Staff assistance for CNR E1012

Classifications System
Appropriations C0500
DOD Budget Structure C0510
DOD Five Year Plan C0610
DOD Programming C0610
Exploratory Development Requirements C0410
General Operational Requirements (GOR) C0420
Naval Research Requirements . . . C0320
RDT&E Project Classification . . . C0310
Relationship Between Programming And Appropriations C0700
Theoretical Aspects of C0100

Commandant of Marine Corps (CMC) . . E0900
Deputy Chief of Staff E0910
Organization related to RDT&E . . 0455
Responsibility of 0142
Responsibility to E0900

Commander, Operational Test & Evaluation Force (COMOPTEVFOR)
Role & operational evaluation . . 0644, 0646
Mission E1211
Organization E1212
Operating principles E1213

Committees
Naval Research Advisory Committee E1130
Presidents Science Advisory Committee E1110

Comptroller of the Navy
Audit, Internal 0552
Auditor General of Navy 0552
Audits, Contract 0552
Budgeting 0472, 0475
Development & Establishment of Fiscal Policies 0452
NAVCOMPT 0452
Responsibilities for Supervising & Directing 0451

Conflict of Interest 0713

Congress 0441
Consideration of Budget (RDT&E) . 0441
Justification of Budget 0470
Hearings
Editing of Transcripts/of . . . 0475
Conduct of 0474
General procedure for 0471
Guidance for witnesses 0472
Preparation for 0473

Constitution of U.S.
Article I
Section 9, Clause 7
Control of funds by Congress 0441

Contracts
Concept Formulation 0743
Contracting out 0712
Cost Contracts 0733
Sharing Contract 0733b

Contracts—Continued
Cost Plus Fixed Fee (CPFF) 0734
Cost Plus Incentive Fee (CPIF) 0720, 0747, 0748
Definition of 0742, 0744, 0745
Incentive Contracting 0703
Reliability & Maintainability 0741b
Standard Provisions of 0762
Types of 0706, 0747
With other agencies 0766

Contractor Performance Evaluation (CPE)
Establishment, features 0749

Conversion Problems 0424

Correspondence Management H0523

Cost Effectiveness, Navy Responsibility for 0343

Cost Information System Report Navy Resource Category Reports 0617

Cost Reduction Program
Applicability H0220
Purpose H0210
Reporting Requirements H0230

D

Data Acqusition
Policy concerning (in contracts) . . 0765

Data Conversion . . . . . (See Conversion, Data)

Data Rights
In contracts 0765

DD Forms 1105
Formal Apportionment request by OSD to BOB 0501, 0502, 0503

DD Form 1414
Submission of DOD reprogramming Action to Congressional Committees 0530a

DD Form 1415
Request for Reprogramming approval 0531

DD Form 1416 (Report of Reprogramming Action)
Semi-annual Report of 0533

DD Form 1446 and 1446-1 thru 1446-4
Contractor Performance Evaluation Reports 0749a

DD Form 1498
Research & Technology Resume . . 0614 E1002

Defense Atomic Support Agency (DASA)
Organization, Function, relationship with other agencies E0132

Defense Communications Agency (DCA)
Mission, function of E0134

Defense Documentation Center (DDC)
Mission, Organization, Functions . E0133

Defense Reorganization Act of 1949
Title IV, Establishment of Uniform terminologies, classification, Procedures, etc. 0433a

Defense Reorganization Act of 1958
Establishment of Director, Defense Research & Engineering 0112

Defense Research And Engineering
Director of, DDRE
Advance Research projects Agency
Mission, Organization Functions. E0111
Mission, organization, Relationships, functions of . . . E0110, E0112, 0445
Weapons Systems Evaluation Group of,
Mission, Organization function of E0112

Defense Science Board
Organization, Function of. E1120

Deferred Determination of Rights
In patents 0764

Deputy Chief of Naval Operations 0454a
Development (DCNO(D) E0450
Mission, Organization, RDT&E responsibilities. E0151
E0152, E0153, E0154

Deputy for Development (of CNM)
Dual role of. E0713

Deputy for Management and Organization (of CNM)
Organization, function of E0715

Deputy for Material and Facilities of CNM
Responsibilities, function of E0714

Determination and Findings (D&F). . . . 0763

Development Assist Test 0641a

Development Planning Division
Responsibilities of E0455

Directive System
As part of Navy Paperwork Management H0522

Directives
Consolidated Subject Index B0310
DOD B0400
Identifying B0300
Numbering B0200

Directives—Continued
Obtaining Instructions B0300
Scope And Purpose B0100
Types of . . . . . BIntro.

