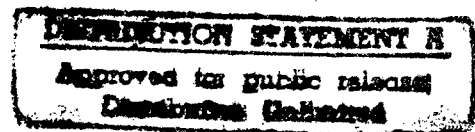# Study of All Navy Classification Structures

FINAL REPORT

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September 1979

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OPERATIONS ANALYSIS GROUP

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20. ABSTRACT *(Continue on reverse side if necessary and identify by block number)*
        This report presents the background of the project from its con-
ception as the Financial Management Improvement Program (FMIP) through
its development into Project FMIP 77-2.   It then describes the method-
ology developed and used by GRC to accomplish the study. The findings
and recommendations are then addressed in terms of appropriation groups
and then as alternative systems of classification structures designed
to meet specified Navy needs. Finally, it addresses, as required by

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Block 19 (Continued)
ment Category, Navy Task, NMC O&MN Line Item, P-1 Line Item, Program/
Subprogram, RIC, UDC, Allotment, AAA, Budget Project, Bureau Control
Number, CCN, Cost Code, Job Order Number, Major Category Code, Par-
ticipating Manager, Procurement Manager, PAA, Reimbursement Code, Re-
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ant, APPN, BA, BCC, BSA, Construction Project, PE, RCC, R&D Project,
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Unit, Functional Program, PE Aggregation, Accounting Classification
Code, Budget Detail, Line Item, Source Code, Military Personnel Ac-
count, OC/EE, Cost Detail, Fund Distribution, JON/Local Use, Con-
struction Suspence Account, General Research Corporation, GRC, O&MMC,
O&MMCR.

Block 20 (Continued)
the contract, additional work necessary to complete the FMIP project
and presents an estimated time frame and level of effort to implement
the three alternatives developed.

EXECUTIVE SUMMARY

This report covers a one-year study of classification structures in support of Department of the Navy (DON) Financial Management Improvement Program (FMIP) Project 77-2. Project 77-2 was undertaken to resolve financial management deficiencies brought about by the need for an integrated system of DON programming, budgeting, and accounting (PB&A) structures. Requirements of this study have included detailed examination of 58 current and proposed structures, development of three alternative structural systems to provide for better correlation of resource data, and recommendation of DON efforts necessary to complete the FMIP.

Research leading to the development of alternatives involved review of relevant documentation, supplemented by interviews. This was followed by preparation of analytic summaries, analysis matrixes, diagrams showing structural uses and relationships, and data exchange flow charts. Quantitative evaluation criteria were developed to support assessment of current and alternative structures.

Recommended alternative systems are defined as (1) improved, (2) intermediate, and (3) optimal. All involve elimination, combination, redefinition, changed usage, and introduction of some structures. Each provides for incremental improvement in resource visibility and linkage across PB&A processes and each has a progressively greater impact on current procedures and automated systems.

- Alternative 1 eliminates nine structures, merges budget classification codes (BCC) into activity/subactivity groups for operations appropriations, combines object class and expense elements, redefines six structures, and introduces three.

- Alternative 2 carries forward most Alternative 1 changes, extends the BCC merger to incorporate the decision unit, extends use of the decision unit and program element as integrating structures in PB&A processes, and revises and modifies usage of the resource category code for procurement appropriations.

- Alternative 3 establishes a new standard accounting classification code for all appropriations which provides for straightforward linkage to budgetary and programming processes and supports a standard Navy Cost Information System (NCIS) and Navy Resource Model (NARM) data base.

Recommendations for completion of the FMIP program are to continue addressal and resolution of accrual accounting requirements, expand Visibility and Management of Operating and Support Costs system treatment for weapon systems, establish a single departmental control system for PB&A data management, and redesign the NCIS and NARM to provide for a common data base. Further recommended is phased implementation of the three alternative classification systems over a four-year period.

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TABLES - CONTINUED

PROJECT OVERVIEW

INTRODUCTION

This overview presents a brief synopsis of the efforts made by the General Research Corporation (GRC) under its contract to support the Department of the Navy (DON) Financial Management Improvement Program (FMIP). It addresses first the background of the project, an overview of the project specifics, and our methodology for fulfilling the requirements of the GRC portion of it. Next, the alternative classification structures that we developed and scored and the system alternatives that we configured and ranked are discussed. Finally, the efforts required to complete the FMIP project and the time and effort projected for implementation of our alternatives are addressed.

BACKGROUND

In 1974, a division of the DON Office of the Comptroller (NAVCOMPT) conducted a study of departmental-level financial management. The primary result of the study was the identification of deficiencies which, if corrected, would result in substantial improvement in DON financial management. The deficiencies were analyzed and divided for correction into two projects:

- Project FMIP 77-1, Departmental Reporting System

- Project FMIP 77-2, Classification System

This summary presents GRC's findings and recommendations developed under our portion of the efforts in Project FMIP 77-2.

FMIP 77-2

During the DON's analysis of deficiencies and general study of Navy financial management, several specific needs were repeatedly highlighted. These included:

- An integrated, consistent classification system that could be used across programming, budgeting, and execution.

- A system for reporting cost and output measurement for use above the field activity level.

- A system for obtaining and reporting total weapon system costs.

- Implementation of accrual accounting practices.

- A system that provides for display of planned versus actual data.

- A system that can report data at required command levels.

GRC PROJECT METHODOLOGY

Our research effort involved collecting information relative to 58 classification structures in the Navy, either in existence or planned. We closely reviewed previous studies, all relevant

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publications and documents, and any other available information, including automated system printouts. We also interviewed key Navy personnel.

Data reduction involved analyzing the information obtained to isolate the specifically relevant concepts. We then documented interface of organizations and systems, prepared analysis matrixes, and developed tools for further analysis. Quantitative evaluation criteria were developed to support assessment of current and alternative structures.

STRUCTURAL ALTERNATIVES

We approached development of the alternative structures by identifying all existing structures and determining which programming, budgeting, and accounting (PB&A) function(s) they support. We also determined at this point that the alternatives would have to be treated in terms of the following appropriation sets; since transactions in different kinds of appropriations must be processed in markedly different ways:

- Operations

- Research, Development, Test, and Evaluation, Navy

- Military Personnel

- Military Construction

- Procurement

We chose to treat weapon system costs and "other" pervasive structures apart from the appropriation

sets to provide full coverage of all aspects of development of alternatives. Summary findings and recommendations follow.

- Operations

Twenty-seven classification structures were identified as being used in the Operations appropriation set. Our analysis indicated that seven could be eliminated since they were found to be either obsolete, simply unused, or duplicative. They are:

- Budget Program
- Budget Project
- Budget Subproject
- Functional Account
- Functional Category
- Functional Program
- PE Aggregation

There are several different ways to combine current Operations structures and improve their utility in PB&A processes. At least two options are presently being examined by the DON. We believe, however, that other benefits can be incorporated into the overall Navy classification system with minimal additional change. Combination of the subfunctional category, the budget classification code, and the Navy Material Command (NMC) operation and maintenance (O&MN) line item into the activity/subactivity group is feasible if the latter is slightly expanded. There is a current effort to combine

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cost account codes with Shore Required Operational Capability (SHOROC) codes to provide a common structure; this will also require expansion of the cost account codes. It is also proposed that object class and expense element be combined into one object class/expense element (OC/EE) structure to eliminate the need for manual manipulation of these data.

Structures to be continued with changed usage include the decision unit (DU) and the program element (PE). We have proposed a change to the DU which will permit it to crosswalk the three functions of PB&A. We have also proposed a PE coding change to link it directly to the accounting function.

Finally, we have proposed that a new structure, titled Operations Line Item, be introduced. This structure would crosswalk all three PB&A functions, simplify coding, and have an automatic roll up capability.

● Research, Development, Test, and Evaluation, Navy (RDT&EN)

Our analysis confirmed Navy comments to the effect that RDT&EN had "no real unbearable problems... [beyond] the need to establish a better method of relating appropriations such as O&MN and Procurement to pertinent

segments of RDT&EN through the budget and accounting process."

We propose several changes for other areas that will affect RDT&EN in a positive way. Among the changes are the combination of object class and expense element into OC/EE, enhancements to the capture of weapon systems acquisition costs, and improvements to the Visibility and Management of Operating and Support Costs (VAMOSC) system. Finally, our proposal to place the decision unit in the accounting classification code (ACC) will allow it to be used to interrelate programming with budgeting and with accounting for all appropriations including RDT&EN.

● Military Personnel (MILPERS)

We found that problems existed in accumulation of accounting data, in reconciliation of planned to actual data, in duplication in structure use, and in budgeting crosswalks.

Our proposal includes elimination of functional account in all appropriation groups; it would be replaced in MILPERS by a military personnel account (MPA). We also recommend, as discussed earlier, the combination of object class and expense element into an OC/EE structure for all appropriation groups.

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Our alternatives also include the redefinition of budget subactivity (BSA) to enhance linkages and the continuation, with changed usage, of the DU. The DU, by linking it directly to redefined BSA, would provide the capability to establish historical data to use with strength projections for budget estimates and would permit comparison of budget estimates and obligations to actual data. This DU-to-BSA linkage would be titled a MILPERS line item.

- Military Construction (MIL-CON)

  Several MILCON structures merit special treatment. They are:

  - Category Code/Nomenclature
  - Construction Project
  - Functional Account
  - Job Order Number
  - Object Class
  - Subfunctional Category
  - Facility Class and Construction Category
  - Resource Category Code
  - Weapon System Code

  The functional account and subfunctional categories are recommended for elimination. The object class and expense element are recommended for combination into the OC/EE structure.

  Construction project and resource category code are recommended for redefinition to improve crosswalk.

Facility class and construction category should be redefined by expanding its codes to provide complete linkages to special interest activities. The job order number should be standardized and the weapon system code should be redefined.

The category code/nomenclature (CCN) is recommended for continuation with changed usage in that it should be included in the ACC. Finally, we recommend introduction of construction suspense accounts to identify a particular construction agent and military construction program assignment (MCPA) document and to replace functional accounts.

- Procurement

  In procurement, we found that redefinition or changed usage of certain key structures could improve their overall utility. Areas in which we focused attention include improving crosswalks among the PB&A processes and the collection of total weapon system costs. Structures receiving emphasis are:

  - Budget Subactivity
  - Decision Unit
  - Object Class
  - Resource Category Code
  - Weapon System Code

  First, object class and expense element are recommended for combination into the OC/EE structure as was recommended previously.

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Next, we recommend reconfiguring the resource category code (RCC) to match the P-1 line item structure and changing the coding structure for the weapon system code (WSC) to that of the four-position force resource identification code (RIC) that is prescribed by OSD for the FYDP.

Finally, we propose reconfiguration of the ACC to promote standardization among appropriations and incorporation into the ACC of the decision unit as a linkage across the PB&A processes.

● Weapon System Costs

Weapon system costs are of two basic types, acquisition and operation. Acquisition costs are currently available through the use of the resource category code/ weapon system code (RCC/WSC), for which we have recommended specific improvements in the "Procurement" section, above. Operating costs are available, in part, through the VAMOSC system. The primary problem identified in VAMOSC is that it does not address Navy-designated weapon systems other than ships and aircraft. We recommend that it be expanded to accommodate all officially designated weapon systems. We also suggest, as an ideal, a direct interface between VAMOSC and Navy Cost Information System (NCIS) so

that both kinds of costs could be accumulated without manual manipulation.

SYSTEM ALTERNATIVES

The changes discussed above have been grouped into three alternatives.

Alternative 1 - Improved, calls for short-term type changes which will:

● Reduce redundancy

● Increase standardization

● Provide comparisons of planned to actual data

● Eliminate some marginal structures

Alternative 1 changes can be implemented with minimum turbulence and at low cost. They constitute the first step in the improvement of classification structures that will permit data to be correlated across the PB&A processes.

Alternative 2 - Intermediate, specifies some longer term, more turbulent changes to be made in addition to or instead of some of the changes accomplished for the first alternative. The principal change introduced is an orderly, pyramidal structure for Operations, which can fully support the PB&A processes. The alternative also provides for more effective and standardized coverage of procurement and military construction data in the NCIS.

Alternative 3 - Optimal, is the relatively unconstrained, long-

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term system that approaches an ideal. It would cause the most turbulence initially, but would accommodate future changes most easily. Again, this alternative builds on the previous ones. The principal additional proposals here deal essentially with the restructuring of the ACC to:

- Eliminate some marginal fields

- Replace obsolete terminology

- Include more useful structures in it

- Standardize the ACC among appropriations

- Arrange data in their hierarchical relationships

The alternative represents what we believe to be a significant breakthrough in the improvement of usage of classification structures.

COMPLETION OF FMIP PROJECT

The GRC contract requires that we address "recommendation of other efforts as required to complete the FMIP project." NAVCOMPT personnel have also requested that we provide an estimate of the time and effort required to implement our recommendations. This section addresses those two items.

Several efforts will be necessary to complete the FMIP project and accomplish its objectives.

- The matter of accrual accounting must be addressed.

The DON should continue and reemphasize its efforts to bring all of its accounting systems into compliance with GAO requirements, especially in the areas of accrual and property accounting.

- VAMOSC should be expanded to address all weapon systems, not only ships and aircraft.

- A departmental control system over all classification structures and data elements should be established. This would be a means to eliminate duplicative, overlapping, inconsistent, and obsolescent structures, elements, and terminology.

- Consideration should be given to establishment of a common data base for NCIS and Navy Resource Model (NARM/FLAIL), with an interactive capability for sponsor access.

- A master implementation plan should be developed to provide for implementation of our alternatives in a systematic fashion and in tandem with other Navy efforts. The portion of that plan dealing with required procedural and systems changes is detailed in the text of the report. It includes the tasks, subtasks, time-phasing, and person-months of staff effort required for each alternative.

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CONCLUSIONS

The alternatives developed by GRC represent a significant improvement to usage of classification structures. As a complete package, they either resolve or substantially contribute to the resolution of most deficiencies highlighted by the FMIP 77-2 project group. In particular they offer improved capabilities to:

- Accumulate and report data by the organizational hierarchy of the DON.

- Crosswalk comparative data among the PPBS structures.

- Form a basis for accumulating consistent and useful cost and performance data on major weapon systems.

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SECTION 1

BACKGROUND

1.1   INTRODUCTION

The purpose of this report is to present the findings of a General
Research Corporation (GRC) study conducted for the Department of the Navy
(DON), Office of the Comptroller (NAVCOMPT) during the period from 1 Octo-
ber 1978 to 30 September 1979. The introductory sections which follow
provide background on events which led to this phase of the DON's Finan-
cial Management Improvement Program (FMIP), list the objectives of the
FMIP and the GRC support contract which are addressed in further detail
in the remainder of this report, and summarize the contents of this
report.

1.2   FMIP OVERVIEW

In 1974, the Planning and Management Review Division of the Navy
Accounting and Finance Center (NAFC) conducted a six-month study of de-
partmental level management requirements. The study, which was titled
"Long-Range Planning for Financial Management (FM) Improvements", identi-
fied a set of deficiencies which, if corrected, could provide the Navy with
more useful and timely financial information. The initial study resulted
in the identification of two FMIP development projects:

●   Project 77-1, Departmental Reporting System

●   Project 77-2, Classification System

This report presents the findings resulting from efforts under project
FMIP 77-2.

1.3   OBJECTIVES OF THE CONTRACT

Project FMIP 77-2 was created by the Navy to develop and implement
a classification system[1] for programming, budgeting, and accounting (PB&A)
that would be consistent so that information could be transmitted and used
across those functions. The system it sought to develop would also require
the capability to:

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[1]Defined as a set of classification structures used for lateral and
vertical communication of quantitative data in managing the Navy's
forces, funds, manpower, and material.

- Accumulate and report data by the organizational hierarchy of the DON.

- Include a list of weapon systems and a procedure for their use in PB&A as a basis for obtaining total weapon system costs.

- Include a standard work breakdown structure for weapon systems and a procedure for its use to obtain consistent and useful weapon system costs.

Work specified in the contract awarded to GRC to support the overall objectives of the Project FMIP 77-2 included:

- Examining all current and proposed Navy classification structures,[1] documenting their users and their uses, and determining whether they were duplicative or obsolescent.

- Identifying the different ways that the Navy appropriations must be displayed for costs to be meaningful in programming and budgeting terms.

- Recommending changes to the accounting classification structure where the resultant increased visibility is cost effective.

- Developing, providing justification for, and ranking three alternative classification systems which would:

  - Satisfy the Navy's need to correlate data used in the Department of Defense (DoD) Planning, Programming, and Budgeting System (PPBS).

  - Crosswalk comparative data among the PPBS structures to satisfy the requirements, using the Navy Cost Information System (NCIS) as a translation medium to the maximum extent feasible.

  - Be capable of identifying, accumulating, and reporting the total costs of weapon systems and their support costs; life cycle costs; as well as functional responsibilities and their related operating costs which could involve several different items of material, cut across appropriation lines, and involve a number of different program elements.

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[1]Defined as classification system components used for communicating, relating, aggregating, or structuring quantitative resource data.

- Recommending other Navy efforts required to complete the FMIP project.

1.4   REPORT CONTENTS

This report is the final product developed through GRC's efforts in its portion of Project FMIP 77-2. It includes detailed descriptions of:

- The background of the project and our methodology for studying the problems identified by it.

- The structural and system alternatives and subalternatives developed, rated, and ranked, and our conclusions and recommendations in regard to them.

- Our recommendations for other efforts required to complete the FMIP project.

The sections that follow provide the detailed descriptions and explanations of our findings.

SECTION 2

FMIP 77-2

2.1   INTRODUCTION

     This section addresses the history of the Financial Management
Improvement Program (FMIP), describes the current thrust of its two re-
lated projects, and lists areas in which present classification systems
are generally deficient. The material presented serves as a basis for
full understanding of GRC's approach to the project work and alternative
system development detailed in succeeding sections of this report.

2.2   HISTORY

     In early 1974, the Planning and Management Review Division of the
Navy Accounting and Finance Center (NAFC) initiated an effort to plan
systematically for long-range financial management systems improvements.
A preliminary planning concept was developed based on a comparison of
existing and planned financial management system capabilities with a
list of attributes compiled from the General Accounting Office (GAO), the
Office of Management and Budget (OMB), the Department of the Treasury,
the Office of the Secretary of Defense (OSD), and the DON. The compara-
tive review resulted in the identification of several deficiencies in
the Navy financial management systems. Generally, the deficiencies
identified included a lack of integrated programming, budgeting, and
accounting data and a requirement for improved systems responsiveness
to the information needs of DON managers.

     To clarify requirements further, and as a basis for financial
management systems improvements, a needs assessment was also conducted
across the various management areas of the DON. Needs that were repeat-
edly highlighted included:

     ●   An integrated, consistent classification system that could
           be used across programming, budgeting, and accounting.

     ●   A system for reporting cost and output measurement data (the
           latter using a consistent work breakdown structure) for use
           above the field activity level.

     ●   A system for accumulating and reporting total costs by
           weapon system.

     ●   The implementation of accrual accounting practices for improved
           timeliness and accuracy.

- A system that could provide a means for direct, automatic comparison of progress (execution) to plans (programming and budgeting).

- A system for accumulating and reporting programming, budgeting, and accounting information by the organizational hierarchy of the Department of the Navy.

These needs were recognized as constituting the preliminary statement of the problem definition for Projects 77-1 and 77-2. Prior to publication of the Problem Definition in June 1978,[1] the findings from 1974 were re-validated to determine whether they had been eliminated or alleviated by system improvements, developments, or other actions since their original enunciation. Although some improvement was noted and efforts were under-way to correct some of the deficiencies, the bulk remained generally valid.

2.3 CURRENT EFFORT

Project 77-1, Departmental Reporting System, is basically a data collection and analysis effort. It is a project which was planned to determine information needs and to inventory financial management systems at the Departmental level as a preliminary step to improving system capa-bilities. As the project progressed, however, it was determined that the staff could not obtain a comprehensive view of the Navy's financial manage-ment needs under the constraint of limiting the effort to the Departmental level. The effort was, therefore, expanded to the sponsor, claimant, and system command levels. The findings were to be summarized to produce a comprehensive listing of the information needs of the various levels. A determination could then be made as to which needs were being met and which systems were duplicative or obsolescent. The analysis of the needs was to be done in consideration of the NCIS as the existing Departmental reporting system. The NCIS, however, had not been changed substantially since a redesign was implemented during the period 1964 to 1965. Defi-ciencies that have developed in the system in the intervening fifteen years have decreased the system's capability to provide timely, complete, accurate, and managerially useful data. Also, managerial problems arose from inconsistent, disconnected data emanating from the Navy Resource Model (NARM/FLAIL) system used for the Five Year Defense Program (FYDP) updates in May as compared to data emanating from the NCIS used to update the FYDP in October and January of each year. These problems have been

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[1]U.S. Department of the Navy, Office of the Comptroller, Departmental Reporting System (Project 77-1) Classification System (Project 77-2) "Problem Definition", June 1978.

alleviated to some extent by procedural changes that require NARM/FLAIL to use NCIS data as the baseline for the Program Objective Memorandum (POM) development and subsequent FYDP update.

A working group for the consolidation of the NCIS and NARM/FLAIL data bases, under the leadership of the Deputy Director, Department of the Navy Program Information Center (DONPIC), was established in 1978 and is currently active. However, the charter for that group has been changed to require development of a master plan and system architecture that will provide for a coordinated approach to Navy programming, budgeting, and accounting activities by integrating systems and structures to meet FMIP 77-1 objectives.

Project 77-2, Classification System, was conceptualized by the Navy as an effort that would encompass all of the classification structures utilized by the DON for planning, programming, budgeting, and accounting. The structures were to be examined with the objectives of establishing crosswalks among them in the functional areas of programming, budgeting, and accounting, eliminating duplicative and redundant structures, and developing alternative structures and structure systems that would better meet DON requirements. The preliminary work was accomplished in-house. It included assembling a high-level Steering Committee of representatives from the major organizational areas: the Office of the Chief of Naval Operations (OPNAV); Marine Corps; Office of Naval Research (ONR); NAVCOMPT; the Naval Data Automation Command (NAVDAC); and the Naval Material Command (NAVMAT); determining the total number of appropriations and funds with Navy involvement and grouping them according to their extent of programming, budgeting, and accounting involvement; and packaging and staffing for review and comment the information received and analyzed. GRC was then contracted to develop the alternative classification structures and systems and to identify further efforts necessary to complete the FMIP project. Studies, reports, and other documentation prepared by the FMIP 77-2 project group were used extensively by the GRC team in developing project methodology and devising alternatives discussed in the remainder of this report.

SECTION 3

GRC PROJECT METHODOLOGY

3.1   INTRODUCTION

This section discusses the approach taken by GRC to fulfill the
objectives of the contracted portion of Project FMIP 77-2. It summarizes
the methodology used for developing alternative structures and systems
and describes the documentation developed during our project efforts.

3.2   APPROACH

GRC's approach to completion of our FMIP 77-2 effort was divided
into three substantive and one administrative increment: research,
data reduction, development of alternatives, and reporting. The latter
increment was concerned with routine progress reports which served as
the media to forward our project documentation. It also included produc-
tion of this final report. The three substantive increments are described
in summary form in the sections that immediately follow. Descriptions
of documentation delivered to the Navy Project Officer during the course
of the project are in Subsection 3.3 of this section.

3.2.1 Research

Our research effort involved collecting all information which could
be located regarding Navy classification structures either in existence
or under consideration. Fifteen structures were named in our original
statement of work; a final total of 58 current and developing structures
was identified through the course of the project (these structures are
listed in Section 4). Information collected included previous studies
and reports of the FMIP; all publications and documents germane to the
use of classification structures in Navy programming, budgeting, and
accounting systems; and any other information bearing directly on our
work. We also interviewed key Navy personnel. Through these efforts
we identified:

   ●   The reports and data systems--both manual and automated--
       that use the classification structures, either according
       to a standard definition and coding structure or a modifica-
       tion suited to a particular application.

   ●   The organizational elements that have primary and collateral
       responsibilities for the classification structures.

- The organizational elements that participate in the vertical and lateral flow of programming, budgeting, and accounting information, including--

  - Responsibilities assigned by existing directives.

  - Responsibilities informally assigned or assumed.

  - Data sources, transfers, and translations.

  - Communications channels.

  - Required interfaces.

  - Supporting non-standard systems.

  - Unique requirements and procedures.

3.2.2 Data Reduction

Our data reduction effort involved analyzing the information obtained during the research phase to reduce it to constituent elements and aspects that bear on the correlation of data used in the programming, budgeting, and accounting phases of the DoD PPBS. We documented the interface among organizations and systems in various ways to highlight different aspects of the structures; prepared analysis matrixes to display and compare the structure characteristics; and evaluated the sufficiency of both structures and systems of structures by assessing them in terms of their ability to:

- Accumulate costs and prepare budgets pyramidally by line management and functional responsibility.

- Compare budget execution with financial plans.

- Capture cost and quantity data necessary for planning, programming, budgeting, and control.

- Integrate the financial management processes of programming, budgeting, and accounting.

- Transfer and use information consistently across the programming, budgeting, and accounting functions.

- Provide reliable, timely, accurate, and complete accounting data to support budget formulation and execution.

3.2.3 Development of Alternatives

Our development of alternatives work involved two subtasks. The first was to construct criteria by which various alternatives could be evaluated. These were coordinated with the DON Project Officer whose comments and suggested changes were incorporated. The second subtask was actual development of the alternatives. We determined that a building block approach would best support development of systems recommendations. Figure 3.1 on the next page is a conceptual illustration of the approach. These building block or standpipe figures are used to illustrate our proposed alternatives in Sections 4 and 5 of this report.

It was also determined that the three alternatives required by the contract would generally fit three levels:

- Improved, which would be the least controversial alternative encompassing primarily cleanup of the structures

- Intermediate, a longer range, more turbulent alternative

- Optimal, a major, relatively unconstrained alternative that would approach the ideal system.

These levels will also fit roughly into a short-range, mid-range, and long-term, respectively, plan for implementation. Some of the structural modifications that we considered during the course of developing the alternatives included the following:

- Elimination of marginal value structures: those that we found to be obsolescent, duplicative, or easily replaced by other structures.

- Combination of two or more structures into one existing structure to accomplish two desirable ends, eliminating more structures and adding flexibility to those retained.

- Redefinition of selected structures, again to add flexibility and to improve crosswalks among the programming, budgeting, and accounting areas.

- Continuation with changed usage, where a particular structure was found to be applicable to uses other than the one(s) for which it was originally intended.

- Introduction of new structures to meet requirements or uses that were not met by existing structures.

- Continuation of some structures which were found to have had, and to have currently, necessary uses.
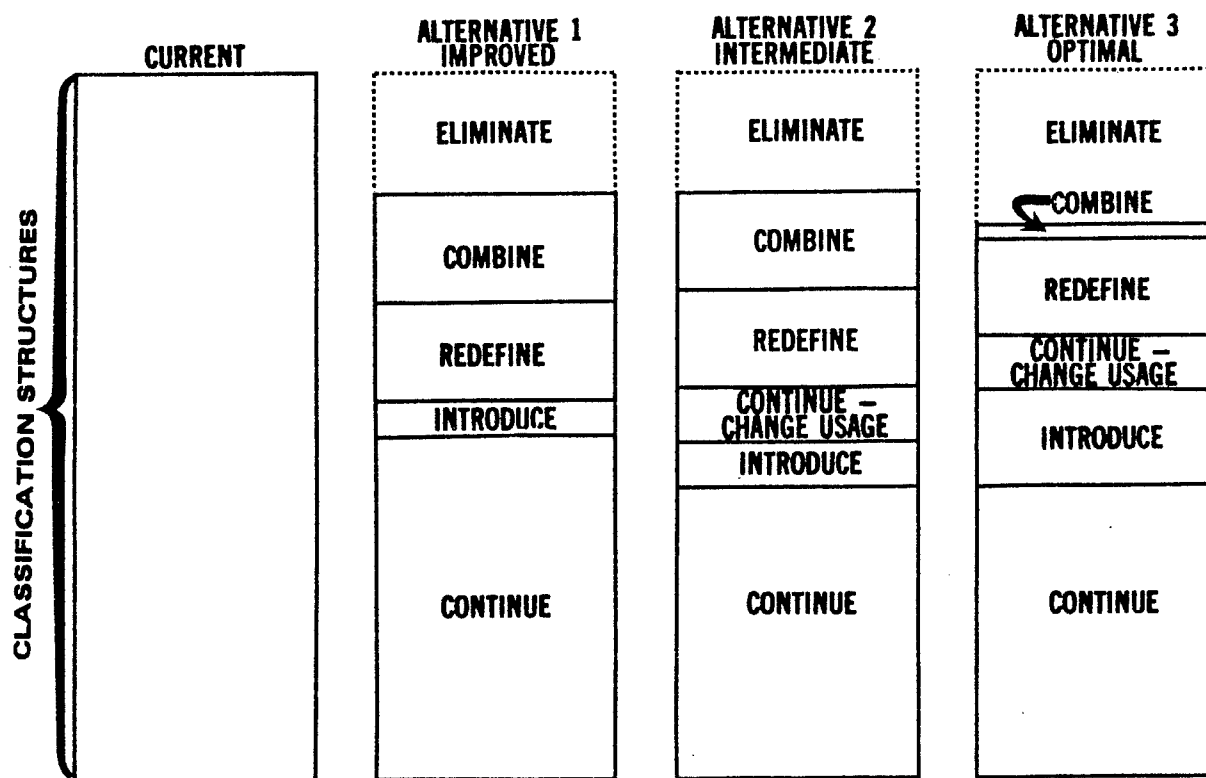
Figure 3.1. Building-Block Convention for Alternative Development

3.3 ENUMERATION OF DOCUMENTATION

This section provides a description of the documentation that led to the development of alternatives. Besides this final report and our monthly progress reports, we developed six kinds of project documentation, examples of which are provided herein.

3.3.1 Analytic Summaries

To document the data reduction effort addressed earlier, we developed analytic summaries which served as baselines for the GRC team's understanding of the nature of each classification structure. For each structure, a summary defined the structure, gave its coding logic and code characteristics, identified deviant forms and aliases, documented its relationship to other structures, and highlighted its more significant uses in the PB&A processes. The information presented was based on material drawn from Navy manuals, reports, and other publications. In some instances, the information was supplemented by discussions with key Navy personnel. As additional discussions were held, and as programming, budgeting, and accounting systems were examined, the summaries were expanded, particular-

3-4

ly with regard to structure uses and relationships. Figure 3.2 gives the outline of an analytic summary.

