"Spaces," "Faces," And "Bucks": An Overview Of The Role Of Automated Information Systems In Managing The Enlisted Force

NSIAD

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PREFACE

Management of military forces is one of the least understood and most complex areas facing Department of Defense (DOD) managers and critics. To facilitate GAO work in this area, a team from the National Security and International Affairs Division (NSIAD) developed a simplified explanation of how DOD managers use automated information systems to plan for, and control, the enlisted force. This explanation has been presented to a number of GAO managers and evaluators. Since it is not possible to brief every evaluator, we have prepared this handbook which should be useful to those who will deal with military manpower issues.

In preparing the handbook, we learned that a great deal of useful information already exists within DOD about enlisted force management. Therefore, the handbook stresses the utility of DOD-generated information and concentrates on the ways in which this information is developed and used by DOD to manage the enlisted force.

The handbook is organized in three sections. Part One describes the three components of enlisted force management and how information flows within and between them. Part Two explains the major information systems used by each service. Part Three provides our observations on management of enlisted force information systems in DOD.

The handbook is intended for evaluators involved in defense audits. It is not always obvious, but there are few military reviews that do not address a personnel question, either expressly or by implication. NSIAD evaluators can use the handbook as a quick reference on DOD force management issues.

Should you have any questions or need additional information, please contact Dr. John Harper, Manpower, Reserve Affairs and Logistics Group (202-275-3990), or Dr. Bill McNaught, Economic Analysis Group (202-275-8553).

Martin M Ferber
Associate Director
National Security and International Affairs Division

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PART ONE

HOW DO THE SERVICES MAKE ENLISTED FORCE MANAGEMENT DECISIONS?

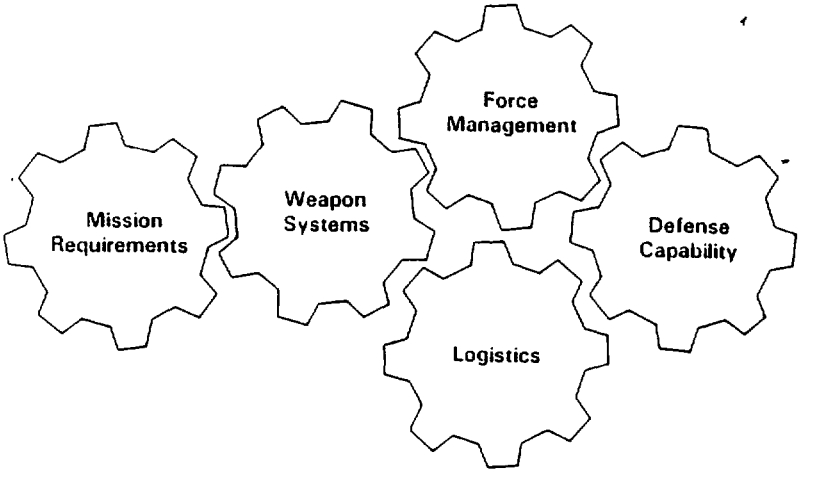
Section I

Force management is an important element of defense capability

Defense capability critically depends on effective management of the forces who operate and maintain our weapons systems. In recent years, the press, the public, and the Congress have concentrated substantial attention on the increased complexity and cost of those weapons systems. Far less attention has been devoted to the role of qualified, properly trained personnel. However, without enough properly trained operators and maintainers our weapons systems cannot be as effective as they should and must be. GAO reported several years ago that human error accounts for at least fifty percent of the failures of major weapons systems.

Force management is only one of a number of important "cogs" which must work together to produce high level defense capability. The chart below illustrates the inter-relationships of these elements. Force management decisions affect weapons system performance. Decisions about missions, weapons systems, and desired capability necessarily affect management of the defense forces. Military history provides examples from Masada to Grenada in which the success of particular strategies, tactics, and weaponry has been dependent on the characteristics of the military manpower involved.

Force Management Is an Important Element of Defense Capability



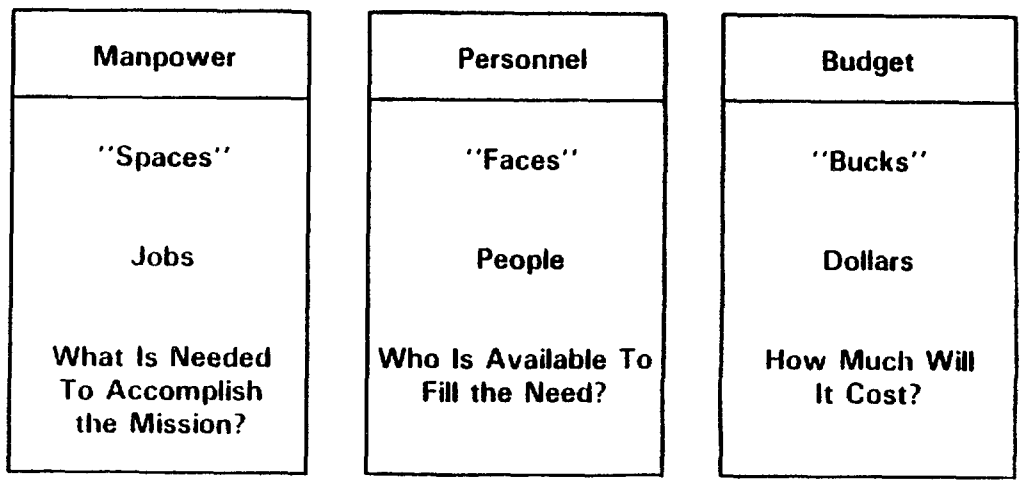
Section II

DOD force management structure

Enlisted force management covers all the issues and activities that relate to the demand for and supply of enlisted personnel. We decided to look at automated information systems supporting enlisted force management because DOD relies extensively on computer models to establish its enlisted manpower needs and to manage the nearly two million men and women in the enlisted personnel inventory.

Each service uses a similar framework to manage the size and composition of its enlisted force. This section describes that framework. As the chart below shows, the services break the tasks associated with enlisted force management into three primary management functions: manpower, personnel, and budgeting.

DOD Distinguishes Between "Spaces" "Faces" and "Bucks" When Making Enlisted Force Management Decisions



The manpower function has two primary roles. One of these is to determine the number and types of jobs, or manpower "spaces," required to perform the service's mission. For example, each service must determine how many trained and experienced personnel are needed to operate and maintain its various weapons systems. It must also determine how many and what kinds of jobs are needed to provide related training and support to these personnel.

The other primary role of the manpower function is to allocate approved and funded manpower "spaces" (called authorizations) down to the level of command, base, unit, occupational specialty, and grade. In contrast to manpower requirements, which embody what the service thinks it needs to accomplish its mission, manpower authorizations represent what the service can actually support--that is, the manpower force actually approved and funded on an annual basis.

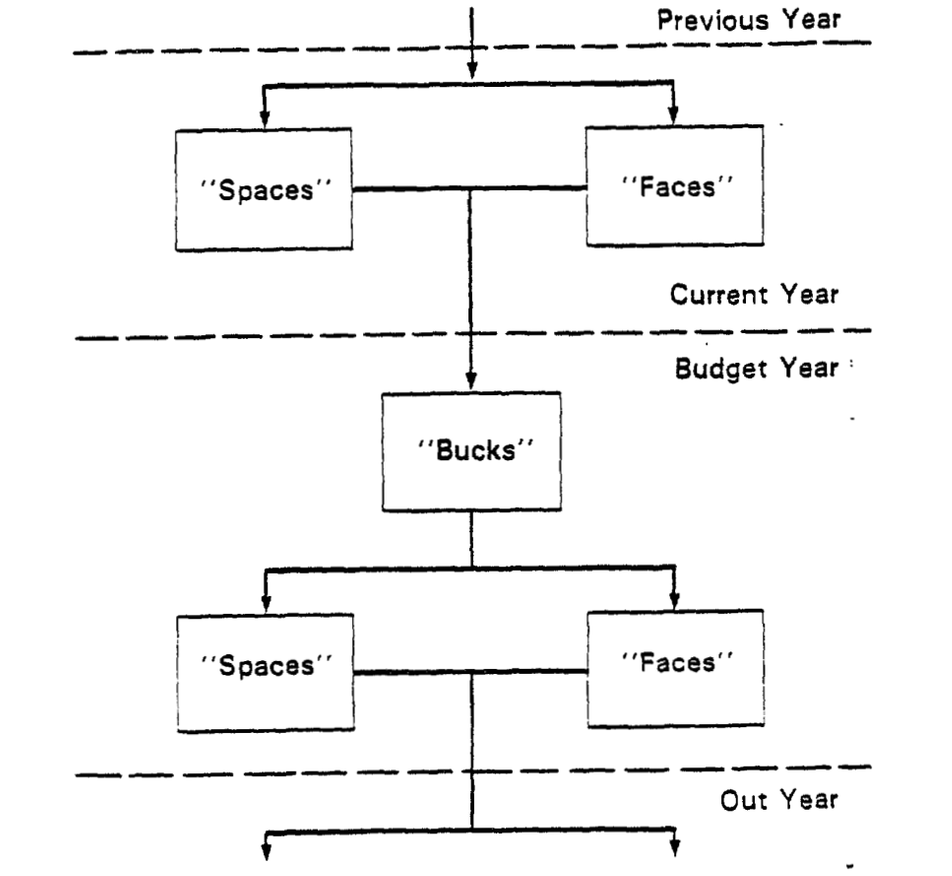
The personnel function is primarily responsible for developing short-run and long-run plans and policies for managing people to fill approved manpower spaces. Personnel management involves all the activities related to recruiting, training, assignment, utilization, support, separation, and retirement of individual service members.

The budget function has three principal roles related to enlisted force management. First, it is responsible for pricing out as precisely as possible the manpower program for the immediate budget year that is folded into the President's overall federal budget for submission to the Congress. Second, once a budget is approved, it acts as a control on the personnel program which must operate within the dollar limits approved for personnel compensation and support. Finally, the budget function provides the framework for linking and making changes to manpower and personnel programs.

The budget function is part of DOD's annual resource allocation process known as the Planning, Programming, and Budgeting System, or PPBS. The intent of PPBS is to "refine" service plans and budgets by identifying changing mission needs or constraints which, in turn, drive changes in manpower and personnel programs and budgets. Thus, the program and budget updates required by PPBS put the manpower and personnel functions in motion and communicating with each other throughout the year and from one year to the next to revise manpower requirements, personnel supply, and cost estimates. The chart below illustrates the interaction of the manpower, personnel, and budgeting functions necessitated by the PPBS process.

In most instances, two military manpower and personnel programs and two budget estimates are being developed simultaneously. One program and its corresponding budget is concerned with the status of the current year appropriation (congressional funding for a program) while the second set is being developed to support personnel requirements for the next fiscal year. The service's statement of its manpower needs, its personnel resources, and budget change as a result of these interactions and other factors.

Enlisted Force Decisions Made in One Year Affect Decisions Made in the Next



Section III

Enlisted force management planning

Developing a realistic force management plan which accurately forecasts the demand, supply, and cost of enlisted personnel for next year's defense programs requires a service to collect, integrate, and analyze a great deal of information from its manpower, personnel, and budget functions. This section describes the general flow of information within and across the manpower, personnel, and budget systems of a service.

Figure I represents a summary of the overall information flow in enlisted force planning. Using this chart, you can track the activities and information flow within and across the three force management components--manpower (spaces), personnel (faces), and budget (bucks).

Manpower planning

Two categories of requirements represent the manpower spaces the service believes it needs--funded requirements and unfunded requirements. Unfunded requirements include both current jobs which a unit has been asked to do but does not have approval and funding to fill with either the number or types of personnel needed to do the work (Box A), and projected new or different jobs which the unit will undertake because of changes in mission, equipment, or organization (Box B). As the chart displays, information about unfunded requirements is compiled in a data base at the service headquarters level (Box C). A separate headquarters data base contains detailed information about manpower authorizations (Box D). From this data base, manning documents can be produced describing the number of approved spaces for each service unit by type of skill and pay grade.