Director of Defense Research and Engineering 0112
Comments of Performing RDT&E within Defense Laboratories . . . F0120
Responsibilities of 0445, E0110
Review of Ongoing Projects 0630

Director of Navy Laboratories F0200
Duties & Responsibilities. F0220

Disclosure Policy, In Navy Contracting 0735

Displays
As part of RDT&E Appraisal 0602

District Management Assistance Office (DMAO)
Function of H0711

Document, Classification of
(See Classification)

DOD Directive 3200.9
(SECNAV 3900.28 & NAVMAT 3900.2)
DOD Policies governing PDP . . 0740, 0742

DOD Directive 5100.1
Development functions of DDR&E E0110f

DOD Directive 5025.1
Issuing of instructions by DDR&E E0110

DOD Directive 5126.38
Performance of contractor Performance evaluation 0749

DOD Directive 5129.1
Delegation of Responsibilities to DDR&E 0112

DOD Directive 5500.10
Rules for avoidance of Organizational conflict of interest 0713

DOD Directive 7045.1 (SECNAV 5000.16)
DOD Programming System Procedures for it Maintenance 0315, C0640

DOD Directive 7200.1
Administrative control of appropriations within DOD . . 0500, 0505

DOD Directive 7250.5 (SECNAV7133.3)
Reprogramming of appropriated Funds 0530

DOD Directive System B0400

DOD Five Year Force Structure
Classification of Programs C0610

DOD Handbook H111
Concerning Value Engineering ... H0420

DOD Incentive Contracting Guide (Also see Incentive contracting guide) .. 0703, 0748

DOD Instruction 3200.6 (SECNAV 3900.14)
Reporting of Research, Development Engineering
Programming Information ... 0248
0422, 0501, 0531, 0611, C0310, C0520

DOD Instruction 5000.8 (SECNAV 5000.13)
Pertaining to reclama 0410

DOD Instruction 5129.1
Mission of DDR&E E0110

DOD Instruction 7250.6 (SECNAV 7300.27)
Monthly reporting on status of funds 0520

DOD Instruction 7250.10 (SECNAV 7133.4)
Implementation of reprogramming of appropriated funds 0530

DOD Management Guide for PDP. 0249

DOD Programming System
(See Programming System, DOD)

DOD Programming System
Goals of 0301
Ability to make cost effectiveness Studies 0301f
Ability to relate resource "Inputs" To military "Outputs" 0301b
Assumptions Underlining the System 0302
Continuous Appraisal of Programs 0301d
Coordination of Long-Range Planning With Budgeting ... 0301c
Integration of DOD Information Systems. 0301g
Planning Oriented around major Missions 0301a
Progress Reporting 0301e

DOD Programs 0312

Downward Bias of RDT&E Program... 0346

E

Economy and Effectiveness in RDT&E ..... Appen. H

Economy in Defense H0120

Edwards Air Force Base
Use of for aircraft testing 0647

Electronic System Command E0830

Emergency Funds (SECDEF) 0540
0541, 0542, 0543

Engineering Development
As category of R&D 0720, D0240

Equipment, Government
Retention by Institutions 0736

Evaluation Aids for RDT&E effort 0620

Evaluation & Test of Weapons Systems. ..... (See Test & Evaluation)

Evaluation, Project Monthly (MPE) ..... (See Project Eval. Monthly)

Expenditure of funds 0510

Exploratory Development
As category of R&D effort ... 0720, D0220

Exploratory Development Division of DCNM(D)/CND
Function, responsibilities E0721

Exploratory Development
Requirements 0243a
Classification of C0410

F

Facilities Engineering Command E0840
Assistant Commander for R&D... E0843
Duties and responsibilities. E0841

Five Year Defense Plan (FYDP) 0402

Five Year Defense Program (FYDP)
Material and Construction Annexes. 0314
Program. 0312
Program Element. 0311
Program Element Costs 0315
Resource Categories. 0313

Fixed Price Contraction (Firm Fixed Price - FFP) 0706, 0720

Fixed Price Incentive Fee (FPIF) Contracting 0720, 0747

Fleet Commander's Quarterly Employment Schedules
Reassignment of forces
Operational evaluation... 0646

Fleet Marine Force
Test & Evaluation of new Developments 0265

Flow Process Analysis
As part of Navy work simplification program H0323

Force Structure & Financial Program
Five Year (FYFS&FP). 0310
Annual Review of ... 0331, 0332, 0424

Force Structure & Financial Program—Continued
Five Year (FYFS&FP)—Continued
Budget effect on 0430
Changes to 0320, 0324, 0330
Non PCP changes 0327
Funding Relationship to . . . 0402, 0423
Program (Program package) . . 0312
Program Elements
Cost 0315
Classification C0640
Program Elements of 0311, 0321
RDT&E Program (downward bias) 0346
Resources required for . . 0312b, 0313
Construction Annex 0314
Material Annex 0314
Repricing 0333