---

1. DESCRIPTION
A. DEFINITION
B. SIZE AND CLASS CHARACTERISTICS
C. CODING LOGIC
D. DEVIANT FORMS AND ALIASES

2. A. OFFICE OF PRIMARY RESPONSIBILITY
B. PRINCIPAL USERS

3. USE IN PB&A PROCESSES
A. PROGRAMMING
B. BUDGETING
C. ACCOUNTING

4. RELATIONSHIPS TO OTHER CLASSIFICATION STRUCTURES

5. REFERENCES

Figure 3.2. Outline of Analytic Summary

3.3.2 Analysis Matrix

Based on the information contained in our analytic summaries, we developed a matrix that illustrated the relationships between and among the various classification structures. The coding in the matrix showed which structures were identical to each other, which were similar, but not the same, which were subsets or roll ups, and which were related by assignment. This matrix served as a guide for detailed analysis by highlighting areas where two or more structures carried the same or similar bits of information and had similar characteristics and uses, but did not have a subset relationship. The matrix also served to group the structures according to the programming, budgeting, or accounting process they principally support. Figure 3.3 on the next page provides an enlargement of the upper left hand corner of the original matrix. In the program element (PE) line, for example, the letter S shows that the PE is a subset of program/subprogram, defense planning and programming category (DPPC), Navy task, and R&D mission area. The CA in the resource

3-5

LEGEND

A = By Assignment
C = Contains
CA = Contains By Assignment
I = Identical
I/P = Identical Partial
NS = Similar to but not the same
R = Rollup
R/P = Rollup, Partial
S = Subset
S/P = Subset, Partial

PROGRAMMING	Program Element	Program/Subprogram	Defense Planning & Programming Category	Navy Task	Resource Identification Code	R&D Mission Area	P-1 Line Item (FYDP Annex)	Unit Description Code	Class Code
PROGRAMMING									
Program Element		S	S	S	CA	S			
Program/Subprogram	R			NS					
Defense Planning & Programming Category	R			NS	R/P				
Navy Task	R	NS	NS			NS			
Resource Identification Code	A		S/P				R/P	I/P	
R&D Mission Area	R			NS					
P-1 Line Item (FYDP Annex)					S/P				
Unit Description Code					I/P				

Figure 3.3. Portion of Analysis Matrix

identification code (RIC) column signifies that a PE contains a RIC by as-
signment, that is, appropriation, manpower, and force RICs crosscut PEs.
The RIC line, on the other hand, shows by the letter A in the PE column
that RICs are assigned to specific PEs; by the letters S/P in the DPPC
column that a RIC is a partial subset of a DPPC; by the letters R/P in the
P-1 line item (FYDP Annex) column, that a RIC is a partial roll up of those
structures; and by the letters I/P in the unit description code (UDC) column,
that a RIC is identical, in part, to a UDC (force RICs in this instance).

3.3.3 Venn Diagrams

Venn diagrams were developed to summarize for each major appropria-
tion and for all appropriations combined, how the various classification
structures interrelated with the processes of programming, budgeting, and
accounting. These diagrams served as a reference to help identify poten-
tial overlaps and duplications and were useful as check points in asses-
sing impact of alternatives to modify structures. They also indicated
where the study team should concentrate on making as many structures cross-
walk among the PB&A processes as possible. Figure 3.4 illustrates concep-
tually the Venn diagrams developed. The diagrams contain three circles

3-6
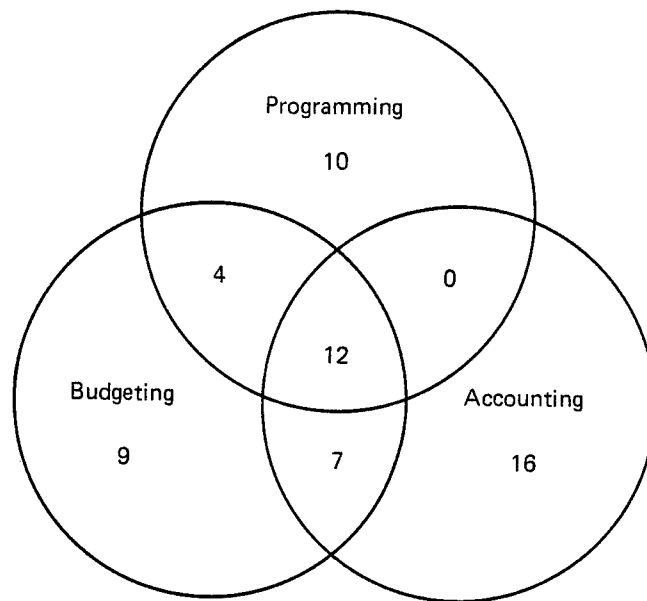
Figure 3.4. Venn Diagram Showing Number of Classification Structures Identified

which represent the processes of programming, budgeting, and accounting.
The circles represent the relations among the three processes by the inclu-
sion, exclusion, and intersection of the circles. In Figure 3.4, for
example, the numbers represent the total of 58 structures that we identi-
fied. The diagram shows that:

- 10 structures serve only the programming process

- 0 structures serve only the programming and accounting
  processes

- 16 structures serve only the accounting process

- 7 structures serve only the accounting and budgeting processes

- 9 structures serve only the budgeting process

- 4 structures serve only the budgeting and programming processes

- 12 structures serve all three processes

Section 4 contains expanded diagrams in which the names of the
structures serving each process are listed.

3.3.4 Structure Relationships

GRC then developed diagrams to illustrate in detail the similarities, differences, and subset relationships for different structures within various automated systems and commands. The particular example in Figure 3.5, pertains to the use of Operations and Maintenance, Navy (O&MN) budget activity 1 by LANTFLT and PACFLT. It shows, from the lower right hand side, how structures feed directly to each other or roll up to one another at the various administrative and command levels. In the particular example illustrated, it shows that functional/subfunctional categories at one level are similar to budget classifications at a second level. Budget classifications are, in turn, similar to activity groups at a third level and activity groups roll up to decision units at the highest level.
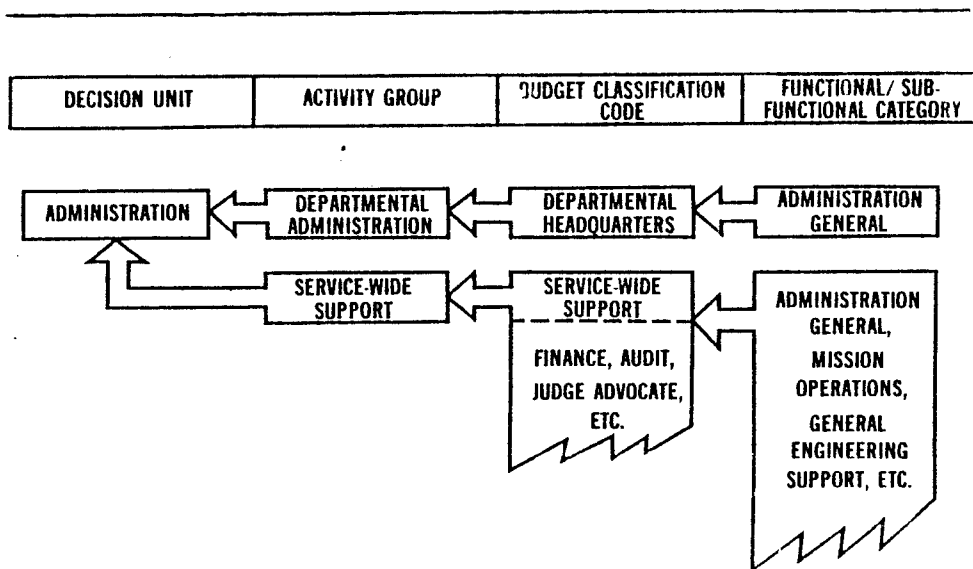
Figure 3.5. Illustration of Structure Relationships

3.3.5 Data Exchange Flows

For each appropriation, we also prepared flow diagrams to show data exchanges and transfers. This type of detailed analysis permitted us to identify problems and opportunities for resolving them by:

- Outlining classification structures used in PB&A processes.

- Tracing classification structures through the PB&A process and the various Navy financial management systems supporting PB&A.

- Showing automated or manual data transfers between processes or systems.

- Reflecting crosswalks or disconnects between data.

- Showing systems, procedures, and structures used to update the Five Year Defense Program (FYDP), to prepare the Program Objectives Memorandum (POM) and budget, and to prepare reports on budget execution.

Figure 3.6 presents the format of the flow diagrams and descriptions of the various appropriation groups examined during the course of our project. It illustrates the process flow of data carried by structures from the top down using standard flowcharting symbology for ease of comparison. For example, the trapezoids in the figure represent manual processes, the rectangle represents an automated process, and the rectangles with one wavy side represent outputs. The arrows show the direction of the process flow. On the left are paragraphs of narrative descriptions of the processes which are keyed numerically to the flowcharted symbols. Appropriation structures and code forms were listed on cover sheets.
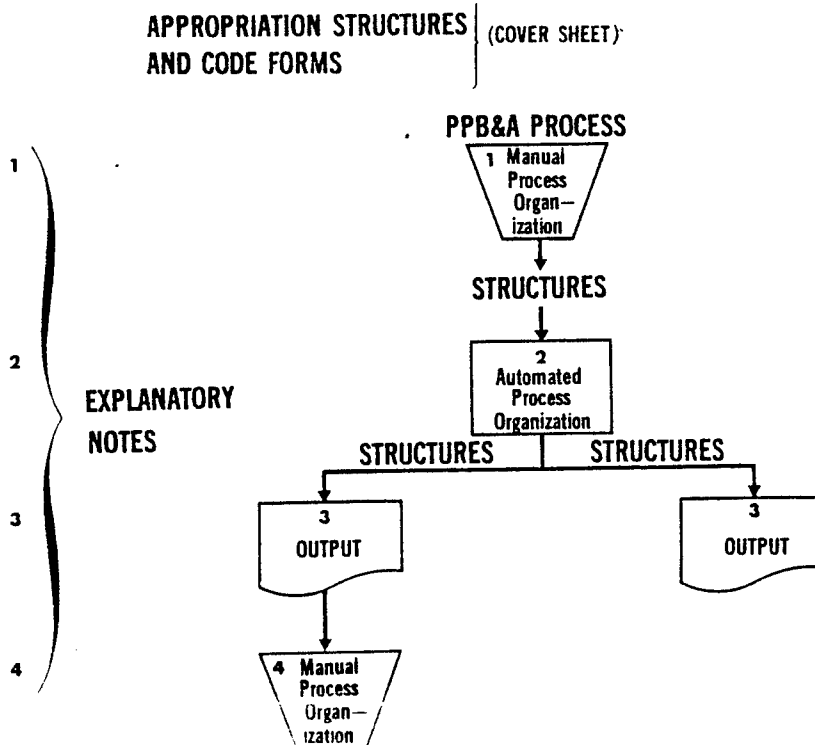
Figure 3.6. Data Exchange Flowchart Format

3.3.6 Evaluation Criteria

The GRC study team developed an evaluation criteria matrix to provide a quantitative tool for structuring the evaluation process while retaining a need for the application of subjective judgment by the knowledgeable evaluator. The application of that subjectivity colors the scores assigned to a structure for each criterion by different evaluators; this is desirable. Each structure was scored based on the following criteria:

- Purposeful—supports the study objectives.

- Linked—establishes crosswalks to support integration of the financial management processes of programming, budgeting, and accounting.

- Accumulative—aids in the accumulation of costs and preparation of budgets pyramidally by line management and by functional responsibility.

- Effective—supports the comparison of programs/budgets with actual data.

- Economical—optimizes the continuing cost of using the structure.

- Flexible—meets new and/or developing requirements (consider automation impact).

- Traceable—provides relationships between current and historical data.

- Non-turbulent—minimizes implementation turbulence and costs.

The matrix utilized to grade each structure is illustrated in Figure 3.7, following this page. The numerical score derived from the matrix for each structure was then compared with that derived for all other structures. The matrixes for each structure in an alternative or subalternative system were then grouped and their scores were totalled and divided by the number of structures in the system to provide a basis for comparison of structures. Results are identified in Sections 4 and 5. It should be noted that while there is a theoretical maximum attainable score of 725, no classification structure or set of structures could, in practicality, achieve that score. In order to meet some project objectives, a structure may score as less than ideal with respect to others. For example, a new structure will lose some connection to historical data and its implementation can cause major turbulence. Any of these eventualities will decrease the structure's score. Although we have used 725 as the standard baseline against which to measure structure scores throughout this report, relative improvement rather than the extent to which a structure approaches the maximum score should be the primary focus. This is especially true when individual structure scores are averaged to produce overall system scores.

5/25/79

CURRENT/ALTERNATIVE STRUCTURE:

CRITERIA (Enter total scores)	CRITERIA DESCRIPTIONS AND WEIGHTS	RANK/DISCRIMINATORS					
		0	1	2	3	4	5
PURPOSEFUL	Supports study objectives (20)		[1] Utilizes NCIS as a translation medium	[2] Minimizes redundancy and duplication	[3] Provides the capability to identify and accumulate life-cycle costs	[4] Provides the capability to identify and accumulate weapons systems costs or their support costs	[5] Provides for display of financial management data in meaningful terms for planning, programming, budgeting, and control
LINKED	Establishes crosswalks to support integration of the financial management processes of programming, budgeting, and accounting (20)	[0] Provides no linkage	[1] Linkage to BLIs and/or PEs occurs through manual manipulation	[2] Provides linkage to BLIs or PEs through a dictionary subsystem	[3] Provides direct linkage to BLIs or PEs	[4] Provides linkage to BLIs and PEs through a dictionary subsystem	[5] Provides direct linkage to BLIs and PEs
ACCUMULATIVE	Aids in the accumulation of costs and preparation of budgets pyramidally by line management and by functional responsibility (15)	[0] Does not meet requirements	[1] Provides line management utility at the expense of functional responsibility utility (or the reverse)		[3] Provides line management utility and does not change functional responsibility utility (or the reverse)		[5] Provides necessary level of detail and rollup capability for all applicable uses
EFFECTIVE	Supports the comparison of programs/budgets with actual data (15)	[0] Does not provide capability to compare program/budget with actual data			[3] Provides capability to compare program or budget with actual data		[5] Provides capability to compare program and budget with actual data
ECONOMICAL	Optimizes the continuing cost of using the structure (10)	[0] Requires more manual effort and increased use of table translations than currently	[1] Requires the same manual effort but increased use of table translations as currently	[2] Requires the same manual effort and use of table translations as currently	[3] Requires the same manual effort but fewer table translations as currently		[5] Requires less manual effort and fewer table translations than currently
FLEXIBLE	Meets new and/or developing requirements (consider automation impact) (10)		[1] Rigid, does not easily accommodate new requirements				[5] Readily adjustable
TRACEABLE	Provides relationships between current and historical data (5)	[0] No trails to historical data	[1] Breaks current historical trails but establishes trails for future continuity	[2] Some disconnects to historical data			[5] Complete historical trails
NON-TURBULENT*	• Intra-structure changes / Minimizes implementation turbulence and costs • Implementation (5)	[0] Requires major overhaul to systems and procedures at all levels [-5]	[1] Requires alteration of systems and procedures at all levels [-4]	[2] Requires alteration of systems and procedures at higher levels only [-3]		[4] Requires minor modification to systems and procedures [-1]	[5] Minimum turbulence within existing systems and procedures [0]

NOTE 1: In the first criterion, select as many discriminators as may apply. In the remaining criteria, select the one discriminator that best applies.

*NOTE 2: If no turbulence or only short term turbulence is anticipated, double the value of the POSITIVE discriminators.

Figure 3.7. Structure Evaluation Matrix

3-11

This section has described in detail our project methodology for identifying, examining, analyzing, and evaluating the Navy PB&A classification structures. The next section presents the results of our analysis of structures, our recommended improvements to the individual structures, and the impact on the Navy of implementing the improvements.

SECTION 4

STRUCTURAL ALTERNATIVES

4.1   INTRODUCTION

This section of the report first identifies the most pertinent classification structures we addressed during the course of the project and displays them according to the PB&A processes they principally support. Selected structures are then grouped into appropriation sets and are examined in detail to determine what changes could be made to meet the Navy's need to correlate data used in the programming, budgeting, and accounting phases of the DoD PPBS. Finally, structural changes are evaluated by appropriation set and are assigned to one or more of the alternatives previously described. In Section 5 of this report, these appropriation sets are merged into alternatives for an overall DON classification system.

The contract which guided GRC's work on this project specified that the following 15 major classification structures were to be addressed as a minimum:

- Accounting Classification Code
- Appropriation
- Budget Classification Code
- Defense Planning and
    Programming Category
- Functional Program
- Object Class/Element
    of Expense
- Program Element

- Program/Subprogram
- Program Element Aggregation
- Resource Allocation Display
- Resource Category Code
- Resource Identification Code
- R&D Mission Area Code
- Unit Identification Code
- Weapon System Code

Our initial research revealed that the accounting classification code (ACC) and the resource allocation display (RAD) are not, in fact, single structures, but rather subsystems made up of several structures. The ACC is a grouping of nine data fields containing a variety of classification structures meant to provide data required for the accounting process. The RAD is a series of documents that utilizes a variety of classification structures to array resources for planning and programming purposes. Both are treated in the study and definitive prescriptions are provided for changes that will make the ACC a more useful tool in Navy resource management.

The contract also specified that the alternative systems to be developed must give consideration to all classification structures used in the PB&A functions. Consequently, we identified an additional 45 structures, bringing the initial total number of structures to be addressed to 58, all of which are treated in the following sections of

this report. Figure 4.1 illustrates, in the format of a modified Venn diagram, the 58 classification structures and the PB&A processes that they support. Treatment of these structures in appropriation sets begins with an examination of those considered pertinent to Navy Operations.

PROGRAMMING

CLASS CODE
COST CATEGORY
DEFENSE PLANNING AND PROGRAMMING CATEGORY
INVESTMENT CATEGORY
NAVY TASK
NMC O&MN LINE ITEM
P-1 LINE ITEM (FYDP PROCUREMENT ANNEX)
PROGRAM/SUBPROGRAM
RESOURCE IDENTIFICATION CODE
UNIT DESCRIPTION CODE

BUDGETING

FACILITY CLASS AND CONSTRUCTION
    CATEGORY
MISSION BUDGET CATEGORY
R&D CATEGORY
R&D MISSION AREA

ADMINISTERING OFFICE/
    MAJOR CLAIMANT
APPROPRIATION
BUDGET ACTIVITY
BUDGET CLASSIFICATION
    CODE
BUDGET SUBACTIVITY
CONSTRUCTION PROJECT
PROGRAM ELEMENT
RESOURCE CATEGORY CODE
R&D PROJECT
R&D TASK
UNIT IDENTIFICATION CODE
WEAPON SYSTEM CODE

ACCOUNTING

ACTIVITY GROUP
ANTICIPATED REIMBURSEMENT
BUDGET PROGRAM
BUDGET SUBPROJECT
DECISION UNIT
FUNCTIONAL PROGRAM
PROGRAM ELEMENT
    AGGREGATION
P-1 LINE ITEM (BUDGET)
SUBACTIVITY GROUP

COST ACCOUNT
EXPENSE ELEMENT
FUNCTIONAL ACCOUNT
FUNCTIONAL CATEGORY
OBJECT CLASS
SUBFUNCTIONAL CATEGORY
TREASURY CODE

ALLOTMENT
AUTHORIZATION ACCOUNTING
    ACTIVITY
BUDGET PROJECT
BUREAU CONTROL NUMBER
CATEGORY CODE/NOMENCLATURE
COST CODE
JOB ORDER NUMBER
MAJOR CATEGORY CODE
PARTICIPATING MANAGER
PROCUREMENT MANAGER
PROPERTY ACCOUNTING ACTIVITY
P-1 LINE ITEM (PARS)
REIMBURSEMENT CODE
REQUIRING MANAGER
SUBALLOTMENT
TRANSACTION TYPE

Figure 4.1. DON Classification Structures Showing PB&A Processes They Principally Support

4.2   OPERATIONS

Principal features of this section of the report concern classification structure and system alternatives for Navy Operations that propose:

- Eliminating structures the continued use of which would be marginally beneficial.

- Combining decision units with a revised activity group and a revised subactivity group to form one pyramidal structure, called an Operations line item.

These alternatives are addressed also in terms of their applicability within various forms of accounting classification codes.

Although the following appropriations fall under the category of Operations and the alternatives apply to all of them, the analysis was done essentially for the operations and maintenance appropriations.

- Operations and Maintenance, Navy (O&MN)

- Operations and Maintenance, Navy Reserve (O&MNR)

- Operations and Maintenance, Marine Corps (O&MMC)

- Operations and Maintenance, Marine Corps Reserve (O&MMCR)

- Military Personnel, Navy (MPN)

- Reserve Personnel, Navy (RPN)   Excludes entitlements
                                                which are covered in
- Military Personnel, Marine Corps   Section 4.4 of this
     (MPCM)   report.

- Reserve Personnel, Marine Corps (RPMC)

4.2.1 Structures and the Processes They Support

4.2.1.1 Current Structures

Figure 4.2, on the next page, groups pertinent classification structures for Navy Operations by the programming, budgeting, and accounting (PB&A) processes they principally support. Several other structures are used in Operations management; however, they cause few problems during the course of PB&A activities. Those listed in Figure 4.2 warrant close scrutiny and are addressed in the following sections.

PROGRAMMING

NAVY TASK
NMC O&MN LINE ITEM
PROGRAM ELEMENT
PROGRAM/SUBPROGRAM
RESOURCE IDENTIFICATION CODE

BUDGETING

MISSION BUDGET CATEGORY

ADMINISTERING OFFICE/
    MAJOR CLAIMANT
APPROPRIATION
BUDGET ACTIVITY
BUDGET CLASSIFICATION CODE
UNIT IDENTIFICATION CODE

ACCOUNTING

ACTIVITY GROUP
BUDGET PROGRAM
BUDGET SUBPROJECT
DECISION UNIT
FUNCTIONAL PROGRAM
PE AGGREGATION
SUBACTIVITY GROUP

COST ACCOUNT
EXPENSE ELEMENT
FUNCTIONAL CATEGORY
OBJECT CLASS
SUBFUNCTIONAL CATEGORY

AUTHORIZATION ACCOUNTING
    ACTIVITY
BUDGET PROJECT
FUNCTIONAL ACCOUNT
JOB ORDER NUMBER

Figure 4.2. Pertinent Operations Classification Structures Showing PB&A Processes They Principally Support

4.2.1.2 Areas for Potential Improvement

Our examination of the classification structures shown in Figure 4.2 revealed that several had fallen into disuse or duplicated data accumulated in other structures. We also found that the value of some structures could be enhanced by combining them with other structures to form pyramidal relationships.

The Problem Definition for Financial Management Improvement Program (FMIP), June 1978, states that "existing Navy accounting systems accumulate data along appropriation lines and, therefore, do not give CNO sponsors a good historical base from which to project their costs."

The need, therefore, is to structure Operations information so that it can be readily integrated with other appropriations through use of com-

mon data structures such as program elements. The decision unit, which is a primary budgeting structure, is not a part of any accounting system. This prevents a ready crosswalk from budgeting to accounting at that level. Relationships between decision unit and other pertinent structures established within the accounting classification code and the accounting system would permit comparing execution data to budget data.

Data elements have been added into and moved among the various fields of the accounting classification code (ACC) to the extent that it is almost an unconstrained system of classification structures. The adding of structures or groups of structures has resulted in specialization of the ACC for various purposes. In particular, its subhead, bureau control number, property accounting activity, and cost code fields, have been used in an attempt to isolate and accumulate data to satisfy special needs. Even though this type of proliferation has occurred, the accounting data generated does not provide good historical data from which future costs can be projected. Also, these alterations to the O&MN accounting classification code have not resolved difficulties in relating PB&A data for Navy Operations. Major modification or restructuring of the O&MN ACC is necessary before its primary shortcomings can be overcome. A standardized ACC structure which would accumulate PB&A data in appropriate detail for managers would be ideal. However, the benefits from standardization of the ACC for one appropriation may be negated by inflexibility if the standardization is imposed on all appropriations. A better alternative would be to restructure the ACC and standardize the fields, with delimited flexibility within the fields to permit accumulation of data necessary for managers to track the sources and uses of their particular funds.

4.2.2 Evaluation of Structure Sufficiency

4.2.2.1 Problem Summation

Navy managers have indicated they need information which crosses appropriation and program element lines and is geared to functional and organizational needs. Since the Operations appropriations are the most varied and widespread throughout the Navy, Operations accounts present extensive programming, budgeting, and accounting complexities. There are a number of Operations classification structures that serve little, if any, purpose.

4.2.2.2 Operations Structure Evaluation

Current classification structures identified with the Operations set were rated in accordance with scoring procedures developed for this project (Section 3.3.6). The following structures scored appreciably below the 377 average for all DON classification structures being addressed and also were below the average of 361 for those in the Operations set:

- Budget Program   ⋅⋅   ● Functional Category
- Budget Project   ● Functional Program
- Budget Subproject   ● PE Aggregation

Our research also focused attention on several structures scoring above the 361 average that needed treatment in some fashion to resolve problems discussed previously. These are:

- Budget Classification Code   ● Subfunctional Category
- Cost Account   ● NMC O&MN Line Item
- Decision Unit   ● Program Element
- Functional Account

4.2.2.3 Operations System Evaluation

Comparing the average actual score with the maximum possible score per criterion aids in identifying particular strengths and weaknesses in the Operations set of structures. The comparison is made in Table 4.1.

TABLE 4.1

EVALUATION OF THE CURRENT OPERATIONS
CLASSIFICATION SYSTEM

	PURPOSEFUL	LINKED	ACCUMULATIVE	EFFECTIVE	ECONOMICAL	FLEXIBLE	TRACEABLE	NON–TURBULENT	COMPOSITE
MAXIMUM POSSIBLE SCORE	300	100	75	75	50	50	25	50	725
AVERAGE SCORE ACHIEVED	111	36	69	31	20	38	19	37	361
RATIO	.37	.36	.92	.41	.39	.76	.75	.75	.50

The table indicates the Operations system provides data not easily crosswalked among the various financial management processes of PB&A. Low scores for the "purposeful" and "economical" criteria support our research

findings that several structures in the system are redundant or of marginal value.

4.2.3 Alternative System Building Blocks

4.2.3.1 Structures Eliminated

During the course of this study we identified seven structures among the 27 comprising the Operations set which are obsolete or have marginal value. These seven structures should be discarded for the reasons given in the following paragraphs.

Functional Program, Program Element Aggregation, and Budget Program. These three structures were made obsolete by the advent of zero-base budgeting. They are similar to and serve the same purpose as activity group and subactivity group, which are the structures currently required for budgeting. The duplicative structures can be discarded.

Budget Project and Budget Subproject. These structures became of little use to Operations management at the time the resource management system was developed. Budget projects are still specified in Navy publications for use as functional subdivisions of the obsolete budget programs. They are also prescribed as subdivisions of allotments for specific purposes, which can be accomplished by use of the suballotment structure. They presently function to identify reimbursements to O&MN and to revolving funds, which can be accomplished by a new reimbursement source code we introduce in Section 4.7.2 of this report. Budget subproject, though documented in some Navy publications, is not currently used and has been deleted from the most recent draft of the Navy Programming Manual.

Functional Category. This structure has been used to accumulate data on base operating support (BOS) functions since publication of the governing directive, DoDI 7220.20, "Expense Data Requirements", April 11, 1968. More recently, OSD introduced a new BOS structure that effectively replaces the functional category structure. We recommend that Navy formally request that OSD rescind the requirement for functional categories.

Functional Accounts. This structure is prescribed in the Navy Comptroller Manual, but is not used in Operations. It is, moreover, duplicative of the cost account structure and is recommended for elimination. The impact of elimination on Military Construction and Military Personnel is addressed later in this section.

4.2.3.2 Structures Combined

There are several different ways to combine current Operations structures and improve their utility in PB&A processes. At least two options are presently being examined by DON. ·One involves restructure and redefinition of the existing budget classification codes based on the activity group and subactivity group structures; the other involves establishing direct relationships between the cost account structure and Shore Required Operational Capability (SHOROC) codes. Both options appear to offer improvements. The results of both options would add to the usefulness and efficiency of the Navy's PB&A process. We believe, however, that major additional benefits can be incorporated into the overall Navy classification system with minimal additional change. The ensuing discussion first describes functions and relationships of selected structures to give insights into the various forms that combined structures might assume and then describes various options from which we choose building blocks for an overall DON system.

Subfunctional Category. This structure currently collects expense and obligation information required by OSD or to fulfill management requirements of the operating budgets in the Navy and Marine Corps. Subfunctional category is a subset of both functional category and budget classification code; it is a roll up of cost accounts, and accordingly, it is an internal element of the pyramidal accounting structure for Operations. Figure 4.3, on the next page, using O&MN Budget Activity 1, illustrates these relationships. The example shows that typically the detail of the subfunctional category is adequately covered by the activity/subactivity group. In some cases the subfunctional category provides for a somewhat more detailed breakout than the corresponding subactivity group. However, if the subfunctional category were discontinued, the subactivity group list could be expanded if that level of detail is necessary at DON headquarters.

There are two management areas where a large amount of detail is provided through the subfunctional category structure. These two areas are recruiting and medical, as shown in Table 4.2 on page 4-10. Separate management and detailed information reporting systems exist for both of these areas. If it is determined that the detail data must be supported by the basic accounting system, the cost account structure could be expanded to meet the requirement.

Budget Classification Code, Activity Group, and Subactivity Group. A NAVCOMPT memo of 24 April 1979 states: "The budget classification code (BCC) was intended to be the primary functional element for use in budgeting and accounting in the operating appropriations. However, the current BCC structure has not been fully utilized for programming purposes and has not been regularly adjusted to reflect an evolving budget justification structure.