Thus, in the context of developing or revising service plans, the manpower function provides information critical to answering these key questions:

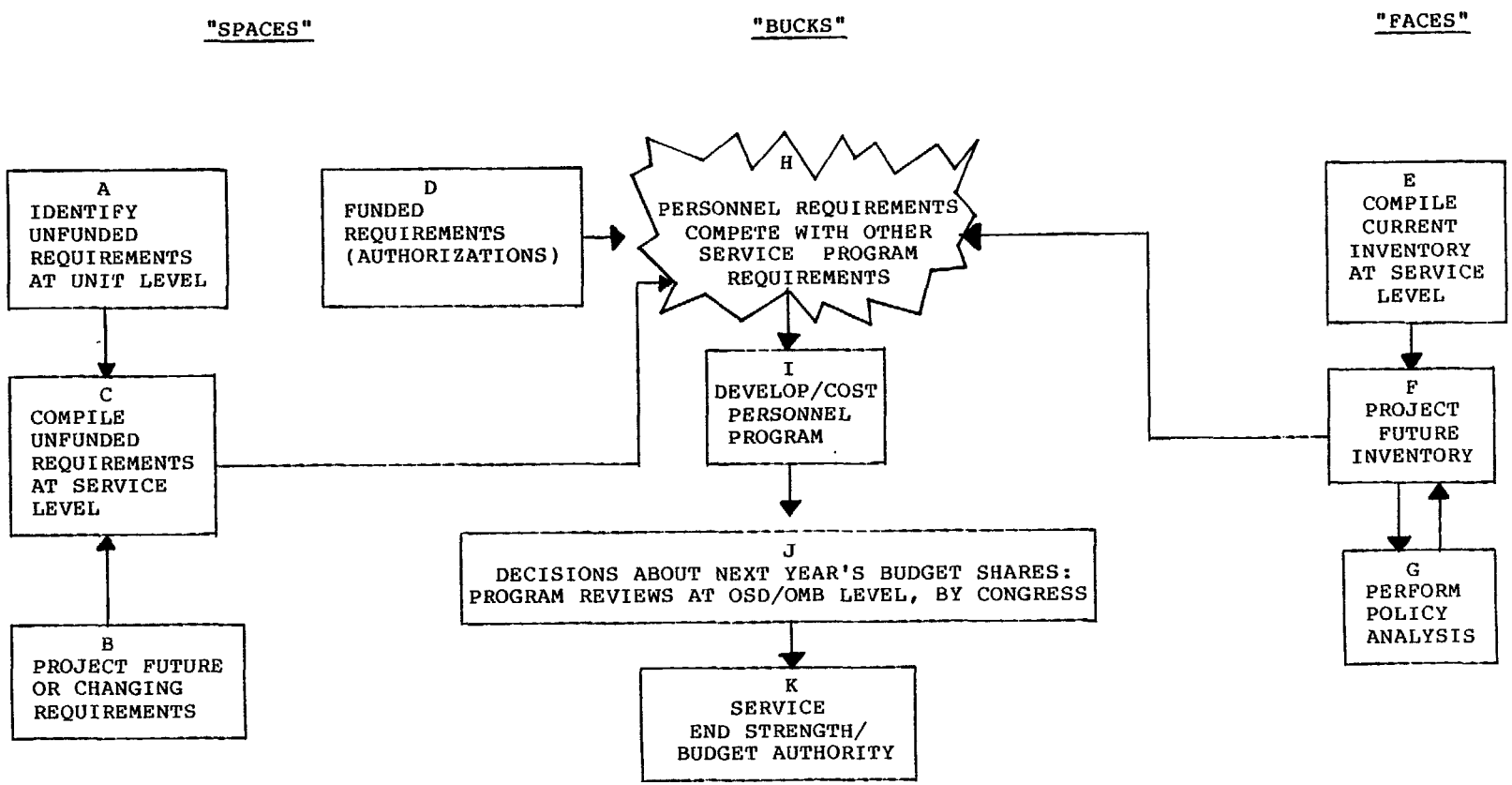
-How many people, with what skills, are needed to do the jobs associated with this program or mission?

-What jobs are approved and funded today?

-Over the next year, what new or different jobs need to be filled?

Figure I

ENLISTED FORCE PLANNING REQUIRES INTEGRATING
INFORMATION FROM THE THREE SYSTEMS



Personnel planning

The personnel, or "faces," system depicted on the chart is basically concerned with developing plans to manage the enlisted inventory so that it will match as closely as possible "spaces" authorized in terms of numbers and skills. To do this, the personnel planner first gets current data on the size and composition of the inventory (Box E), which includes the total number of personnel in each paygrade, year of service, and skill. Starting with this current inventory picture, the planner then projects how the inventory will change over the planning period (Box F).

The planner considers a number of different factors in projecting the size and kind of enlisted force which can be achieved: historical and projected gains and losses to the force by pay grade and year of service, retention objectives, promotion policies, unemployment rates, compensation increases, recruiting objectives, and other inventory management policies. In some cases, the planner uses analytical models to project the effects of economic or policy changes on inventory gains and losses (Box G). For example, if reenlistment bonuses were increased in some skills, how many more personnel might reenlist? If the unemployment rate increased one percent, how many personnel would want to stay in the service?

The personnel planner provides service decisionmakers with estimates of the number and skills of enlisted personnel that are likely to be in the inventory. Thus, when service plans and programs are developed or revised, the personnel function provides information needed to properly address the following critical questions:

-Does the inventory have the right number of people with the right skills to do the planned work?

-Can the service recruit and keep in its inventory the right numbers of skilled people needed to do the projected work?

-Are the policies and assumptions used to project inventory numbers reasonable?

Budget development

Information from the manpower and personnel systems is now transferred to the budgeting function in the center of the chart (Box H). At this point, service leaders must decide how to fit service programs within the fiscal constraints of the projected defense budget. The amount of resources desired for a service's programs always exceeds the resources available to support them. As programs (e.g. weapons systems, personnel) compete for scarce resources, the issues of costs, benefits, logistical support, and manpower are explored. Analyses from the manpower and personnel functions are used to make decisions about how to spread resources among programs. Through a series of reviews and negotiations, agreements are reached on the level of proposed funding for each program, including its personnel support.

Once the service has determined how to allocate its projected resources, the actual preparation of a service budget submission begins (Box I). The comptroller's organization collects budget data on all approved service programs in the formats established through previous agreements with OSD and congressional requirements. Data on the numbers and costs of military personnel are compiled and presented within the service's budget as a separate subdivision of funds, known as the Military Personnel Appropriation (MPA). The MPA is a detailed pricing of the personnel pay and allowances costs associated with all approved service programs.

Budget review and approval

The last phase of the budget process involves review of the completed service budget by DOD, the White House, and congressional committees (Box J). In general, each service works with OSD and Office of Management and Budget (OMB) staffs to make final revisions to its budget submission. After the President has approved the final DOD budget, OMB incorporates it into the national budget.

As soon as the national budget is sent to Congress, the Secretary of Defense and service officials begin presenting their justification of the defense budget to the House and Senate Committees on Armed Services and Appropriations. The Armed Services committees put together the Defense Authorization Act, which tells each service, among other things, its authorized number of military personnel for the coming year (active duty end strength) and its authorized amount of money to compensate them (Box K). Finally, the Appropriations committees enact the Defense Appropriation Act, usually in the fall, which approves the funds that theoretically will pay for what has been authorized.

Through the PPBS process and the interaction of the manpower, personnel, and budgeting functions, an enlisted force management plan evolves. This plan reflects the changes in manpower authorizations, personnel supply, and budget estimates necessary to accommodate changes in various service programs and resources. The service must now direct the activities of its manpower, personnel, and budgeting functions toward achieving or modifying the plan.

Section IV

Day-to-day enlisted force management

On a day-to-day basis, enlisted force management is concerned with getting the proper numbers and types of personnel at the right location to get approved jobs done. To do this, the manpower, personnel, and budget functions exchange information. Because service needs and resources change continuously in response to planned program and budget changes and other unplanned factors, the transfer of information between the systems is continuous. This section describes the general flow of information within and across the force management systems to accomplish planned actions and to respond to unplanned events which create immediate new manpower needs.

Figure 2 depicts the activities and information flow in day-to-day force management. Using this chart, you can first trace the general flow of information across the manpower, personnel, and budget functions that takes place in routine force management activities. Then you can track how the components interact when an unplanned event requires a quick change in force management.

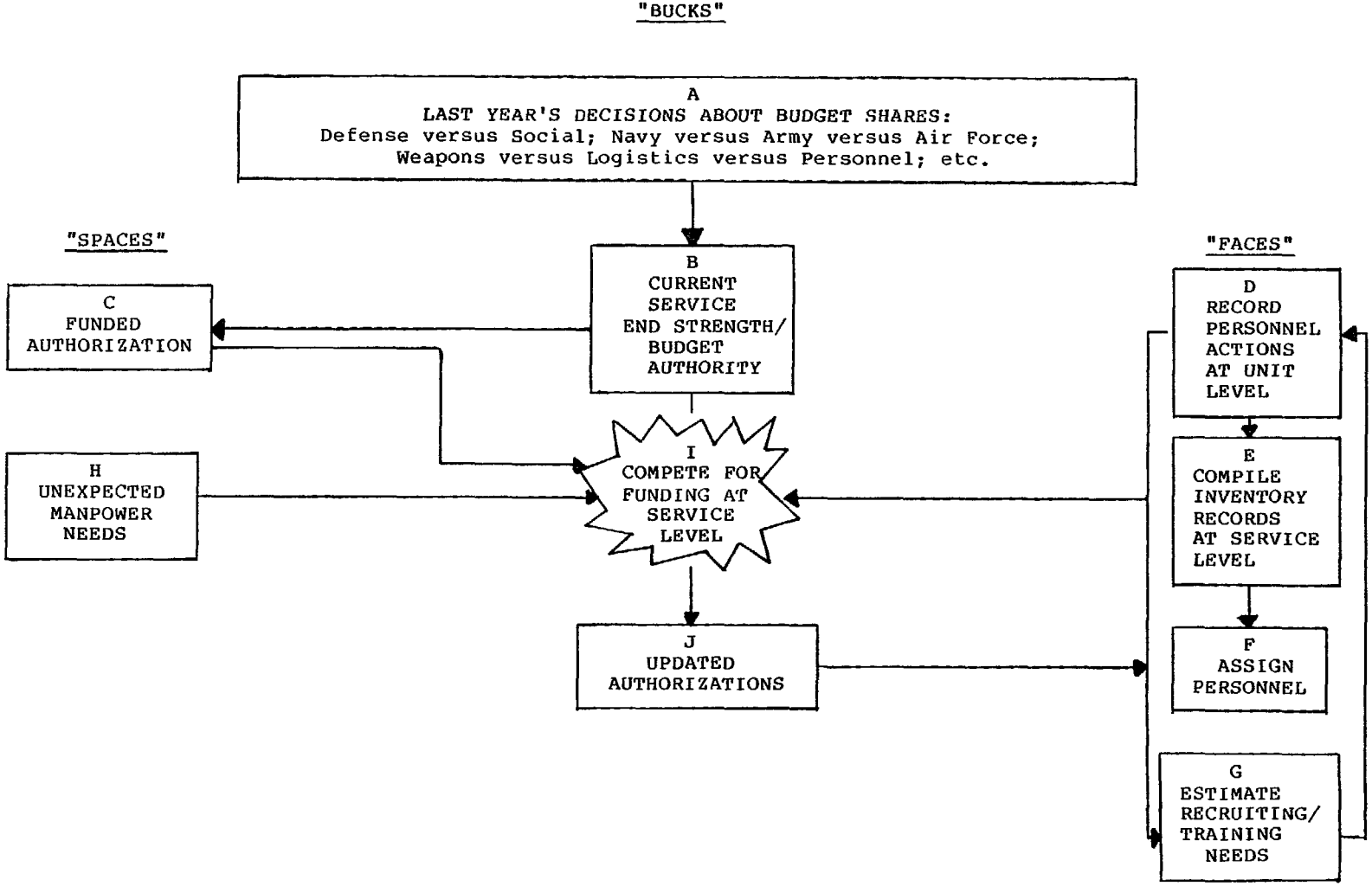
Managing planned manpower needs

Starting with the "bucks" function (Box A), you find that the program and budget decisions made jointly by the Congress, OMB, and DOD determined the service's military personnel strength and the appropriation to compensate military members for the current year (Box B). The manpower function uses this information to update its authorizations file to reflect the number and types of funded "spaces" in each service unit which the new end strength and budget authority support (Box C).

The personnel function encompasses a wide array of daily management activities, as shown on the chart. First, the thousands of individual personnel actions (training, assignment, transfer, promotion, etc.) that occur daily are recorded at each service unit location (Box D). This information is then sent to a headquarters level inventory data base to update each member's employment record (Box E). Using this current information about each service member's job status, the personnel organization can assign available personnel to fill approved manpower positions (Box F). The personnel manager also uses this current inventory information to develop recruiting and training plans to produce the additional numbers and types of personnel who are needed, but are not available in the inventory, to fill current or planned authorizations (Box G).

Figure 2

DAY-TO-DAY MANAGEMENT REQUIRES INTEGRATING
INFORMATION FROM THE THREE SYSTEMS



Managing unexpected manpower needs

Frequently, unanticipated events create unexpected manpower needs that require the manpower, personnel, and budget functions to quickly alter planned force management actions (Box H). Examples of these exigencies are numerous: introduction of new equipment earlier or later than anticipated, unit reorganizations, emergency unit deployments, and program funding changes. When these unanticipated manpower needs arise, the service must decide how to redistribute its funded authorizations to accommodate both the new needs and those already authorized.