Full Disclosure
Policy for in Navy contraction . . . 0735

Funds
Allocation of 0500, 0505
Apportionment of 0500
Audit & Review of 0550, 0551, 0552
Audit
Navy, internal 0552
Emergency (SECDEF) 0540-0543
Expenditure of . . . . . .
Obligation of . . . . . .
Reprogramming of . . . (See Programming)

G

General Accounting Office
Establishment of 0551

General Operating Requirements . . . 0241, 0255

General Order No. 5 0160
Apportionment of Responsibilities And authorities by 0121
Assignment of RDT&E responsibilities
to CMC 0142
to CNM 0143
to CNO 0141
Doctrine concerning relationships Supporting operating forces . . . 0130
Establishment of OPA E0330
Reference to fundamental Objectives of Navy 0100

Government Furnished Equipment (GFE)
For universities & Non-profit Organizations 0736

Grants for
Educational & Non-profit Organizations 0731

Guidelines for witnesses before Congressional Committees 0472

H

Hearings, Congressional
Budget 0441, 0471, 0473, 0474
Reprogramming 0532

Hitch, Chas J.
Comments on Cost reduction H0120
Discussion of DOD Programming System 0302, 0340, H0120

Hitch, Chas. J. & McKean
The Economics of Defense in the Nuclear Age H0810, 0302

Hoover Commission
Comments on budgeting Process . . 0402

House Appropriations Committee
Hearings on Appropriation Bill . . . 0471

I

Incentive Contracting 0703

Information Flow 0746, 0748
Importance of in RDT&E Process 0233

In-House Laboratories
Management of F0200
Need for F0120
Role in contract management F0200
Use of 0715, 0750, F0100, F0200

Institute of Defense Analysis (IDA)
Non-Profit organization
Comments concerning E0112

Iteration
Between Military Requirements And Technology
In RDT&E planning 0235

J

Joint Agencies E0130

Joint Chiefs of Staff . . . . . .
RDT&E responsibilities of 0113

Joint Long Range Strategic Studies (JLRSS) 0204a

Joint Program Planning 0204

Joint Strategic objectives Plan-Fiscal Year (JSOP-FY) 0204b

L

Laboratories
Chief of Naval Material, Activities
Reporting to F0330
U.S. Naval Air Engineering Center F0332
U.S. Naval Applied Laboratory . F0333

Laboratories—Continued
Chief of Naval Material, Activities Reporting to—Continued
U.S. Naval Civil Engineering Laboratory F0334
U.S. Naval Development Center F0331
U.S. Naval Electronics Lab. . . F0336
U.S. Naval Mine Defense Lab. F0337
U.S. Naval Ordnance Lab. (Calif) F0338
U.S. Naval Ordnance Lab. (Md) F0339
U.S. Naval Ship Research And Development Center F0335
Chief of Naval Material, Field Activities Reporting to F0340
U.S. Naval Ordnance Test Station F0341
U.S. Naval Radiological Defense Laboratory F0342
U.S. Naval Underwater Research and Engineering Station F0345
U.S. Naval Underwater Sound Lab. F0343
U.S. Naval Weapons Lab. . . . F0344
Chief of Naval Operations, Activities Reporting to F0310
Fleet Numerical Weather Facility F0314
U.S. Naval Command Systems Support Activity (NAVCOSSACT) F0313
U.S. Naval Observatory F0311
U.S. Naval Oceanographic Office F0312
U.S. Navy Weather Research Facility F0315
Chief of Naval Personnel, Activities Reporting to F0380
U.S. Naval Personnel Branch Activities F0381
Chief of Naval Research, Activities Reporting to F0320
Hudson Laboratories, Colombia University F0324
Marine Physical Labs, Scripps Institute of Oceanography . . F0325
U.S. Naval Arctic Research Lab. F0326
U.S. Naval Biological Lab. . . F0323
U.S. Naval Research Lab. . . F0321
U.S. Naval Training Device Center F0322
Duties & Responsibilities of Director of Naval Labs (DNL) F0220
Duties & Responsibilities of Programs (DLP) F0230
Laboratories—Continued
Medicine & Surgery, Bureau of Activities Reporting to F0370
U.S. Naval Aerospace Medical Institute F0376
U.S. Naval Medical Neurophychiatric Unit F0372
U.S. Naval Medical Research Institute F0373
U.S. Naval Medical Research Laboratory F0371
U.S. Naval Medical Research Units F0375
U.S. Naval Submarine Medical Research Lab. F0374
U.S. Navy Toxicology Unit . . . F0377
Naval Air Systems Command, Activities Reporting to F0350
U.S. Naval Aerospace Recovery Facility F0351
U.S. Naval Air Test Center . . F0352
U.S. Naval Air Test Facility (Ship Installations) F0353
U.S. Naval Air Turbine Test Station F0354
U.S. Naval Missile Center . . . F0355
U.S. Naval Weapons Evaluation Facility F0356
Other Naval Air Systems Command Activities F0357
Naval Ordnance System Command Activities Reporting to F0360
Applied Physics Lab. (Md) . . . F0361
Applied Phys. Lab. (Wash) . . . F0362
Ordnance Aerophysics Lab. . . F0366
Ordnance Research Lab. . . . F0367
U.S. Naval Explosive Ordnance Disposal Facility . . . F0363
U.S. Naval Ordnance Missile Test Facility F0364
U.S. Naval Ordnance Unit. . . . F0365
Naval Supply System Command Activities Reporting to F0390
U.S. Navy Clothing and Textile Research Unit F0391
Landing Force Development Center, Marine Corps
Role of 0645
Layout Analysis
As part of Navy work Simplification Program H0325
Lead Time,
In Budgetary process 0430
Legislative Affairs, Office of (OLA) . . . 0473