FUNCTIONAL/SUBFUNCTIONAL CATEGORY CODE

Operation of Aircraft
Operation of Aircraft

Administration,General
Other Administrative Expense
Travel, Special Aircraft Charter
Temp Add Duty

RDT&E Ships
All Other

Communications, Operating Forces
Repair Parts
RDT&E Ships
Ships Forces Material
ADP

RDT&E Ships
All Other

Administration, General
Maintenance of Service Craft &
    Miscellaneous Vessels
RDT&E Ships
All Other
Supply Operation,General
Industrial Preparedness
Standardization
Ship Maintenance logistics
Ship Engineer Logistics
Ship Industrial Logistics
Equipment Installation
Maintenance Support Electronics
Ordnance Rework
Quality Evaluation & Metrology
Maintenance Support, Ordnance
ASW Ordnance Rework

Administration,General
Maintenance of Service Craft &
    Miscellaneous Vessels
Base Services, General
Operation of Service Craft &
    Miscellaneous Vessels
Tender Availability
RDT&E Ships

BUDGET CLASSIFICATION CODE

Aircraft Operations

Flight Operations Support
  -Air Temp Add Duty

Ship Operations
Fuels & Utilities
Supplies & Equipage

Regular Ship Overhaul

Non Scheduled Ship Repair

Fleet Modernization Program

ASW Technical Support

Ship Intermediate Maintenance

ACTIVITY GROUP/SUBACTIVITY GROUP

FBM Airborne Communications
  -Aircraft Operations

FBM Airborne Communications
  -Air Temp Add Duty

●FBM Ship Operations
  -Fuel
  -Utilities
  -Repair Parts (S&E)
  -Other OPTAR (S&E)

●FBM Ship Maintenance &
  Modernization
  -Regular Ship Overhaul
  -Restricted Availability/
    Technical Availability
  -Ship Modernization (ALTS)
  -Ship Maintenance & Monitor-
    ing Support Office
  -Unique SONAR Support

FUNCTIONAL PROGRAM/SUBACTIVITY GROUP

●Aircraft Operations
  -Aircraft Operations

●Aircraft Support
  -Air Temp Add Duty

●Ship Operations
  -Fuel
  -Utilities
  -Repair Parts (S&E)
  -Other OPTAR (S&E)

●Ship Maintenance & Modernization
  -Regular Overhauls
  -Restricted Availability/Technical
    Availability
  -Ship Modernization (ALTS)
  -Ship Maintenance & Monitoring
    Support Office
  -SONARS

Intermediate Maintenance Activities Ships

SOURCE:
NAVCOMPT MANUAL VOL. 2
NAVCOMPT NOTE 7111
NCIS OPS SUBSYSTEM REPORT 30 SEP 78

Figure 4.3. Classification Structure Relationships for O&MN, Budget Activity 1

TABLE 4.2

EXAMPLES OF SUBFUNCTIONAL CATEGORIES
FOR MEDICAL AND RECRUITING ACTIVITIES

Medical	Recruiting
Medicare	Recruiting and Examining Operations
Medical Care In Nonservice Facilities	Recruiting Direct Support Program
Care of the Dead	Recruiting General Liaison Support Program
Clinical Investigation	Recruiting Education and Testing Program
Attendance at Professional Meetings	Recruiting Indirect Support Program
Lectures	Special Application Recruiting Pilot Program
Drug Testing	
Patient Affairs	Aviation Officer Recruiting Program
Dietetics	Minority Recruiting Program
Pharmacy	Reserve Recruiting Program
Laboratory	Enlisted Recruiting Program
Radiology	Recruitmobile Program
Alcohol Rehabilitation	Other Officer Programs
Occupational Health	Women Recruiting and Examination Program
Safety	
Janitorial	Nuclear Recruiting Program
Purchased Civilian Health Care	Upgrade Recruiting Facility Program
Special Bureau-Designated Programs	Recruiting Officer Management Orientation
Other Operations	Recruiting High School Speaker Program
Medical and Dental Operations	

"Accordingly, a joint NAVCOMPT/CNO project has been initiated to replace the current BCC structure with a new structure that will provide a common data element for programming, budgeting, and accounting in the operating appropriations. The new structure will be based on the activity group and sub-activity group utilized in the FY 1980 budget process...."

Some basic deficiencies in the activity group/subactivity group structure should be corrected before implementing this option. These deficiencies include the following:

● There is no identification in the structure for programs and activities which do not have O&MN funds but do have military personnel, e.g. FYDP Programs 4 and 6, and the Navy Industrial Fund.

● The structure for Intelligence and Telecommunication Command Control Program (T&CCP) in BA (FYDP Program) 3, needs to be

expanded and adjusted. For example, subactivities for the General Defense Intelligence Program (GDIP) should follow the program element structure to conform with program and budget reviews and control.

● "Audiovisual" should be treated as an activity/subactivity group only in those instances where there are centralized large scale audiovisual production or supply activities, such as in military training; otherwise, it should be included under Other Base Operating Support.

● The structures for systems commands in BA 7 are incomplete; for example, there is no activity group for supply centers in NAVSUP.

● Items required to be added to the activity/subactivity group structures include:

  - Security Assistance Activities
  - Care of the Dead
  - Mission ADP
  - Marine Corps Support

NMC O&MN Line Item. This structure was developed by NAVMAT to provide a detailed breakout of functional line items for programming and for budgeting purposes. The structure first appeared for the POM-81 development, and numbers approximately 450 items. Many of these can be provided for by expansion of the subactivity group structure. Other more detailed items should be provided for in the cost account structure.

Cost Accounts and SHOROC Codes. CINCPACFLT has been assigned a project to realign cost account codes with Shore Required Operational Capability (SHOROC) codes to provide a common structure. In addition to this action, the cost account structure needs to be expanded to account for non-manpower resources (e.g. fuel) and for certain detail now included in subfunctional categories and in NMC O&MN line items (e.g. medical and recruiting).

Object Class and Expense Element. The proposed combination of these structures into a new one-position OC/EE structure is described in detail in Section 4.7.1. This alternative is designed to resolve problems created by having two largely duplicative structures serving the same purpose.

4.2.3.3 Structures Redefined

As the Operations classification structures are changed in composition and in coding, the impact on the accounting classification code (ACC) needs to be assessed. Also, an evaluation is required of current Navy efforts to change the ACC.

STARS. In the Standard Accounting and Reporting System (STARS) project, NAVMAT has proposed a revision and standardization of the ACC for O&MN, O&MNR, and RDT&EN appropriations. The purpose of this proposal is to permit application of the Procurement Accounting and Reporting System (PARS) to the accounting functions of the other appropriations. In July 1978, comments on the proposal were obtained from Navy commands and offices. Details of the proposal were subsequently changed and NAVMAT has again proposed implementation of STARS for FY 1980. A working group is currently considering the matter.

The features of the STARS proposal for O&MN, compared to present systems, are shown in Figure 4.4. Shown on the bottom track of the figure is an alternative we developed to help overcome objections to Navy-wide implementation of STARS. This alternative uses existing classification structures. The proposed use of revised Operations structures in the accounting classification code is illustrated in Figure 5.2 and is discussed in Section 5.3.2.

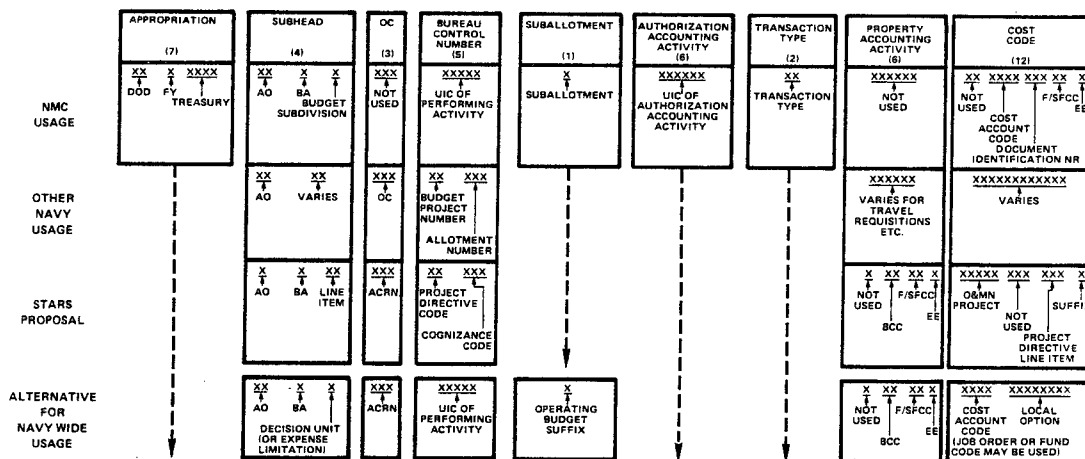|	APPROPRIATION (7)	SUBHEAD (4)	OC (3)	BUREAU CONTROL NUMBER (5)	SUBALLOTMENT (1)	AUTHORIZATION ACCOUNTING ACTIVITY (6)	TRANSACTION TYPE (2)	PROPERTY ACCOUNTING ACTIVITY (6)	COST CODE (12)
NMC USAGE	XX X XXXX / DOD FY TREASURY	XX X X / AO BA BUDGET SUBDIVISION	XXX / NOT USED	XXXXX / UIC OF PERFORMING ACTIVITY	X / SUBALLOTMENT	XXXXXX / UIC OF AUTHORIZATION ACCOUNTING ACTIVITY	XX / TRANSACTION TYPE	XXXXXX / NOT USED	XX XXXX XXX XX X / NOT USED F/SFCC EE / COST ACCOUNT CODE / DOCUMENT IDENTIFICATION NR
OTHER NAVY USAGE		XX XXX / AO VARIES	XXX / OC	XX XXX / BUDGET PROJECT NUMBER / ALLOTMENT NUMBER				XXXXXX / VARIES FOR TRAVEL REQUISITIONS ETC.	XXXXXXXXXXX / VARIES
STARS PROPOSAL		X X XX / AO BA LINE ITEM	XXX / ACRN	XX XXX / PROJECT DIRECTIVE CODE / COGNIZANCE CODE				X XX XX X / NOT USED F/SFCC EE / BCC	XXXXX XXX XXX X / O&MN PROJECT SUFFIX / NOT USED / PROJECT DIRECTIVE LINE ITEM
ALTERNATIVE FOR NAVY WIDE USAGE		XX X X / AO BA / DECISION UNIT (OR EXPENSE LIMITATION)	XXX / ACRN	XXXXX / UIC OF PERFORMING ACTIVITY	X / OPERATING BUDGET SUFFIX			X XX XX X / NOT USED F/SFCC EE / BCC	XXXX XXXXXXX / COST LOCAL ACCOUNT OPTION CODE (JOB ORDER OR FUND CODE MAY BE USED)

Figure 4.4. ACC Configuration to Accommodate the STARS Concept

Significiant features of our alternative for Navy-wide usage, in
terms of departures from the STARS proposal, are the following:

- The decision unit is included in the subhead and accordingly
  becomes the basis for resource authorizations. The decision
  unit would appear to be the highest level administrative
  subdivision of funds that is reasonable for fund distribution
  in accordance with Section 3679 of the Revised Statutes. Using
  decision unit, in contrast to budget classification or line
  item as proposed, will reduce workload considerably and in-
  crease flexibility of the responsibility center manager.

- The cost account, job order or fund code is included in the
  cost code field. The cost code field can be varied by local
  option as at present.

- The administering office (AO) code is increased from one to
  two positions, as it is now, to permit use of more than 34
  activities as AOs.

4.2.3.4 Structures Continued with Changed Usage

Decision Unit. Decision unit is a basic building block in budget
development and is the structure used for making budget decisions by OMB
and OSD. It is not now used in the programming process or in accounting.
Under the subalternatives presented here, the decision unit is coded, en-
tered in the accounting classification code, and included in NCIS and NARM.
This provides for the decision unit to become an integral part of the pro-
gramming process and a primary means of correlating programming, budgeting,
and accounting for Operations.

Program Element. One of the principal disconnects in the PB&A pro-
cess is the inability to relate budgeting and accounting data directly to
program elements (PEs). In recognition of this deficiency, the Problem
Definition for the Financial Management Improvement Program, June 1978,
contains the following recommendation:

· "...an effort to provide unambiguous PE relationships which support
Congressional budget requirements, as well as internal Navy management,
should be undertaken."

The PE is one of the basic classification structures in the Depart-
ment of Defense. It is the primary means of relating appropriations to
Defense programs and of grouping appropriations by organization and func-
tion. It is also the means of relating military forces, manpower, and
dollars to each other. It is the means of grouping data into Navy tasks,
Defense planning and programming categories, mission budget categories,
and various programs such as General Defense Intelligence Program, Tele-
communications and Command Control Program, and R&D Mission Areas.

In view of the importance of the program element, it is essential that accounting data be related to it. This is now done primarily through the unit identification code (UIC). However, this method is not entirely satisfactory because in some instances (e.g. base operations) a UIC may include more than one program element. Also, when the UIC shown in the ACC is the operating budget holder, many different PEs may apply.

In view of the above, as a subalternative to the restructuring of the Operations classification structures, we propose that the program element be given a two digit code (tied to budget activity) and this be included in the accounting classification code (ACC). The placement of this two digit PE code in the currently structured ACC is shown in figure 5.2. Alternatively, the PE code in its pure form can be used throughout the PB&A processes. Treatment of the full code in the revised ACC is discussed in Section 5.4 of this report.

4.2.3.5 New Structures Introduced

Operations Line Item. The restructuring of the Operations classification structures results in a new structure which can be called Operations line item. This structure consists of:

● the decision unit

● a revised, expanded activity group which rolls up into decision units

● a new line item, converted from a refined and expanded subactivity group, which rolls up into activity groups

Figure 4.5 displays the configuration of the Operations line item and shows generally its derivation from existing structures. The major simplification results from the elimination of budget classification codes and subfunctional categories, which are largely distributed or merged into activity groups and line items.

The decision unit is shown with a three digit code (same as the one prescribed by OSD). In the alternative discussed in connection with STARS (Section 4.2.3.3), the decision unit has a one position code. Regardless of the number of code positions for the decision unit, the activity group would have one digit appended to the decision unit and the line item would have one digit appended to the activity group codes. Figure 4.5 illustrates a five position code for Operations line item.
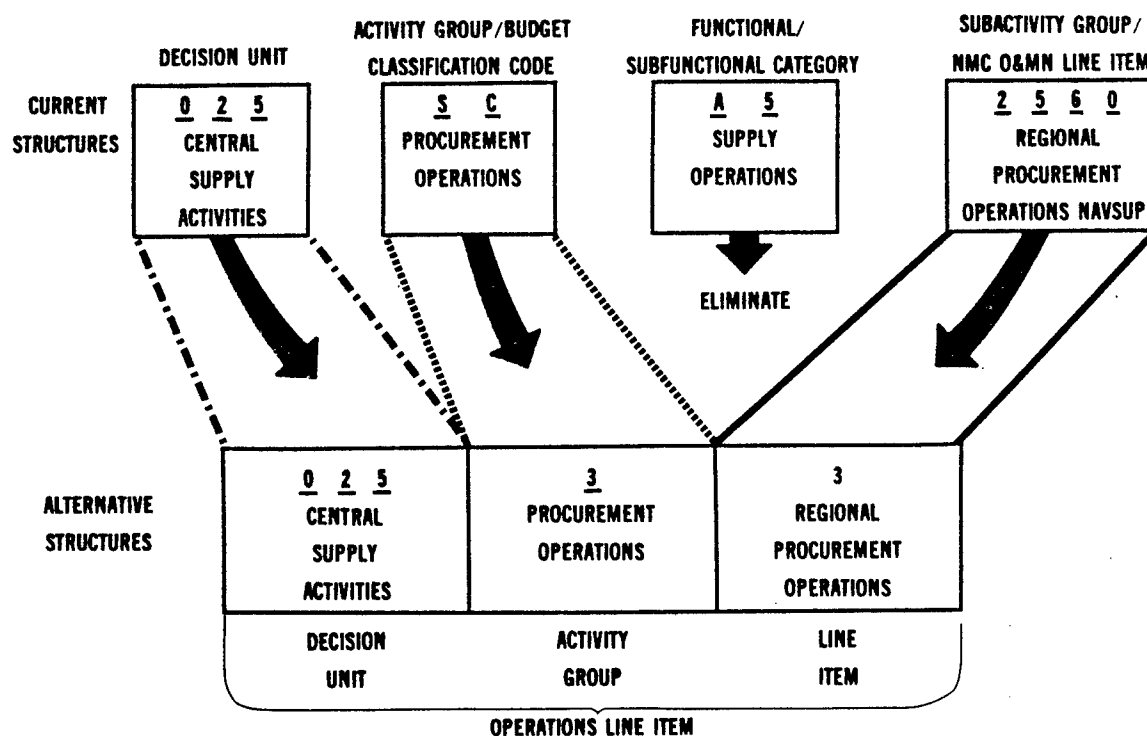
Figure 4.5. Conceptual Design of an Operations Line Item Structure

Closely related to the Operations line item is the cost account which rolls up into line items and completes the pyramidal relationship for basic Operations structures. Previously discussed is the adjustment of cost accounts to conform to the SHOROC structures. Also, cost accounts will include some residual accounts from subfunctional categories and NMC O&MN line items.

With this revised set of structures, cost accounts would continue to carry a four digit code so that common cost accounts will have the same code regardless of decision unit, activity group, or line item. This permits "horizontal" aggregation of common items and the detailed identification of weapon systems and other major items, including work breakdown structure, in maintenance activities.

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Under the concept of the Operations line item coding, a dictionary crosswalk would have to be created to add common activity groups and line items. The advantages of this scheme, in terms of code simplicity and automatic roll up capability, need to be weighed against the disadvantages of not having the same code for the same activity group or line item regardless of position in the structure. The decision would depend upon the extent of "horizontal" aggregation potential (e.g. aircraft operations or ship maintenance) and the frequency of need for such aggregation.

One area where horizontal aggregation is necessary is base operations support, but since base operations is a decision unit, the subdivisions (activity groups and line items) would carry the same coding regardless of budget activity. This ability to aggregate horizontally would include audiovisual activities as one of the subdivisions of base operations.

If the Navy decides that it is necessary to have discrete, stand-alone coding for activity groups and line items, this can be done by having two position codes for each. In such instances, the decision unit could be reduced to one position with dictionaries that aggregate line items into activity groups and subsequently into decision units.

4.2.3.6 Placement in Alternative Systems

Table 4.3 on the next page shows the more significant current operations structures and summarizes the changes made to them, grouped by the three systems alternatives. The structures shown in boxes under "COMBINE" cease to exist as separate structures as a result of combinations.

The following alternatives are placed in Systems Alternative 1 - Improved, because they are relatively less extensive in changes to be made and in potential turbulence than other proposed revisions:

● The Navy BCC restructure project.

● Correlation of cost account codes with SHOROC.

● Proposal for Navy-wide extension of STARS, using current structures.

Although the alternative of creating a new Operations line item is a major change, it is placed in Systems Alternative 2 - Intermediate, since it utilizes the existing structure of the accounting classification code. Also placed in Alternative 2 is the use of a two digit program element code in the accounting classification structure.

TABLE 4.3

ALTERNATIVE SYSTEMS BUILDING BLOCKS — OPERATIONS

CURRENT	ALTERNATIVE 1 IMPROVED	ALTERNATIVE 2 INTERMEDIATE	ALTERNATIVE 3 OPTIMAL
	Eliminate	**Eliminate**	**Eliminate**
Budget Program Budget Project Budget Subproject Functional Account Functional Category Functional Program PE Aggregation	Budget Program Budget Project Budget Subproject Functional Account Functional Category Functional Program PE Aggregation	⟶	⟶
	Combine	**Combine**	**Combine**
Activity Group Budget Classification Code Expense Element NMC O&MN Line Item Object Class Subactivity Group Subfunctional Category	Activity Group Budget Classification Code Expense Element NMC O&MN Line Item Object Class Subactivity Group ⟶	Activity Group ⟶ Subactivity Group Subfunctional Category	⟶ ⟶
	Redefine	**Redefine**	**Redefine**
(Accounting Classification Code) Authorization Accounting Activity Cost Account Job Order Number	(Accounting Classification Code) ⟶ Cost Account Job Order Number	(Accounting Classification Code) ⟶ Cost Account ⟶	(Accounting Classification Code) Authorization Accounting Activity ⟶
	Continue-Change Usage	**Continue-Change Usage**	**Continue-Change Usage**
Decision Unit Program Element Unit Identification Code	⟶ ⟶	Decision Unit Program Element ⟶	Decision Unit Program Element Unit Identification Code
	Introduce	**Introduce**	**Introduce**
	OC/EE	⟶ Operations Line Item	⟶ Operations Line Item
	Continue	**Continue**	**Continue**
Administering Office/Major Claimant Appropriation Budget Activity Mission Budget Category Navy Task Program/Subprogram Resource Identification Code	Administering Office/Major Claimant Appropriation Budget Activity Mission Budget Category Navy Task Program/Subprogram Resource Identification Code	⟶	⟶

Note: Boxed structures are eliminated through combination. Accounting classification code is not a structure but a composite of structures.

Alternative 3 - Optimal changes involve the restructuring of the accounting classification code which are discussed in detail in Section 5.4.

The combination of object class with expense element and the standardization of the job order number are discussed in Section 4.7.1. They have been placed in Alternative 1.

4.2.3.7 Alternative Structure Evaluation

Applying the evaluation criteria to the structure changes described above produces an increase in the average score from 361 for current Operations structures to 430 for the revised structures in Alternative 3, including a reduction in score for turbulence resulting from implementation. After discounting the turbulence impact, the average score rises to 450.

Table 4.4 illustrates for each alternative the ratios of average actual to average possible scores per criterion. The table shows that as structures change from their current status to the listed alternatives, significant improvements occur. The scores indicate that the improvement in subset, roll up relationships and in carrying the same or related structures through the PB&A processes has a significant impact.

TABLE 4.4

EVALUATION OF ALTERNATIVE
OPERATIONS CLASSIFICATION SYSTEMS

	PURPOSEFUL	LINKED	ACCUMULATIVE	EFFECTIVE	ECONOMICAL	FLEXIBLE	TRACEABLE	NON–TURBULENT	COMPOSITE
CURRENT RATIO	.37	.36	.92	.41	.39	.76	.75	.75	.50
ALTERNATIVE 1	.53	.40	.92	.47	.52	.86	.72	.58* .66	.58 .59
ALTERNATIVE 2	.53	.44	.92	.56	.60	.90	.76	.50 .62	.60 .62
ALTERNATIVE 3	.53	.44	.92	.56	.64	.90	.76	.48 .62	.59 .62

* Where two ratios are shown, the lower reflects reduction for implementation turbulence.

4.2.4 Summary of Improvements

Through refinements, expansions, and mergers, a new set of structures is created in Operations, consisting of:

- Activity Group (AG)
- Line Item (LI)
- Cost Account (CAC)

The following classification structures are eliminated:

- Functional Program
- Program Element Aggregation
- Budget Program
- Budget Project
- Budget Subproject
- Functional Category

- Subfunctional Category
- Functional Account
- Budget Classification Code
- Subactivity Group
- NMC O&MN Line Item

A pyramidal coding structure for decision unit, activity group, and line item with automatic roll up capability is provided.

The STARS proposal for O&MN application in the accounting classification code is revised for Navy-wide use.

The program element is included in the accounting classification code.

Overall, marginal use structures are eliminated, some structures are merged, and the result is a hierarchical set of data structures which can be used through the programming, budgeting, and accounting processes. Also, provision is made for inclusion of the program element within the accounting system in order to improve the correlation of programming, budgeting, and accounting.

4.3   RESEARCH, DEVELOPMENT, TEST, AND EVALUATION, NAVY

In this section we group classification structures that are used for RDT&EN appropriation management, summarize areas for potential improvement, and apply our evaluation criteria to the identified RDT&EN classification system. We also discuss a change to the Standard Accounting and Reporting System (STARS) that the Navy presently is considering. We conclude by proffering alternative structures that affect RDT&EN, one of which calls for use of the decision unit (DU) structure in the programming and accounting processes as well as in budgeting.

4.3.1 Structures and Processes They Support

Figure 4.6 groups pertinent current structures for RDT&EN appropriation management by the PB&A processes they principally support. Excluded
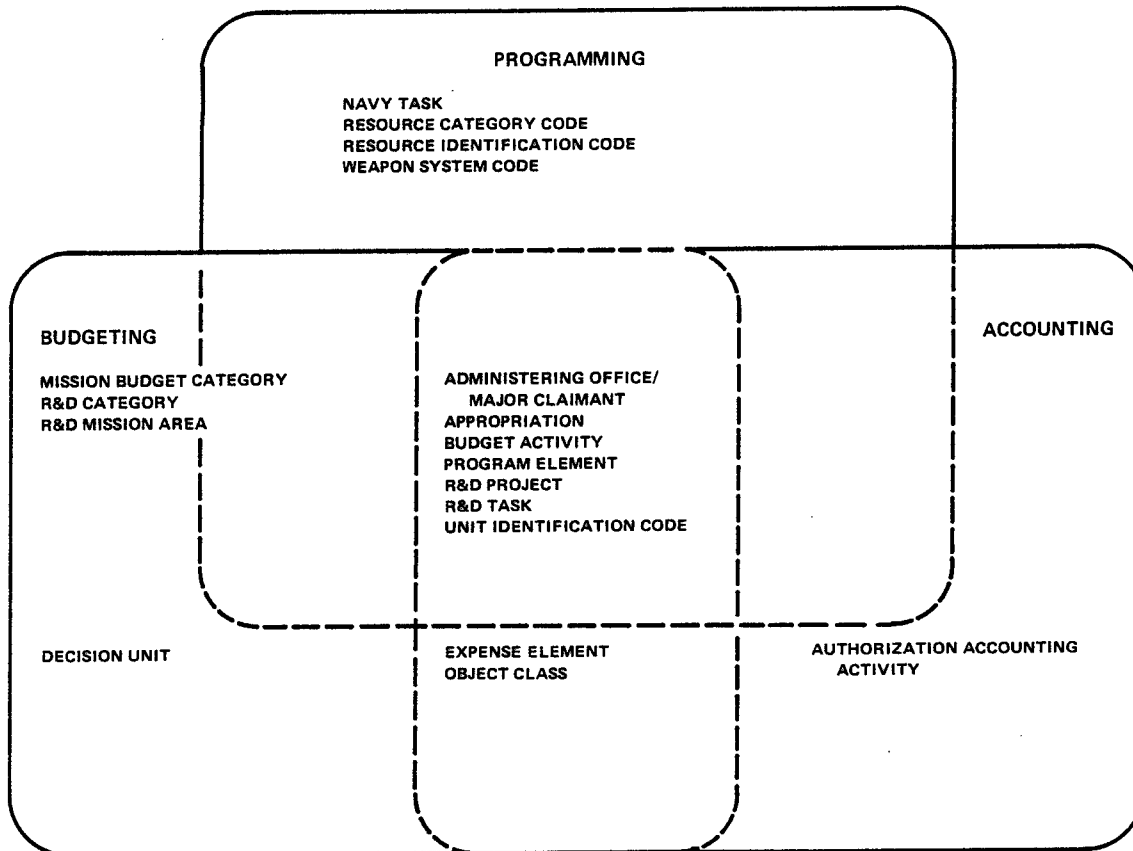
Figure 4.6. Pertinent RDT&EN Classification Structures Showing PB&A Processes They Principally Support

are structures which have minor significance to RDT&EN or are not routinely applied in the accounting classification code (ACC).

4.3.2 Evaluation of Structure Sufficiency

4.3.2.1 Areas for Potential Improvement

The Problem Definition for the Financial Management Improvement Program, June 1978, states that "...the RDT&EN appropriation at this time appears to be a well-structured, tightly controlled appropriation throughout the programming, budgeting, and accounting processes with the majority of problems discovered centered in the accounting area." The FMIP 77-2 project team also reported that there were "no real unbearable problems" except for those on which some corrective action was being taken. The

one residual problem identified is "the need to establish a better method of relating appropriations such as O&MN and Procurement to pertinent segments of RDT&EN through the budget and accounting process."

4.3.2.2 Application of Evaluation Criteria

Application of the evaluation criteria to each structure shown in Figure 4.6, produces an average score of 442. This average, compared to a maximum possible score of 725 and the average score of 377 for all DON classification structures being addressed in this project, supports the contention that the RDT&EN classification system is fairly well structured. The relatively low scores for the "purposeful" and "economical" criteria, as reflected in Table 4.5, can be improved by changes to structures that are also used by other appropriations. These changes are discussed in Section 4.3.4.

TABLE 4.5

EVALUATION OF THE CURRENT RDT&EN
CLASSIFICATION SYSTEM

	PURPOSEFUL	LINKED	ACCUMULATIVE	EFFECTIVE	ECONOMICAL	FLEXIBLE	TRACEABLE	NON–TURBULENT	COMPOSITE
MAXIMUM POSSIBLE SCORE	300	100	75	75	50	50	25	50	725
AVERAGE SCORE ACHIEVED	148	51	66	51	20	43	21	42	442
RATIO	.49	.51	.88	.68	.40	.87	.82	.83	.61

4.3.3 Standard Accounting and Reporting System (STARS)

The Naval Material Command (NAVMAT) has recommended several changes to the accounting classification code (ACC) as part of the STARS proposal. The NAVMAT version of the ACC structure as currently used for RDT&EN accounting purposes is shown on the top track of Figure 4.7 with changes proposed by NAVMAT shown in the bottom track.
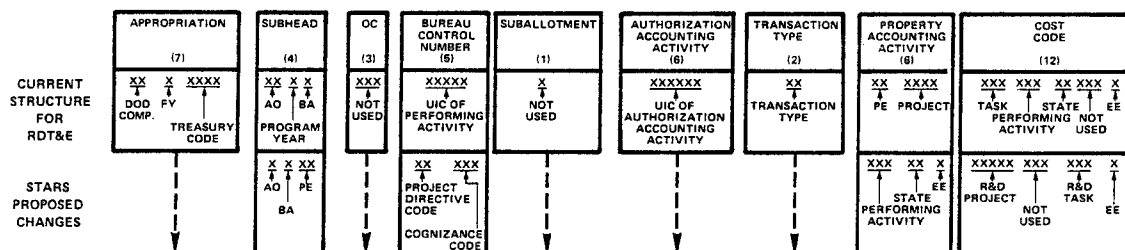
Figure 4.7. Comparison of Current ACC Usage for RDT&EN with Changes Proposed Under the STARS Concept

The Office of Naval Research (ONR) commented on the proposal as follows:

- The revised structure will "necessitate a complete revision to (the current) method of accounting and internal management."

- Objectives, goals and benefits of the change are lacking. There is an internal Navy project on the redesign of the RDT&EN accounting system, and that project should take precedence over the STARS proposal.