As the chart shows, the manpower, personnel, and budget systems interact to provide critical information to service officials making those decisions (Box I). The manpower function provides detailed data on the number, types, and location of the currently authorized spaces (Box C) and the manpower spaces needed but not authorized (Box H). The budget function tracks the status of the service end strength and budget authority. Service decisionmakers must make sure that any redistribution of the service's manpower and personnel resources does not exceed personnel authorizations and appropriations for the year (Box B). Finally, the personnel function informs service decisionmakers about the current status of the enlisted inventory (Box E). Accurate data about unit staffing and personnel availability are essential to deciding how best to redistribute manpower spaces and personnel resources to accomplish service missions within current resource limits.

Using these data and other program and policy information, service decisionmakers negotiate changes in manpower spaces and personnel assignments to accommodate both authorized and unexpected manpower needs (Box I). When the changes are agreed to, the service updates its authorizations data base to reflect the changes in approved spaces for each unit (Box J). The updated authorizations are now used to direct assignment, recruiting, and training actions.

* * * *

The preceding descriptions of the roles and interactions of the manpower, personnel, and budgeting functions offer a simplified framework for understanding the basic information a service needs and uses in enlisted force management. This framework ignores many of the complex scheduling tasks and organizational relationships that are a vital part of force management. The purpose of this handbook, however, is to acquaint the reader with the basic information, organizational structure, and functional relationships each service develops to manage its enlisted force.

PART TWO

COMPUTER SYSTEMS SUPPORT ENLISTED FORCE PLANNING AND MANAGEMENT

Enlisted force management requires extensive ADP support

Computer system support is essential to collect, analyze, and transmit the vast array of information used to plan and manage a service's enlisted force. Working with the Army, Navy, and Air Force, GAO identified the major computer systems each service uses to support the activities and information flow in force planning and day-to-day force management. This part of the handbook describes these computer systems.

The force planning and management information-flow diagrams show the names (or acronyms) of the computer systems used by each service. Following the diagrams is a brief description of the organizations responsible for force management. Finally, there is a one-page description of each automated information system listed on the force planning and management diagrams. The description includes a statement of the system's purpose, the major data inputs and system products, and an organizational contact for additional information about the system. The diagrams and system descriptions are intended to help you quickly identify the kinds of information you need and where to get it.

Section I

ADP SUPPORT FOR ENLISTED FORCE MANAGEMENT IN THE AIR FORCE

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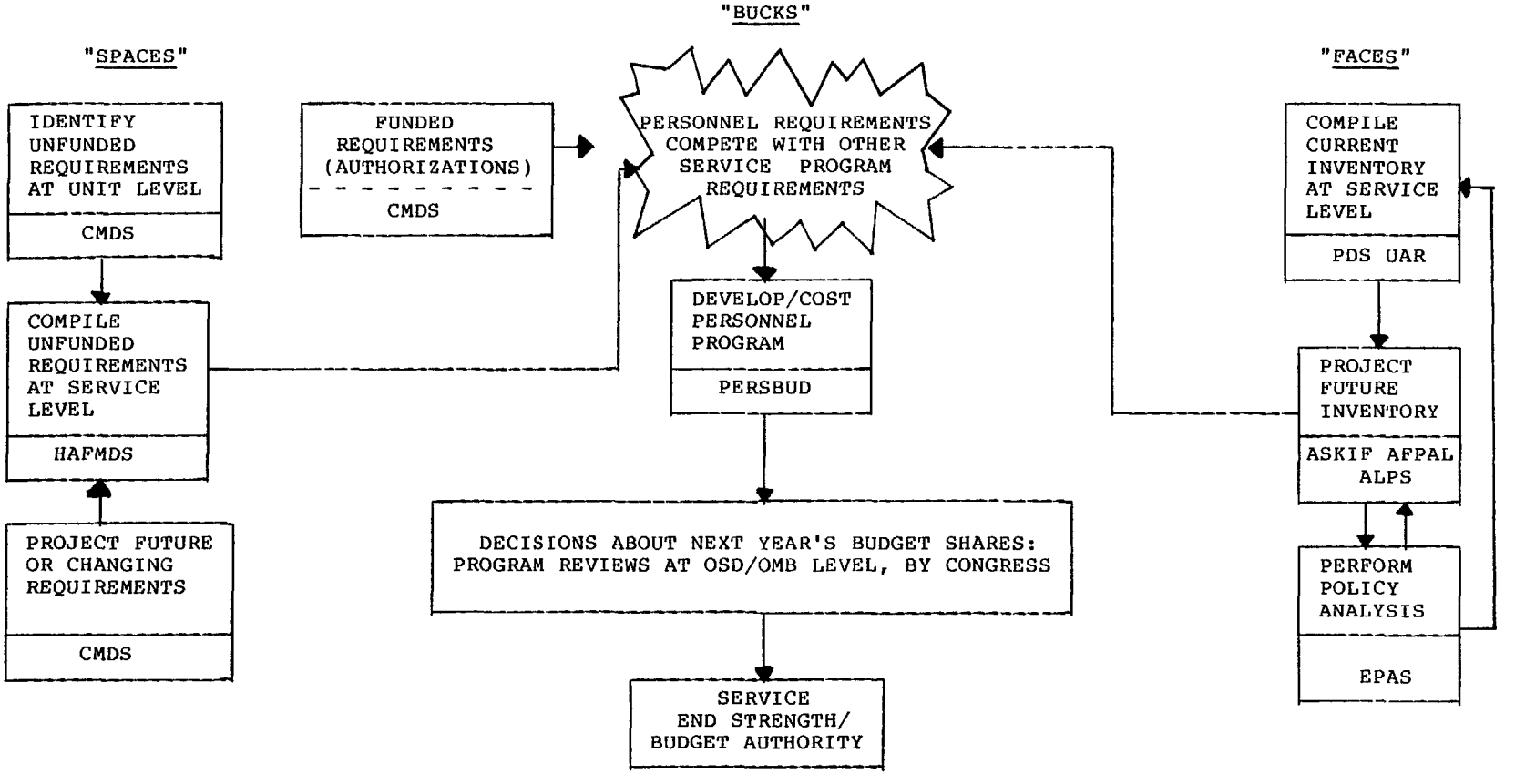
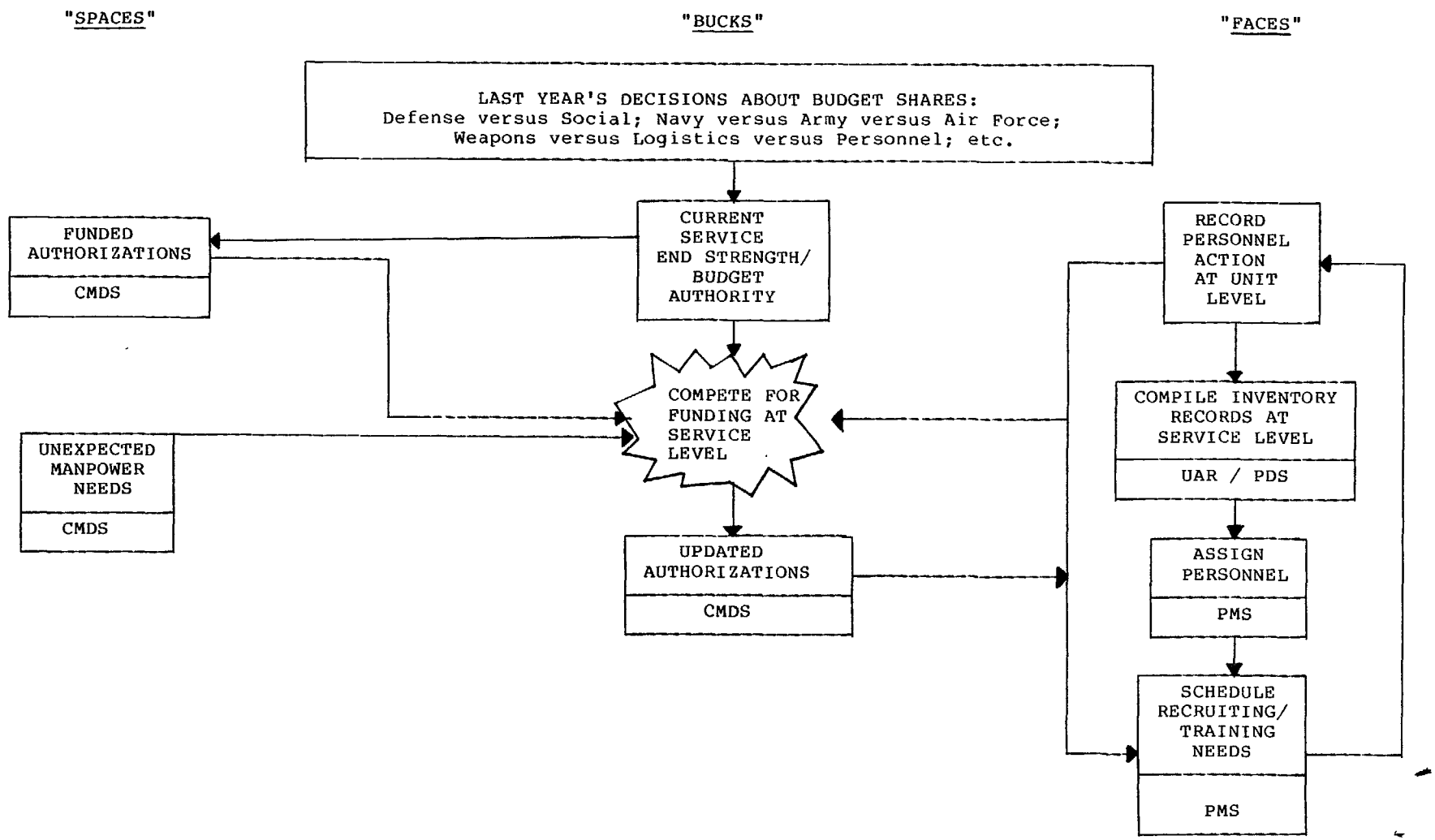


Computer Systems Support Information Flow in the Air Force's Day-To-Day Management of the Enlisted Force



AIR FORCE HEADQUARTERS ORGANIZATIONS

RESPONSIBLE FOR ENLISTED FORCE MANAGEMENT

Air Force Management Engineering Agency (AFMEA)

-Develops manpower standards for all functional work areas; coordinates standards development; schedules work measurement and analysis studies; conducts studies of special manpower issues; and maintains liaison with Air Force personnel organizations.

Directorate of Manpower and Organization (AFMPM)

-Responsible for all headquarters manpower management policies, programs, and analysis, including requirements determination and authorization management.
-Operates computer systems that identify and compile unfunded requirements, project future or changing requirements, identify and update funded requirements or authorizations.

Directorate of Personnel Plans (AFMPX)/Directorate of Personnel Programs (AFMPP)

-Responsible for all headquarters personnel management policies and functions, including inventory distribution, accessions, promotions, reenlistments, compensation, etc.
-Develops enlisted strength plans and personnel budgets.
-Operates computer systems that project future inventory, perform policy analysis, develop and cost the Air Force personnel budget request, and track Air Force budget execution.

Air Force Air Training Command (AFATC)

-Provides most formal military and technical training.

Air Force Manpower and Personnel Center (AFMPC)

-Implements current enlisted force management plans and maintains current inventory information.
-Operates computer systems that compile and update inventory records, assign personnel, and estimate recruiting and training needs.

AIRMAN FORCE PROGRAM AND LONGEVITY MODEL
(AFPAL)

PURPOSE:

To project personnel flows (gains, losses, and advancements) by grade, skill, and length of service.

COMPUTER SYSTEM CHARACTERISTICS:

INPUTS	PROCESS	OUTPUT
. Starting inventory and historical rates (from PDS) . End strength . Attrition and advancement trends (from ALPS & PDS) . Five Year Defense Plan Guidance	. Integrates numerous budgeting and personnel program variables	. Projects a future end strength by grade and year of service . Creates attrition, accession, and promotion plans

OFFICE CONTACT:

Directorate of Personnel Programs (MPP), Force Programs Div., 697-3594

AIRMAN LOSS PROBABILITY SYSTEM*
(ALPS)

PURPOSE:

To predict the kinds and numbers of airmen who will leave the service.