M

Maintainability
Contracting for 0741b

Management Assistance
Cost H0730
Sources of H0710
District Management Assistance Office (DMAO) H0711
Local activity management Staff H0712
Navy Management Review . . . H0713
Support H0740
Use H0720

Management of Navy In-House RDT&E Field Activities F0200

Management Program, Paperwork
Purpose H0510
Techniques H0520
Correspondence management . H0524
Directive systems H0523
Microphotography H0527
Office Equipment Management H0528
Record Systems H0525
Records disposition H0526
Reports management H0521

Management responsibility for effect resource utilization H0110

Management & Support C0310
As category of R&D 0720, D0250

Marine Corps
Commandant E0900
Commandant's RDT&E responsibilities 0142, 0455
Deputy Chief of Staff (RD&S) functions E0910
Development cycle 0255
Landing force development activities Coordinator . . 0263, 0265, 0645, E0920
Mid-Range Objectives Plan (MMROP) 0261, 0264
Operations Analysis Group E0910
Research & Development Planning 0265
Research & Development Programs 0264
Troop & Organization Program Document E0920i

Mark-Up . . . . . (See Budgeting, Mark-up)

MAT 31 (See Exploratory Development Division)

MAT 33 (See Development Resources Division)

Material and Construction Annexes
As part of resource categories . . . 0314

Microphotography
As part of Navy Paperwork Management H0526

Mid-Range Objectives (MRO) 0214

Minuteman program, the importance of good systems analysis H0120

Monthly Appraisal
Prepared by Devel. Planning Division of (DCNO(D)) 0621

Monthly Project Evaluation (MPE) . . 0612, 0621

Monthly Summary Analysis 0621

Motion Analysis
As part of Navy Work Simplification Program H0324

N

National Aeronautics & Space Administration (NASA)
Advance Research & Technology Office of E0221
Function of E0220
Manned Space Flight, Office of . . . E0222
Space Science & Application, Office of E0223
Tracking & Data Acquisition, Office of E0224

National Security Act of 1947
Statement of SECDEF RTT&E Responsibility & Authority . . . E0111

National Security Act, Ammendment of 1949
Title IV (Public Law 81-216;83 - Statistic 578)
Establishment of Comptroller Organization 0552

National Security Agency (NSA)
Statement concerning mission and Responsibilities of E0131

Naval Civilian Personal Instruction-450 (NCPI-450)
Beneficial Suggestion Program . . . H0600

Naval Air Systems Command E0820
Assistant Commander for R&T . . . E0824
Integration responsibilities E0822
Material Support responsibilities E0821
Technology Administrators E0625
Technology Guidance and Assistance E0823

Naval Application & Analysis Group
Director E1060
Technical Director E1062
Technical Director for Naval Applications E1061

Naval Long Range Guidance (NLRG) . . . 0213

Naval Material Command E0800
Administration and Technological Guidance E0811
Command Structure E0801
Composition E0801
Coordination of Laboratories E0810
Coordination of Research E0809
Operating Relationships E0804
Organizational Authority E0802
Outside Activities E0807
Procurement E0808
Project Management E0806
Special Support Functions E0801
Support Responsibilities E0805

Naval Oceanographic Program J0200
Definition J0210
Program Relations J0300

Naval Operations, Assistant Chief of
Antisubmarine Warfare Program . E0480
Communications E0470
Intelligence E0460

Naval Operations, Chief of
Mission E0400
Organization E0400

Naval Operations, Deputy Chief of
Air E0440
Development E0450
Fleet Operations and Readiness .. E0430
Manpower and Naval Reserve E0420

Naval Research
As category of RDT&E 0720, D0200 D0210

Naval Research Advisory Committee .. E1012 E1130

Naval Research Group of Office of Naval research
Responsibilities of E1050

Naval Research Requirements (NRR)
Defined, Explained 0242

NAVCOMPT Instruction 7044.1A
Administration of appropriations RDT&E, Navy 0500

NAVCOMPT Instruction 7121.3C
Instructions to witnesses appearing before congressional committees 0472