- Utilizing the PARS data base (the primary purpose of STARS) was previously rejected for RDT&EN.

- The PARS accounting system has several major deficiencies which must be resolved prior to extending it.

- The FIPC working committee on RDT&EN should be reactivated and be given guidance to complete the redesign.[1]

In consideration of the above, and with the lack of a clear benefit from the proposed change, the study team does not believe that it would be desirable to make any short-range changes to the ACC for RDT&EN such as provided in the STARS concept. Alternatively, a long-range change in the ACC, such as described in Section 5.4, would seem to be appropriate.

[1]ONR ltr. Ser 839 of July 24, 1978.

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4.3.4 Alternative System Building Blocks

Table 4.6 summarizes the various structural alternatives that involve the primary RDT&EN classification structures and indicates where we believe they should be positioned in the DON classification system alternatives we have developed.

TABLE 4.6

ALTERNATIVE SYSTEM BUILDING BLOCKS — RDT&EN

CURRENT	ALTERNATIVE 1 IMPROVED	ALTERNATIVE 2 INTERMEDIATE	ALTERNATIVE 3 OPTIMAL
	Combine	Combine	Combine
Expense Element Object Class	[Object Class] [Expense Element]	} ──────▶	} ──────▶
	Redefine	Redefine	Redefine

Authorization Accounting
  Activity
(Accounting Classification
  Code)
Weapon System Code
	}
	}
	}
	Weapon System Code ──────▶
		}
		} ──────▶
			Authorization Accounting
			  Activity
			(Accounting Classification
			  Code)
			} ──────▶

			Continue-Change Usage
Decision Unit	} ──────▶	} ──────▶	Decision Unit
	Introduce	Introduce	Introduce
	OC/EE	} ──────▶	} ──────▶
	Continue	Continue	Continue
Administering Office/Major Claimant Appropriation Budget Activity Mission Budget Category Navy Task Program Element Resource Category Code Resource Identification Code R&D Category R&D Mission Area R&D Project R&D Task Unit Identification Code	} ──────▶	} ──────▶	} ──────▶

Note: Boxed structures are eliminated through combination. Accounting classification code is not
a structure but a composite of structures.

The combination of the object class and expense element structures into a new 1-position code recognizes the similarity between the two structures and economizes on field length in various data systems. Details of the proposed action are in Section 4.7.1 The proposed change to the weapon system code is treated in Section 4.6. Neither change has great impact on RDT&EN management or on supporting systems; however, both changes will improve resource management capabilities in the Navy if they are implemented uniformly for all appropriations. Moreover, improved capability to capture weapon system acquisition costs through disciplined use of the proposed

weapon system code structure should enhance relationships between the RDT&EN, procurement, and construction appropriations. RDT&EN and Procurement are also tied together in the R&D mission area structures. The other residual problem, relationship with O&MN and other operating costs, can be resolved through improvements in VAMOSC, discussed in Section 4.8. The Navy task, mission budget category, and program element are also principal structures for integrating the various appropriations.

The decision unit (DU) is the one classification structure that can best be used to interrelate programming with budgeting and with accounting for all appropriations. In RDT&EN, the program element (PE) now serves this purpose, but at a fairly low level of detail. The decision unit, which is a roll up of PEs, is the structure for formal OMB/OSD budget decisions, and is at an appropriate level of aggregation for expressing and tracking major programming decisions. A key feature of our alternatives, insofar as RDT&EN is affected, is the inclusion of the decision unit in the ACC. This change to the ACC is illustrated and discussed in Section 5.4 of this report.

For each alternative, Table 4.7 compares ratios of average actual score and the maximum possible score per criterion.

TABLE 4.7

EVALUATION OF ALTERNATIVE RDT&EN
CLASSIFICATION SYSTEMS

	PURPOSEFUL	LINKED	ACCUMULATIVE	EFFECTIVE	ECONOMICAL	FLEXIBLE	TRACEABLE	NON–TURBULENT	COMPOSITE
CURRENT RATIO	.49	.51	.88	.68	.40	.87	.82	.83	.61
ALTERNATIVE 1	.52	.56	.87	.68	.45	.95	.81	.81*.85	.63.64
ALTERNATIVE 2	.52	.56	.87	.68	.45	.95	.81	.81.85	.63.64
ALTERNATIVE 3	.52	.58	.87	.68	.52	.95	.81	.76.91	.64.65

* Where two ratios are shown, the lower reflects reduction for implementation turbulence.

In addition to the decision unit change addressed in this section, the OC/EE merger and the authorization accounting activity (AAA) and weapons system code (WSC) structure alternatives cause improvement in the RDT&EN set of structures.

4.4   MILITARY PERSONNEL

The paragraphs that immediately follow describe classification structures and alternatives that affect the military personnel appropriations, except for those activities pertaining to Operations treated in Section 4.2 of this report. The appropriations considered in the ensuing discussion are:

- Military Personnel, Navy   • Military Personnel, Marine Corps
- Reserve Personnel, Navy   • Reserve Personnel, Marine Corps

4.4.1 Structures and Processes They Support

4.4.1.1 Current Structures

Figure 4.8 reflects the pertinent classification structures which support the programming, budgeting, and accounting (PB&A) processes for personnel appropriations, Navy and Marine Corps.
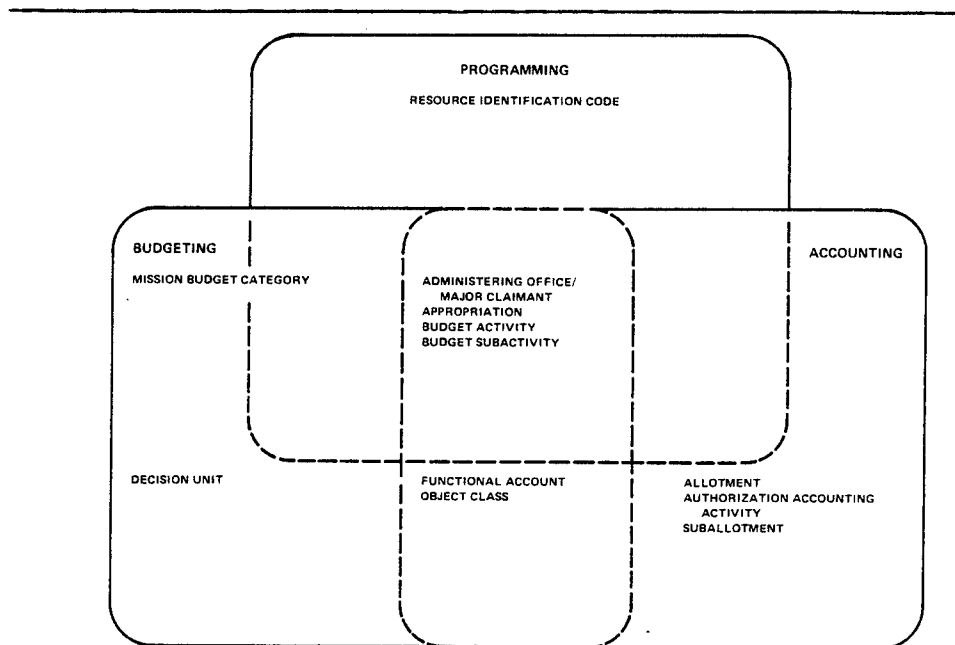
Figure 4.8. Pertinent MILPERS Classification Structures Showing PB&A Processes They Principally Support

4.4.1.2 <u>Areas for Potential Improvement</u>

Primary classification structures in personnel appropriations are budget activity (BA) and budget subactivity (BSA). In addition to supporting the PB&A processes, they relate directly to three other classification structures within military personnel, have a hierarchical relationship to each other, and are part of the accounting classification code (ACC).

The functional account structure supports military personnel budgeting and accounting processes and is recorded in the cost code field of the ACC. Functional account data relate to net pay, advance payments on permanent change of station (PCS), death gratuities, etc. In the area of PCS travel, functional account data accumulations relate to uncodified justification material which is required to support personnel budgets submitted to OSD. The functional account structure can readily be redefined to shorten its code form. The title "Functional Account" should be eliminated and a more descriptive term should be created. The data accumulated in the functional account should be combined with budget detail and inserted in the ACC.

The decision unit is a budgeting classification structure which is related to budget activity and budget subactivity. It is not recorded in the ACC and therefore, is not used to link the processes of budgeting and accounting. The decision unit is a classification structure which can best relate budgeting to accounting in military personnel appropriations and should be part of the ACC.

4.4.2 <u>Evaluation of Structure Sufficiency</u>

4.4.2.1 <u>Problem Summation</u>

The more pervasive problems caused by current MILPERS classification structure design and use are summarized as follows:

● Accounting data are accumulated in two different ways, depending upon the particular set of budget activities involved. For instance, accounting data for BAs 1, 2, and 3 are accumulated at budget activity level; accounting data for BAs 4, 5, and 6 are accumulated at budget subactivity level.

● Reconciliation of actual obligations to planned obligations is not accomplished below budget activity level in BA 1, 2, and 3 because summary functional account data distributed to detail functional account cannot be identified to budget subactivity level.

● Some duplication exists between functional accounts and budget detail data.

4.4.2.2 Personnel Structures Evaluation

Application of our evaluation criteria to the structures shown in Figure 4.8 produces an average actual score of 360 compared to the 377 average for all classification structures being addressed by this report. Both budget subactivity and object class score considerably below the average. Functional account scores slightly above the average; however, both it and the budget subactivity structure score low for the criterion "linked" indicating that their association with other classification structures in a subset or roll up relationship is weak.

Data accumulated at summary functional account level, i.e. net pay functional account, are translated into detail data. As a result, functional account scores low in the criterion "economical".

Although budget subactivity is a part of the ACC for military personnel, the classification structure is not used as an accumulator for all budget subactivity data resulting in a low score in the criterion "accumulative".

In Table 4.8 a comparison of the average actual score with the maximum possible score per criterion is made to identify strengths and weakness in the current military personnel classification system of structures.

TABLE 4.8

EVALUATION OF THE CURRENT MILPERS
CLASSIFICATION SYSTEM

	PURPOSEFUL	LINKED	ACCUMULATIVE	EFFECTIVE	ECONOMICAL	FLEXIBLE	TRACEABLE	NON-TURBULENT	COMPOSITE
MAXIMUM POSSIBLE SCORE	300	100	75	75	50	50	25	50	725
AVERAGE SCORE ACHIEVED	120	22	59	38	20	43	18	40	360
RATIO	.40	.22	.78	.51	.40	.85	.71	.81	.50

While the military personnel structures provide managers with data necessary to control their funds, the ratios of average scores to maximum possible scores, as shown in Table 4.8, reflects that the structures generally do not crosswalk data between the financial management processes, that their capability to support comparison between budget and actual data is weak, and that some data, after accumulation, are translated into greater detail using standardized data distribution techniques.

Establishing linkage between classification structures is the key to providing management with the data necessary to manage resource usage. The weaknesses of the classification structures indicated by the low ratio for the criterion "linked", emphasizes the need to improve the military personnel structures so direct roll up and subset relationships are established, thereby giving a capability to accumulate data necessary for the integration of the PB&A processes within the Navy.

4.4.3 Alternative System Building Blocks

4.4.3.1 Structures Eliminated

The functional account structure is redundant within the military personnel appropriations. It can be eliminated by combining its functions with functions performed by other structures to reduce duplication and shorten code forms. The following paragraphs support this conclusion as they discuss various aspects of military personnel appropriation management and the application of supporting classification structures.

Functional Account. Functional account data classifies military personnel payments according to the entitlement for which payments are made, e.g. FAN 71110 is net pay of officers. Permanent change of station data is classified in functional accounts according to type of travel or transportation expenses incurred, e.g. FAN 74270 is Navy member travel, mileage. Classification for PCS travel accomplished by the functional account structure can be realigned with budget detail data to meet the requirements of OSD, thus permitting elimination of the functional account structure.

Budget Detail. Entitlements for other than PCS travel can be identified more economically by redefining the residual functional accounts, combining them with budget detail, and shortening their code form. Table 4.9 illustrates the results of these actions. The first code position identifies the service member, dependents, or special transportation allowances such as transportation of household goods, trailer allowances, etc. The second position identifies the type of PCS travel involved, such as accession, training, operational, rotational, separation, or travel of organized units. The third and fourth positions identify by what means travel was

TABLE 4.9

EXAMPLE OF RESTRUCTURED FUNCTIONAL ACCOUNTS

Code	(PCS Travel)
1351	Navy Officer Separation Travel, Mileage
2456	Navy Enlisted Person, Rotational Travel, Commercial Air

Code	(Other Than PCS Travel)
1001	Navy Officers, Net Pay
2012	Navy Enlisted Persons, Death Gratuity

performed, or what type of shipment was involved with the PCS travel. For other than PCS travel, the first position serves the same purpose as just described for PCS travel. A difference occurs in the next three positions which identify the type of payment which is accrued. The alternative structure is readily adaptable to the current accounting classification code.

4.4.3.2 Structures Combined

Object Class/Expense Element. Our proposal to combine the object class and expense element structures is discussed in detail in Section 4.7.1. Implementation of this alternative would have little direct impact on military personnel appropriations; however, the alternative does provide a more useful OC/EE for Navy-wide application.

Budget Detail. Discussed in Section 4.4.3.1.

4.4.3.3 Structures Redefined

Budget Subactivity. Budget subactivity, e.g., "A" basic pay, is a subdivision of an appropriation which divides each budget activity into related programs or groups of programs.

The current code is a budget activity-dependent, one position, alphabetic character. For example, the code "A" identifies either basic pay, basic allowance for subsistence, accession travel, or apprehension of military deserters, depending upon the budget activity with which it is used.

By redefining and recodifying the budget subactivity, it can be directly related to decision units (discussed in Section 4.4.3.4) and retain its relationship to budget activity, thereby providing the means to compare budget and actual data to both budget activity and decision unit. Table 4.10 provides examples of a proposed code form.

TABLE 4.10

EXAMPLES OF RESTRUCTURED MILPERS BUDGET SUBACTIVITY

BA	BSA	Current Code/Title	Proposed Code/Title
1	A	Basic Pay, Officers	
2	A	Basic Pay, Enlisted Personnel	01 Basic Pay
3	A	Pay and Allowances of Aviation Cadets	
6	A	Apprehension of Deserters	11 Apprehension of Deserters, Absentees, and Escaped Military Prisoners
6	C	Death Gratuities	12 Death Gratuities
1	I	Separation Payments, Officers	24 Separation Payments
2	K	Separation Payments, Enlisted Personnel	
5	E	Separation Travel	25 Separation Travel

The restructured budget subactivity could not be inserted into the one position presently reserved in the subhead field of the accounting classification code for this purpose. Space for the proposed two position structure is available in the property accounting activity field or the cost code field of the ACC. However, the primary benefit resulting from the proposed restructure is that it establishes a basis for later action to link budget subactivity with the decision unit structure.

4.4.3.4 Structures Continued With Changed Usage

The decision unit (DU) is the primary budget classification structure for all appropriations, specifying the structure for submission of budget

estimates in machine readable form and the level at which OSD decisions are made. It identifies a program or organizational entity to provide a focus for analysis during budget formulation and review. We believe the DU, introduced and made visible during the programming and accounting processes, would function as one of the necessary direct linkages among all three PB&A processes. We propose to link the DU with a redefined budget subactivity for recording in the ACC. This linkage, in conjunction with the proposed military personnel account (MPA) structure, would provide the capability to track actual data to budget estimates and obligations, and would also establish historical data to use with strength projections to prepare budget estimates. This proposal to link DU to BSA does not disturb the hierarchical relationship that presently exists between budget activity (BA) and BSA. An appropriate title for the new structure is "MILPERS Line Item". A five digit coding convention is illustrated in Table 4.11.

TABLE 4.11

ILLUSTRATION OF MILPERS LINE ITEM CODE FORM

DU Title	DU Code	BSA Code	Line Item Title
Direct Pay	502	01	Basic Pay
Special Incentive and Miscellaneous Pay	512	11	Apprehension of Deserters
Gain/Loss Related	522	24	Separation Payments

4.4.3.5 Structures Introduced

Military Personnel Account. A case is made elsewhere in this report to discontinue use of functional accounts for all appropriations. To be consistent and also to adopt a more meaningful title, we recommend a term "military personnel accounts" to better describe the data accumulated to support the budgeting and accounting processes in military personnel appropriations.

4.4.3.6 Alternative Structure Evaluations

Applying our evaluation criteria to the structure changes just described produces an increase in the average score from 360 for current structures to 408 for the composite of the alternative building blocks. Redesign of the functional account structure and retitling it as military

personnel account can be implemented within the short-term with little turbulence. It does not require additional positions in the accounting classification code. Improvements in the structure result from establishing position logic within the code and shortening it by one position.

4.4.3.7 Placement in Alternative Systems

Table 4.12 summarizes the various alternatives pertaining to the military personnel appropriations and indicates the proposed changes as they have been developed.

TABLE 4.12

ALTERNATIVE SYSTEM BUILDING BLOCKS – MILPERS

CURRENT	ALTERNATIVE 1 IMPROVED	ALTERNATIVE 2 INTERMEDIATE	ALTERNATIVE 3 OPTIMAL
Functional Account	Eliminate Functional Account	Eliminate }————▶	Eliminate }————▶
Object Class/Expense Element (Budget Detail)	Combine [Object Class/Expense Element] ————▶	Combine }————▶ }————▶	Combine }————▶ (Budget Detail)
Budget Subactivity (Accounting Classification Code) Authorization Accounting Activity	}————▶	}————▶	Redefine Budget Subactivity (Accounting Classification Code) Authorization Accounting Activity
Decision Unit	}————▶	}————▶	Continue-Change Usage Decision Unit
	Introduce Military Personnel Account OC/EE	Introduce }————▶	Introduce }————▶ Line Item
Administering Office/Major Claimant Allotment Appropriation Budget Activity Mission Budget Category Resource Identification Code	Continue }————▶	Continue }————▶	Continue }————▶

Note: Boxed structures are eliminated through combination. Accounting classification code is not a structure but a composite of structures. Budget Detail is not a coded classification structure.

Combining military personnel accounts with budget detail data expands the capability of the accounting system to accumulate data to track accounting to budgeting. This option would require time to restructure and recode

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the data elements necessary to support military personnel budgeting. It, therefore, is placed in Alternative 3.

By changing usage of the decision unit and inserting the structure with line item into the optimal system accounting classification code, a pyramidal structure is created whereby budget can be compared to actual data. When used in conjunction with the combined military personnel account (MPA), a direct relationship is established among MPA, BSA, and DU while maintaining the relationship between budget activity and BSA. This option is assigned to Alternative 3.

4.4.3.8 Alternative System Evaluation

Again applying our evaluation criteria we are able to discern specific areas in which capabilities to crosswalk and relate PB&A data would occur under each alternative system. This improvement is illustrated in Table 4.13 which shows for each alternative the ratios of average actual scores to average possible scores for each criterion. This comparison, while the rate of increase varies, shows that during our development of alternatives for military personnel appropriations, we have emphasized the establishment of subset and roll up relationships between structures. Another of the values of each alternative is the establishment of structures that have the capability of accumulating data which can be used in reconciling obligations to expenditures without the necessity of distributing summary data into detail accounts.

TABLE 4.13

EVALUATION OF ALTERNATIVE MILPERS CLASSIFICATION SYSTEMS

	PURPOSEFUL	LINKED	ACCUMULATIVE	EFFECTIVE	ECONOMICAL	FLEXIBLE	TRACEABLE	NON-TURBULENT	COMPOSITE
CURRENT RATIO	.40	.22	.78	.51	.40	.85	.71	.81	.50
ALTERNATIVE 1	.41	.31	.78	.51	.47	.93	.71	.78*/.89	.52/.52
ALTERNATIVE 2	.41	.31	.78	.51	.47	.93	.71	.78/.89	.52/.52
ALTERNATIVE 3	.42	.35	.87	.57	.67	.93	.71	.64/.89	.54/.56

* Where two ratios are shown, the lower reflects reduction for implementation turbulence.

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4.4.4 Summary of Improvements

Improvements resulting from implementation of the alternative structures described herein are:

- Standardized level for accumulating accounting data for all MILPERS budget activities.

- Established means for accumulating data for reconciling disbursements and obligations.

- Provided a capability to track actual (as opposed to derived) accounting data to budget data.

4.5 MILITARY CONSTRUCTION, NAVY

The paragraphs that immediately follow discuss classification structures that support PB&A activities concerning the Military Construction, Navy (MCN) appropriation. Findings and proposed structural changes presented in these paragraphs apply equally to the Military Construction, Naval Reserve (MCNR) appropriation. Variations needed to accommodate Navy and Marine Corps responsibilities for pertinent segments of the Defense Family Housing Management Account (FHMAD) are covered when appropriate.

4.5.1 Structures and Processes They Support

4.5.1.1 Current Structures

Figure 4.9 groups 19 classification structures pertinent to MCN appropriation management by the PB&A processes they principally support. Excluded are structures that have minor significance to MCN or are not routinely applied in the accounting classification code (ACC).

4.5.1.2 Areas for Potential Improvement

Construction project, appearing near the center of Figure 4.9, is considered an entity and is treated as such throughout the planning, budgeting, and accounting processes. Our examination reveals that construction projects

are not assigned within the Navy task structure, do not appear in resource allocation displays (RADs), and, therefore, are not fully considered and evaluated throughout the programming process.

Facility class and construction category (FCCC) is a structure prescribed by DoD for use in planning, programming, accounting, record keeping, and reporting in the areas of construction, inventory, and maintenance of real property. It is imbedded in the resource category code (RCC) and is input to the Navy Cost Information System (NCIS) in that form. It is used in its pure form for other construction programming purposes. With some minor exceptions, it is the same as decision units (DU) and otherwise plays a role during the budgeting process. Finally, it is the base structure for the category code/nomenclature (CCN) structure and, in that form, is used for real property inventory purposes. We have not found it to be used by the Navy for other accounting purposes.
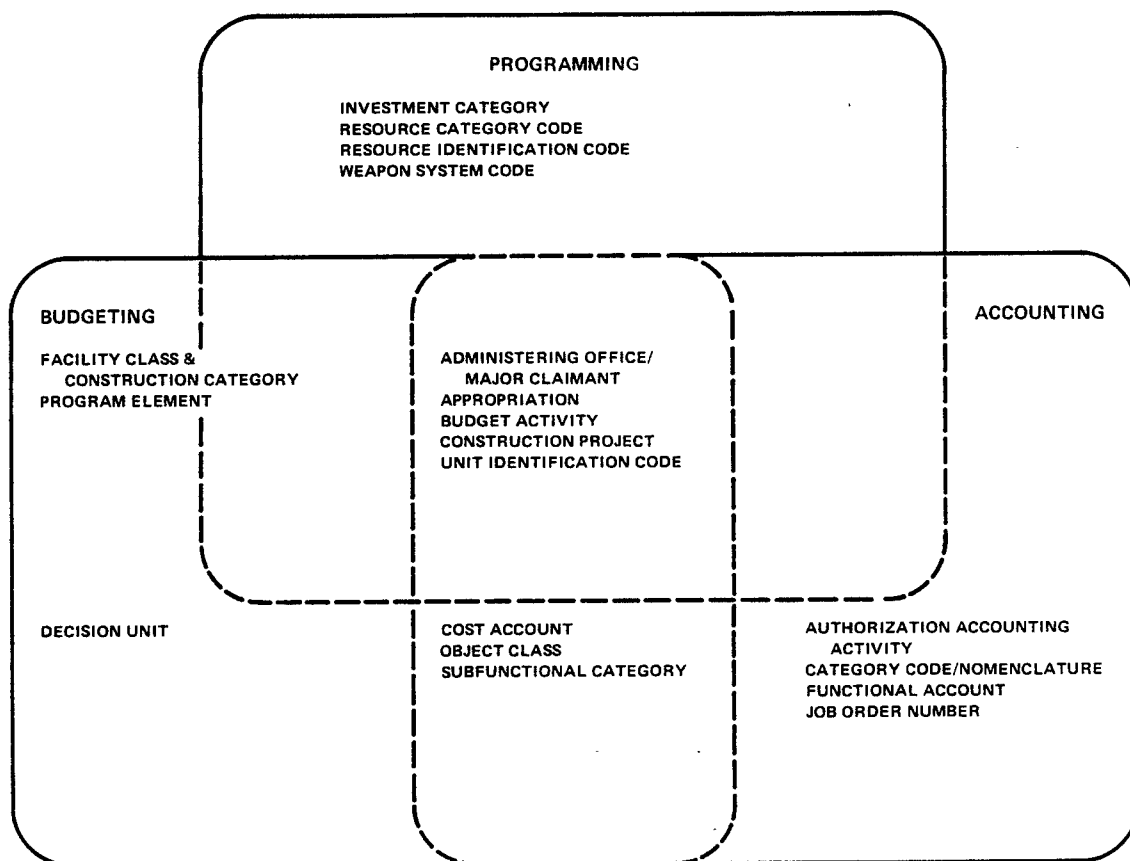
Figure 4.9. Pertinent MCN Classification Structures Showing PB&A Processes They Principally Support

A reasonable approach to improve capabilities to manage resources funded by MCN appears to be one that includes provisions for more effective use of the construction project and the FCCC structures throughout the PB&A processes. This approach also would assist the Navy in preparing the FYDP Automated Construction Annex Data Base required by Chapter 463 of DoD 7110-1-M (Budget Guidance Manual).

4.5.2 Evaluation of Structure Sufficiency

4.5.2.1 Problem Summation

Our analysis of the basic structures that make up the MCN classification system disclosed the following general deficiencies in their configuration or use:

- Lack of construction project visibility in resource allocation displays (RADs).

- Lack of a common thread to link MCN resources together throughout PB&A processes.

- Non-standard use of the ACC cost code field.

4.5.2.2 MCN Structure Evaluation

Application of our evaluation criteria to each structure shown in Figure 4.9 produces an average score of 392. This average, compared to the average score of 377 for all DON classification structures being addressed in this project indicates that the MCN classification system is relatively strong. However, several structures that score below or near the average need special attention. These are:

- Construction Project
- Functional Account
- Job Order Number
- Object Class
- Category Code/Nomenclature
- Subfunctional Category

Three structures that score above the average of 392 also must be analyzed in detail because of their prominence in the overall MCN classification system. These are:

- Facility Class and Construction Category
- Resource Category Code
- Weapon System Code

4.5.2.3 MCN System Evaluation

Further application of the evaluation criteria developed for this project aids in identifying particular areas of weakness in the basic MCN classification system as illustrated in Table 4.14.

TABLE 4.14

EVALUATION OF THE CURRENT MCN CLASSIFICATION SYSTEM

	PURPOSEFUL	LINKED	ACCUMULATIVE	EFFECTIVE	ECONOMICAL	FLEXIBLE	TRACEABLE	NON-TURBULENT	COMPOSITE
MAXIMUM POSSIBLE SCORE	300	100	75	75	50	50	25	50	725
AVERAGE SCORE ACHIEVED	132	31	62	44	20	44	22	39	392
RATIO	.44	.31	.83	.59	.40	.88	.87	.78	.54

The table indicates that action to improve linkages among structures is the most pressing need in MCN. This in turn should enhance the effectiveness of the structures, support project objectives by making them more useful, and strengthen, thereby, the overall MCN system. The alternatives discussed in the following paragraphs call for combining some structures, eliminating others that have only marginal value, and redefining or recoding others to meet this need.

4.5.3 Alternative System Building Blocks

4.5.3.1 Structures Eliminated

Functional Accounts. This structure serves two purposes in management of the MCN appropriation. The first is to establish suspense accounts for control of funds allocated as a lump sum to cover all construction projects under cognizance of a Construction Agent[1]. The second is to

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[1]Defined as an Engineering Field Division (EFD) or Officer in Charge of Construction (OICC).

identify end use accounts to which lump sum allocations are cleared as work progresses or as each project is completed and transferred to the inventory of DoD real property assets. More meaningful linkages in PB&A processes can be achieved by discontinuing use of the functional account structure and utilizing other structures to accomplish the same purposes.

Following apportionment and the allocation of funds by the Navy Comptroller, Naval Facilities Engineering Command (NAVFACENGCOM) funds all construction by issuing a NAVFAC Form 7300/7 that allocates dollars, essentially at appropriation-budget activity level, to suspense accounts of the various Construction Agents. The allocation is accompanied by a Military Construction Program Assignment (MCPA) NAVFAC Form 2318 that gives details on all construction projects funded by the lump sum allocation. Currently, the recipient Construction Agent is identified in the suspense account number by the last two digits of a 482xx series functional account number (FAN). This FAN is recorded in the bureau control number field, which is part of the accounting classification code shown on the NAVFAC Form 7300/7. The FAN structure that designates a suspense account is illustrated in the first column of Table 4.15. The available code positions could provide more significant managerial information if they were redefined to contain the document number of the Form 2318 which the particular allocation covers as well as the identity of the Construction Agent responsible for work on approved and funded programs. The suggested redefinition is illustrated in the second column of Table 4.15.

TABLE 4.15

ILLUSTRATION OF FUNCTIONAL ACCOUNT NUMBERS
AND PROPOSED CONSTRUCTION SUSPENSE ACCOUNTS

Functional Account Numbers, Titles, and Their Use	Proposed Construction Suspense Account, Titles, and Their Use
48204 - Commanding Officer, Northern Division, NAVFACENGCOM	04123 - Allotment, Commanding Officer, Northern Division, NAVFACENGCOM
48212 - Commanding Officer, Western Division NAVFACENGCOM	12124 - Allotment, Commanding Officer, Western Division NAVFACENGCOM
Use: Functional account number that serves as a suspense account to control funds allocated on NAVFAC Form 7200/7 as a lump sum for approved projects detailed in the Military Construction Program Assignment (NAVFAC Form 2318). Also appears in ACC bureau control number field.	Use: Same as present, except for establishing linkage between lump sum allocations and the MCPA document that contains project details. System application is in ACC bureau control number field for alternative 1; ACC fund distribution field for Alternative 3.

The construction suspense account numbering scheme currently used for reimbursable type work, the DoD Family Housing Management Account (FHMAD), and NAVFAC allotments for overhead expenses would be continued in the proposed structure. Specifically, suspense accounts for reimbursable type work would be identified by the digits 92, 94, or 98 as appropriate, followed by a three digit allotment authorization number. Three digit allotment authorization numbers for FHMAD would be prefixed by the appropriate two digit budget activity. NAVFAC would continue to use the digits 730 to identify overhead expenses.