COMPUTER SYSTEM CHARACTERISTICS:

INPUTS	PROCESS	OUTPUT
. Current inventory (from UAR) . Historic losses from previous fiscal year (UAR) . Loss transactions for past 12 months (loss/gain file) . Expected monthly accessions for next year	. Identifies significant personnel characteristics associated with losses, assigns weights to them, and constructs loss probabilities	. Projects loss rates for AFPAL & ASKIF

*Will be replaced by the Enlisted Force Management System (EFMS)

OFFICE CONTACT:

Directorate for Personnel Programs, Force Programs Div. (MPPP), 697-3594

AIRMAN SKILL FORCE MODEL*
(ASKIF)

PURPOSE:

To assist managers of skill-related programs (accessions, technical training, reenlistment bonuses) to develop or revise personnel plans by comparing the projected enlisted inventory against projected authorizations by career field.

COMPUTER SYSTEM CHARACTERISTICS:

INPUTS	PROCESS	OUTPUT
. Loss rates (ALPS) . Uniform Airman Record File (UAR) . Authorization file extract . Force structure constraints (end strengths, promotions, grade ceilings)	. Forecasts losses and projects the enlisted inventory by career fields . Compares the projected inventory against projected authorizations or an objective force profile	.Inventory and authorization comparisons . Inventory and objective force comparisons . Reports on occupational needs in accession, training, and bonus areas.

*Will be replaced by the Enlisted Force Management System (EFMS)

OFFICE CONTACT:

Military Personnel Center, Personnel ADP Plans and Requirements, 767-4606

COMMAND MANPOWER DATA SYSTEM
(CMDS)

PURPOSE:

Used by major commands to store, update, retrieve, and distribute manpower requirements and authorization data.

COMPUTER SYSTEM CHARACTERISTICS:

INPUTS	PROCESS	OUTPUT
. Approved manpower staffing standards (with skill/ pay grade detail) . End strength and pay grade ceilings . Program and mission guidance . Programmed authorizations	. Updates authorization data base	. Aggregate requirements/ authorization data to base level . Assignments (to PDS) . Goal for inventory projections (to AFPAL) . Guide for training plans

OFFICE CONTACT:

Directorate of Manpower and Organization, Policy and System Integration Div. (MPMI), 697-0440

ENLISTED POLICY ANALYSIS SYSTEM*
(EPAS)

PURPOSE:

To project enlisted force characteristics (profiles by grade and year of service) for budget preparation.

COMPUTER SYSTEM CHARACTERISTICS:

INPUTS	PROCESS	OUTPUT
. Required end Strength by fiscal year . Current forces by grade, year of service and term of enlistment (UAR) . Accessions mix . Economic assumptions	. Calculates losses . Fills with accessions . Promotes and ages the force	. Losses, promotions and force structure by grade and year of service (to AFPAL & PMS)

* Expected to be absorbed into EFMS & will have skill (AFSC) level detail

OFFICE CONTACT:

Directorate of Personnel Plans (MPX), Analysis Div. 697-3208

HEADQUARTERS AIR FORCE MANPOWER DATA SYSTEM (HAFMDS)

PURPOSE:

To provide Air Force headquarters with a central consolidated data base containing authorizations.

COMPUTER SYSTEM CHARACTERISTICS:

INPUTS	PROCESS	OUTPUT
. Total authorization allocations . Policy, mission, budget, program constraints/ OSD and Air Force guidance	. Adjusts manpower allocations to changes in missions, programs, and fiscal constraints	. Bulk authorization allocation by command/program (to CMDS) . Periodic monitoring reports: --Comparison of authorizations to Inventory --PPBS reports

OFFICE CONTACT:

Directorate of Manpower & Organization, Resource Div. (AF/MPMR), 697-1089

PERSONNEL DATA SYSTEM
(PDS)

PURPOSE:

To provide the main support for operational personnel planning and management functions (e.g., recruiting, assignments, promotions).

COMPUTER SYSTEM CHARACTERISTICS:

INPUTS	PROCESS	OUTPUTS
. Transactions . Projected transactions . Authorization file	. Numerous and varied processes are supported (recruiting, technical training, assignments, promotions, separations, etc.)	. Inventory data: -Grade/specialty/number -Update transaction data -Losses -Gains -Promotions -Assignments -Longevity

OFFICE CONTACT:

Military Personnel Center, Personnel ADP Plans and Requirements, 697-4608

PERSONNEL BUDGETING SYSTEM
(PERSBUD)

PURPOSE:

To assist managers in the preparation of the military personnel appropriation portion of the budget.

COMPUTER SYSTEM CHARACTERISTICS:

INPUTS	PROCESS	OUTPUTS
. Projected inventory (to AFPAL) . Costing factors	. Calculates costs based on inventory data and cost factors	. Tapes sent to Congressional Budget Office and Office of Management and Budget

OFFICE CONTACT:

Office of the Director of Personnel Programs (AF/MPP), Personnel Budget Div. (B), 697-5596

PIPELINE MANAGEMENT SYSTEM
(PMS)

PURPOSE:

To provide Air Staff, Major Commands, and Training Center managers with online, computer-based management information system support.

COMPUTER SYSTEM CHARACTERISTICS:

INPUTS	PROCESS	OUTPUT
. Training requirements	. Develops class schedules	. Aircrew & technical training program:
. Budget constraints	. Allocates training	
. Training resources	. Produces class roster	-Course catalog
	. Accounts for students	-Class schedule
	. Tracks training progress	-Student roster
	. Records completed training	-Feedback to PPBS

OFFICE CONTACT:

Military Personnel Center, Personnel ADP Plans and Requirements, 767-4608

UNIFORM AIRMAN RECORD
(UAR)

PURPOSE:

To store individual personnel files (i.e., name, social security number, promotions, assignments, schooling, etc.)

COMPUTER SYSTEM CHARACTERISTICS:

INPUTS	PROCESS	OUTPUT
. Individual personnel transactions and biographical information	.Compiles records	. Supports several planning functions: -recruiting -training -assignments -promotions

OFFICE CONTACT:

Manpower Personnel Center, Personnel ADP Plans and Requirements, 767-4608

Section II

ADP SUPPORT FOR ENLISTED FORCE MANAGEMENT IN THE ARMY

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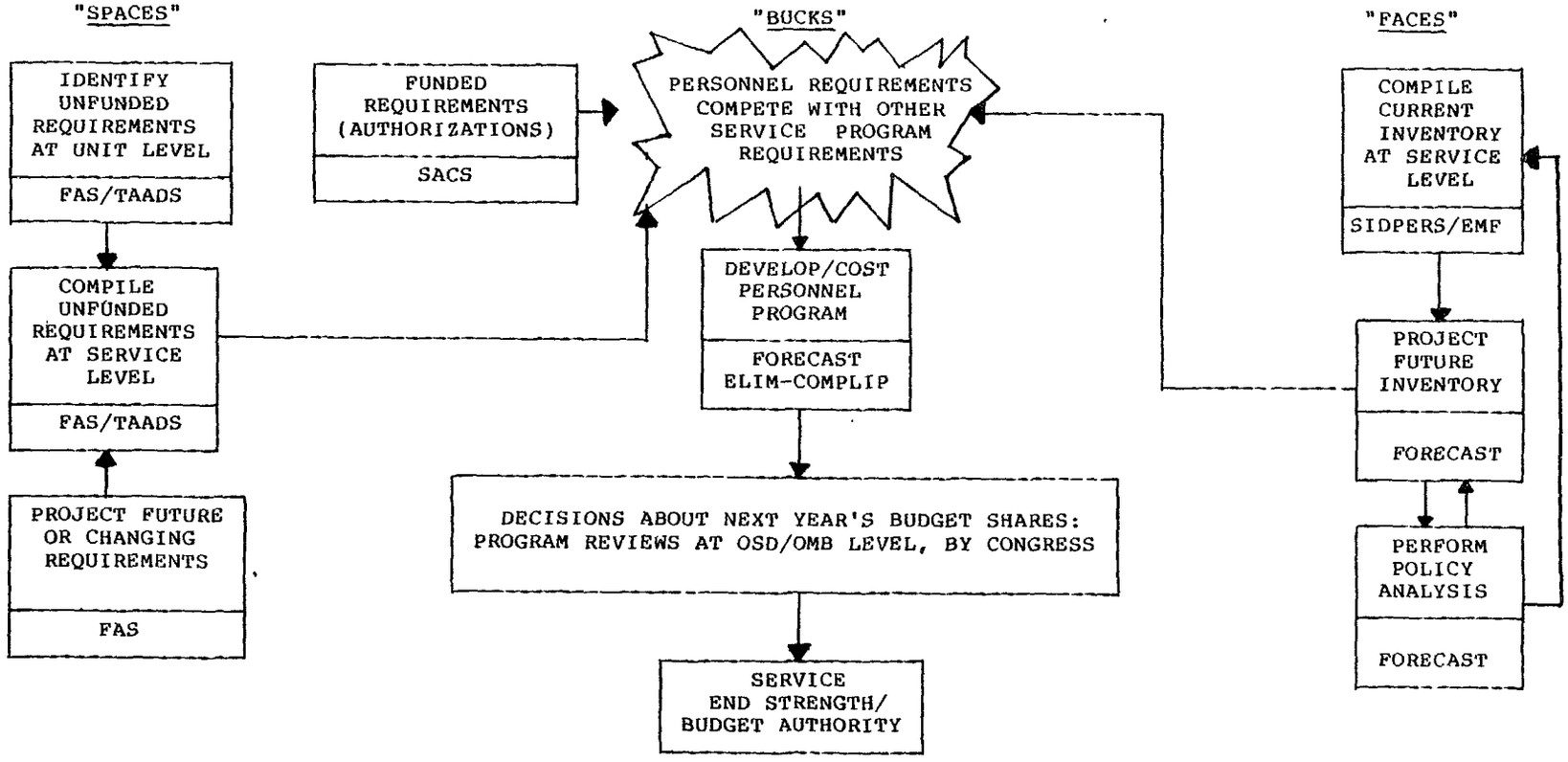
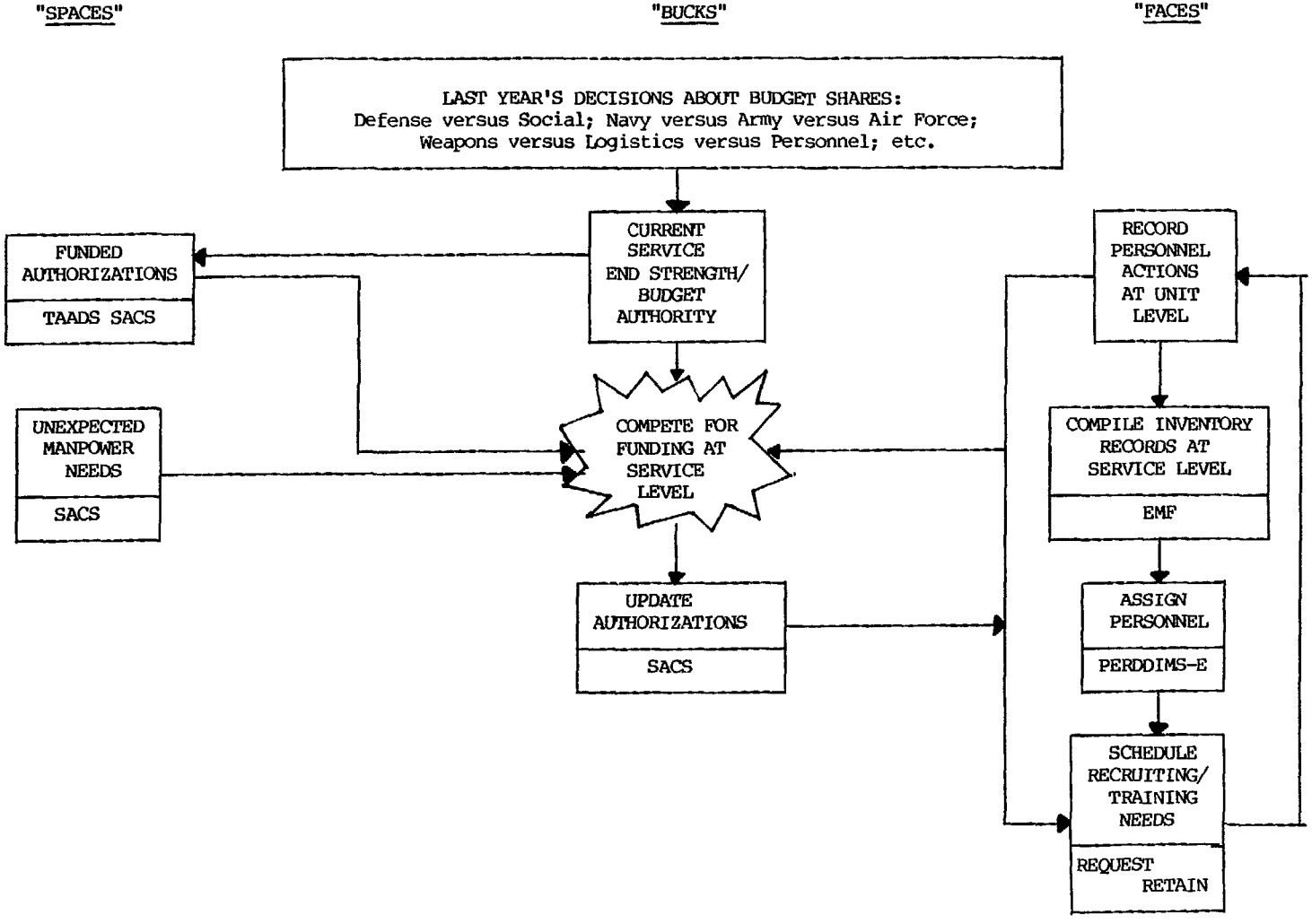
Computer Systems Support Information Flow
in the Army's Longer Term Planning
for the Enlisted Force



Computer Systems Support Information Flow in the Army's Day-to-Day Management of the Enlisted Force



ARMY HEADQUARTERS ORGANIZATIONS RESPONSIBLE FOR ENLISTED FORCE MANAGEMENT

Deputy Chief of Staff for Organization and Plans (DCSOPS)

- -Develops overall force requirements and program priorities.
- -Operates computer systems that identify and compile unfunded requirements, project future or changing requirements (authorizations), project future inventories; perform policy analyses, and schedule recruiting and training.