NAVEXOS P-2412 (July 1962)
Instruction for preparation of resources category reports ... 0617

NAVMAT Instruction 3910.4
Exploratory Development Requirements 0243a

NAVPUBINST 5215.4
Consolidated check list for Navy publications B0310

NAVSO 3920/1
NARDIS Data request & approval .. E1002

Navy Automated Research and Development Information System (NARDIS) 0623, E1002

Navy Department Program Information Center (NDPIC) 0324a

Navy Directives System (See Directives, Navy)

Navy Five Year Program, Department of 0216

Navy Laboratories 0170, E0723, E0724

Navy Long Range Strategic Study 0211

Navy Management Review
As a function of office of management Information H0713

Navy Material Support Establishment
CNM speaking for 0231

Navy Mid-Range Guidance (NMRG) ... 0212

Navy Planning System
(See Planning System, Navy)

Navy Program Planning Office (NPPO). 0454c
Director of, mission, function of .. E0411

Navy RDT&E
Activities Reporting to Bureau of Medicine & Surgery F0370
Activities Reporting to Chief of Naval Material F0330
Activities reporting to Chief of Naval Operations F0310
Activities Reporting to Chief of Naval Research F0310
Activities Reporting to NAVAIRSYSCOM F0350
Activities Reporting to NAVDRDSYSCOM F0360
Field Activities
Listing of F0300

NDW-NSRDC- 5230/8
NARDIS RDT&E supplement E1002

New Obligational Authority (NOA) 0503

O

Objective, Advanced Development (ADO) 0246

Objectives, Mid-Range (MRO) 0214

Objectives, Program, Navy (PO) 0215

Obligation of funds 0510

Ocean Engineering & Development J0212

Ocean Science J0211

Oceanographer of the Navy 0147
0180, J0100
Operations J0213

Office Equipment Management H0527

Office of Naval Research E1010
Assistant Chief for Patents responsibilities. E1070
Assistant Chief for Research Mission, function of. E1020
Branch Heads
Naval Research Group Division E1051
Comtroller 0453a, E1080
Mission E1011
Naval Applications Group Mission, function of E1060
Naval Research Advisory Committee of E1050
Mission, function of E0012a
E0940
Naval Research Group of E1050

Ocean Science & Technology Group E1040

Research Director Mission, Function Of. E1021
Technical Support E1030

Office of Program Appraisals (OPA)
Advice to SECNAV concerning PCP's 0324d, 0343b
Mission, organization function . . . E0330

Office of Secretary of Defense (OSD)
Program Planning System 0340, 0401

ONR Instruction 3900.23
NARDIS Management Responsibilities 0623

ONR Instruction 3910.2A 0242
Indexing of research Planning areas C0320

Operational Evaluation 0641b
As part of project Demonstration . 0746

Operational System Development
As category of R&D 0720, D0260

Operational Test & Evaluation 0644

Operational Test & Evaluation Force
(See Commander, Operational Test & Evaluation)

OPNAV Form 3910-3
TDP Summary 0611

OPNAV INSTRUCTION 3900.8C
Instruction for formal RDT&E Planning 0240, C0630

OPNAV Instruction 3910.4B
Handbook for the preparation Of Technical Development Plans . . 0248c

OPNAV Instruction 3910.8A
Instruction for preparation of PTA 0245

OPNAV Instruction 3910.9A
General Operational Requirements Instructions for preparation of 0241

OPNAV Instruction 3910.12A
Preparation of Monthly Project Evaluation 0612

OPNAV Instruction 3960.1C
Test Evaluation & Investigation Of new developments by operating Forces. 0641

OPNAV Instruction 4720.4B
Approval of material for service use 0643

OPNAV Instruction 5000.19E
Major Navy Planning Documents . . 0200
0210

Ordnance System Command E0850
Directorate R&T E0854
Instigation E0852
Material Support Responsibilities E0851
Technical Assistance E0853
Technical Authority E0853
Technical Guidance E0853

P

Paperwork Management
(See Management Program, Paperwork)

Patent Rights. 0764

Pert
Use of 0703f

Plan, Development, technical (TDP). . . 0248
0611, 0741b
Support of by MPE 0612
Support of PCP 0325, 0611

Plan
Mid-Range Objective Marine Corps (MMROP) . . 0261-0264

Planning 0200
Cooperation with Allies 0270
Documents 0210
Formal RDT&E Procedures 0240
Advanced Development Objectives (ADO). 0246
Contract Definition (CD) 0249
Exploratory Development Goals (EDG) 0243b
Exploratory Development Requirements (EDR) 0243a
General Operational Requirements (GOR) 0241