Functional account numbers also are used to clear construction suspense accounts. Currently, paragraph 024401 of NAVSO P-1000 prescribes a variety of end use FANs in the 41XXX series for use by NAVFAC, NAVSUP, and BUMED to clear suspense accounts upon completion of project work. Examples of these FANs appear in the first column of Table 4.16. A numeric character is inserted in the third or middle position to identify one of the four plant property classes to which the construction item is assigned.

TABLE 4.16

COMPARISON OF FUNCTIONAL ACCOUNTS AND
FACILITY CLASSES AND CONSTRUCTION CATEGORIES

Functional Account Numbers, Titles, and Their Use	FCCC Codes, Titles, and Their Use
41 X 10 - Land	910 - Real Estate, Land
41 X 20 - Waterfront Structures and Dredging	150 - Waterfront Operational Facilities
41 X 24 - Refrigeration Systems	820 - Heat and Refrigeration
41 X 26 - Non-structural improvements including utility distribution systems	800 - series - Utilities and Ground Improvements
41 X 28 - Railroad Trackage	860 - Railroad Tracks
41 X 44 - Fixed Equipment (medical)	500 - series - Hospital and Medical Facilities
Use: End-use functional accounts to which suspense accounts are cleared as construction projects are completed.	Use: DoD specified structures for use in planning, programming, budgeting, and accounting in the areas of construction, inventory, and maintenance of real property.

The second column of Table 4.16 shows facility classes and construction categories (FCCC) that are similar to the 41XXX series FANs. This similarity suggests that the FCCC, which now supports the programming and budgeting processes, might be appropriately used in the accounting process to clear suspense accounts. Alternatively, use of the existing cost account structure in combination with a redefined construction project number could meet these needs. In either alternative, use of the FAN structure for military construction management could be discontinued.

Subfunctional Category. The subfunctional category structure was once used by Construction Agents as a means for expressing overhead type requirements in budget submissions. Budget submissions are now structured at the lower order cost account level as prescribed for the Integrated Program Management System (IPMS) in the NAVFACINST 7300.7 series. The relationship between subfunctional categories and cost accounts is shown in Table 4.17, on the next page. The study team believes that the subfunctional category structure for construction management is unnecessary because the same aggregated level of data could be obtained by rolling up existing cost account codes.

4.5.3.2 Structures Combined

The combination of the object class and expense element structures into a new one position code recognizes the similarity between the two strucures and economizes on field length in various data systems. Details of this proposed action are in Section 4.7.1.

4.5.3.3 Structures Redefined

Our analysis indicates that redefinition or recodification of three classification structures currently used for MCN appropriation management would improve their significance in programming, budgeting, and accounting activities. They are: construction project, resource category code, and facility class and construction category. Also, benefits would accrue from changes to the job order number, the weapon system code, and the accounting classification code. Discussions of proposed actions concerning these structures follow.

Construction Project/Resource Category Code. Construction projects carry sequential numbers that are assigned at installation/field activity level. They are identified for budgeting purposes on Forms 1390 and 1391. For accounting purposes, they appear in a variety of ways in the cost code field of the accounting classification code. They are not entered in the Navy Cost Information System (NCIS) or the Navy Resource Model (NARM/FLAIL). Consequently, resource allocation displays (RADs) do not link construction projects to other program resources. Discrepancies can occur that do not become apparent until late in the budget cycle because construction proj-

TABLE 4.17

COMPARISON OF SUBFUNCTIONAL CATEGORIES AND COST ACCOUNTS

Subfunctional Categories, Codes and Titles	Cost Account Codes, Titles, and Their Use
	General Engineering Support

P1-General Engineering Support
P4-Field Engineering Direction and
    Support
P5-Technical Engineering Programs
	9100-Administration and Engineering
	9200-Other Public Works, Shop
	         Operations
	9300-Other Public Works
	
	Use: Identify expenses of public works, engineering, administration and other services.

	Engineering Field Divisions
P4-Field Engineering Direction and Support PZ-Reimbursable Costs	M100-RDT&EN M200-Shore Facilities Planning * * * * * * * * * * * * * * * * M900-Operation and Maintenance Use: Identify end-product oriented efforts performed by Construction Agents.
	Minor Construction

R1-Minor Construction (activity
    level approval)
R2-Minor Construction (higher
    level approval)
RZ-Reimbursable Costs
	700-Minor Construction
	
	Use: Identify expenses of minor construction projects

	Disposal
H1-Property Disposal H2-Reimbursable Costs	3A00-Surplus Property 3B00-Lumber and Timber Use: Identify expenses for-- (1) preparation for and disposal of foreign excess personal property (2) lumber and timber products

ects are not visible to resource sponsors during planning and programming exercises. We believe improvement will result if the four digit construction project code were altered so that it would identify the Construction Agent (suspense account holder) in the first two positions and utilize alphanumeric characters in the last two positions to number projects under cognizance of a Construction Agent serially. Another code form that would supply very useful management information is one that uses the first two positions to identify the state or country in which the construction work is being performed. Under either option, the redesigned code should be prescribed for use in the property accounting activity field of the current ACC rather than in the non-standard cost code field. Decided advantages would also accrue if the altered code were inserted in the last four positions of the resource category code and entered in the NCIS, and then in NARM/FLAIL for display in RADs. Table 4.18 illustrates conventions for coding the construction project and the resource category code. Numbers of code positions required are shown in parentheses.

TABLE 4.18

ILLUSTRATION OF PROPOSED CONSTRUCTION PROJECT AND RCC CODE FORM

CATEGORY DESIGNATOR (1)	FACILITY CLASS AND CONSTRUCTION CATEGORY (3)	CONSTRUCTION PROJECT NUMBER	
		(2)	(2)
CATEGORY DESIGNATOR CURRENTLY USED	CURRENT DOD CLASSIFICATIONS THAT ARE ALSO SIMILIAR TO DECISION UNITS	CONSTRUCTION AGENT IDENTIFIER OR STATE/COUNTRY CODE	SEQUENTIALLY NUMBERED PROJECTS

Facility Class and Construction Category. The DoD-specified facility class and construction category (FCCC) and decision unit (DU) structures for military construction are similar and can be crosswalked except for decision units for special interest projects involving air and water pollution abatement, energy conservation, planning and design, and minor construction. Table 4.19 is a partial list of current DUs and FCCCs that illustrates this condition.

TABLE 4.19

COMPARISON OF MCN DECISION UNIT AND
FACILITY CLASS AND CONSTRUCTION CATEGORY STRUCTURES

DECISION UNIT CODES AND TITLES	FCCC CODES AND TITLES
300 Troop Housing Facilities	700 Housing and Community Facilities
(Enlisted Housing) (Officer Housing)	(710-in part) (720-in part) (710-in part) (720-in part)
310 Community Facilities	(730-760)
355 Utilities and Real Estate	800 Utilities and Ground Improvement
(Utilities) (Access Roads) (Real Estate)	(810-840) (870-890) (850-860) 900 Real Estate (910-920)
360 Air Pollution Abatement Projects 365 Water Pollution Abatement Projects 370 Energy Conservation Projects 380 Planning and Design 385 Minor Construction	No Specific FCCC

Achieving a direct match between DU and FCCC is not essential to
any alternative under development by GRC. However, the Navy might want
to request that OSD establish construction categories that match the five
DUs shown at the bottom of Table 4.19 to facilitate MCN management and aid
in meeting reporting requirements for these special interest projects.

Job Order Number. The job order structure presently is used for
installation level management and assumes different forms depending on the
perceived information needs of each authorization accounting activity. We
believe the JON should uniformly link to pertinent data recorded elsewhere
in the accounting classification code making it more useful to managers at
all levels. Details of our proposed redefinition are in Section 4.7.3.

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Weapon System Code. For the procurement appropriations, RDT&EN, and military construction, the weapon system code (WSC) presently is the same as the resource category code (RCC) that identifies a major end item. Neither have direct relationship to DoD-specified force RICs which causes a need for a dictionary translation for FYDP update and weapon system acquisition costing purposes. We believe the WSC would become more useful if its code form were shortened from the present eight positions to a proposed four positions that reflect the resource identification code (RIC) of particular weapon systems. Details of this proposal are in Section 4.6 of this report.

Accounting Classification Code. Suggested application of the proposed classification structure changes to the present accounting classification code (ACC) is illustrated in the lower track of Figure 4.10. Current usage of the various ACC fields is shown in the top track of the figure.

	APPROPRIATION (7)	SUBHEAD (4)	OBJECT CLASS (3)	BUREAU CONTROL NUMBER (5)	SUBALLOTMENT (1)	AUTHORIZATION ACCOUNTING ACTIVITY (6)	TRANSACTION TYPE (2)	PROPERTY ACCOUNTING ACTIVITY (6)	COST CODE (12)
CURRENT ACC USAGE	XXXXXX DOD COMPONENT FY, TREASURY CODE	XXXX ADM. OFFICE FY PROGRAM, BA	XXX OBJECT CLASS	XXXXX 482 XX SERIES FAN, REIMB. FHMAD BA	X NOT USED	XXXXXX UIC OF AUTHORIZATION ACCOUNTING ACTIVITY	- XX TRANSACTION TYPE	XXXXX TRAVEL ORDER NUMBER, LOCAL USE	XXXXXXXXXXX PROJECT NUMBER, PHASE, JON, TYPE FUND, WORK REQUEST UIC, LINE NUMBER
PROPOSED USAGE / ALTERNATIVES 1 & 2			X XX OC/ EE — NOT USED	XX XXX EFD — FORM 2318 DOCUMENT NUMBER				CAC FOR OVERHEAD XXXX XX PROJECT NUMBER FOR DIRECT COSTS	CAC DESIGNATOR SERIAL XX XXXX XXXXXX JON LOCAL USE

Figure 4.10. Application of MCN Structure Changes in Existing ACC Fields

As depicted, the object class field reflects the combined OC/EE code and the bureau control number field contains a redefined suspense account number. Most significant is our suggestion to move the construction project number from the variable and unstructured cost code field to a more prominent position, concurrently with issuance (by DON) of instructions that it be reported on all transactions. Contents of the cost code field are left to the discretion of local authorities except for the restructured JON described previously.

4.5.3.4 Structures Continued with Changed Usage

The facility class and construction category (FCCC) is a DoD-specified structure for use in planning, programming, budgeting, and accounting in the areas of construction, inventory, and maintenance of real property. The category code/nomenclature (CCN) structure is a more detailed break-

down of the FCCC that provides for more definitive and effective categorization of military real property facilities owned or controlled by the U.S. Government and assigned to the DON. As discussed earlier, the former links to decision unit and is used in programming and budgeting; the latter is used in the Navy Facilities System (NFS) to record the Navy portion of the DoD Real Property Inventory required by Title 10 USC 2701. These structures could serve as a positive link through all PB&A processes if they were required entries in the accounting classification code. They could also serve as a work breakdown structure (WBS) in MCN management. Accordingly, an alternative presented is to include the FCCC with its CCN suffix in a field of the redesigned accounting classification code discussed in Section 5.

4.5.3.5 New Structures Introduced

Section 4.5.3.1 proposes recodification of FANs that are used as holding accounts for lump sum allocation so that they identify a particular construction agent and MCPA document. One feature of GRC's alternatives titles these new codes construction suspense accounts.

4.5.3.6 Alternative Structure Evaluation

Applying our evaluation criteria to the structure changes just described produces an increase in the composite average from 392 for current structures to 431 for a composite of the alternative building blocks. Most of the increase results from redefinition and improved usage of the construction project, resource category code, facility class and construction category, and category code/nomenclature structures.

4.5.3.7 Placement in Alternative Systems

Table 4.20 summarizes our proposals for placement of the various structure changes in the three DON classification system alternatives. Most appear in the Alternative 1 - Improved because of our perception of immediate need. Implementation of the construction project renumbering scheme could result in more turbulence than we anticipate and could, therefore, be incorporated in either the intermediate or the optimal alternative. Structure changes placed in Alternative 3 - Optimal are dependent upon DON acceptance of our proposal for a uniform accounting classification code (ACC) as described in Section 5 of this report.

4.5.3.8 Alternative System Evaluation

Table 4.21 summarizes our evaluation of the alternative systems for MCN by showing ratios of average scores to possible scores per criterion for each of the three alternatives.

TABLE 4.20

ALTERNATIVE SYSTEM BUILDING BLOCKS — MCN

CURRENT	ALTERNATIVE 1 IMPROVED	ALTERNATIVE 2 INTERMEDIATE	ALTERNATIVE 3 OPTIMAL
Functional Account Subfunctional Category	**Eliminate** Functional Account Subfunctional Category	**Eliminate** →	**Eliminate** →
Object Class/Expense Element	**Combine** [Object Class/Expense Element]	**Combine** →	**Combine** →
(Accounting Classification Code) Authorization Accounting Activity Construction Project Facility Class and Construction Category Job Order Number Resource Category Code Weapon System Code	**Redefine** (Accounting Classification Code) Construction Project Facility Class and Construction Category Job Order Number Resource Category Code Weapon System Code	**Redefine** →	**Redefine** (Accounting Classification Code) Authorization Accounting Activity →
Category Code/Nomenclature Program Element Unit Identification Code	→	→	**Continue-Change Usage** Category Code/Nomenclature Program Element Unit Identification Code
	Introduce Construction Suspense Account OC/EE	**Introduce** →	**Introduce** →
Administering Office/Major Claimant Appropriation Budget Activity Cost Account Decision Unit Investment Category Resource Identification Code	**Continue** →	**Continue** →	**Continue** →

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Note: Boxed structures are eliminated through combination. Accounting classification code is not a structure but a composite of structures.

TABLE 4.21

EVALUATION OF ALTERNATIVE MCN CLASSIFICATION SYSTEMS

	PURPOSEFUL	LINKED	ACCUMULATIVE	EFFECTIVE	ECONOMICAL	FLEXIBLE	TRACEABLE	NON–TURBULENT	COMPOSITE
CURRENT RATIO	.44	.31	.83	.59	.40	.88	.87	.78	.54
ALTERNATIVE 1	.47	.39	.85	.59	.50	.95	.90	.66*/.76	.58/.59
ALTERNATIVE 2	.47	.39	.85	.59	.50	.95	.90	.66/.76	.58/.59
ALTERNATIVE 3	.48	.41	.83	.63	.53	.96	.90	.61/.78	.58/.60

* Where two ratios are shown, the lower reflects reduction for implementation turbulence.

As noted in the table, improved posture occurs for each criterion with the most significant increases occuring in areas that will provide crosswalk to support integration of the resource management processes of programming, budgeting, and accounting and also foster more efficient use of time and material.

4.5.4 Summary of Improvements

Implementation of the alternatives for an MCN classification system presented herein would accomplish the following:

● Discontinue two structures that have only marginal value.

● Elevate the construction project structure to a more prominent role in PB&A processes.

● Establish the FCCC/CCN structures as the key link through all PB&A processes.

4.6 PROCUREMENT APPROPRIATIONS

The paragraphs that follow discuss classification structures that support PB&A activities concerning Navy procurement appropriations. Pertinent structures are first identified and a generalization is made with respect to an area in which action is needed to improve their utility. The current system of structures is then evaluated to determine specific areas for attention as we develop alternative structure building blocks that will be compatible with an overall DON classification system. Building blocks are then illustrated, described, and placed in the three alternative DON systems. The section concludes by summarizing benefits that accrue from implementing the proposed alternatives. The appropriations addressed in this section include:

● Aircraft Procurement, Navy (APN)

● Other Procurement, Navy (OPN)

● Procurement, Marine Corps (PMC)

● Shipbuilding and Conversion, Navy (SCN)

● Weapons Procurement, Navy (WPN)

4.6.1 Structures and Processes They Support

4.6.1.1 Current Structures

Figure 4.11 groups by PB&A processes they principally support those classification structures we selected as being most pertinent to procurement appropriation management. Others that are also used for the procurement appropriations but have generally wider application are discussed elsewhere in this report.

PROGRAMMING

NAVY TASK
P-1 LINE ITEM (FYDP PROCUREMENT ANNEX)
RESOURCE IDENTIFICATION CODE

BUDGETING

MISSION BUDGET CATEGORY

ADMINISTERING OFFICE/
    MAJOR CLAIMANT
APPROPRIATION
BUDGET ACTIVITY
BUDGET SUBACTIVITY
RESOURCE CATEGORY CODE
WEAPON SYSTEM CODE

ACCOUNTING

DECISION UNIT
P-1 LINE ITEM (BUDGET)

OBJECT CLASS

AUTHORIZATION ACCOUNTING
    ACTIVITY
MAJOR CATEGORY CODE
P-1 LINE ITEM (PARS)
PARTICIPATING MANAGER
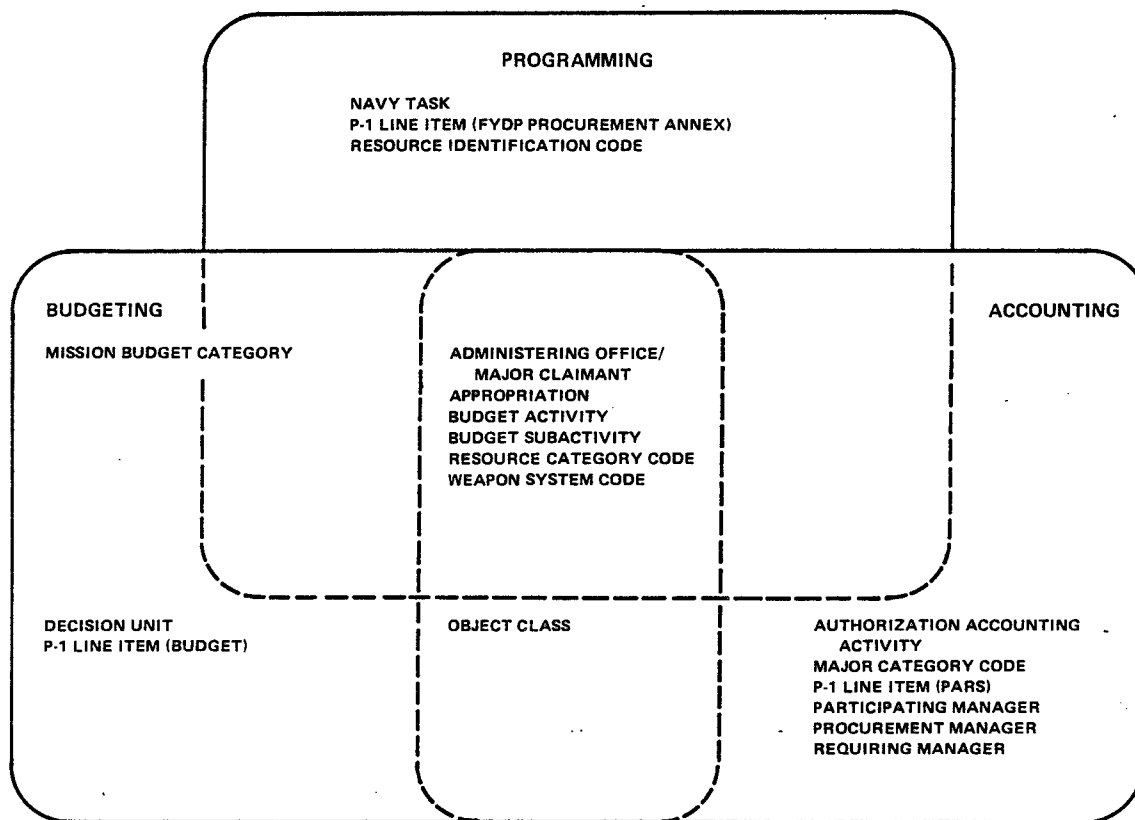**PROCUREMENT MANAGER**
REQUIRING MANAGER

Figure 4.11. Pertinent Procurement Appropriation Classification Structures Showing PB&A Processes They Principally Support

4.6.1.2 Area for Potential Improvement

The procurement line item (P-1) is a primary structure that identifies resources at the level of detail needed to program, procure, and account

for individual items of material. Originating from the resource category code/weapon system code (RCC/WSC), the P-1 line item assumes three different forms depending upon the PB&A process in which it is used. Actions that achieve a more direct relationship between some of these structures seems appropriate.

4.6.2 Evaluation of Structure Sufficiency

4.6.2.1 Problem Summation

Our review of material developed by the FMIP 77-2 project group and analysis of the basic structures that make up the procurement classification system highlight the following general deficiencies:

- Structures provide only a limited capability to exchange information between the program element and the P-1 line item.

- Three different P-1 line item structures currently are used, causing a need for dictionary or manual translations and transfers of data.

- The definition for the term "weapon system" needs to be clarified and the list of systems for which costs are to be accumulated needs to be updated.

- There is no common denominator that links procurement resources together throughout the PB&A processes.

4.6.2.2 Procurement Structure Evaluation

Application of our evaluation criteria to each structure shown in Figure 4.11 produces an average score of 400. While considerably below the maximum possible score of 725, the average for this particular set of structures is much better than the 377 average for all DON structures addressed in this report. The three structures listed below are for special use in that they identify various responsibility centers involved with procurement activities. They seem to function adequately in their present form. Therefore, an objective is to establish relationships between them and other structures for fund control purposes by providing for appropriate entries in the accounting classification code (ACC).

- Participating Manager   • Requiring Manager
- Procurement Manager

In our view, however, redefinition or changed usage of certain key structures is necessary to help resolve the problems enumerated in the preceding paragraph. These key structures are:

- Budget Subactivity
- Decision Unit
- Object Class

- Resource Category Code
- Weapon System Code

4.6.2.3 Procurement System Evaluation

Further application of our evaluation criteria aids in identifying particular areas of weaknesses in the procurement classification system as illustrated in Table 4.22.

TABLE 4.22

EVALUATION OF THE CURRENT PROCUREMENT CLASSIFICATION SYSTEM

	PURPOSEFUL	LINKED	ACCUMULATIVE	EFFECTIVE	ECONOMICAL	FLEXIBLE	TRACEABLE	NON-TURBULENT	COMPOSITE
MAXIMUM POSSIBLE SCORE	300	100	75	75	50	50	25	50	725
AVERAGE SCORE ACHIEVED	132	35	65	36	20	46	22	44	400
RATIO	.44	.35	.86	.48	.40	.92	.89	.89	.55

The pattern shown here is similar to ones previously shown for other appropriation sets with the greatest deficiency appearing in the "linked" criterion, indicating a need for improved crosswalks. The ratio of average to maximum possible score for the "economical" criterion can be improved by reducing the number of dictionary or manual data translations that presently occur.

4.6.3 Alternative System Building Blocks

4.6.3.1 Structures Combined

Rationale for combining the object class and expense element structures into a new one position code is given in Section 4.7.1. Our findings reveal that the current object class structure is not generally used

in the procurement appropriations accounting processes even though the ACC does provide a data field for this purpose. Budget data for procurement appropriations are displayed by object class. Lack of use in accounting processes probably can be attributed to the view that accounting level accuracy is not required for attributing procurement by object class. Our proposed OC/EE combination recognizes the similarities between the two structures and provides a ready means to account by this revised structure if Navy perceives the need to do this for the procurement appropriations.

4.6.3.2 Structures Redefined

Resource Category Code/Weapon System Code. In its present form the resource category code/weapon system code (RCC/WSC) is composed of eight position alphabetic or alphanumeric characters that classify resources into four categories:

- Material
- Research and Development

- Military Construction
- Personnel

The following discussion pertains only to the material category that is used to identify each line item of material programmed for purchase with procurement appropriations funds.

The material category contains two components defined as follows:

- Weapon systems -- includes types or classes of ships; types, models, and series of aircraft; selected independent missile systems; and other independent forces such as Marine Corps divisions, tank battalions, etc. This component generally carries RCCs that begin with numeric codes 00, 01, or 02.

- Items of equipment -- includes any system, piece of hardware, or item of supply that is not classified as a complete weapon system, but may be a component of a ship, aircraft, or missile system. This component generally carries codes that begin with numeric codes 03, 04, 05, or 06.

The series of presentations in Table 4.23, on the next page, illustrates the various coding forms for the material category by showing examples of codes and titles. The total number of code positions used for the described information is indicated by the numbers in small boxes.

RCCs are input to the NCIS during early stages of the programming process and subsequently are transferred to NARM/FLAIL where the line items they represent are grouped with other resources in resource allocation displays (RADs). Groupings are by program element within the Navy task

TABLE 4.23

ILLUSTRATION OF MATERIAL CATEGORY RCC CODE FORMS

WEAPON SYSTEMS

(Current) (Ships Category)

Category Designator [2]	Force RIC (H) [4]	"O" Fill [2]
00 Ships	1601 AD14 Dixie Class	00 Insignificant

(Current) (Aircraft Category)

Category Designator [2]	Type Aircraft Designator [2]	Line Item Number (Sequential within aircraft type) [4]
01 Aircraft	AA Fighter Aircraft	1800 F-14A

(Current) (Missiles Category)

Category Designator [2]	Subcategories within: [2]	Line Item Number (Sequential within subcategories) [4]
02 Missiles and Independent Forces	BA1-Ballistic Missiles BA2-Other Missiles BA3-Torpedoes & Related Eq. Construction Battalions MARCORPS Forces	0010 UGM-27C Polaris
	SP Ballistic Missiles	

(Current) (Procurement, Marine Corps)

Category Designator [2]	Budget Activity [2]	P-1 Line Item (Combines with Position 4) [3]	Cost Code [1]
03 MARCORPS (All Items)	04 BA4-Communications and Electronics Equipment	(4) 721 Replenishment Spares	9

(Current) (Electronics Equipment)

Category Designator [2]	OPN Budget Activity BA1-Ship Support Equip. BA2-Communications & Electronics Equip. BA3-Aviation Supt Equip. [2]	Line Item Number (Sequential within BA) [4]
04 Electronics	01 Ship Support Equip.	4545 Outboard Trainer

(Current) (Ordnance & Related Equipment)

Category Designator [2]	Subcategories within WPN BA4- Other Weapons [2]	Line Item Number (Sequential within subcategory) [4]
05 Ordnance and Related Equipment	XC Bombs, Ammunition, Gun, Gun Mounts	5200 Coast Guard Gun System

(Current) (Other-Cryptologic)

Category Designator [2]	OPN Budget Activities (not covered by 04, above) [2]	Line Item Number (Sequential within BA) [4]
06 Other Cryptologic	02 Budget Activity 7 - Personnel and Command Support Equipment	0480 Initial Spares BA-7

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structure. Following CNO approval of programs, a NARM/FLAIL dictionary converts the RCC into an eight position P-1 line item code for FYDP Procurement Annex and budget formulation purposes.

The RCC/WSC also functions as the basic code for accumulating costs programmed for the acquisition of weapon systems. This cost accumulation occurs in the NCIS based on input of a weapon system code (RCC beginning with 00, 01, or 02) to the NCIS weapon system field and input of an RCC for an associated item of equipment to the NCIS resource category field. Using this convention, when a WSC is input to the RCC field of the NCIS it must also be input to the NCIS weapon system field.

In our view, a simpler and more economical code form for the WSC would be the four position force resource identification code (RIC) that is prescribed by OSD for FYDP presentations of major force elements. By adapting the force RIC for this purpose, four positions in the NCIS record could be used for other purposes, a dictionary translation of WSC to RIC would no longer be required, and the list of major weapon systems for which acquisition costs are accumulated would be easier to maintain. While considering the recommended change to the WSC structure, DON should also consider updating NAVCOMPTINST 4140.1D, "Standard Weapons System Costs", 16 April 1976, so that it will reflect only those major weapon systems for which acquisition costs must be reported to OSD. Force RICs should then be established for systems that do not presently have them.

As mentioned previously, a NARM/FLAIL dictionary now translates resource category codes into other forms for programming and budgeting purposes. Restructuring the RCC as illustrated in Table 4.24 would make it a subset of the FYDP procurement annex line item structure and, therefore, establish a more direct link to that structure. This action would also preclude the necessity for use of the NCIS subhead field to show "subbreak" data for the OPN and WPN appropriations. Moreover, it would support DON activity involving a merger of the NCIS and NARM/FLAIL data bases.

TABLE 4.24

ILLUSTRATION OF ALTERNATIVE RCC CODE FORM

CATEGORY DESIGNATOR (2)	BUDGET ACTIVITY (1)	BUDGET SUBACTIVITY (1)	LINE ITEM NUMBER (4)
XX ↑ CATEGORY DESIGNATORS CURRENTLY USED	X ↑ NUMERIC TO IDENTIFY BUDGET ACTIVITY WITHIN EACH APPROPRIATION	X ↑ ALPHABETIC CHARACTER THAT IDENTIFIES BUDGET SUBACTIVITY. (REQUIRES INTRODUCTION OF BUDGET SUBACTIVITY FOR APN THAT GROUPS AIRCRAFT BY TYPE)	XXXX ↑ 4-DIGIT SEQUENTIAL LINE ITEM THAT CAN BE ROLLED UP FOR TRANSFER OR BE TRANSFERRED DIRECTLY TO NARM/FLAIL THEN TO THE FYDP PROCUREMENT ANNEX

Accounting Classification Code. Alternatives 1 and 2 do not call
for ACC changes that impact the procurement appropriations. However, we
describe in some detail in Section 5 a proposal for a major revision of
the accounting classification code (ACC) that does affect procurement. A
comparision of that structure to the current structure for procurement is
shown in Figure 4.12. The top track in the figure shows current ACC usage
for the procurement appropriations; the center track shows two changes under
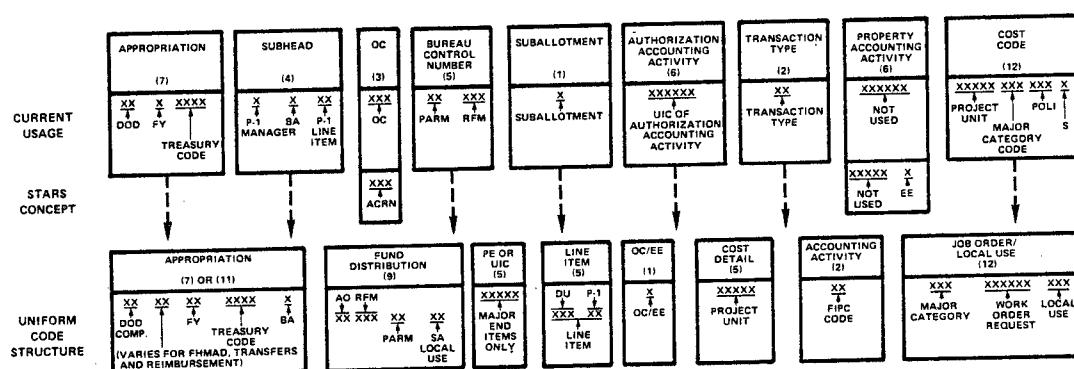consideration by DON; the lower track illustrates our proposed restructure.