Deputy Chief of Staff for Personnel (DCSPER)

- -Establishes personnel policies and programs which manage all active Army personnel.
- -Operates computer systems that compile current inventory records, develop and cost the Army's personnel budget request, assign personnel, and schedule recruiting and training.

Deputy Chief of Staff for Logistics (DCSLOG)

- -Develops and supervises Army logistics, which directly affects manpower requirements determination and allocation, personnel assignments, and training.

Deputy Chief of Staff for Research, Development, & Acquisition (DCSRADA)

- -Responsible for the research, development, test and evaluation and the planning, programming, and budgeting for materiel acquisition which affects manpower requirements determination and allocation and personnel training.

The Comptroller of the Army (COA)

- -Responsible for budget, cost analysis, economic analysis, military/civilian pay procedures and accounting, resource management policy, financial management, and productivity management activities within the Army.
- -Operates computer systems that cost the Army's personnel budget request and track budget execution.

ARMY TRAINING REQUIREMENTS AND RESOURCES SYSTEM

(ATRRS)

PURPOSE:

To determine training requirements, objectives, and costs so that managers and trainers can schedule classes, fill seats, and train soldiers. The ATRRS data base maintains information at the course level of detail all courses taught by or for Army personnel. It produces reports, analyses, graphs, and selected data displays pertaining to requirements, entrants, graduates, training loads, and associated information.

COMPUTER SYSTEM CHARACTERISTICS:

INPUTS	PROCESS	OUTPUT
. Projected occupational needs by MOS and grade . Unconstrained training requirements . Training constraints, such as physical space, time, and dollars	. Develops an affordable and attainable training program	. Class schedules . Seats available by course, location, etc. . Management reports on graduation, attendance, and score data

OFFICE CONTACT: DCSOPS, Institutional Training Div., 695-2230

BASIS OF ISSUE PLANS

(BOIP)

PURPOSE: To project personnel requirements for new equipment.

COMPUTER SYSTEM CHARACTERISTICS:

INPUT	PROCESS	OUTPUT
. Current and planned manpower/equipment requirements for existing units . Projected manpower/equipment requirements for new unfielded systems . Logistics plans for equipment development	. Constructs a file containing a Table of Organization and Equipment (TOE) or Table of Distribution And Allowances (TDA) for new systems	. Identification of units receiving new equipment (to SACS) . Reports on impact of new equipment on support units . Equipment acquisition and delivery scheduling . Transition plans for old and new equipment (to ATRRS) . Training school planning requirements . Facility changes . NATO planning changes

OFFICE CONTACT: DCSOPS, Force Development Directorate, Structure and Composition Systems Br., 694-5081

ENLISTED LOSS INVENTORY MODEL -- COMPUTATION OF MANPOWER PROGRAMS USING LINEAR PROGRAMMING (ELIM-COMPLIP)

PURPOSE:

To project Army manpower strengths, gains, and losses for various categories of personnel.

COMPUTER SYSTEM CHARACTERISTICS:

INPUTS	PROCESS	OUTPUT
. Enlisted records (EMF)	. Projects losses to current inventory and loss rates for potential accessions considering 32 demographic characteristics	. Accession schedules to meet end strength, quality, grade mix, and training base constraints
. Gains/losses tape (from EMF)	. Projects Individuals Account (TTHS) using 50 mathematical models	. Reenlistment projections
. Force structure allowance and unit authorizations	. Compares programmed force structure to operating strength (force structure is the number of spaces authorized by unit; operating strength is a unit's actual inventory)	. Loss/accession projections
. Authorized end strength (from TAADS)		. Projections of monthly enlisted strength of the Army
. Policy decisions		. Projection of personnel manyears
. Historicial inventory statistics		

OFFICE CONTACT:

Military Personnel Center, Personnel Inventory Analysis Br., 697-3724

ENLISTED MASTER FILE

(EMF)

PURPOSE:

The official master file on active enlisted personnel containing biographical data on each soldier.

COMPUTER SYSTEM CHARACTERISTICS:

INPUTS	PROCESS	OUTPUT
. Personnel biographical data from installation/ major command level (via SIDPERS)	. Updates personnel information for each soldier	. A gains/loss information file (to ELIM-COMPLIP) . Used for personnel assignments, strength and training projections, and equipment manning plans

OFFICE CONTACT:

Military Personnel Center (DAPC), Enlisted Personnel Management Directorate (EPZ), Information Resource Management Office (I), 325-8060

FORCE ACCOUNTING SYSTEM*

(FAS)

PURPOSE:

To record, maintain, and retrieve data necessary for detailed and summary analysis of the Army force structure to include organization, unit function, and strength data.

COMPUTER SYSTEM CHARACTERISTICS:

INPUTS	PROCESS	OUTPUTS
. Detailed unit information entered by major commands: - Strength (total officers, enlisted personnel, and civilians) - Budget - Requirements/authorizations - Function - Location . Unit structure changes	. Updates data base	. Over 100 types of reports: -Comparison requirements and authorizations -Unit/major command/force detail -No MOS/grade detail

*Will be replaced by the Vertical Force Development Management Information System (VFDMIS)

OFFICE CONTACT:

DCSOPS, Force Development Directorate, Force Accounting System Br., 694-5061

FORECAST-ENLISTED MOS LEVEL SYSTEM

(FORECAST-MOSLS)

PURPOSE:

To project training, promotion, and reclassification actions needed to meet projected skill and grade needs.

COMPUTER SYSTEM CHARACTERISTICS:

INPUT	PROCESS	OUTPUT
. Personnel record information (gains, losses, promotions) . Training statistics and inventory availability . Reclassification statistics and availability . Authorizations and projected future needs (PERSACS)	. Compares MOS grade needs with projected MOS inventory	. Recruiting needs (to ATRRS) . Projections of end strength and computes MOS grade needs and losses (to ELIM-(COMPLIP)

OFFICE CONTACT:

Office of the Assistant Secretary of the Army, FORECAST Project Manager, 697-2818

FORECAST-UNIT LEVEL ENLISTED STRENGTH*

(FORECAST-ULS)

PURPOSE:

To develop integrated strength and requirements projections at the skill, grade, and unit level of detail to support the generation of a personnel distribution plan.

COMPUTER SYSTEM CHARACTERISTICS:

INPUTS	PROCESS	OUTPUTS
. Historical strength data (EMF) . Assignment information (PERDDIMS-E)	. Allocates the current and projected enlisted force across all units to optimize the matching of personnel to requirements	. Updates of training and recruiting requirements (to REQUEST and RETAIN) . Updates of vacancy requisitioning process (PERDDIMS-E) . Unit level personnel management alternatives

*System currently under development

OFFICE CONTACT:

Office of the Assistant Secretary of the Army, FORECAST Project Manager, 697-2818

PERSONNEL DEPLOYMENT AND DISTRIBUTION INFORMATION MANAGEMENT SYSTEM - ENLISTED
(PERDDIMS-E)

PURPOSE:

To provide all managers with a single source of assignment management information for enlisted personnel.

COMPUTER SYSTEM CHARACTERISTICS:

INPUTS	PROCESS	OUTPUT
. Position vacancies (from RETAIN) . Enlisted personnel records (from EMF) . MOS/grade qualification standards file . Staffing priorities	. Matches soldiers with vacancies	. Assignments . Personnel file update (to EMF) . Training seat reservations (to REQUEST) . Strength management data (to FORECAST)

OFFICE CONTACT:

Military Personnel Center, Enlisted Distribution Div., 325-7957

RECRUIT QUOTA SYSTEM

(REQUEST)

PURPOSE:

To manage enlisted reenlistments and training resources through an automated training seat reservation system.

COMPUTER SYSTEM CHARACTERISTICS:

INPUTS	PROCESS	OUTPUT
. Applicant occupation and location desires/ qualifications . Class seating capacity/ location . MOS prioritization for filling vacancies . Bonus information . Qualification Standards File	.Applicant's qualifications are compared to skill qualifications connected with class vacancy; if standards are met, a class reservation is made.	.Training seat reservation information (to ATRRS) .Accession/reenlistment file updates (to FORECAST) .Personnel record data updates (to EMF) .MOS management information (to PERDDIMS-E & RETAIN)

OFFICE CONTACT:

Military Personnel Center, Accession Management/Training Assignment Division (EPT), REQUEST/RETAIN (R), 325-8418

REENLISTMENT ASSIGNMENT SYSTEM

(RETAIN)

PURPOSE:

To provide a real-time reenlistment and assignment system to identify and reserve assignment vacancies for reenlistees.

COMPUTER SYSTEM CHARACTERISTICS:

INPUTS	PROCESS	OUTPUTS
. Assignment requisitions/vacancies (from PERDDIMS-E) . Training seat coordination/ availability (from REQUEST) . Reenlistees' desires/qualifications . MOS qualifications . MOS priorities	. Matches qualified reenlistees with available vacancies	. Training seat confirmation (to REQUEST) . Assignment nomination (interface with PERDDIMS-E and FORECAST) . Updates of the EMF . Adjustments to MOS priorities

OFFICE CONTACT:

Military Personnel Center (DAPC), Enlisted Distribution Division, REQUEST/RETAIN Br., 325-8418

THE STRUCTURE AND COMPOSITION SYSTEM

(SACS)

PURPOSE:

To provide the Army's statement of personnel and equipment requirements and authorizations in the budget process and to plan personnel and equipment acquisition, distribution, and facility management.

COMPUTER SYSTEM CHARACTERISTICS:

INPUT	PROCESS	OUTPUT
. Aggregate authorized force (FAS) . Personnel and equipment detail from the Army's authorization documents (TOE/MTOE/TDA - TAADS) . Incorporates manpower and equipment requirements from the Basis of Issue Plan (BOIP) . Override inputs used when TAADS and FAS are not current relative to particular unit requirements/authorizations	. Performs two roll-ups a year, creating total Army and unit files with detailed requirements and authorizations	. A snapshot of personnel requirements and authorizations needed for a specific force structure . Personnel management plans (e.g., promotions, accessions, recruiting, bonus incentives, mobilization.)

OFFICE CONTACT:

DCSOPS, Force Development Directorate (FDA), Structure and Composition System Branch, 694-5081

STANDARD INSTALLATION/DIVISION PERSONNEL SYSTEM

(SIDPERS)

PURPOSE:

To provide biographical and organizational information for each soldier at the recorded installation or division level, which is used in managing authorizations and strength.

COMPUTER SYSTEM CHARACTERISTICS:

INPUTS	PROCESS	OUTPUTS
. Personnel data - Name, grade, birthdate, etc. . Organizational data - unit name, location, etc. . Manpower authorizations by unit . Training transactions (from REQUEST) . Reenlistment transactions (from RETAIN)	. Updates installation/ division personnel information files	. Updates EMF . Creates a transaction audit file (e.g., lists an individual's data on promotions, assignments, training)

OFFICE CONTACT:

Military Personnel Center (DAPC), Personnel Information Systems Directorate (PSD), Field Military Systems Division, 325-6787

THE ARMY AUTHORIZATION DOCUMENTS SYSTEM*

(TAADS)

PURPOSE:

To create the Army's automated data base for documenting approved requirements and authorizations for personnel and equipment within each Army unit.

COMPUTER SYSTEM CHARACTERISTICS:

INPUTS	PROCESS	OUTPUT
. Approved unit requirements and authorizations by number and type of personnel and equipment for current and budget years (TOE, MTOE, TDA) . Force Management Guidance (Major Command Plans, Program Budget Guidance(PBG), dollar allocation per program)	. Updates unit requirement and authorization files	. Revised unit personnel (type and number) and equipment requirements and authorizations . Revised total and unit force structure documents (the number of officers, warrant officers, enlisted personnel and civilians) . Inputs into assignment and inventory projection systems (PERDDIMS-E and FORECAST).