Planning—Continued
Formal RDT&E Procedures—Continued
Naval Research Requirements (NRR) 0242
Project Master Plan (PMP) . . 0250
Proposed Technical Approaches (PTA) 0245
Specific Operational Req. (SOR) 0247
Technical Development Plan (TDP) 0248
Tentative Specific Operational Req. (TSOR) 0244
Joint Program for 0204
Long Range
Need for in FDT&E effort . . . 0220
Marine Corps R&D 0260
Cycle 0265
Objectives 0261
Program Documents 0264
Research Development Testings & Evaluation (RDT&E) 0220
Characteristics of 0230
Choice, importance of 0232
Influence of Uncertainty 0234
Interaction between Requirements 0235
System
Concept 0201
Joint
(See Planning, Joint Program for)
Navy 0200
Purpose 0201
Relationship with joint Plans . 0203

President, of U.S.
Action on Budget through Bureau of Budget 0442
Presentation of Budget 0442, 0471
Science Advisory Committee
Function, organization of . . . E1110

Processing of Service PCR's in OSD . . 0325
Below Threshold changes to FYDP 0328
Other Changes to the FYDP 0327

Procurement
Bell Report
Government responsibilities . . 0711
Dollar level of 0700
Fluid Transfer to other Government Agencies 0766
Fundamental Policies 0710
Of RDT&E 0703

Program Appraisal Office (OPA) 0324d
0443b, E0330

Program Change Process
Documents Required in 0323
Internal Dept. of Navy Processing of PCR's 0323

Program Change Process—Continued
Major force issues 0320b
Navy Dept. Program Information Center (NDPIC) 0324a
Program change Request (PCR) . . 0320a
Occasion for limitation Of Program Change Request . . 0321
Threshold 0322

Program Elements of FYFS&P
Cost, cost classification of 0315
Document classification of C0640

Program Objectives, Navy . . . 0215, 0341, 0342

Program Planning
Council of CNO
Organization, function of E0970
Director Navy (DNPP) E0410, 0454c
Mission, function of E0411
RDT&E function E0412
DOD . . . . (Also see Programming System)
Coordination of with Budgeting 0301c
Efficiency promotion within . . 0302
Orientation of 0301a
Support of Budget 0301g

Program, Project Listings 0453

Program Review & Changes 0330
Annual Comprehensive 0331

Program Status Books (PSB) 0622

Program Manual . . . . . Chapter III

Programming System
Advancing the FYDP one year . . . 0332
Approval Process for inclusion In PO 0342
Continuing Evolution of
RDT&E Program Downward Bias 0346
Relations between programming Process & Budget Process 0345
DOD . . . . . (Also see Program Planning)
Budget process, Relationship To 0401, 0423
Continuous review of . . . 0301d, 0344
Document Classification System C0200
Estimates provided by 0301b 0301f
Explanation of 0340
FYFS&FP 0310, 0401
Goals of 0301
Relationship to Budgeting . . . 0301d
Navy Cost-Effectiveness Study Capability 0343
Chief of Naval Material (CNM) 0343c
Chief of Naval Operations . . . 0324b

Programming System—Continued
Navy Cost-Effectiveness Study Capability—Continued
Naval Program Planning Office 0343a
Office of Navy Comptroller . . 0324c
Office of Program Appraisal . 0324d, 0343b
Program Objectives (PO). . . . 0341
Repricing 0333
Secretary of Defense, for The office of
Study report concerning listing of aggregations . C0630

Project Definition
DOD Guide for 0742

Project Definition Phase (PDP). 0240
Concepts/objectives 0742
Contracting for 0740, 0742, 0746
Optimization of 0745
Performance demonstrations 0746
Planning for 0743
Projects requiring 0744
Trade offs
cost vs. operational effectiveness 0745

Project Evaluation, Monthly (MPE) 0612

Project LEX E1090

Project Listings
of current and five subsequent fiscal year programs 0502, 0616

Project PRIME 0434

Proposed Technical Approach (PTA)
Defined, Described. 0245

Propulsion E0866

Public Law 42 USC 1891
To Provide grants to support research at educational and non-profit organizations 0731

Public Law 89-687
Section 636
Applicable to transfer of funds. 0543

Purpose of Appropriation Structure . . . 0423

R

RDT&E. . . . . .(See Research, Development, Testing; and Evaluation)

Reclama. 0410, 0432

Record System
As part of Navy Paperwork Management H0524

Records Disposition
As part of Navy Paperwork Management H0525

Reliability
Contracting for 0741b

Reports
Cost information system, Navy . . . 0617
Financial 0520
Management of . . . . . .
As part of Navy Paperwork Manag. H0521
Programming 0533
Resource Category (Navy Cost Information System Reports) 0617
Repricing
In connection with annual review of FYFS&FP. 0333

Reprogramming funds . . 0504, 0530, 0531, 0532
DOD Directive. 0530
Hearings. 0532
Procedures. 0531
Reports 0533