Figure 4.12. Comparison of Optimal Alternative Structure with Current Procurement ACC

Our proposed revision eliminates some obsolete data fields and pro-
vides for a more orderly arrangement of data structures. However, the major
advantage of the new ACC is that it provides for relatively standardized
treatment of all appropriations. This would permit a common data base and
common ADP programs covering a variety of appropriations.

In addition to the primary advantage of standardization, the new ACC
offers other benefits for procurement. It provides a more logical data
arrangement in the fund distribution field by grouping and ordering the
various responsible agents; it provides for use of the program element or
unit identification code to track major end item or "platform" costs; it
provides for use of the decision unit structure tied to the current P-1
line item (PARS) structure to function as the principal link throughout
PB&A processes; and it moves project unit from the cost code field to the
more prominent cost detail field so that it can play a larger role in
cost accounting and in identifying work breakdown structure (WBS) and wea-
pon system costs as discussed in Section 4.8. Finally, the new ACC pro-
vides for a two digit FIPC code to replace the five digit authorization
accounting activity code.

Advantages of the Alternative 3 ACC structure need to be weighed against the disadvantage of disrupting the Procurement Accounting and Reporting System (PARS). We recognize that PARS is an effective system for procurement, but it has not been possible to extend PARS to other appropriations as proposed in the Standard Accounting and Reporting System (STARS) concept. The proposed ACC revision is an attempt to accommodate all appropriations.

4.6.3.3 Structures Continued with Changed Usage

Decision Unit. We stated in our problem summation that there is no common denominator to link procurement resources throughout the PB&A processes. Actually, the budget activity structure performs this function, but at too high a level of aggregation to be meaningful to resource managers. Currently, procurement appropriation resources are displayed as follows:

- Resource Allocation Display (RAD) -- budget activity, program element, line item, Navy task.

- Five Year Defense Program (FYDP) -- appropriation resource identification code.

- FYDP Procurement Annex -- budget activity, budget subactivity, P-1 line item.

- NCIS/FYDP Subsystem -- resource category code, budget activity, and (for OPN and WPN) budget subactivity.

- Accounting Classification Code -- budget activity, P-1 line item.

Since the decision unit is a requisite part of the budget process, we have proposed that it also be used in the programming and accounting processes. For procurement, the DU is approximately at the same level of aggregation as the budget subactivity making it particularly useful for aggregating common, non-weapon system items such as are funded by the OPN appropriation.

P-1 to Program Element Crosswalk. Structure alternatives presented in this report do not offer solutions that would directly link all procurement line items to FYDP program elements (PE) and maintain that linkage throughout all PB&A processes. For major items, i.e. most weapon systems, there is no real problem in relating line items to PE. Ships, strategic missiles, and some combat aircraft are contained in single program elements. Some aircraft of a particular type appear in a mission PE, a training PE, and a Marine Corps PE. In the majority of cases, linkages for these items are established during the programming process as a result of major claimant

input and line item spread among program elements within the Navy task structure. These linkages could be maintained throughout the PB&A processes if the Navy chooses to do so.

It is only the "common" items, i.e. those used in a variety of programs, where there is a problem in PE assignment. For common items, it is the nature of military logistics which mitigates against maintenance of a line item/PE linkage through the PB&A processes. As common items are produced and received from the manufacturer they become a part of the Navy's inventory of material assets and are candidates for distribution to meet priority demands wherever they may exist. These assets are distributed without regard to the PE or UIC for which they were programmed and without regard to the year in which they were procured or the year in which funds were approved by Congress. The procurement versus distribution problem for common items could be resolved by creating separate procurement appropriation program elements in each major FYDP program and tracking procurement programs, "buys", and distribution against these elements. This scheme has the advantage of allowing a resource manager to concern himself with the gross costs of procurement by Navy mission or function corresponding to the FYDP program in question rather than devoting time to track with accounting accuracy long-term programs that are subject to constant change. The disadvantage of such a scheme derives from the fact that OSD and some Congressional Committees desire full attribution of procurement costs across all program elements. As long as this requirement exists, some algorithmic spread will continue to be the most expedient form of meeting the need.

4.6.3.4 Alternative Structure Evaluation

Applying our evaluation criteria to the structure changes just described increases the composite average score from 400 for current structures to 425 for the alternative system of procurement structures. Changes to the authorization accounting activity and object class/expense element structures contribute to the increase; however, greatest improvement results from changes to the resource category code and weapon system code, and from changed usage of the decision unit.

4.6.3.5 Placement in Alternative Systems

Table 4.25 summarizes the various alternatives pertaining to the procurement appropriations structures and indicates their placement in the three DON classification system alternatives.

Consistent with its treatment in discussions pertaining to other appropriation sets, the new OC/EE we propose is assigned to Alternative 1 - Improved. The boxes, placed around the object class and expense element structures indicate they will be discontinued when the new OC/EE is introduced.

TABLE 4.25

ALTERNATIVE SYSTEM BUILDING BLOCKS — PROCUREMENT

CURRENT	ALTERNATIVE 1 IMPROVED	ALTERNATIVE 2 INTERMEDIATE	ALTERNATIVE 3 OPTIMAL
Object Class/Expense Element	<u>Combine</u> Object Class/Expense Element	<u>Combine</u> }————▶	<u>Combine</u> }————▶
(Accounting Classification Code) Authorization Accounting Activity Resource Category Code Weapon System Code	<u>Redefine</u> }————▶ Resource Category Code Weapon System Code	<u>Redefine</u> }————▶ Resource Category Code	<u>Redefine</u> (Accounting Classification Code) Authorization Accounting Activity }————▶
Budget Subactivity Decision Unit	}————▶	}————▶	<u>Continue-Change Usage</u> Budget Subactivity Decision Unit
	<u>Introduce</u> OC/EE	<u>Introduce</u> }————▶	<u>Introduce</u> }————▶
Administering Office/Major Claimant Appropriation Budget Activity Major Category Code Mission Budget Category Navy Task Participating Manager Procurement Manager P-1 Line Item (Budget) P-1 Line Item (FYDP) P-1 Line Item (PARS) Resource Identification Code Requiring Manager	<u>Continue</u> }————▶	<u>Continue</u> }————▶	<u>Continue</u> }————▶

Note: Boxed structures are eliminated through combination. Accounting classification code is not a structure but a composite of structures.

Also placed in Alternative 1 – Improved is an initial step toward redefining the resource category code/weapon system code (RCC/WSC). During this phase of activity we forsee a need to refine the existing RCC structure to ensure that a one-for-one match with P-1 line items exists before proceeding with the recodification in Alternative 2 – Intermediate. Changes to the weapon system code (WSC) structure, as recommended, primarily involve the NCIS and its input/output requirements causing minimum turbulence. This change is assigned to Alternative 1 – Improved.

Finally, redefinition of the AAA structure and changed usage of the BSA, the DU, and PE structures depend largely on DON acceptance of the proposed accounting classification code (ACC) restructure. For this reason, they are grouped into the Alternative 3 – Optimal.

4.6.3.6 <u>Alternative System Evaluation</u>

Table 4.26 summarizes our evaluation of the alternative systems for procurement by showing ratios of average scores to possible maximum scores per criterion for each of the three alternatives.

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TABLE 4.26

EVALUATION OF ALTERNATIVE
PROCUREMENT CLASSIFICATION SYSTEMS

	PURPOSEFUL	LINKED	ACCUMULATIVE	EFFECTIVE	ECONOMICAL	FLEXIBLE	TRACEABLE	NON–TURBULENT	COMPOSITE
CURRENT RATIO	.44	.35	.86	.48	.40	.92	.89	.89	.55
ALTERNATIVE 1	.47	.38	.86	.48	.44	.96	.89	.94*/.90	.57/.57
ALTERNATIVE 2	.48	.40	.86	.48	.45	.96	.89	.78/.90	.58/.59
ALTERNATIVE 3	.48	.41	.86	.48	.48	.96	.89	.75/.90	.58/.59

* Where two ratios are shown, the lower reflects reduction for implementation turbulence.

As noted in the table, increases occur progressively for the "purpose-ful", "linked", and "economical" criteria indicating improvements in sub-set and roll up relationships and reduced requirements for dictionary or manual translation to crosswalk from one structure to the other. The two ratios for the Alternative 3 "non-turbulent" criterion support our previous statements regarding the effect that introduction of a redesigned ACC would have on the Procurement Accounting and Reporting System (PARS).

4.6.4 Summary of Improvements

Implementation of the alternatives for a procurement appropriation classification system presented herein would accomplish the following:

● Provide a direct link between the line item structure used in programming with its origin structure—resource category code.

● Establish a weapon system code that is easy to use and maintain, and eliminate the need for a dictionary translation for FYDP updates.

● Introduce the decision unit in the programming and accounting processes to provide a link with the budgeting process.

4.7   OTHER CLASSIFICATION STRUCTURES

This section describes the proposed combination of the object class and expense element structures and discusses other structures that are not treated in detail in the context of appropriation sets. Specific recommendations are made for their disposition under each alternative being developed.

4.7.1 Object Class/Expense Element

Expense element is a one position alphabetic structure prescribed by DoDI 7220.20, "Expense Data Requirements," April 11, 1968, to identify the type of resources being consumed in Operations. Operating budgets are prepared and approved at expense element level. The structure also collects data at cost center level which in turn provides detailed information to major claimants regarding the status of operating budgets. Object class is a two position numeric structure prescribed by Chapter 6, Vol 2, NAVSO P-1000 to identify the nature of various types of services, goods, and other items for which funds are expended. Object class data are used for preparation of budget requests and for supporting schedules for the Navy budget for all appropriations.

In many instances these two structures provide identical data. In other instances they have a direct subset/roll up relationship. In still other situations object class data cut across element of expense data and vice-versa. A dissimilarity exists in that object class cuts across all appropriations while expense element is restricted for use in Operations. In our view, the similarity between the two structures is such that combining them into one structure is both logical and appropriate.

Table 4.27 shows examples of current object class and expense element codes and titles with revised codes that could be adapted to a combined structure that would require only 28 information line items.

The proposed OC/EE structure has several advantages.

●   Reduced redundancy and duplication.

●   Capability to link to operations line items, thereby decreasing the need to translate data from one structure to another.

●   Fits into current or proposed ACC fields.

●   Causes little or no turbulence to introduce.

TABLE 4.27

EXAMPLES OF OBJECT CLASS/EXPENSE ELEMENT
CLASSIFICATION STRUCTURES

Current Codes		Title	Revised Code
Expense Element	Object Class		
A	11	Military Personnel	A
U	11	Civilian Personnel	B
	12	Benefits of Military Personnel	C
	12	Benefits of Civilian Personnel	D
	13	Benefits of Former Personnel	E
F	22	Transportation of Things — Military Airlift Command	G
M	23	Utilities and Rents	N
R,S,T,V	26	Supplies and Materials	U

Recommended for assignment to Alternative 1 – Improved, a minor disadvantage accrues from this combination under Alternative 3 in that the object class field of the present ACC is also used to identify transactions affecting International Balance of Payments (IBOP) transactions. This potential problem could be resolved by an entry in the Job Order/Local Use field of the Alternative 3 ACC to denote IBOP transactions.

4.7.2 Source Code

The reimbursement source code is a two position code used to identify the government department or establishment responsible for administering the appropriation from which funds are being transferred to the Navy. It is currently located in the third and fourth positions of the appropriation field of the accounting classification code.

Transfers between appropriation accounts are defined in DoDI 5000.8 as "adjustments, pursuant to law, which withdraw amounts available for obligation and expenditure from one appropriation account for credit to another. Payments to other accounts for goods or services received, or to be received, shall not be considered 'transfers'."

Appropriation reimbursements are defined in the Navy Comptroller manual as "earnings or collections for commodities, work, or services furnished or to be furnished between appropriations or to an individual, firm, or corporation, which are to be credited to an appropriation account...."

Appropriation refunds, as defined in paragraph 022004, (NAVCOMPT Manual, Volume 2), are excluded for appropriation reimbursements. In the Navy, in addition to the foregoing provisions, commodities, work, or services furnished between subheads or between allotments and subauthorizations with the appropriations Operation and Maintenance, Navy; Operation and Maintenance, Marine Corps; and Research, Development, Test and Evaluation, Navy are treated in the same manner as appropriation reimbursements."

Coding of appropriation reimbursements currently involves use of a one position alphanumeric code located in the third position of the object class field in the accounting classification code as specified in paragraph 026100, NAVCOMPT Manual, Volume 2. Since it is important to identify the sources of appropriation reimbursements at higher management levels, this code should be relocated to the source code position. Initially, the current single digit codes could be utilized with a prefix such as "C" representing collections. The two positions also provide the flexibility for the Navy to utilize a two character alphabetic code to identify sources with more specificity.

In our proposal for Alternative 3, coding of transfers will not change from the current methodology in form or position. The field will simply reflect the code of the transferring appropriation, e.g., 97 for Office of the Secretary of Defense, 11 for Executive Office of the President, 21 for Department of the Army, and so on.

It should be further noted that coding for reimbursable budget programs prescribed by paragraph 074092, NAVCOMPT Manual, Volume 7, can also be accommodated in the same positions. If, as recommended in the third (optimal) alternative discussed in Section 5, the subhead field is no longer used, the codes currently in the third and fourth positions of that field (codes used are R1 through R9 and RA through RD) can be relocated to the source code field.

4.7.3 Job Order Number (JON)

The job order number, a locally devised multi-coded structure, located in the cost code field of the ACC, is defined in paragraph 402 of NAVSO P-3006-1 as a structure to be developed by authorization accounting activities that will provide for accumulation of accrued expenses. Further, it must be designed to produce accumulated costs at the budget classification, functional category, subfunctional category, cost account, and expense element levels. Because of the diversity of uses for this structure, DON has not prescribed its form or format.

The job order number is utilized for installation level management information in several appropriation systems including those for military

construction and for operation and maintenance. Various combinations of
data elements and structures are currently utilized in the field as required
by each local manager.

The problem definition states that the Navy has various methods of
structuring job order codes resulting in a lack of uniformity in the struc-
ture of a code basic to the Navy accounting system. It goes on to state
that "this lack of uniformity and standardization impacts adversely on
the design, documentation, and operation of standard accounting systems."

The job order number should be retained in the accounting classifi-
cation code. It should not, however, remain totally unstructured as cur-
rently. The following paragraphs describe how the JON and the remaining
positions of the current cost code field should be configured for the
various types of appropriations.

In the operation and maintenance and military construction appropria-
tions, the first six characters should be reserved for the job order number
(JON) of which the first two characters should be coded to provide a direct
link to the cost account code. This would provide the capabilities to meet
the reporting requirements mentioned above. The last four characters would
provide a serial number. In research, development, test, and evaluation,
the first six characters would be restricted in the same way, with the
first two characters providing a direct link to the project code and the
last four being numbered serially. In all three of these groups, the last
six characters of the Job Order/Local Use field should be left for local
use with the stipulation that no structure shown elsewhere in the accounting
classification code (ACC) could be repeated in the field.

In Procurement, the first three characters of the Job Order/Local
Use field should be the major category code; the next six would provide for
the work order request code; the last three would be for local use without
repeating any code found elsewhere in the ACC.

4.7.4 Transaction Type

Transaction type (TT) codes, two position alphanumeric structures
prescribed by Chapter 8, NAVCOMPT Manual, Volume 2, are designators located
in the seventh field of the current ACC. They identify stores and plant
property account purchases, other special suspense type accounts, formal
and other special obligation accounting, successor appropriations, register
and listing identification, and other transactions of special interest. TT
codes were developed originally to facilitate data entry into accounting
machines.

Many of the specified uses of the TT codes are duplicative of other coded data currently in the ACC or simply have become obsolete. For example, successor appropriations are specified by the letter M in the appropriation designator; registers and listings refer to obsolete accounting mechanisms that are no longer pertinent; and unique uses, such as the generalized groupings specified above, can be provided for elsewhere.

In view of the relatively limited usage of TT codes, and the small number of distinct codes required for them, we recommend that TT codes be eliminated as classification structures. Uses in which they are duplicative should be accomodated by other structures. Unique or special uses should be located in the JON/local use field of the ACC.

4.7.5 Unit Description Code

The unit description code (UDC) is listed in NCIS dictionary 85 and is a designator for aggregations of UICs having common characteristics within the FYDP subsystem of the NCIS. Examples of the type of aggregations represented by the UDC include aircraft carriers, Hawaii, Pearl Harbor, communications/intelligence, CVA Kennedy Class, Pacific, and supply/finance. The indication, therefore, is that these are ad hoc aggregations that need not be permanently structured. Even if some of these aggregations are needed on a regular basis, they can be obtained individually from UIC or RCC/WSC dictionaries.

The adoption of the use of the program element in the accounting classification code structure under Alternative 3 would make the UDC structure superfluous and a candidate for elimination.

4.7.6 Class Code

Prescribed in NCIS dictionary 28, the two position alphanumeric class code is an accumulator used to sort and group into common types those resources identified by a Resource Category Code (RCC) or Weapon System Code (WSC).

Similarities exist between resources grouped by some budget activities of the Aircraft Procurement, Navy (APN) appropriation and resources accumulated by class codes to which the APN resources are assigned. A similar condition exists, to a lesser extent, for the Shipbuilding and Conversion, Navy (SCN) appropriation and resources accumulated by class codes C1-C9.

The class code has been used infrequently during the past several years to accumulate data "as required" for internal information purposes.

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Because of its infrequent usage we recommend the class code be eliminated as a classification structure.

4.7.7 Various Identifier Codes

4.7.7.1 Appropriation Code Identifiers

The results of an examination of the coding structures used in the Navy's various automated systems showed that appropriation identifiers were different in the NCIS operations subsystem, the NCIS FYDP subsystem, NARM/FLAIL, and PARS. The resource identification code (RIC) used by OSD to identify appropriations is different from the four appropriation codes used by the Navy. An example of how appropriation identifiers differ is shown in Table 4.28.

TABLE 4.28

APPROPRIATION IDENTIFIERS

Appropriation Title	Code Structure				
	NCIS/OPS	NCIS/FYDP	PARS	NARM/FLAIL	RIC
Military Personnel, Marine Corps	1105	12		39	0562
Operations and Maintenance, Navy	1804	31		36	0511
Aircraft Procurement, Navy		40	17-1506	31	0431

The use of differing codes within automated systems to identify appropriations makes it necessary to convert data generated in one system into another code before it can be used in another system. These conversions result in extensive use of look-up tables. This would be unnecessary if the same coding structure to identify appropriations was used throughout data systems.

4.7.7.2 Administering Office/Major Claimant, P-1 Line Item Manager

The classification structures identifying administering office and major claimant (subclaimant) within the Navy are identical. However, the

P-1 line item manager's identifier differs from that of the Administering Office/Major Claimant although they may be the same activity. Examples are shown in Table 4.29.

TABLE 4.29

ADMINISTERING OFFICE/MAJOR CLAIMANT
P-1 LINE ITEM MANAGER IDENTIFIERS

Title	Code Structure		
	Major Claimant (Subclaimant)	Administering Office	P-1 Line Item Manager
Naval Intelligence Command	15	15	N
BUMED	18	18	B
NAVAIR	19	19	4
NAVSUP	23	23	9.

Administering Office/Major Claimant is a two digit code identifying recipients of operating budgets directly from the Chief of Naval Operations. It appears in the subhead field of the accounting classification code (ACC) supporting operations.

The one position identifier for P-1 line item manager is part of the Procurement Accounting and Reporting System (PARS). It appears in the subhead field of accounting classification codes supporting procurement. Major claimant/administering office and P-1 line item manager identifiers used extensively throughout the Navy are differing structures identifying the same resource, resource sponsor, or resource user. This results in translation problems and creates a need for additional dictionaries and look-up tables. Maintenance of these additional administrative aids results in an additional workload. These problems could be alleviated by establishing one set of resource identifiers for use within the Navy's automated support activities.

4.7.8 Authorization Accounting Activity

The alternative proposal for this structure calls for substitution

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of a two position code for the unit identification code to identify particular Financial Information Processing Centers (FIPC). This proposal is in consonance with features of the Integrated Disbursing and Accounting (IDA) system currently under development.

4.7.9 Continued Structures

This section of the report lists those classification structures that are recommended for continuation. During the course of the study each structure was defined, its uses examined, its relationship to other structures determined, and the authority for its origin and maintenance recorded. Some of these structures pervade financial management data systems while others have limited application to appropriation sets. They all serve as accumulators of financial management data in support of the programming, budgeting, and accounting processes. Notwithstanding our recommendation to continue these structures, some of them have proposed new locations in the accounting classification code in the alternatives. The classification structures recommended for continuation are listed below:

- Administering Office/
  Major Claimant
- Allotment
- Budget Activity
- Cost Category
- Defense Planning and
  Programming Category
- Investment Category
- Major Category Code
- Mission Budget Category
- Navy Task
- Participating Manager
- Procurement Manager

- Program/Subprogram
- P-1 Line Item (Budget)
- P-1 Line Item (FYDP)
- P-1 Line Item (PARS)
- Requiring Manager
- R&D Category
- R&D Mission Area
- R&D Project
- R&D Task
- Resource Identification Code
- Suballotment
- Treasury Code

4.8   WEAPON SYSTEMS COSTS

The Problem Definition for FMIP Project 77-2, June 1978, cites a number of deficiencies regarding the identification of costs in the programming, budgeting, and accounting of weapon systems. Also, in the Request for Proposal (RFP), and accordingly in the resulting contract for this study, the statement is made that the contract effort will be in support of the following objectives of Project 77-2:

"2.   Develop and implement a list of weapon systems, and a procedure for their identification and use in programming, budgeting, and accounting as a basis for accumulating and reporting the total cost of weapon systems.

"3.   Develop and implement a meaningful standard work breakdown structure for types of weapon systems, and a procedure

for their use in programming, budgeting, and accounting
so that weapon system costs can be collected and reported
in a consistent manner."

The issues involved in weapon systems costing do not primarily pertain
to classification structures, but rather to PB&A procedures and Navy policies.
However, in view of the emphasis placed on weapon systems and life cycle
costing, the study team has considered this area as part of the overall
effort.

The discussion of weapon systems costs can be divided into two
phases: acquisition costs and operating costs, plus the need to inter-
relate these by weapon system. Acquisition costs include RDT&EN, Procure-
ment, and Military Construction. There are three key Navy publications
which address acquisition costs:

- SECNAV Instruction 7700.53, Selected Acquisition Reports
  (SAR), 16 April 1976.

- SECNAV Instruction 4140.1, Standard Weapons Systems Costs,
  18 September 1969.

- NAVCOMPT Instruction 4140.1D, Standard Weapons Systems Costs,
  25 August 1976.

The first reference requires that acquisition costs of major weapon
systems be reported quarterly to OSD. The second reference, quoting a
SECDEF memo, states that "best estimate" costs will be used "regardless
of whether the estimate coincides with contract target or ceiling amounts."
The last reference lists approximately 130 weapon systems for which acquisi-
tion costs are required, and codes these weapon systems by resource category
code/weapons system code (RCC/WSC) for identification purposes.

The RCC/WSC structure is designed to accumulate all the acquisition
costs by weapon system. The proposals in Section 4.6.3.2, improve
the RCC/WSC structure so that it can be more effective in this regard.

In recent years, the primary area of concern in weapon system costing
has not been acquisition costs, but the collection and reporting of operat-
ing and support costs. For this purpose, the Navy has implemented, in the
last few years, a system called Visibility and Management of Operating and
Support Costs (VAMOSC). There is a VAMOSC-Ships, which provides cost data
by individual ship for 92 cost elements; and a VAMOSC-Air which provides
similar cost data by each type, model, and series of aircraft.

The study team has concluded that VAMOSC represents a reasonable effort to collect operating and maintenance costs for each aircraft and ship weapon system since, for all apparent purposes, VAMOSC satisfies OSD and internal Navy usage. The cost element breakdown structure is the product of several study groups and contracts, and appears to be complete and have reasonable classifications. A proper distinction is made between direct and indirect costs, e.g., all of the operating costs on a ship or in an aircraft squadron are considered direct costs, and these costs are the same as those reported in the appropriate weapon system program element. Indirect cost collection (or allocation) seems to go as far as feasible in identifying indirect support costs. For example, training costs in the Naval Education and Training Command, as well as in the operational commands, are attributed to weapon systems. Similarly, costs of Navy-wide publications and engineering and technical services are also distributed to weapon systems.

It is possible, when necessary, to relate the operating and maintenance costs of weapon systems to their research and development and investment costs through identification of costs by class, type, model, and series. This is done by pulling the operating and support costs of a weapon system from VAMOSC and adding this to the R&D and acquisition costs obtained from NCIS/FYDP through the weapon system code. Although there is currently no known requirement for improving this relationship, such as by putting both operating and acquisition costs in the same automated data system, as an ideal, we suggest that the DON consider the development of a direct interface between VAMOSC and NCIS so that total weapon system costs could be obtained on an automated basis without manual intervention.

One obvious deficiency of VAMOSC is that it does not cover all of the equipment which the Navy has defined as weapon systems in NAVCOMPT Instruction 4140.1D, Standard Weapons Systems Costs, 25 August 1976. A determination should be made as to what items will be officially designated as weapon systems for cost purposes.

In view of criticisms in the Problem Definition for Project FMIP 77-2, several additional topics relevant to weapon systems were considered.

The study team examined the diverse methods of identifying weapon systems in the PB&A systems. We were not able to substantiate a need for identifying a weapon system in the same way in each of those systems. The need is to be able to collect total weapons systems costs regardless of PB&A treatment. If the Navy concludes, however, that such identification is necessary, this can be done by using the weapon system code now in the NCIS, or the alternative classification structure proposed in 4.6.3.2, to collect operating costs as well as acquisition costs.

It would seem desirable for managerial purposes to be able to relate operating and support costs to output measurement or performance data by weapon system. However, the Navy has not included output measurement data

within VAMOSC in the initial development. Output measurement data would include such items as cost per flying hour, cost per steaming hour, and mean-time to overhaul. Since the value of VAMOSC would be increased considerably with such performance data, it would seem to be a logical future extension of that system.

It has been suggested that there is a need for a standard work breakdown structure (WBS) for consistency in cost reporting. We find, however, that since the primary purpose of work breakdown structure (WBS) costs is to provide a basis for estimating costs of future systems and to make comparisons of potential future versus current systems, it is not necessary that WBS costs have accounting accuracy. Accordingly, it is not essential that WBS costs be identified within the accounting system. In VAMOSC, for example, WBS costs apply only in maintenance, not in direct "operations" or other support. Such costs are now reported in the depot maintenance cost system and in the maintenance module of VAMOSC-Ships and VAMOSC-Air. NAVCOMPT Manual, Volume 2, and NAVCOMPTINST 7310.9, Depot Maintenance and Maintenance Support Cost Accounting and Production Reporting, moreover, provide for a three digit WBS code to be used in conjunction with cost account codes. For ships, the first two digits of the WBS code identify the ship category (identical to the first two digits of the cost account code), and the third digit shows "repair category", e.g. hull structure, propulsion plant and electric plant. For aircraft, the cost account code identifies type, model, and series in the first three digits, and "category of work" in the last digit, e.g. engine, ground support equipment. The point being made here is that data structures are available for accounting for costs by WBS. Finally, for NAVMAT accounting for the Other Procurement, Navy (OPN) appropriation, project unit is displayed in the accounting classification code (ACC) to identify WBS. The same procedure could be extended to all pprocurement appropriations and to the entire Navy to obtain investment WBS costs.

Accordingly, the alternative proposed is to identify WBS costs for all procurement appropriations through the project unit code. With the current ACC structure, project unit would be included in the cost code field. Provision is also made in the restructured ACC, discussed in Section 5 to show project units in the more prominent cost detail field.

SECTION 5

ALTERNATIVES FOR PB&A CLASSIFICATION SYSTEMS

5.1   INTRODUCTION

In Section 4, we have examined classification structures grouped by the five major appropriation categories, and we have proposed changes to the treatment of specific appropriations and structures. In this section, we integrate various proposals or structure alternatives into the following three system alternatives:

- Alternative 1 - Improved: cleanup of structures and short-term changes.

- Alternative 2 - Intermediate: longer range, more turbulent changes.

- Alternative 3 - Optimal: relatively unconstrained, approaching the ideal system.

There is concern in the programming process and in Navy headquarters management with missions and functions which cross appropriations. Accordingly, in this treatment of alternative systems, we address Navy-wide management. There are a number of classification structures which apply only to one or to a group of related appropriations such as budget classification code or P-1 line item. There are also a number of structures such as program element, Defense planning and programming category, mission budget category, and Navy task, which apply to all resources regardless of appropriation. It should be noted that the latter type of structure tends to be of a higher level of aggregation than the appropriation-oriented structures, permitting the Navy to plan, manage, and present programs on a mission or functional basis.

The Problem Definition for Project 77-2 expresses a need to "develop alternatives which will satisfy the Navy's need to correlate data used in the programming, budgeting, and accounting phases", permitting the tracking of "resource allocations in terms of their overall contribution to total force." Some of the specific recommendations (alternatives), such as those on program elements and decision units, provide directly for improved correlation of data through the PB&A processes. Other recommendations, by improving linkages or crosswalks, indirectly facilitate the same objective.