*Will be absorbed by the new Vertical Force Development Management Information System (VFDMIS)

OFFICE CONTACT:

DCSOPS, Force Development Directorate, Force Accounting and Systems Division, The Army Authorization Document Systems Branch, 695-5649

VERTICAL FORCE DEVELOPMENT MANAGEMENT INFORMATION SYSTEM
(VFDMIS)

PURPOSE:

To integrate within an automated environment major force development information systems--Force Accounting System (FAS), The Army Authorization Document System (TAADS), Force Development Integrated Management System (FORDIMS)--and to extend to command and installation levels the analytical and computational capabilities found at Army headquarters.

COMPUTER SYSTEM CHARACTERISTICS:

INPUTS	PROCESS	OUTPUT
. Army Guidance	. Interactive input as well as batch updates	. Army force structure
. Program Budget Guidance (PBG) for manpower plans	. Interactive query by users	. Authorization documents
. Unit documentation (TAADS)		. Management reports
. Command implementation of personnel plans		. Program Budget Guidance

OFFICE CONTACT: DCSOPS, Force Development and Accounting System Division, 694-5061

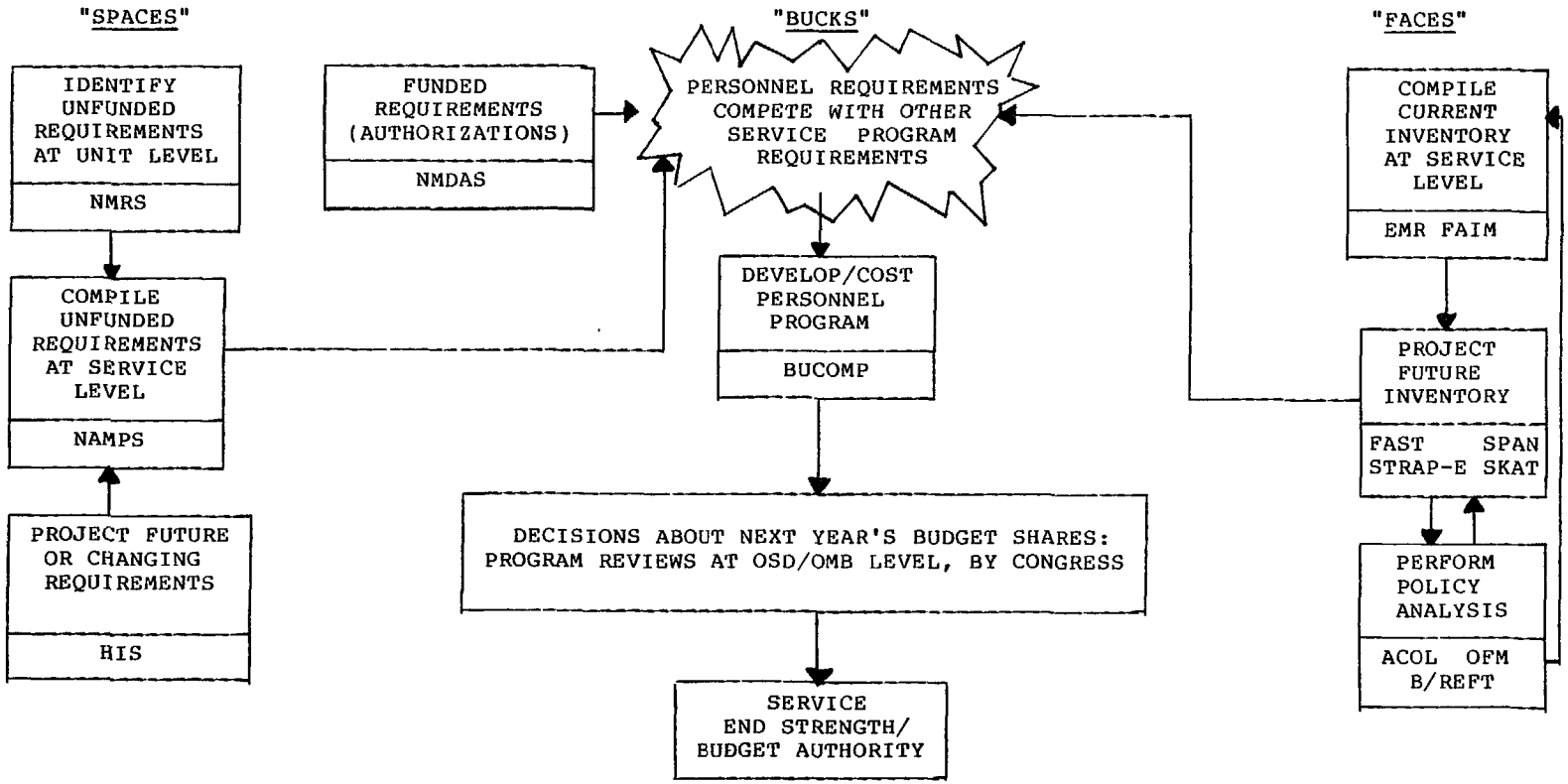
Section III

ADP SUPPORT FOR ENLISTED FORCE MANAGEMENT IN THE NAVY

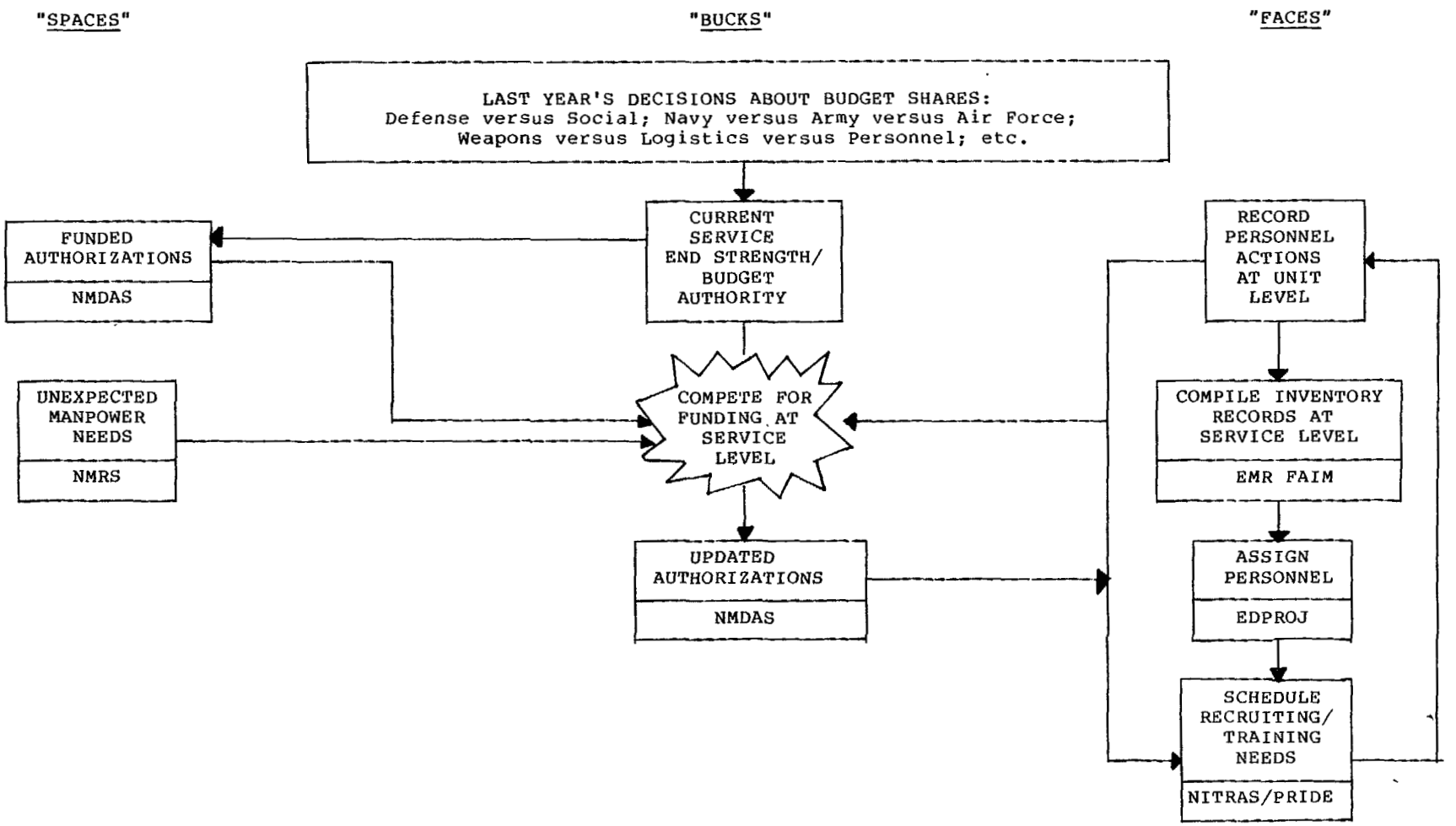
Contents

NAVY'S MAJOR AUTOMATED INFORMATION SYSTEMS USED IN MANAGING MANPOWER, PERSONNEL, AND BUDGET AREAS

Computer Systems Support Information Flow
in the Navy's Longer Term Planning
for the Enlisted Force



Computer Systems Support Information Flow
in the Navy's Day-To-Day Management
of the Enlisted Force



NAVY HEADQUARTERS ORGANIZATIONS RESPONSIBLE FOR ENLISTED FORCE MANAGEMENT

Deputy Chief of Naval Operations (Manpower, Personnel, and Training) (OP-01)

-Develops policies, procedures, methodologies, and related reporting and control systems used to plan and manage the enlisted force. OP-01 responsibilities include: requirements determination, authorization management, recruitment, classification, training, education, distribution, separation, and retirement.

Total Force Planning/Training Division (OP-11)

-Provides planning for total force mid- and long-range manpower and personnel requirements to support strategic plans. Determines requirements for manpower, education, training, and mobilization for operating systems, programs, and activities. Monitors manpower requirements for new equipment and weapons systems.
-Operates computer systems that identify and compile unfunded requirements and project future or changing requirements.

Total Force Programming/Manpower Division (OP-12)

-Analyzes military/civilian programming submissions of Navy managers and develops the manpower, training, and education programs; supervises and monitors the programming and management of military/civilian manpower resources.
-Operates computer systems that identify and update funded requirements (authorizations).

Military Personnel Policy Division (OP-13)

-Develops execution plans for the implementation of manpower and personnel programs; coordinates development of budget requirements and budget submissions; and develops military career personnel programs, including compensation and entitlements.
-Operates computer systems that compile current inventory, perform policy analysis, develop and cost Navy's personnel budget request, assign personnel, and schedule recruiting and training.

Total Force Information System Management Division (OP-16)

-Provides policy and guidance for manpower and personnel automated information systems throughout the Navy. Exercises staff supervision over information systems that support OP-01 functions.

ANNUALIZED COSTS OF LEAVING MODEL
(ACOL)

PURPOSE:

To evaluate the impact of changes in pay, housing allowance, unemployment conditions, etc., on careerist inventory growth.

COMPUTER SYSTEM CHARACTERISTICS:

INPUTS	PROCESS	OUTPUT
. Starting inventory and historical retention rates (from FAST) . Alternative compensation policies . Unemployment rates . Expected gains	. Projects reenlistment behavior	. Length of service (LOS) and inventory retention patterns . Changes in continuance and reenlistment rates (to STRAP-E)

OFFICE CONTACT:

OP-162, Economic Analysis Branch, 694-4822

BONUS REENLISTMENT FORCE TRANSITION MODEL (B/REFT)

PURPOSE:

To assist managers in determining amount to request for bonus programs.

COMPUTER SYSTEM CHARACTERISTICS:

INPUTS	PROCESS	OUTPUT
. Projected fiscal year ending inventory (from FAST) . Reenlistment eligibles data (from FAST) . Objective force goals by rating and length of service (from OFM)	. Calculates likelihood of reenlistment behavior by skill	. Alternative Selective Reenlistment Bonus (SRB) funding levels

OFFICE CONTACT:

OP-136C, Enlisted Bonus Plans, 694-5543

BUDGET COST MANAGEMENT PROGRAM
(BUCOMP)

PURPOSE:

To assist Navy managers in costing the enlisting personnel program during the budget process.