Request for Authority to Negotiate (RAN) 0763

Requirement
Exploratory development (EDR) . . 0243
General Operational (GOR). . . . 0241, 0265
Naval Research (NRR) 0242
Specific Operational (SOR) . . . 0741b, 0247
Tentative Specific Operational (TSOR). 0244

Research, Development, Testing And Evaluation
Administration of. 0120, 0130
Appraisal of 0600, 0601, 0603, 0611
Information reporting and display 0602
Appropriation 0421
Budget activities (breakdown) . 0422, C0700

Budgeting
Navy Dept. participants in . . . 0450
Assistant Sec. Navy (ASN(R&D)) 0453
Chief Naval Development (CND) 0456b
Chief Naval Material (CNM) 0456
Chief Naval Operations (CNO) 0454
CNO Advisory Board . . . 0454b
Chief of Naval Research . 0453a
Commandant of the Marine Corps (CMC) 0455
Comptroller of the Navy (NAVCOMPT) 0452

Research, Development, Testing
And Evaluation—Continued
Budgeting—Continued
Deputy CNM Program And
Financial Management
(DCNM-P&FM) 0456a
Deputy CNO (Development)
DCNO(D) 0454a
Naval Program Planning
Office (NPPO) 0454c
Secretary of the Navy
(SECNAV) 0451
Bureau-Industry
Relationships 0714
Categories of 0720, D0100, D0200
Congressional Hearings on 0470
Contracting for 0730
Contracts & Contract Provisions . . 0760
Economy & effectiveness In
RDT&E promoting . . . . . Appendix H
Evaluation Aids 0620
Laboratories, Role of 0170, 0715
Obtaining operational services
For Projects 0646
Organization for 0100
Plan & Requirements
Validity verfication of 0603
Procurement of 0700
Dollar level of 0701
Funds transfer to other Govt.
Agency 0766
Govt. inherent responsibilities
Bell Report statement of . . 0711
Implementation
Conflict of interest 0712
Instructions for 0712
In-House labs, place of . . . 0715, 0750
Personnel requirements
Bell Report Statement of . 0711
Policies 0710, 0711
Recent advances in incentive
Contracting 0703
Typical Team Membership . . . 0705
Projects
Operational Services for 0646
Project Classification C0310
Project Listings C616
Resource Category Reports 0617
Responsibilities for
Chief, Bureau of Medicine
And Surgery 0146
Chief of Naval Development . . 0144
Chief of Naval Material 0143
Chief of Naval Operations . . . 0141
Chief of Naval Personnel 0145
Chief of Naval Research 0150
Commandant, Marine Corps . . 0142
Joint Chief of Staff 0113
Secretary of Defense 0111
Director of Defense Re-
search Engineering . . . 0112

Research, Development, Testing
And Evaluation—Continued
Responsibilities for—Continued
Secretary of Navy 0121
Assistant Sec. Navy
(R&D) 0122
Review of
By ODDR&E 0630

Research, Development, Testing and
Evaluation Effort
Advanced Development D0230
Categories of D0200
Engineering Development D0240
Exploratory Development D0220
Naval Research D0210
Need for Categorization of D0100

Research & Engineering, Defense
Director of . . . . . (See Defense Research and
Engineering, Director of)

Research & Exploratory Development
Highlights
Reports to top management 0615

Research & Military Medical
Specialties E0630

Research / Operational Investigations . 0641c

Resource Category Reports (Navy Cost
Information System Reports) 0617

Resource Utilization, Management
Responsibilities for H0110

Resources
Categories of 0313

S

Scientific Advisory Committee of the
President of the U.S.
function, organization of E1110

Scientific & Technical Information
Program (STINFO) E1090

SECDEF Memo, 22 March 1961
"Testimony on President's Pro-
gram" provides guidelines for
congressional witnesses 0472

SECNAV Instruction 3900.14
(See DOD Inst. 3200.9)

SECNAV Instruction 3900.28
(See DOD Directive 3200.9)

SECNAV Instruction 3900.13A
Policy Regarding use of in-house
Capabilities (Labs, etc.) 0170

SECNAV Instruction 4200.21
Contracting for R&D from Private
institutions 0715

SECNAV Instruction 4858.2
Concerning value engineering H0420
H0430

SECNAV Instruction 5000.16
(See DOD Directive 7045.1)

SECNAV Instruction 5000.22
PO, definition of. 0341

SECNAV Instruction 5210.8
Concerning management of Navy
Paperwork. H0510, H0520, H0711

SECNAV Instruction 5220.6
(See DOD Instruction 5010.6)

SECNAV Instruction 5200.17
Cost Reduction Program H0230

SECNAV Instruction 5430.67
Assignment of RDT&E
responsibilities to CNO. 0141

SECNAV Instruction 5430.7G
Assignment of responsibilities to
Civilian Executive Assistants . . 0122