Table 5.1 on the next page summarizes action we recommend be taken on each classification structure, showing for each of the three alternative systems which structures are eliminated, combined, redefined, and continued unchanged, and which new structures are introduced. Of the 58 current

TABLE 5.1

ALTERNATIVE CLASSIFICATION SYSTEMS – DON

CURRENT	ALTERNATIVE 1 IMPROVED	ALTERNATIVE 2 INTERMEDIATE	ALTERNATIVE 3 OPTIMAL
	ELIMINATE	**ELIMINATE**	**ELIMINATE**
BUDGET PROGRAM	BUDGET PROGRAM		
BUDGET PROJECT	BUDGET PROJECT		
BUDGET SUBPROJECT	BUDGET SUBPROJECT		
BUREAU CONTROL NUMBER			BUREAU CONTROL NUMBER
CLASS CODE	CLASS CODE		
COST CODE	COST CODE		
FUNCTIONAL ACCOUNT	FUNCTIONAL ACCOUNT		
FUNCTIONAL CATEGORY	FUNCTIONAL CATEGORY		
FUNCTIONAL PROGRAM	FUNCTIONAL PROGRAM		
PE AGGREGATION	PE AGGREGATION		
PROPERTY ACCOUNTING ACTIVITY	PROPERTY ACCOUNTING ACTIVITY		
SUBFUNCTIONAL CATEGORY (MILCON)	SUBFUNCTIONAL CATEGORY (MILCON)		
TRANSACTION TYPE			TRANSACTION TYPE
UNIT DESCRIPTION CODE			UNIT DESCRIPTION CODE
	COMBINE	**COMBINE**	**COMBINE**
ACTIVITY GROUP	ACTIVITY GROUP	ACTIVITY GROUP	
ANTICIPATED REIMBURSEMENT			ANTICIPATED REIMBURSEMENT
BUDGET CLASSIFICATION CODE	BUDGET CLASSIFICATION CODE		
(BUDGET DETAIL)			(BUDGET DETAIL)
EXPENSE ELEMENT	EXPENSE ELEMENT		
NMC O&MN LINE ITEM	NMC O&MN LINE ITEM		
OBJECT CLASS	OBJECT CLASS		
REIMBURSEMENT CODE			REIMBURSEMENT CODE
SUBACTIVITY GROUP	SUBACTIVITY GROUP	SUBACTIVITY GROUP	
SUBFUNCTIONAL CATEGORY (OPNS)		SUBFUNCTIONAL CATEGORY	
	REDEFINE	**REDEFINE**	**REDEFINE**
(ACCOUNTING CLASSIFICATION CODE)	(ACCOUNTING CLASSIFICATION CODE)	(ACCOUNTING CLASSIFICATION CODE)	(ACCOUNTING CLASSIFICATION CODE)
APPROPRIATION			APPROPRIATION
AUTHORIZATION ACCOUNTING ACTIVITY			AUTHORIZATION ACCOUNTING ACTIVITY
BUDGET SUBACTIVITY (MILPERS)			BUDGET SUBACTIVITY (MILPERS)
CONSTRUCTION PROJECT	CONSTRUCTION PROJECT		
COST ACCOUNT	COST ACCOUNT	COST ACCOUNT	
FACILITY CLASS AND CONSTRUCTION CATEGORY	FACILITY CLASS AND CONSTRUCTION CATEGORY		
JOB ORDER NUMBER	JOB ORDER NUMBER		
RESOURCE CATEGORY CODE	RESOURCE CATEGORY CODE	RESOURCE CATEGORY CODE	
WEAPON SYSTEM CODE	WEAPON SYSTEM CODE		(VARIOUS IDENTIFIER CODES)
	CONTINUE-CHANGE USAGE	**CONTINUE-CHANGE USAGE**	**CONTINUE-CHANGE USAGE**
BUDGET SUBACTIVITY (PROCUREMENT)		BUDGET SUBACTIVITY (PROCUREMENT)	
CATEGORY CODE/NOMENCLATURE			CATEGORY CODE/NOMENCLATURE
DECISION UNIT		DECISION UNIT	DECISION UNIT
PROGRAM ELEMENT	PROGRAM ELEMENT	PROGRAM ELEMENT	PROGRAM ELEMENT
UNIT IDENTIFICATION CODE		UNIT IDENTIFICATION CODE	UNIT IDENTIFICATION CODE
	INTRODUCE	**INTRODUCE**	**INTRODUCE**
	CONSTRUCTION SUSPENSE ACCOUNT		
	COST DETAIL		COST DETAIL
			FUNDS DISTRIBUTION
	JOB ORDER/LOCAL USE		
		LINE ITEM	LINE ITEM
	MILITARY PERSONNEL ACCOUNT		
	OC/EE		SOURCE CODE
	CONTINUE	**CONTINUE**	**CONTINUE**
ADMINISTERING OFFICE/MAJOR CLAIMANT			
ALLOTMENT			
BUDGET ACTIVITY			
COST CATEGORY			
DEFENSE PLANNING AND PROGRAMMING CATEGORY			
INVESTMENT CATEGORY			
MAJOR CATEGORY CODE			
MISSION BUDGET CATEGORY			
NAVY TASK			
PARTICIPATING MANAGER			
PROCUREMENT MANAGER			
PROGRAM/SUBPROGRAM			
P-1 LINE ITEM (BUDGET)			
P-1 LINE ITEM (FYDP)			
P-1 LINE ITEM (PARS)			
REQUIRING MANAGER			
R&D CATEGORY			
R&D MISSION AREA			
R&D PROJECT			
R&D TASK			
RESOURCE IDENTIFICATION CODE			
SUBALLOTMENT			
TREASURY CODE			

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Note: Boxed structures are eliminated through combination. Accounting classification code is not a structure but a composite of structures. Budget Detail is not a coded classification structure; it is the level at which military personnel budgets are justified to OSD.

classification structures we addressed in this project, one or more of the three systems alternatives recommend changes to 35; 23 are continued without appreciable change.

The following paragraphs cover, in sequence, systems alternatives 1, 2, and 3, each dealing with a total system of classification structures for use in PB&A. Most of the changes in Alternative 1 carry over to Alternative 2, and similarly most of the changes in Alternative 2 carry over to Alternative 3.

5.2 ALTERNATIVE 1 - IMPROVED

5.2.1 Improved Navy-Wide Classification System

The developments produced as a result of the study which are pertinent to Alternative 1 - Improved, are shown below, cross-referenced to report sections where detailed discussions appear.

- Eliminate nine structures that are not being used, have been replaced by other structures, or duplicate data that can be more readily obtained by use of other structures.

    -Budget project (4.2.3.1)
    -Budget subproject (4.2.3.1)
    -Budget program (4.2.3.1)
    -Functional program (4.2.3.1)
    -Program element aggregation (4.2.3.1)
    -Functional category (4.2.3.1)
    -Subfunctional category (MILCON) (4.5.3.1)
    -Functional account (4.2.3.1) (4.4.3.1) (4.5.3.1)
    -Class code (4.7.6)

- Combine six structures to accomplish desirable ends of eliminating four more structures and adding flexibility to those retained.

    -Object class and expense element are combined into a newly introduced one-position OC/EE structure (4.7.1).

    -Budget classification codes and NMC O&MN line items are eliminated by merging them with activity groups and subactivity groups (4.2.3.2).

- In addition to the accounting classification code, redefine six structures to improve crosswalks among the programming, budgeting, and accounting activities.

    -Cost account to align it with the SHOROC manpower data structure (4.2.3.2).

-Job order number to relate its first two code positions with the cost account structure (4.7.3).

-Weapon system code to establish direct relationships with the force resource identification code (4.5.3.3).

-Construction project to identify with Construction Agents or State/Country codes (4.5.3.3).

-Facility class and construction category to accommodate special interest projects (4.5.3.3).

-Resource category code to introduce construction projects in terminal digits (4.5.3.3).

● Recode the program element as two digits for use in the accounting classification code for Operations (4.2.3.4).

● Introduce three new structures to meet requirements or uses that are not satisfied adequately by current structures.

-Construction suspense account to replace functional account in military construction (4.5.3.5).

-Military personnel account to replace functional account in military personnel appropriations (4.4.3.1).

-OC/EE as a new title for the combined object class and expense element structures (4.7.1).

● Continue the following 36 structures unchanged except for some repositioning within the accounting classification code as discussed next. This recommendation also calls for retitling the ACC property accounting activity and cost code fields as cost detail and job order/local use, respectively.

-Administering office/ major claimant	-Allotment
-Anticipated reimbursement	-Appropriation
-Authorization accounting activity	-Budget activity
-Budget subactivity	-Bureau control number
-Category code/nomenclature	-Cost category
-Code detail	-Decision unit
-Defense planning and programming category	-Investment category
-Major category code	-Job order/local use
-Navy task	-Mission budget category
-Procurement manager	-Participating manager

-Program/subprogram   -P-1 line item (Budget)
-P-1 line item (FYDP)   -P-1 line item (PARS)
-Reimbursement code   -Requiring manager
-R&D category   -R&D mission area
-R&D project   -R&D task
-Resource identification   -Transaction type
   code   -Unit description code
-Suballotment   -Unit identification
-Treasury Code   Code

5.2.2 Application in the Accounting Classification Code

     Some recommendations summarized in Section 5.2.1 have application
to the accounting classification code (ACC). We do not propose changes
in the number or length of ACC fields to accommodate these proposals;
however, we do propose changes in usage of certain of the fields. Figure
5.1 illustrates our proposals by summarizing ACC current usage for all
appropriations on the top track and showing changes recommended for each
appropriation group in the remaining tracks. These changes include:
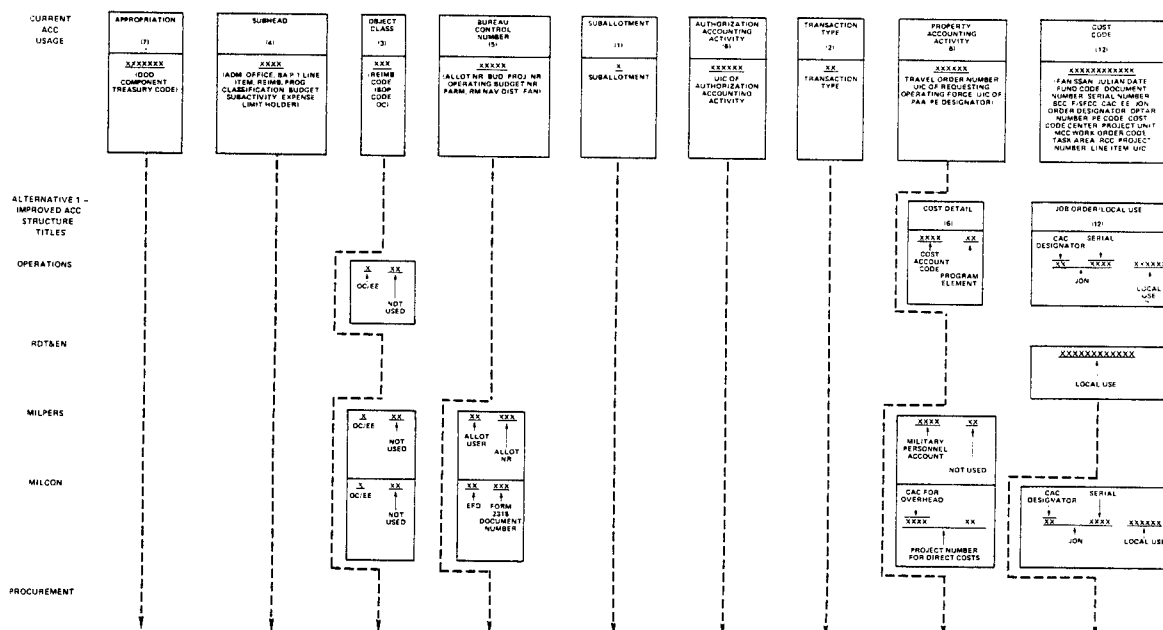

Figure 5.1. Proposed Accounting Classification Code for Alternative 1 —
          Improved

- Insertion of the proposed OC/EE code in the current object class field for Operations, MILPERS, and MILCON.

- Use of the bureau control number field to reflect the allotment user and allotment number for MILPERS, and to contain our proposed suspense account number for MILCON.

- Changing the title of the property accounting activity field to cost detail which would contain the lowest cost information needed routinely at headquarters level. In Alternative 1 this would be the cost account code and a two position PE for Operations, the new military personnel account for MILPERS, and the cost account code or construction project number for MILCON.

- Also involved are some policing actions concerning the present cost code field. First, we recommend a new title of job order/local use and insertion of the standardized job order number linked to the cost account code for Operations and MILCON. In all cases, we recommend that DON place a restriction on this field that would preclude use in it of any structure found elsewhere in the accounting classification code.

Two other important points illustrated in Figure 5.1 are that five ACC fields for all appropriations remain unchanged and that the RDT&EN and procurement appropriations are unaffected.

5.2.3 Scoring the Alternative

The changes proposed were scored in accordance with our evaluation criteria (see Section 3.3.6). The average value of each structure in the total system increased from 377 to 428 considering turbulence and to 438 after full implementation.

Table 5.2 following this page, reflects the ratio of average scores attained, by evaluation criterion, to maximum possible scores for current and Alternative 1 structures. It should be noted that, as suggested in Section 3.3.6, the average score for the system will not approach the maximum and that relative improvement should be the key to assessing the evaluation.

A comparison of the ratios depicted in Table 5.2, shows that the short-term actions we propose would make the Navy's overall classification system more responsive to managerial needs. The improvements in scores indicate the implementation of Alternative 1 would provide a system of classification structures which would establish better crosswalks to support the PB&A processes, increase the capability of the structures to re-

TABLE 5.2

EVALUATION OF IMPROVED DON CLASSIFICATION SYSTEM

	PURPOSEFUL	LINKED	ACCUMULATIVE	EFFECTIVE	ECONOMICAL	FLEXIBLE	TRACEABLE	NON–TURBULENT	COMPOSITE
CURRENT RATIO	.39	.37	.86	.45	.40	.83	.80	.87	.52
ALTERNATIVE 1	.46	.41	.88	.49	.46	.90	.80	.81*/.89	.57/.57

* Where two ratios are shown, the lower reflects reduction for implementation turbulence.

late actual data to programs and budgets, and reduce the necessity to translate data from one form into another before it is in an appropriate mode for use by managers.

5.2.4 Net Impact

Alternative 1 proposals eliminate nine marginal value or duplicative structures initially with four additional structures being eliminated as a result of combinations. Introduced are three new structures, bringing the total to forty-eight structures after Alternative 1 is implemented. Generally, the alternative provides short-term changes that:

● Reduce redundancy in structures (e.g. object class and expense element).

● Increase standardization (e.g. job order number).

● Provide means to compare actual expenditures to obligations (e.g. military personnel account).

● Eliminate marginal or duplicative structures.

The alternative also supports two Navy projects to improve classification structures:

● BCC restructuring project (4.2.3.1).

- Development of standardized structure for cost accounts and SHOROC accounts (4.2.3.1).

Aside from the fact that any change in the ACC can have widespread and extensive impact, changes in Alternative 1 are those which can be implemented with minimum turbulence and lowest cost. The actions proposed are a first step in the improvement of classification structures so that data can be correlated in the programming, budgeting, and accounting processes.

5.3 ALTERNATIVE 2 - INTERMEDIATE

5.3.1 Intermediate Navy-wide Classification System

This section summarizes and integrates the alternatives which have been assigned to Alternative 2 - Intermediate. All of the proposals discussed previously for Alternative 1 apply to Alternative 2 with the following exceptions:

- The proposal to merge BCC and NMC O&MN line items with activity groups and subactivity groups is expanded to merge budget classification code, subactivity group, NMC O&MN line item, subfunctional category, and some cost accounts to form a hierarchical structure called Operations line item (4.2.3.5).

- Cost accounts are further modified to account for functions and activities now displayed by subfunctional categories and by NMC O&MN line items, but which do not warrant separate identification within the newly-introduced Operations line item structure (4.2.3.5).

- Resource category code for procurement line item is revised to show budget activity, budget subactivity, and a line item code that can be rolled up for transfer or be transferred directly to NARM and then to the FYDP Procurement Annex (4.6.3.2).

- Usage of budget subactivity for procurement is changed by making it integral to the resource category code (4.6.3.2).

- Decision unit, activity group, and line item are prescribed for use in the accounting classification code (4.2.3.3).

5.3.2 Application in the Accounting Classification Code

Figure 5.2 displays the changes in usage of Alternative 2 structures in the current accounting classification code (ACC). Differences from

Figure 5.2. Proposed Accounting Classification Code for Alternative 2 —
Intermediate

Alternative 1 occur only for Operations in the subhead, object class, bureau
control number, and suballotment fields. Other changes shown in Figure 5.2
are brought forward from the first alternative.

For Operations:

- The new Operations line item structure described in Section
  4.2.3.5 is introduced. Because of constraints imposed by the
  present ACC configuration, the coding logic we prefer for the
  structure is altered to reduce the decision unit to a one-
  position code which requires creation of a dictionary. This
  altered code appears in part in the subhead field, displacing
  the expense limitation code. The remainder appears in the
  object class field.

- The unit identification code (UIC) of the performing activity
  is introduced in the bureau control number field to achieve
  linkage between programming and execution that is not now
  provided by the operating budget holder UIC appearing in this
  field.

- The operating budget suffix is moved to the suballotment field.

5.3.3 Scoring the Alternative

Table 5.3 shows the ratio of average scores attained, by evaluation criterion, compared to maximum possible scores for the current, Alternative 1, and Alternative 2 structures.

TABLE 5.3

EVALUATION OF INTERMEDIATE DON CLASSIFICATION SYSTEM

	PURPOSEFUL	LINKED	ACCUMULATIVE	EFFECTIVE	ECONOMICAL	FLEXIBLE	TRACEABLE	NON–TURBULENT	COMPOSITE
CURRENT RATIO	.39	.37	.86	.45	.40	.83	.80	.87	.52
ALTERNATIVE 1	.46	.41	.88	.49	.46	.90	.80	.81*/.89	.57/.57
ALTERNATIVE 2	.46	.43	.88	.53	.47	.92	.80	.81/.90	.57/.58

* Where two ratios are shown, the lower reflects reduction for implementation turbulence.

Continued increase is shown for the evaluation criterion "linked" reflecting further improvement in capability of alternative structures to crosswalk to other structures. Additional value was gained in the criterion "effective" which measures how well a classification structure supports the comparision of programmed and budgeted data with actual data. Implementation of this alternative would cause about the same turbulence as Alternative 1; however, after implementation is completed, the composite Alternative 2 system promises improved capability over that provided by Alternative 1.

5.3.4 Net Impact

Some of the impact of the changes is discussed previously for Alternative 1, particularly the impact of elimination of marginal or duplicate structures. The principal change in Alternative 2 is the introduction of an orderly, pyramidal structure for Operations, which can fully support the processes of programming, budgeting, and accounting. This alternative also provides for more effective and standardized coverage of procurement data in the Navy Cost Information System (NCIS) and NARM/FLAIL.

5.4 ALTERNATIVE 3 - OPTIMAL

5.4.1 Optimal Navy-Wide Classification System

Most of the proposals in Alternative 1 - Improved and Alternative 2 - Intermediate carry forward to Alternative 3 - Optimal. The principal additional proposals in Alternative 3 deal essentially with restructuring the accounting classification code to accomplish the following:

- Eliminate ACC fields with marginal usage.

- Replace obsolete terminology with more meaningful ACC field titles.

- Include more useful classifications within the ACC.

- Standardize treatment in the ACC within and among appropriation categories.

Other recommendations introduced for the first time in this alternative involve:

- Combining the anticipated reimbursement and reimbursement code structures into a new source code structure (4.7.2).

- Combining the military personnel account structure (introduced in Alternative 1) with budget detail to expand capability of accounting systems to accumulate data that track accounting to budgeting (4.4.3.1).

- Replacing the five position authorization accounting activity structure with a two digit Financial Information Processing Center (FIPC) identifier (4.7.9).

- Redefining budget subactivity for MILPERS to establish a subset relationship with decision unit (4.4.3.3).

- Changing usage of the category code/nomenclature, decision unit, program element, and unit identification code structures, particularly in the ACC as discussed next. (See also Sections 4.5.3.4 and 4.2.3.4.)

5.4.2 Application in the Accounting Classification Code

Figure 5.3 shows our proposal for a major revision of the accounting classification code (ACC) that will resolve most of the problems enumerated in the discussion in Section 4.2.1.2. The figure summarizes current usage along the top track for comparision with proposed fields and their content as shown in the remaining tracks.
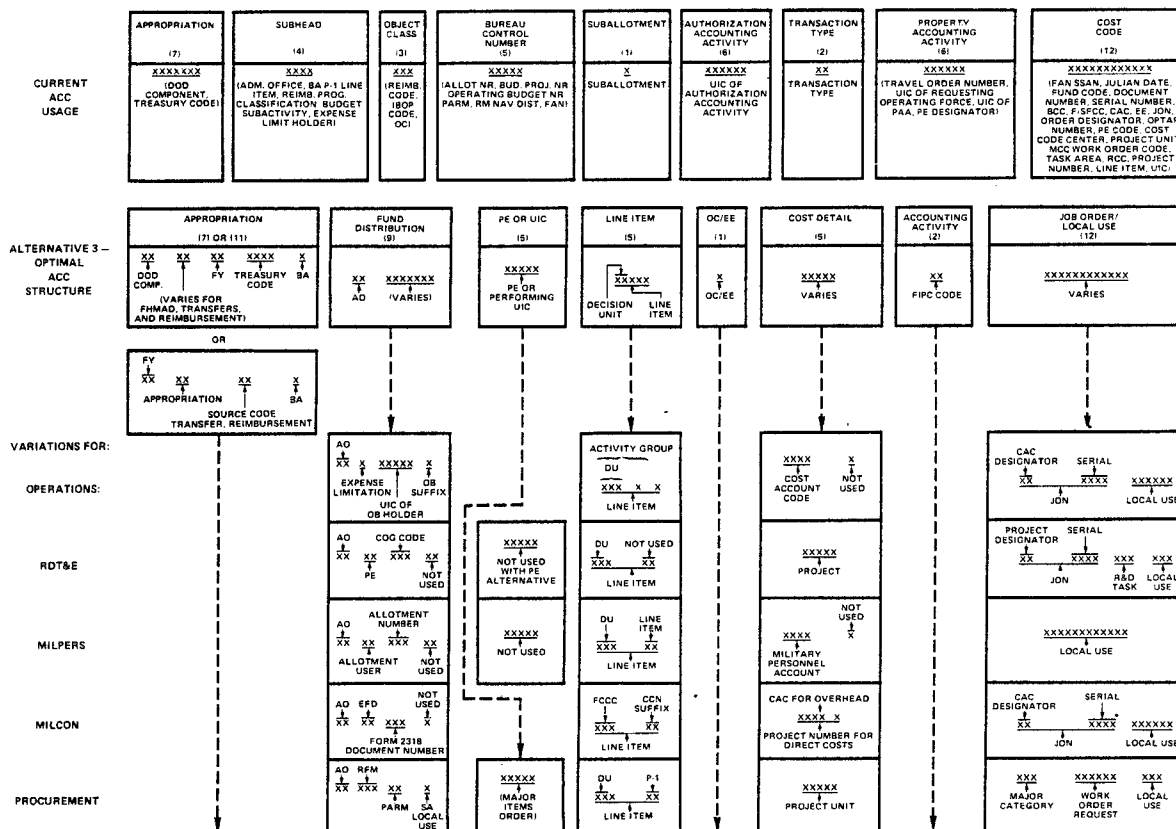
Figure 5.3. Proposed Accounting Classification Code for Alternative 3 — Optimal

The proposed ACC has eight fields containing 46 to 50 positions depending upon usage contrasted with the current ACC of nine fields and approximately the same number of positions. Standardization of the ACC for all appropriations was examined in detail. Despite the varying data requirements of Congress, OSD, and Navy managers pertaining to different types of funds, standardization of ACC field lengths with somewhat differing data in the fields to accommodate requirements is considered to be feasible. The following are the principal features of the proposed ACC.

- The appropriation field is designed to include all the elements which identify the total obligation authority applying to all appropriations by fiscal year down to budget activity. The two fiscal year codes are designed to show beginning and ending years of the appropriations for military construction and family housing. A subalternative for the appropriation field is shown on the third line of Figure 5.3 that economizes on field length by proposing a two position code to identify DoD component and treasury code.

- A more definitive and descriptive fund distribution field is created to replace the subhead and bureau control number fields. It is to be used primarily to control funds flow to the user and as one of the levels for which fund usage data are accumulated and reported. Differing content by appropriation is illustrated in the figure.

- The program element or unit identification code is proposed for insertion into the ACC to provide a means to track cost accumulations to program element. Readily adaptable to Operations, RDT&EN, and MILCON, the field also could be used for major end items in the procurement appropriations.

- A line item field is introduced containing decision unit, line item, and other related data. The decision unit, which is essentially a budgeting structure, also becomes an accounting structure under this concept. The decision unit-line item relationship is one of subset-roll up in each appropriation. In MILCON, the facility class and construction category serves as the decision unit and category code/nomenclature serves as the line item. The total field in each appropriation is considered as a "line item".

- The OC/EE field is standard for all appropriations.

- The cost detail field is designed to contain various data depending upon the appropriation; i.e., cost account code for operations, project number for RDT&EN, military personnel account for military personnel, project unit for procurement, cost account code and project number for MILCON. Of primary significance is the capability to associate this field with the line item field within each appropriation set.

- The two-position accounting activity field identifies the Financial Information Processing Center (FIPC) and replaces the present authorization accounting activity field of six digits.

- Except for MILPERS and procurement, the first six positions of the job order/local use field are reserved for the job order number; the first two positions of the job order relate to the data in the cost detail field. Use of the field is optional for MILPERS; for procurement the field contains the major category code and work order request. In all cases the terminal positions are for local use with a prohibition against repetition of any data found in any other field of the ACC.

5.4.3 Scoring the Alternative

Table 5.4 compares ratios of average scores attained to maximum possible scores for the current system and Alternatives 1, 2, and 3.

TABLE 5.4

EVALUATION OF OPTIMAL DON CLASSIFICATION SYSTEM

	PURPOSEFUL	LINKED	ACCUMULATIVE	EFFECTIVE	ECONOMICAL	FLEXIBLE	TRACEABLE	NON–TURBULENT	COMPOSITE
CURRENT RATIO	.39	.37	.86	.45	.40	.83	.80	.87	.52
ALTERNATIVE 1	.46	.41	.88	.49	.46	.90	.80	.81* / .89	.57 / .57
ALTERNATIVE 2	.46	.43	.88	.53	.47	.92	.80	.81 / .90	.58 / .58
ALTERNATIVE 3	.47	.49	.89	.60	.53	.92	.78	.70 / .92	.59 / .61

* Where two ratios are shown, the lower reflects reduction for Implementation turbulence.

In Alternative 3, continued improvement is achieved in all areas
except "flexible" and "traceable". The former is quite close to the
maximum possible score; the latter shows a decrease because we believe
there will be a nominal loss of connection to historical data caused by
introduction of the new ACC. Also, our evaluation shows that considerable
turbulence will occur during implementation of the alternative, but overall
benefits will accrue once the recommended actions are implemented.

Of significance, substantial improvements will occur in capabilities
to crosswalk data, compare programs and budgets with actual data, and
manipulate data with fewer dictionaries or manual translations.

5.4.4 Net Impact

Figure 5.4 reflects general information required in programming, bud-
geting, and accounting (PB&A) and shows the proposed flow of data from and
to classification structures through these processes under Alternative 3.
It also shows where data can flow directly and where dictionary translations
are required. The lowest bar depicts the proposed new ACC. The middle bar
is representative of data to be used in various manual and automated budget
processes. The top bar provides a basis for a common NCIS and NARM/FLAIL
data base. In a general way, therefore, this chart synthesizes the proposed
interrelationships of classification structures and correlation of data used
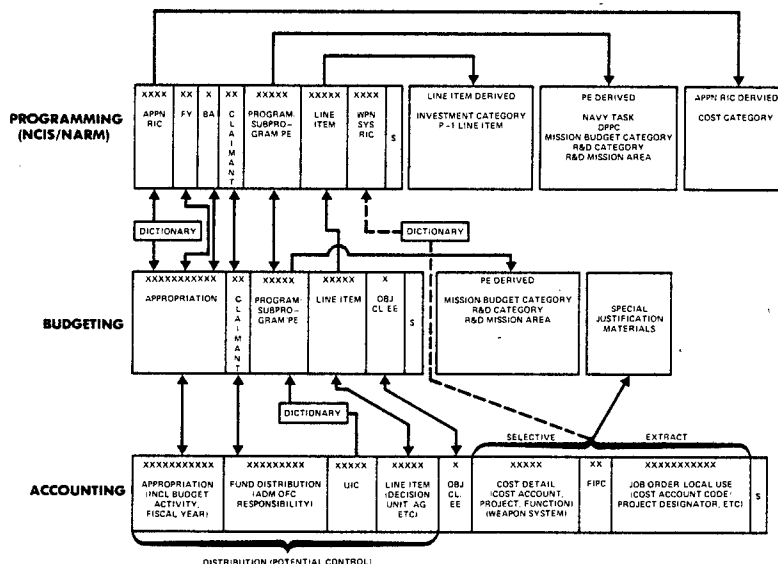in the PB&A phases.

Figure 5.4. Alternative 3: Fully Integrated System of PB&A Structures

Appropriation, fiscal year, and budget activity carry throughout all the PB&A processes. In the programming phase, appropriation is converted to resource identification code (RIC) for inclusion in the Five Year Defense Program.

Probably the most important structure that crosses appropriation lines is the line item (including the decision unit and other pertinent structures) since it shows in accounting, in budgeting, and in programming. It, therefore, is a principal ingredient in correlating the three processes. Except for RDT&EN, where it is a line item, the program element is derived through a dictionary from the unit identification code (UIC). Program element is used for some functional areas in budget development, and it is a principal structure in programming. A number of structures (e.g. Navy task, DPPC, mission budget category, R&D category, and R&D mission area) are derived from program element. Cost detail in the accounting system feeds budget justification materials, and also, through a dictionary, weapon systems costs in NCIS.

In summary, it is considered that Alternative 3, including pertinent features of Alternatives 1 and 2, represents a significant improvement to usage of classification structures. As a complete package it eliminates fourteen structures initially with eight additional structures being eliminated as a result of combinations. Introduced are eight new structures,

bringing the total to forty-five structures after Alternative 3 is fully implemented. The structures remaining after implementation of the third alternative serve the PB&A processes as illustrated in Figure 5.5.

Of the 45, 21 or 47 percent are used in more than one of the PB&A processes, in contrast to 40 percent under the current system. Twelve, or 26 percent are used in all of the PB&A processes as opposed to 21 percent under the current system. The alternative either resolves or substantially contributes to the resolution of most deficiencies highlighted by the FMIP 77-2 project group. In particular the alternative system promises improved capabilities for DON to:

● Accumulate and report data by the organizational hierarchy of the DON.