COMPUTER SYSTEM CHARACTERISTICS:

INPUTS	PROCESS	OUTPUT
. Projected Five-Year Defense Plan inventory . End strength by grade/ length of service .Enlisted pay rates, allowances, PCS, etc.	. Costing algorithm	. Enlisted personnel budget calculations and budget book displays

OFFICE CONTACT:

OP-135C, Enlisted Strength Plans, 694-5446

ENLISTED DISTRIBUTION PROJECTION MODEL (EDPROJ)

PURPOSE:

To assist Navy detailers in equitably allocating available personnel among the major Navy components in accordance with staffing priorities.

COMPUTER SYSTEM CHARACTERISTICS:

INPUTS	PROCESS	OUTPUT
. Authorizations (from NMDAS) . Current inventory (from EMR) . Staffing priorities	. Compares assignable inventory to authorized vacant spaces and projects distribution	. Navy Manning Plan (distribution)

OFFICE CONTACT:

NMPC-451, Manpower Plans and Policy Division, 695-9342

ENLISTED MASTER RECORD
(EMR)

PURPOSE:

To store individual personnel files (i.e., names, social security numbers, promotions, assignment, schooling etc.).

COMPUTER SYSTEM CHARACTERISTICS:

INPUTS	PROCESS	OUTPUT
• Individual personnel transactions and biographical information	• Records compiled	• Date base containing information on every Navy sailor

OFFICE CONTACT:

OP-135D, Enlisted Programs Management Information Support, 694-5445

FAST INPUT MODULE
(FAIM)

PURPOSE:

To provide the starting inventory for projecting the future enlisted force.

COMPUTER SYSTEM CHARACTERISTICS:

INPUTS	PROCESS	OUTPUT
. Inventory extract (From EMR) . Summary of personnel transactions for one year	. Records annual inventory changes (gains, losses, promotions)	. Beginning inventory by rating, pay grade, and length of service (for FAST projections) . Historical trends (attrition reenlistment, transfer, and advancement rates)

OFFICE CONTACT:

OP-135D, Enlisted Programs Management Information Support, 694-5445

FORCE ANALYSIS SIMULATION TECHNIQUE MODEL (FAST)

PURPOSE:

To project personnel flows (gains, losses, and advancements) by pay grade, rating, and length of service .

COMPUTER SYSTEM CHARACTERISTICS:

INPUTS	PROCESS	OUTPUT
. Beginning inventory (from FAIM) . End strength . Attrition and advancement trends (from FAIM) . Career ladder structure (from NMDAS)	. Projects a future force based on historical trends and other factors	. Projects a future inventory at end of year by grade and length of service . Attrition, accession, and promotion plans

OFFICE CONTACT:

OP-135, Enlisted Programs Management Information Support, 694-5445

HARDMAN INFORMATION SYSTEM
(HIS)

PURPOSE:

To provide managers with information identifying, consolidating, and tracking new weapon systems and their associated manpower and training resource requirements throughout the weapon system acquisition process (WSAP).

COMPUTER SYSTEM CHARACTERISTICS:

INPUTS	PROCESS	OUTPUT
. Projected system requirements -Manpower -Training . Manpower constraints . Equipment life cycle costs	. Tradeoff/impact studies	. Projects future manpower training requirements by weapon system (to NAMPS/NMRS)

OFFICE CONTACT:

OP-11, Program Integration/Resource Management, 694-4435

NAVY AUTOMATED MANPOWER PLANNING SYSTEM (NAMPS)

PURPOSE:

To assist managers in tracking manpower changes resulting from planning and budgeting decisions.

COMPUTER SYSTEM CHARACTERISTICS:

INPUTS	PROCESS	OUTPUT
. Total military and civilian manpower requirements (from NMRS) . Projected new manpower requirements (from HIS) . Navy-approved authorizations (from NMDAS) . Program changes . Bunk data	. Compiles a data base	. Requirements/ authorization comparison reports . Billet/position changes . Updates to the NARM

OFFICE CONTACT:

OP-11, Program Integration/Resource Management, 694-4435
OP-122E, Manpower Programs and System Support, 694-5307

NAVY RESOURCE MODEL/FORCE LEVEL ANALYSIS INTERACTIVE LANGUAGE (NARM/FLAIL)

PURPOSE:

To track resource requests and coordinate the preparation and development of the Navy's budget request.

COMPUTER SYSTEM CHARACTERISTICS:

INPUTS	PROCESS	OUTPUT
. Five-Year Defense Plan by activity	. Compiles and maintains a data base	. Updates Navy budget request
. Operating and budget constraints		. Manpower guidance
. Program guidance and priorities		
. Management decisions		

OFFICE CONTACT:

OP-11G, General Planning & Programming Division, 694-5038

NAVY INTEGRATED TRAINING RESOURCES ADMINISTRATION SYSTEM (NITRAS)

PURPOSE:

To assist training managers in scheduling students into available basic and advanced training courses.

COMPUTER SYSTEM CHARACTERISTICS:

INPUTS	PROCESS	OUTPUT
. Course information (date, length, number of seats) . Student information (course needs, proposed assignment) . Trend data on courses (attrition rates, student demographics)	. Compiles a data base	. Training orders . Reports on course and student performance

OFFICE CONTACT:

OP-135, Enlisted Training, 694-5422

NAVY MANPOWER DATA ACCOUNTING SYSTEM
(NMDAS)

PURPOSE:

To store and update approved manpower requirements for all Navy activities. (Navy refers to NMDAS as "Billet File.")

COMPUTER SYSTEM CHARACTERISTICS:

INPUTS	PROCESS	OUTPUT
. Approved authorizations for each Navy activity (total numbers by rating and pay grade) . Changes to approved authorizations	. Updates approved authorizations displayed in a variety of Navy documents	. Activity Manpower Authorizations (MPA) (OPNAV 1000/2) . Enlisted Programmed Authorizations (EPA) . Navy Manning Plan (NMP)

OFFICE CONTACT:

OP-122E, Military Programs/Management Systems Support, 694-5307

NAVY MANPOWER REQUIREMENTS SYSTEM (NMRS)

PURPOSE:

To provide a central repository of total Navy manpower requirements, both military and civilian. The NMRS is used to develop unconstrained manpower requirements for ships, aircraft squadrons, and support activities.

COMPUTER SYSTEM CHARACTERISTICS:

INPUTS	PROCESS	OUTPUT
. Workload standards . Rating and grade staffing guidance . Documented workloads . Proxy requirements (undocumented requirements)	. Computes manpower requirements for all Navy activities	. Manpower requirements documents (SMD, SQMD, SHORTSTAMPS) . Documented requirements for NAMPS and NMDAS

OFFICE CONTACT:

OP-11G, Program Integration/Resource Management
694-4435

OBJECTIVE FORCE MODEL
(OFM)

PURPOSE:

To develop an objective distribution of the enlisted inventory by length of service and pay grade for each occupational grouping of the total force. This distribution establishes goals for enlisted personnel management programs.

COMPUTER SYSTEM CHARACTERISTICS:

INPUTS	PROCESS	OUTPUT
. Programmed authorizations by rating and pay grade for 5 years (from NMDAS)	. Assesses manpower program feasibility	. Prescriptive inventory management policies
. Historical continuance and advancement rates (from FAST)	. Performs "what if" drills	. "Total" Navy force structure
. Policy constraints and grade ceilings		. Achievable bonus zones
		. Acceptable advancement zones

OFFICE CONTACT:

OP-120, Total Force Programming Division, 694-5362

PERSONNEL RESERVATION INCENTIVE
DELAYED ENTRY SYSTEM
(PRIDE)

PURPOSE:

To provide recruiters with data on accession needs by occupation.

COMPUTER SYSTEM CHARACTERISTICS:

INPUTS	PROCESS	OUTPUT
. Vacancies for new recruits by rating (from SKAT)	. Records enlistments	. Reservations for training seats
. New recruit information		. Recruit data entered in Enlisted Master Record (EMR)

OFFICE CONTACT:

OP-135, Enlisted Training, 694-5422

SKILLED ACCESSION TRAINING MODEL
(SKAT)

PURPOSE:

To assist training managers in developing school plans.

COMPUTER SYSTEM CHARACTERISTICS:

INPUTS	PROCESS	OUTPUT
. Projected staffing needs by rating (from NMDAS/HIS) . Rating growth (from EPA) . FAST inventory projections and trends . Course statistics	. Projects personnel training needs	. School plans for budget decisions

OFFICE CONTACT:

OP-135, Enlisted Training, 694-5422

STRENGTH PLANNING MODEL
(SPAN)

PURPOSE:

To assist inventory managers in projecting monthly strength, gains, losses, and advancements required to maintain total Navy pay grade strength

COMPUTER SYSTEM CHARACTERISTICS:

INPUTS	PROCESS	OUTPUT
. Inventory gains, losses, and advancement projections (from FAST)	. Projects monthly gains, losses, and advancements	. Navy Strength Plan
. Navy inventory goals	. Costs future inventory (via BUCOMP)	. Total and pay grade manyear averages
. Budgetary constraints		. Basic pay costs (BUCOMP)
. Management decisions and guidance		

OFFICE CONTACT:

OP-135C, Enlisted Strength Plans, 694-5446

STRUCTURE ACCESSION PLANNING-ENLISTED (STRAP-E)

PURPOSE:

To provide Navy managers with information on accession levels.

COMPUTER SYSTEM CHARACTERISTICS:

INPUTS	PROCESS	OUTPUT
. Authorizations (from NMDAS) . EMR inventory . Rates of losses/ gains . Biographical data on current force . Supply data on recruits . Personnel policies	. Projects alternative future inventories	. Estimated accessions needed to attain different force levels over a 7-to-10 year period . Sizes manpower overhead for different force levels . Projected inventory by length of service.

OFFICE CONTACT:

OP-12, Total Force Programming Division, 694-5362

PART III

IMPRESSIONS ABOUT THE EFFICIENCY OF MILITARY SERVICES' MANPOWER, PERSONNEL, AND TRAINING INFORMATION SYSTEMS

This last section presents some impressions formed while collecting information for the handbook. It is not intended as a critique of information resource management in the military services. Instead, we attempt to document that all manpower, personnel, and training (MPT) information systems share similar problems and observe that some promising attempts to solve these problems are already underway.

In this section, we first list eight different problems observed in information resource management in the services' MPT systems. We then provide specific examples of these problems drawn from our survey work. We conclude with some possible improvements in information management.

Few of the observations in this section are original to this study. All of these problems have been cited as deficiencies by at least one military MPT manager. Most of these problems have been cited by MPT managers in each of the three services. Because they are aware of these problems, military MPT managers are, in many cases, already initiating actions to correct them. In fact, most of the suggested improvements offered in this section are corrective actions which one of the three military services has either already implemented or has moved to an advanced planning stage. In this regard, we hope that the MPT information system improvements accomplished in one service can benefit all other information systems and MPT managers throughout DOD.

Section I

PROBLEMS IDENTIFIED IN MILITARY MPT INFORMATION SYSTEMS

Through our review of military manpower information management systems, we have identified eight separate problems which are common to the systems of all three services.

1. Duplication of effort--storage and analysis of closely related information by two or more information systems.
2. Lack of systems integration--inability of separate information systems to exchange information.
3. Slow responsiveness of systems--excessive amounts of time required to respond to a request for information.
4. Lack of software maintenance--failure to revise computer instructions embodied in the information system as MPT policies change.
5. Poor documentation of software--inadequate or unavailable explanations of how the information system itself operates.
6. Poor data quality--inaccurate data items recorded within the information system.
7. Poor training of computer personnel--lack of sufficient knowledge or training among personnel operating the information systems.
8. Outdated computer equipment--use of old computer equipment which did not represent most efficient technology currently available.

In the pages to follow, we present specific examples of deficiencies in each of these areas.

OBSERVATIONS ABOUT THE AIR FORCE'S MPT INFORMATION SYSTEMS

PROBLEM OBSERVED	SPECIFIC EXAMPLES
DUPLICATION OF EFFORT	O Three subsystems--ASKIF, AFPAL and EPAS--project inventories.
LACK OF SYSTEMS INTEGRATION	O Results of inventory projection subsystems--ASKIF, AFPAL and EPAS--are not necessarily consistent. O STATIC does not tie into rest of MPT system. O Inventory data not used when allocating authorizations in CMDS.
SLOW RESPONSIVENESS OF SYSTEMS	O ALPS and AIPS are cumbersome to operate. O LCOM is too expensive to operate to estimate skill requirements by occupation.
LACK OF SOFTWARE MAINTENANCE	O EPAS replaced TOPLINE DYNAMIC.
POOR DOCUMENTATION	O The only documentation available for CMDS was a specifications sheet. O ALPS documentation was very poor. O No documentation was available for ASKIF.
POOR DATA QUALITY	O CMDS requirements data is rarely updated.
POORLY TRAINED PERSONNEL	O The officer in charge of ALPS was reassigned without available backup. O Managers of CMDS have found personnel turnover a significant problem in operating its subsystems.
OUTDATED EQUIPMENT	O Current hardware cannot handle new information systems currently being designed.