SECNAV Instruction 5430.60
Office of Program Appraisal
Establishment of 0343b, E0330

SECNAV Instruction 5430.66
Application of ASN(R&D)
Responsibilities. 0122

SECNAV Instruction 7000.7
Request for allocation of funds
From SECDEF Emergency
Fund. 0541

SECNAV Instruction 7133.3
(See DOD Directive 7250.5)

SECNAV Instruction 7133.5
(See DOD Directive 7250.10)

SECNAV Instruction 7300.27
(See DOD Instruction 7250.8)

SECNAV Instruction 7300.8
(See DOD Directive 7200.1)

SECNAV Instruction 7500.6
Management attention to audit
Reports. 0552

Secretary of Defense
Emergency fund. 0540
Participation in Budget process . . 0444
Responsibilities & Authority of . . 0111

Secretary of the Navy
Assistant Sec. of the Navy (R&D)
Duties, responsibilities of . . . 0120
E0311, 0453
Functions E0312
Relationship with others E0313
Budget, responsibilities of 0451

Secretary of the Navy—Continued
Office of Program Appraisal
of Functions
Duties of 0324d, 0343b, E0330
RDT&E responsibilities of. 0120
0122, 0474

Senate Armed Services Committee
Hearing on RDT&E budget . . . 0441a, 0471

Senate Hearings
In budgeting process. 0441b, 0471

Service use
Approval for 0643

Ship Building
Coordination E0864
Conversion E0864
Repair E0864

Ship Characteristics Board of CNO
Function, Organization of E1160

Ship Systems Command. E0860
Coordination E0862
Deputy Commander for R&D E0865
Interration E0862
Material Support
Responsibilities E0861
Technical Assistance E0863
Technical Guidance. E0863

SKYBOLT Program, the importance
of good systems analysis H0120

STINFO Program. 0151

Strategic objectives plan
Joint, fiscal year (JSOP-FY) 0204b

Strategic Study, Joint
Long range (JLRSS). 0204a

Strategic Study, Navy (NSS) 0211

Strike Warfare Division of CNO
RDT&E function of E0435

Study, Mid-Range, Navy (NMS) 0212
(Also see, Objective, Mid-Range)

Submarine Warfare Division of CNO
Function of E0433

Supply Systems Command E0870
Duties and Responsibilities E0871
Procurement responsibilities. . . . E0872
Technical Assistance E0873
Technical Guidance. E0873

Surgeon General E0620

Systems
Analysis of H0800
Director Strategic Offensive
And Defensive. E0490
Effectiveness Concept 0741
Reliability / Maintainability 0741b

Systems Analysis
Elements of an economic analysis . H0620
Alternatives H0622
Cost. H0823
Criterion H0825
Models H0824
Objectives H0821

Systems Development Division of DCNM(D)/CND
Functions, responsibilities of 0722

Systems Effectiveness. 0741

T

Technical Abstract Bulletin (TAB)
Semi-monthly publication of DDC . E0133

Technical Analysis and Advisory Group of DCNO(D)
Function of F0454

Technical Approach, Proposed (PTA). . 0245

Technical Development Plan (TDP) . . . 0248
0741b, 0611, 0602
Support of by MPE 0612
Support of RDT&E effort 0611
Supporting PCP 0325, 0611

Technical Evaluations
As part of project demonstrations . 0746

Tentative Specific Operational Requirement
Defined. 0244

Technical Staff Assistance for ASN (R&D) 0123

Test and Evaluation
Approval for service use 0643
Operational
OPTEVFOR 0644, 0646, E1010
Weapons Systems 0640
OPNAV Instructions governing (3960.1B) 0641
Organizations performing . . . 0642
Types of Tests. 0641

Test Organizations
E1000 (and following) E1200

Thresholds
In PCP's. 0322, 0326

Time-phased targets for logistics Management H0120

Total Obligational Authority (TOA) . . . 0315

Total Package Procurement Concept . . 0703

Transcript of congressional hearings
Editing of 0475

U

Undersea Warfare Development Division of CNO
Responsibilities E0456

U.S. Code 15, Title 31
Applicable to relationship Between executive Dept and The President's Budget 0472

V

Value Engineering
Applicability H0430
Definition H0410
Purpose H0420

W

Weapons Systems
Approval for service use of 0643
Test & Evaluation of 0640

Weapons Systems Evaluation Group (WSEG) 0325, E0112

Witnesses
Congressional Hearings
Guidelines for 0472
Preparation for 0473

Work Count Analysis
As part of Navy Work Simplification Program H0322

Work Distribution Analysis
As part of Navy Work Simplification Program H0321

Work Simplification Program (Navy) H0300
Purpose H0310
Techniques H0320
Flow process analysis. H0323
Layout Analysis H0325
Motor analysis H0324
Work count analysis H0322
Work Distribution Analysis H0321

Work Statements
Importance of 0704