● Crosswalk comparative data among the PPBS structures.

● Form a basis for accumulating consistent and useful cost data on major weapon systems.
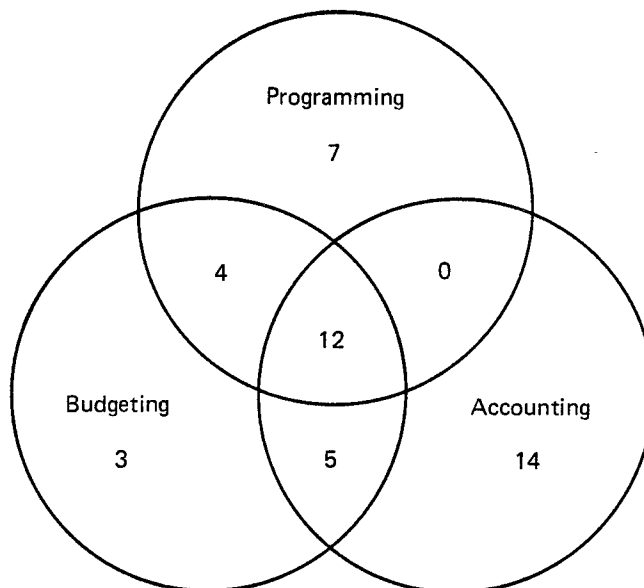
Figure 5.5. Venn Diagram Showing Number of Classification Structures Remaining After Implementation of Alternative 3 — Optimal

SECTION 6

COMPLETION OF FMIP PROJECT

6.1   INTRODUCTION

     This section addresses, as required by the contract, "recommendation
of other efforts as required to complete the FMIP project." We first discuss
several areas identified during the course of our work in which continued
efforts could be made in support of the objectives of the overall project.
Next, we suggest that a Master Implementation Plan be developed and we
treat in some detail the steps required to implement, in a progressive
fashion, the changes described in Sections 4 and 5 of this report. The
following paragraphs present brief descriptions of the efforts identified
and the implementation steps.

6.2   ACCRUAL AND PROPERTY ACCOUNTING

     The FMIP "Problem Definition" of June 1978 states that "of the 70
Financial Performance (Accounting) Systems currently on Navy's Inventory,
approximately 38 (54%) face GAO rejection due to the lack of proper accrual
or property accounting techniques."

     Title 2 of the General Accounting Office Policy and Procedures Manual
for Guidance of Federal Agencies specifies that: "The maintenance of ac-
counts on the accrual basis is a basic requirement for Federal Agencies."[1]
It states further that the accrual basis of accounting is required because
it can make a material contribution to an agency's financial control capa-
bility, especially in the area of cost accounting. Finally, it states
that a Federal Agency whose accounting system is not accrual-based does
not meet the requirement prescribed by law.

     Property accounting also receives special GAO emphasis, primarily
because of the large investment of public funds represented by such re-
sources. DON appears to meet property accounting standards in all areas
except depreciation. GAO states that: "Procedures shall be adopted by
each agency to account for depreciation (or amortization of cost) of
capital assets whenever need arises for a periodic determination of the
cost of all resources consumed in performing services."[2]

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[1]2 GAO 9.1
[2]2 GAO 12.5 (h)

6-1

The DON should continue current efforts to bring all of its account-
ing systems into compliance with GAO requirements to preclude rejection of
the systems by GAO. In pursuing this effort, the DON should give serious
consideration to the use of existing structures as a framework within which
accrual accounting can be accomplished. Among those which seem to be prime
candidates for this purpose are the PE-based Navy task structure and the
decision unit structure used to organize annual budgets. The Navy task
structure should be appropriate as a framework for all appropriation groups
except procurement. The decision unit structure (which was previously dis-
cussed in this context in Section 4.4.3.4, above) should be a suitable
framework for procurement since it is based on single budget activities
or a mix of budget activities and budget subactivities. Use of such frame-
works would serve to meet the need to tie accrual accounting to programs
and budgets and would also contribute to the FMIP 77-2 objectives relative
to obtaining total weapon systems costs.

6.3   VAMOSC IMPROVEMENTS

    As it is currently configured, VAMOSC produces operating and support
costs for ships and aircraft. It does not, however, treat costs for other
weapon systems. such as missiles, torpedoes, satellites, and other miscel-
laneous systems, nor does it display operating costs for maintenance by
organization, intermediate, and depot levels of maintenance. Other sug-
gested enhancements include the capability to identify work breakdown struc-
ture costs through the use of the project unit structure and inclusion of
performance data within the system. Finally, VAMOSC does not interface
directly with NCIS to provide actual prior year data, for comparison pur-
poses, on an automated basis.

    The first and last of these cited deficiencies relate directly to
the objectives of FMIP 77-2 that are concerned with obtaining total weapon
system costs. The second is specified in the "Problem Definition" of June
1978. In any case, DON can make the VAMOSC far more widely applicable and
useful by expanding it to accommodate these and other management functions
that it now meets only partially.

6.4   DATA MANAGEMENT

    A major problem highlighted in the Problem Definition, in the RFP,
and in our findings during the project has been that many of the classifi-
cation structures identified have been found to be duplicative, overlap-
ping, inconsistent, and obsolescent. Discrepancies were also noted in the
organization, definition, and coding of data elements within structures.
Even terminology was not standardized; for example, the term "class code"
is used one way in NCIS and another way in the accounting system. Use
of different terms to describe one structure or a data element has also
caused difficulty.

The primary reason that these problems have developed is that the various component organizations within DON have acted independently in establishing, modifying, and coding classification structures and data elements. Using manual systems, this situation could be tolerated; however, with the increasingly sophisticated and pervasive automated systems in DON, the need for consistency, coordination, and control of data elements and classification structures is essential.

To meet this need, a departmental control system should be established in one office for all of the DON. This office could be under the auspices of a committee on which might sit representatives of NAFC, NCB, DONPIC, and NAVDAC, for accounting, budgeting, programming, and data processing applications, respectively, among others. The committee, through its office, would provide leadership in precluding the creation of inconsistent or duplicative data structures and in ensuring coordination and cooperation in the management of information for all of the DON. The following kinds of functions could be performed by this group:

- Prepare and issue a Navy directive providing for coordination and approval procedures for new classification structures or significant changes to current ones.

- Issue policies and guidelines for the development of new automated systems to ensure inter-system compatibility and prepare and maintain an automated system directory.

- Initiate and provide leadership in the conduct of studies to improve current data structures and facilitate interfaces among systems.

- Provide guidance and direction in data element standardization and prepare and maintain a codes and titles directory for each structure similar to DoD Handbook number DoD-7045.7-H, FYDP Program Structure, Volume 1, Book Number 1, or to the DON manual number NAVFAC P-72, Category Codes for Navy Facility Assets.

An office fulfilling such functions would make substantial progress toward meeting the FMIP 77-2 objective of developing and implementing a classification system for PB&A that is consistent so that information can be transmitted and used across these functions.

6.5 NCIS REDESIGN

DONPIC has been tasked to chair an effort to develop compatibility between NCIS and the NARM/FLAIL system. This effort is currently underway and will result in substantial improvement in DON PB&A management. We recommend, however, that a further step be considered : that NCIS and NARM/FLAIL utilize a common data base. This data base could have direct

interface on the one hand with VAMOSC to obtain weapon system actual cost information and on the other hand with the budget formulation system to obtain budget inputs. The data base should also be accessible interactively so other resource sponsors could input their actual data. This data base would become the single medium that would link completely the PB&A processes and provide comparison data consistently and usefully.

6.6 MASTER IMPLEMENTATION PLAN

Implementation of the alternatives developed under the GRC portion of Project FMIP 77-2 should be accomplished in a systematic fashion and in tandem with other DON efforts such as the current DONPIC-chaired effort to merge NCIS and NARM/FLAIL, the BCC restructure, budget automation, cost account/SHOROC, and the STARS modifications. Such a major undertaking requires that a Master Implementation Plan be developed to structure the efforts, to act as a checklist to ensure that all approved items have been accomplished, and to provide a framework for the over-all effort, thus assisting in its management. Finally, it should combine and coordinate those portions of the effort that can be accomplished in-house by DON and those portions that might be contracted. Described below are the tasks that are recommended for inclusion in the Master Implementation Plan. The first three tasks would be sequential since they basically address the implementation of the three GRC alternatives. These build on one another in that each is a refinement or addition to the current system, in the case of the first alternative, or to the prior alternative in the cases of the second and third alternatives. The fourth task is an administrative one that would contribute, with fluctuations in the level of effort required for it, throughout the implementation period. Figure 6.1, following this page, illustrates the timeframe that we estimate for implementation of the three alternatives and the level of effort that will be required.

6.6.1 Implement the Improved Classification Structure System

This task would require minor changes and clean up actions to the current system. It is the short-range alternative that, while improving the system as a whole, would do so to a relatively lesser extent and with a minimum amount of turbulence. The following subtasks would be required to complete this task.

6.6.1.1 Conduct Research to Ensure Currency of Information On Hand, DON Information Requirements, and Uses of Classification Structures

This subtask would be required to ensure that the information on hand for the implementation group is current. Between publication of the GRC study and the beginning of the implementation effort, it is likely that there would be changes in policies and procedures and in reporting requirements with regard to some of the classification structures. This

TASKS/SUBTASKS	YEAR 1 2 4 6 8 10	YEAR 2 2 4 6 8 10	YEAR 3 2 4 6 8 10	YEAR 4 2 4 6 8 10	TECHNICAL PERSON/MONTHS
6.6.1 ● IMPROVED ALTERNATIVE					
6.6.1.1 – UPDATE REQUIREMENTS					2
6.6.1.2 – DEVELOP DEFINITIONS					10
6.6.1.3 – DEVELOP CODING CHANGES					2
6.6.1.4 – ANALYZE SYSTEMS AND REPROGRAM					$18\text{-}36^2$
6.6.1.5 – IMPLEMENT CHANGES AND PROVIDE TRAINING					2
6.6.1.6 – REVISE MANUALS					9
6.6.1.7 – INVESTIGATE DP DEVELOPMENTS					1
6.6.2 ● INTERMEDIATE ALTERNATIVE					
6.6.2.1 – DEVELOP DEFINITIONS					4
6.6.2.2 – DEVELOP CODING CHANGES					4
6.6.2.3 – ANALYZE SYSTEMS AND REPROGRAM					$18\text{-}36^2$
6.6.2.4 – IMPLEMENT CHANGES AND PROVIDE TRAINING					4
6.6.2.5 – REVISE MANUALS					9
6.6.2.6 – INVESTIGATE DP DEVELOPMENTS					6
6.6.3 ● OPTIMAL ALTERNATIVE					
6.6.3.1 – FINALIZE DEFINITIONS					8
6.6.3.2 – DESIGN SYSTEM					48
6.6.3.3 – OBTAIN EQUIPMENT					$84\text{-}168^2$
6.6.3.4 – DEVELOP TRAINING MATERIALS					24
6.6.3.5 – REVISE MANUALS					9
6.6.4 ● COORDINATE					168^3

[1] Assumes approval of Alternative 3 as the optimal system and sequential implementation of the three alternatives.

[2] Range is provided to reflect reprogramming levels of effort to be applied as needed on various systems.

[3] Reflects full-time project manager and clerical personnel plus graphics personnel as required through four-year life of project.

Figure 6.1. Implementation of GRC Alternative Estimated Time Frame[1] and Level of Effort

subtask would ensure that the implementation group is fully aware of and can respond to any changes that will have taken place in the interim.

6.6.1.2 Develop Definitions of Classification Structures Incorporating Changes, Additions, and Improvements

This subtask involves development, coordination, and approval of new definitions that would become the basis for any additional work under the task. These definitions would provide parameters within which each structure may be utilized. Included among the actions requiring changes to definitions would be the combining of all or parts of the budget classification code, expense element, NMC O&MN line item, and object class into activity group, subactivity group, subfunctional category, or cost account. New definitions would also be required for the accounting classification code and weapon system code, all of which are redefined under this alternative. Finally, definitions would be required for construction suspense account, military personnel account, and object class/expense element which are introduced in this alternative.

6.6.1.3 Develop Coding Changes Required to Reflect New Definitions

This subtask requires the merger and displacement of coding fields utilized in the current configuration to meet, with a minimum of turbulence, the requirements of the new definitions and redefinitions discussed in the previous subtasks. The effort here would be to utilize the capabilities of the current systems to the greatest extent feasible without duplicating or overlapping codes for structures that are continued.

6.6.1.4 Analyze Systems to Determine Specific Software Changes and Reprogram as Needed

Under this subtask, the coding changes developed in the previous subtask would be examined from the standpoint of the existing system software to ensure that they are compatible. Accomplishing this would also require confirmation of identification of impacted systems to ensure complete coverage. Two possibilities may then arise: the coding may prove to be incompatible with the existing software in which case the coding scheme must be re-examined and redeveloped; if the coding and software prove to be compatible, however, reprogramming to accommodate the changes may be accomplished.

6.6.1.5 Implement Changes, Additions, and Improvements and Provide Training Documentation

Subject to the approval of the concerned Navy command and staff elements through which these actions would be coordinated, actual implementation would take place under this subtask. This would involve publishing policy and procedure changes, making changes to input and reporting

forms utilized at all levels, and promulgating training memoranda as instructions to users. It is presumed that only memoranda will be required, rather than formal training plans, since this alternative is not meant to require substantial changes to routine procedures.

6.6.1.6 Revise Relevant Manuals

This subtask would involve the review of all relevant Navy manuals and development of the changes required to them as a result of the changes developed for this alternative. Two manuals that will require close review and substantial change are the Navy Programming Manual, currently in draft form, and the seven volume Navy Comptroller Manual, NAVSO P-1000, which addresses, often in more than one of its volumes, many of the classification structures. Besides revising the procedures detailed in these manuals, this would be the opportune subtask in which to begin to remove the various coding lists from those manuals and transfer them to the Codes and Titles Directory described in Section 6.5, above.

6.6.1.7 Investigate State-of-the-Art Information Processing Developments

This subtask would involve a preliminary examination of the directions in which the technologies are progressing in terms of the specific applications required as a result of implementation of the improved alternative. By developing an awareness of the technology available for this alternative, the implementation group would be making a first step toward assessing the available technology when later alternatives are implemented. This subtask would actually be the beginning of an ongoing subtask for the duration of the effort.

6.6.2 Implement Intermediate Classification Structure

The second alternative is designed as a mid-range improvement to the Navy classification structure system. It could be implemented as a second step or building block toward an optimal system or it could be a starting point for structure system improvement depending on whether the Navy were willing to accommodate the turbulence that would result. As a first step, this alternative would involve substantial changes from the current configuration, though it could be accomplished. As a second step, however, the turbulence that it would cause would be decreased by the actions that would have taken place during implementation of the first alternative. The subtasks required to implement this alternative are described below.

6.6.2.1 Develop Definitions of New Structures and Those Requiring Changes and Improvements

As in the first alternative, this subtask would involve development,

coordination, and approval of new definitions that would become the basis
for further work in this alternative. Included among the actions requir-
ing changes to definitions would be the combining of subactivity group
and subfunctional category into the new operations line item and cost
account, and the redefining of cost account and resource category code.
This alternative would also require that new usage procedures be developed
for budget subactivity (in procurement), decision unit, and program element,
all of which are planned to be continued with changed usage under this
alternative; and the previously mentioned operations line item which
would be introduced under this alternative.

6.6.2.2 Develop Coding Changes Required to Accommodate New Definitions of Structures and New Structures

As in the first alternative, this subtask would require the merger,
displacement, and creation of coding fields in addition to the modifica-
tions made earlier. These changes would be needed to meet the require-
ments of the new definitions and redefinitions discussed in the previous
subtask. It is anticipated that these coding changes for the most part
would be made with current systems remaining in place. There may be,
however, some systems modifications made during the implementation of this
alternative based on the preliminary findings under the last subtask of
implementation of the first alternative or on actions taken in concurrent
in-house or contracted systems efforts.

6.6.2.3 Analyze Systems to Determine Specific Software Changes and Reprogram as Needed

The primary effort under this subtask would be to examine the coding
schemes developed in the previous subtask to ensure systems compatibility
and to reprogram the software to incorporate the new codes. If some sys-
tems modifications would have been made at this point, especially in the
area of hardware acquisition, there could be a need for development of new
software as well.

6.6.2.4 Implement Changes, Additions, and Improvements and Provide Training Materials

This subtask would provide for the actual implementation of the second
alternative, again subject to the approval of the concerned Navy command
and staff elements through which the actions would be coordinated. As in
the implementation of the first alternative, this would require publishing
of policy and procedure changes, making changes to input and reporting
forms (or development of new forms if any major systems changes have taken
place), and promulgation of training materials. For the most part, train-
ing materials should consist of memoranda of instructions, since this al-
ternative involves changes to the existing systems beyond those required
earlier. New systems acquisitions, however, could require formal training
which should be vendor-provided.

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6.6.2.5 Revise Relevant Manuals

During this subtask, all of the documentation of changes to classi-
fication structures made to implement the second alternative should be
incorporated into the appropriate Navy manuals, especially NAVSO P-1000
and the Navy Programming Manual. Incorporation of these changes would
again permit the removal of more coding lists from those manuals and their
inclusion in a new Codes and Titles Directory recommended for development
earlier in this report.

6.6.2.6 Expand Investigation Into State-of-the-Art
Information Processing Developments

At this point in the improvement of the overall Navy classification
structure system, the need for a full-fledged examination of the state-of-
the-art in information processing would arise. This timing is necessary in
order that this subtask immediately precede the time frame for implementa-
tion of the optimal system, especially due to the dynamic nature of the
information processing environment. Timing is also critical in this
area since the procurement mechanism alone, assuming that the requirements
of OMB Circular A-109 could be met in a timely manner, hampers dramatical-
ly the ability to obtain state-of-the-art capability. The implementation
group would need to examine the kinds of areas exemplified by the follow-
ing listing:

- Hardware/Firmware

    -Miniaturization (CPU chips, microprocessors)
    -Increased reliability (redundant processors)
    -Memory chips
    -Peripheral memory enhancements
    -Peripheral devices improvements
    -Networking
    -Distributed processing
    -Standardization

- Software

    -Improved DBMS capabilities
    -New, more effective languages
    -Improved operating systems
    -Graphics software
    -Metadata applications

- Communications

    -Interactive capabilities for DBMS
    -Automated source data collection
    -Integration of communications and processing

Familiarity with the latest developments in the above areas as a minimum would assist greatly in planning for and implementing the optimum system recommended in the third alternative.

6.6.3 Implement Optimal Classification Structure System

The third alternative constitutes the optimal or long-range classification structure system for the Navy. This alternative, which would cause maximum turbulence in implementation, is anticipated to require new hardware and operating, as well as application, software. It would be sufficiently flexible to accommodate new requirements with minimum turbulence; to provide management reports at any required level; to crosswalk data completely across the PB&A processes; and to provide comparison data and audit trails throughout the system. The following subtasks would be required to implement the optimal system.

6.6.3.1 Finalize all Structure Definitions For Use in the Optimal System

Pending changed needs in the future, this subtask would produce the final definitions for the classification structures to be utilized by the Navy. Among those requiring change would be anticipated reimbursements and reimbursement codes, both of which would be combined into the source code; reimbursement codes, both of which would be combined into the source code; and accounting classification code, authorization accounting activity, budget subactivity (for Military Personnel), cost code, and various identifier codes, all of which would be redefined. New usage procedures would also be required for category code/nomenclature, decision unit, program element, and unit identification code, all of which would be continued with changed usage. New definitions would be required for funds distribution, job order/local use, line item, and source code, all of which would be introduced under this alternative.

6.6.3.2 Design, Develop, and Document System Specifications for the Optimal Classification Structure System

The first subtask would provide the specific definitions of the data elements (classification structures) requiring processing in the system. This subtask would produce the specifications necessary to define hardware and software requirements to process the data. This would be done by conducting a functional requirements study to determine and to document precise needs at all levels; developing and documenting conceptual systems design (with specific emphasis on direct interface with other relevant systems such as VAMOSC, budget formulation, JUMPS, and NCIS NARM/FLAIL); and developing and documenting the detailed programming specifications so that actual programming could be done directly from the specifications document.

6.6.3.3 Obtain System Hardware and Software

This subtask, which would be based directly on the results of the previous one, would require that all prescribed acquisition procedures be followed. Vendors should be surveyed to determine the various types of equipment that would meet the Navy's needs; bids must then be obtained; and both equipment and software must be obtained, tested, and debugged. The new system would then need to be run in parallel with the current one until all transitional activities were completed (input and report media designed; personnel trained).

6.6.3.4 Develop Training Materials

This subtask would be required to ensure that all personnel are uniformly trained in the use of the optimal system. Two basic kinds of training would be necessary. First, training for those utilizing the hardware and software directly would be needed. Operating and application programmers would require hands-on training to become fully familiar with the equipment acquired. Equipment and software vendors should provide this training. Any acquisition contracts should so stipulate. The second type of training needed may be titled user training. This would require course outlines, lesson plans, and training aids for various levels of personnel. Courses required would include one for clerical personnel who would provide direct input to the system; one for mid-level management in whose offices the system would be located and who would require activity-level management reports; and an executive-level course for top management who would require summary-level reports.

6.6.3.5 Revise Relevant Manuals

This subtask would require final review of Navy manuals and development of changes to them to incorporate system-oriented information. In the cases of NAVSO P-1000 and the Navy Programming Manual, this should result in the removal of the last of the code listings and their transfer to the Codes and Titles Directory. Other manuals produced for specific Navy command and staff elements, such as NAVSUP and BUMED, would require similar updating and revision. All of this should be accomplished under the direction of the implementation group to ensure uniformity of policies and procedures Navy-wide.

6.6.4 Conduct Staffing and Coordination

This task would be a continuous one which would require varying levels of effort over the entire period during which all three alternatives would be implemented. It should be accomplished by a single entity under the supervision of the implementation group for close tracking and uniformity. The primary effort in this area would be ensuring that the various definitions, coding methodologies, and report layouts are disseminated to all

interested parties for review, comment, and eventual concurrence. This entity would also develop responses to specific requests for systems changes; keep abreast of new information requirements, especially external ones; submit new forms for approval; and, finally, submit systems documentation for approval.

This section has addressed the specific efforts that GRC believes are necessary to complete the FMIP 77-2 project. It has also provided a detailed Master Implementation Plan including time phasing and staffing requirements for the alternative Navy classification structure systems that we have developed. This concludes our final report.

ACRONYMS
AND
ABBREVIATIONS

A

AAA	Authorization Accounting Activity
AAW	Anti-Air Warfare
A/C	Aircraft
ACC	Accounting Classification Code
ADP	Automatic Data Processing
ADPE	Automatic Data Processing Equipment
ADPS	Automatic Data Processing Systems
AG/SAG	Activity Group/Sub-Activity Group
ALLOT	Allotment
AO	Administering Office
APN	Aircraft Procurement, Navy
APPN	Appropriation
ASD	Assistant Secretary of Defense
ASD(C)	Assistant Secretary of Defense (Comptroller)
ASMD	Anti-Ship Missile Defense
ASN	Assistant Secretary of the Navy
ASN(FM)	Assistant Secretary of the Navy (Financial Management)
ASPR	Armed Services Procurement Regulation
ASW	Anti-Submarine Warfare
ASUW	Anti-Surface Warfare

B

BA	Budget Activity
BASOPS	Base Operations
BCC	Budget Classification Code
BCN	Bureau Control Number
BPROG	Budget Program
BPROJ	Budget Project
BSA	Budget Subactivity
BUMED	Bureau of Medicine and Surgery
BUPERS	Bureau of Personnel
BY	Budget Year

C

CAC	Cost Account Code
CBO	Congressional Budget Office
CC	Cost Code
CCN	Category Code, Nomenclature
CHMN	Chairman
CHNAVMAT	Chief of Naval Material
CHNAVPERS	Chief of Naval Personnel
CINCLANTFLT	Commander-in-Chief, U.S. Atlantic Fleet
CINCPACFLT	Commander-in-Chief, U.S. Pacific Fleet
CINCUSNAVEUR	Commander-in-Chief, U.S. Naval Forces, Europe
CLC	Class Code
CMC	Commandant of the Marine Corps
CNAVRES	Chief of Naval Reserve
CNET	Chief of Naval Education and Training

C

CNM	Chief of Naval Material
CNO	Chief of Naval Operations
CONG	Congress
COSTCAT	Cost Category
CS	Category Stub
CY	Current Year; Calendar Year

D

DCNO	Deputy Chief of Naval Operations
DEPSECDEF	Deputy Secretary of Defense
DN	Department of the Navy
DOD	Department of Defense
DODINST	Department of Defense Instruction
DON	Department of the Navy
DONPIC	Department of the Navy Program Information Center
DPPC	Defense Planning and Programming Category
DU	Decision Unit
DUSDRE	Deputy Under Secretary of Defense for Research and Engineering

E

EE	Expense Element
EFD	Engineering Field Division

F

FAD	Fleet Air Defense; Funding Authorization Document
FAN	Functional Account Number
FCCC	Facility Class and Construction Category
FGC	Fiscal Guidance Category
FGM	Fiscal Guidance Memorandum
FHMA	Family Housing Management Account
FIPC	Financial Information Processing Centers
FLAIL	Force Level Analysis Interactive Language
FM	Financial Management
FMIP	Financial Management Improvement Program
FMF	Foreign Military Sales
FP	Functional Program
FSFC	Functional/Subfunctional Category
FY	Fiscal Year
FYDP	Five Year Defense Program

G

GAO	General Accounting Office
GDIP	General Defense Intelligence Plan
GRC	General Research Corporation

H

HBC	House Budget Committee
HQMC	Headquarters Marine Corps

I

IBOP	International Balance of Payments
IDA	Integrated Disbursing and Accounting
IF	Industrially Funded
I&L	Installations and Logistics
IPMS	Integrated Program Management System

J

JON	Job Order Number
JUMPS	Joint Uniform Military Pay System

L

LANTFLT	Atlantic Fleet
LCC	Life Cycle Costing
LI	Line Item
LOG	Logistics

M

MAAG	Military Assistance Advisory Group
MARCORPS	Marine Corps
MBC	Mission Budget Category
MCN, MCON, MILCON	Military Construction, Navy
MCNR, MCON(R)	Military Construction, Navy Reserve
MCPA	Military Construction Program Assignment
MIC	MILCON Investment Category
MILPERS	Military Personnel
MIS	Management Information System
MP	MILCON Project; Major Program
MPA	Military Personnel Account
MPMC	Military Personnel, Marine Corps
MPN	Military Personnel, Navy
MSC	Military Sealift Command; Medical Service Corps

N

NARM	Navy Resource Model
NAVAIR	Naval Air Systems Command
NAVCOMPT	Comptroller of the Navy
NAVELEX	Naval Electronics Systems Command
NAVFAC	Naval Facilities Engineering Command
NAVFACENGCOM	Navy Comptroller, Naval Facilities Engineering Command
NAVMAT	Naval Material Command

N

NAVMEDRSCHDEVC	Naval Medical Research Development Committee
NAVSEA	Naval Sea Systems Command
NAVSECGRUCOM	Naval Security Group Command
NAVSUP	Naval Supply Systems Command
NAVWEASERVCOM	Naval Weather Service Command
NCB	Director of Budget and Reports, NAVCOMPT
NCD	Deputy Comptroller of the Navy
NCIS	Navy Cost Information System
NCIS/DLM	Navy Cost Information System/Depot Level Maintenance Subsystem
NCIS/OPS	Navy Cost Information System/Operations Subsystem
NDES	NARM Data Entry Sheet
NFC	Navy Finance Center
NFS	Navy Facilities System
NMC	Naval Material Command
NMCO&MLI	Naval Material Command Operations and Maintenance Line Item
NOA	New Obligational Authority
NT	Navy Task

O

OASD	Office, Assistant Secretary of Defense
O&M	Operations and Maintenance
O&MMC	Operations and Maintenance, Marine Corps
O&MMCR	Operations and Maintenance, Marine Corps Reserve
O&MN	Operations and Maintenance, Navy
O&MNR	Operations and Maintenance, Navy Reserve
OC	Object Class
OICC	Officer in Charge of Construction
OMB	Office of Management & Budget
ONR	Office of Naval Research
OPN	Other Procurement, Navy
OPNAV	Office of the Chief of Naval Operations
OPS	Operations
OSD	Office of the Secretary of Defense
OUSDR&E	Office of the Under Secretary of Defense for Research & Engineering

P

PAA	Primary Aircraft Authorization; Property Accounting Activity
PACFLT	Pacific Fleet
PARS	Procurement, Accounting, and Reporting System
PB&A	Programming, Budgeting, and Accounting
PCS	Permanent Change of Station
PE	Program Element
PEA	Program Element Aggregation

P

PEDD	Program Element Descriptive Data Sheet
PMC	Procurement, Marine Corps
POM	Program Objectives Memorandum
PPBS	Planning, Programming and Budgeting System

R

RAD	Resource Allocation Display
R&D	Research and Development
RCC	Resource Category Code
RDT&EN	Research, Development, Test & Evaluation, Navy
RFP	Request for Proposal
RIC	Resource Identification Code
RMS	Resource Management System
RPD	Retired Pay, Defense
RPMC	Reserve Personnel, Marine Corps
RPN	Reserve Personnel, Navy

S

SAR	Selected Acquisition Report
SCN	Shipbuilding and Conversion, Navy
SECDEF	Secretary of Defense
SECNAV	Secretary of the Navy
SECNAVINST	Secretary of the Navy Instruction
SF	Stock Fund
STARS	Standard Accounting and Reporting System
SYS	Systems
SYSCOM	Systems Command (AIR, SEA, ELEX, FAC, SUP)

T

T&CCP	Telecommunication & Command Control Program
TAD	Temporary Additional Duty
TOA	Total Obligational Authority
TT	Transaction Type

U

UDC	Unit Description Code
UIC	Unit Identification Code
UNSECNAV	Under Secretary of the Navy
USMC	United States Marine Corps

V

VAMOSC	Visibility and Management of Operating and Support Costs
VCNO	Vice Chief of Naval Operations

W

WBS	Work Breakdown Structure
WPN	Weapons Procurement, Navy
WSC	Weapons System Code

Z

ZBB	Zero-Base Budgeting
ZBP	Zero-Base Programming