OBSERVATIONS ABOUT THE AIR FORCE'S MPT INFORMATION SYSTEMS

In the case of the Air Force, MPT management is highly centralized. Most Air Force MPT information systems are maintained by the Manpower Personnel Center (MPC) at Randolph Air Force Base. Some 50 major systems and subsystems are used at MPC, consisting of 10 million lines of program print, written in 10 different computer languages. Routinely, 1,800 MPT reports are generated, and approximately 15.7 million personnel transactions are processed on a quarterly basis.

Duplication and systems integration

The Air Force uses only one integrated information system to manage its manpower function. This system, the Command Manpower Data System (CMDS), is interconnected with subsystems for higher level management (Headquarters Air Force Manpower Data System or HAFMDS) and lower level management (Base Manpower Data System or BMDS.)

Information systems for managing Air Force personnel are not similarly integrated. At least three different systems--ASKIF, AFPAL, and EPAS--are used to project future inventories of personnel. Like the other services, the projections of these three inventory information systems are not necessarily consistent. The Air Force holds regular conferences among those concerned with inventory projections to attempt to resolve these discrepancies after the inventory projections have been made but before policies are determined from them. A better solution would, of course, integrate the information systems before the projections are made. The Air Force's Enlisted Force Management System (EFMS), now under development, attempts to do just that.

The manpower information system could benefit from integration with the personnel information systems. As in the Army, use of information about the numbers of available personnel could improve the allocation of manpower authorizations among Air Force activities.

Responsiveness

The Air Force inventory projection systems are cumbersome to operate. This is particularly true for the portions of these systems which generate loss projections, ALPS and AIPS. A major Air Force model for analyzing manpower authorizations, LCOM, is also very expensive to operate. All three models require the inputting of extensive amounts of data before they can produce results.

Software maintenance

Because most Air Force information systems are designed and built by Air Force personnel, lack of software maintenance is a particular problem. When an officer who has designed an important system is reassigned, most knowledge of that system leaves as well. The replacement is as likely to design a new information system as he or she is to learn the old system left by the departing officer. Air Force officials stated that the replacement of the TOPLINE DYNAMIC model by the EPAS model was an example of such a situation.

Documentation

Poor documentation of information systems is the complementary problem to poor software maintenance. When information systems are designed and built by the same personnel responsible for setting MPT policies, deadlines force these personnel to cut corners. The most frequent corner cut is the writing of documentation for the system. Thus the Air Force, which relies most heavily on its own personnel to construct its information systems, exhibits the poorest documentation of these systems among the services.

Data quality

CMDS is both the requirements and authorizations data system for the Air Force. CMDS personnel concentrate their attention on the authorization data in the system since it is that data which influences current personnel decisions. Requirements data, routinely updated by manpower analysts, is only infrequently entered into the CMDS data base.

Personnel

As with the other services, the Air Force's personnel rotation policies hinder adequate development of information systems personnel. The ALPS model serves as the cornerstone of Air Force inventory projection systems. However, the only officer in the Air Force knowledgeable about the operation of this model was reassigned before any replacement could be trained in its operation. Because of the poor documentation for this system, the replacement required a number of months before he could establish full proficiency in using the system.

Equipment

The Air Force, like the Army and Navy, is currently upgrading the capabilities of its MPT information systems. Like its sister services, it has found the limited capabilities of its current computer equipment to be a significant obstacle in accomplishing these upgrades. The development of the EFMS system to integrate personnel forecasts into a single system is a typical example of the problems. Because EFMS will place additional demands upon a personnel computing system which is already saturated, implementation of the system will require the purchase of new central processing units (CPUs) and user terminals.

OBSERVATIONS ABOUT THE ARMY'S MPT INFORMATION SYSTEMS

PROBLEM OBSERVED	SPECIFIC EXAMPLES
DUPLICATION OF EFFORT	O Three subsystems--PERSACS, FAS, and TAADS--contain authorizations data.
LACK OF SYSTEMS INTEGRATION	O PERSACS does not use BOIP information when projecting future authorizations. O Inventory data is not used when allocating authorizations in TAADS. O DEMOS does not tie into rest of MPT system.
SLOW RESPONSIVENESS OF SYSTEMS	O ELIM/COMPLIP is expensive to run. Between PBG decision and data update in TAADS, a 25-month log can occur.
LACK OF SOFTWARE MAINTENANCE	O DEMOS cost routines are discarded and a new cost subsystem is constructed.
POOR DOCUMENTATION	O No significant problems are observed.
POOR DATA QUALITY	O Authorizations data is inaccurate and untimely.
POORLY TRAINED PERSONNEL	O Systems managers disagreed on how the Army MPT system functioned.
OUTDATED EQUIPMENT	O Batch sequential processing is used. O Punch card machine orientation O Most terminals cannot store information.

OBSERVATIONS ABOUT THE ARMY'S MPT INFORMATION SYSTEMS

Because of the Army's decentralized method of managing its military personnel, we were unable to obtain a detailed description of the Army's automated MPT information network. In addition, most Army computer systems support many different functions--such as logistics, finance, and communication--making it difficult to isolate MPT operations and costs.

Duplication

As with the Navy, Army information systems have been developed in a piecemeal fashion. Thus, the areas of duplication of effort and lack of systems integration are also the biggest problems facing Army MPT information managers.

The Army MPT managers rely on three distinct systems to track and project future authorizations levels. The three systems do not produce consistent and timely data; they do not formally interact; and they are difficult and costly to maintain. The Army's large effort to introduce the VFDMIS system for handling authorizations data stems directly from the problems they have encountered utilizing three separate authorizations data systems. The projected costs for VFDMIS are $150 million over the next 5 years.

Systems integration

The fragmented nature of the Army MPT information system results in a number of "disconnects" between its major components. Manpower models do not use personnel information when allocating billets among the Army activities. Thus, manpower systems may allocate particular types of soldiers to an Army activity who are unavailable in the personnel inventory. At the same time, other types of soldiers who could be of assistance to this activity may be in excess supply in the inventory. Similarly, PERSACS does not use information about future equipment changes in units to determine what manpower changes will be needed to support this equipment change. One long-term personnel planning model, DEMOS, does not interact with the rest of the MPT information system at all.

Responsiveness

ELIM/COMPLIP, like its Navy counterpart FAST, is extremely complex, difficult to set up, and expensive to run. Unlike the Navy, the Army offers no courses in how to operate this important personnel model. Another example of slow systems response in the Army MPT system is the possibility of as much as a 25-month lag between the time when a decision to authorize manpower for a certain activity is made and the time when this decision is finally posted on the principal Army authorizations system, TAADS. The installation of FORECAST, an integrated umbrella personnel system, and VFDMIS should significantly reduce the Army's system integration and response time problems.

Software maintenance

We found evidence that the maintenance of MPT software was inadequate. A probable reason for this lack of maintenance is the high turnover among information systems personnel. When one officer is reassigned, his or her replacement usually does not understand the information system left behind. Instead of learning the information system, the new officer simply builds a new system. One example of this phenomenon was the construction of a whole new method for analyzing the cost of personnel programs despite the fact that the DEMOS program already contained a personnel program costing capability.

Documentation

The documentation of the Army's information systems is superior to that of the other services. Most of the Army systems were constructed by contractors who submitted documentation of their information systems as a condition of their contract. However, even this documentation could be improved. The Army is now working on the addition of "user friendly" executive summaries and user manuals which should greatly assist untrained personnel in learning about the information systems.

Data quality

Like the Navy, Army requirements data are infrequently updated. All three service information systems place a great deal more attention on authorizations data, which represent spaces that actually could be filled, than requirements data, which represent spaces that could only be filled in the event of mobilization. Also, the authorizations data contained in FAS, PERSACS, and TAADS is too often inaccurate and untimely. For this reason, in 1983 the Army initiated the development of the Personnel Management Authorization Document (PMAD) system to be a single statement of authorizations.

Personnel

In most cases, Army personnel rotated between information system assignments as frequently as did personnel in the other services. Because personnel move frequently and, in most cases, are not well acquainted with the MPT process, system managers often do not understand how the data their systems generate are used to make MPT decisions. For example, no consensus could be reached among key Army MPT and budgetary personnel on how the MPT information systems interacted to produce personnel budget decisions.

Personnel training deficiencies can be overcome if turnover among information systems personnel is reduced. In one case, the project officer for the FORECAST system was left in his assignment for a 7-year period. This officer cited this stabilized tour as a significant reason behind the Army's success in designing and installing the FORECAST system.

Equipment

The Army is currently expanding dramatically its MPT software and hardware capabilities. The key objective in this expansion is an integration and consolidation of MPT information systems. In looking at those major systems currently coming online, one can see a clear transition from a set of uncoordinated batch processing systems into a well integrated umbrella system using state-of-the-art information technology. The intent of the transition is to eliminate "stovepipe" systems which limit responsiveness and accuracy.

Planned improvements in most of the major information systems--SIDPERS, RETAIN, and REQUEST--have generated requirements for upgraded hardware to handle larger information flows and to establish compatibility with other Army equipment. A significant cost factor with the VFDMIS project is the expense of buying secure equipment for classified data. Looking at the Army's need for improved computer equipment from another perspective, the Army is currently transferring its ADP operations into the field. A contract for the Decentralized Automated Service System Support Program (DAS^3) has been let for 120 mobile van-mounted computers at a cost of $1 million per van. These mobile computers will be used at the Division-level to support total ADP needs from financial to MPT applications.

OBSERVATIONS ABOUT THE NAVY'S MPT INFORMATION SYSTEMS

PROBLEM OBSERVED	SPECIFIC EXAMPLES
DUPLICATION OF EFFORT	O Three subsystems--FAST, STRAP-E, and ACOL--project inventories. O Four subsystems--NMRS, NARM, NAMPS, and NMDAS--contain requirements data. O Three subsystems--NARM, NMDAS, and NAMPS--contain authorizations data. O Two subsystems--BUCOMP and SPAN--are used for costing personnel budgets.
LACK OF SYSTEMS INTEGRATION	O Results of inventory projection subsystems--FAST, ACOL, and STRAP-E--are not necessarily consistent. O BUCOMP compensation rates can be inconsistent with FAST loss rates. O Data in four requirements data subsystems are inconsistent.
SLOW RESPONSIVENESS OF SYSTEMS	O FAST run is difficult to set up and expensive to execute. O Length of time required to update NAMPS data files precludes use of up-to-date authorizations data.
LACK OF SOFTWARE MAINTENANCE	O ADIN model became inoperative due to change in structure of FAST model.
POOR DOCUMENTATION	O Navy has been forced to spend significant resources in writing operational documentation for its systems.
POOR DATA QUALITY	O NMRS requirements data are often outdated and unable to meet demands levied on system. O The Navy had to establish separate office to coordinate data definitions over 100 different MPT data systems.
POORLY TRAINED PERSONNEL	O Over half of Navy officers attending entry conference were being transferred within 6 months. O The officer placed in charge of FAST had no computer experience.
OUTDATED EQUIPMENT	O Current hardware cannot handle new information systems currently being designed.

OBSERVATIONS ABOUT THE NAVY'S MPT INFORMATION SYSTEMS

The Navy maintains a very advanced MPT information network, consisting of more than 100 major software systems which generate 20,000 programs written in nine different computer languages. MPT information is coordinated and processed by Navy staff in 207 personnel offices worldwide. The Navy operates 13 major computer centers, and employs major time-sharing services in 7 locations, including the National Institutes of Health and the Department of Energy. On a monthly basis, the MPT system processes 127,000 documents and generates 212 billion lines of print.

Our impression is that the Navy's MPT information system performs well but has a number of shortcomings. The Navy is aware of many of these problems and currently is working to rectify some of them. Other problems, of which the Navy is aware, stem from the piecemeal process through which the system developed over the past 20 years. Correcting these other problems might require a major system overhaul.

Duplication and systems integration

The first two classes of problems, duplication of effort and a lack of systems integration, both result fundamentally from the way in which the Navy MPT information system developed. Historically, each office of the Navy staff has supervised the development of its own information system. Consequently each system is tailored to specific, narrow needs of a particular office. The result of this unplanned development is, first of all, extensive duplication of effort. The chart on the preceding page cites a number of systems which store and analyze very similar data.

A second result of the historical development of the Navy MPT system is an inability of components of the system to work together. Generally speaking, it is difficult to compare data across MPT components at a given point in time. Since there are no routine updating schedules, each MPT component updates its files at different times, using a variety of sources. This explains, in part, why manpower, personnel, and budgeting data will differ among the MPT systems, and must by "scrubbed" to reflect comparable time frames prior to use. For example, the inventory forecasts of FAST, ACOL, and STRAP-E are not consistent (although the Navy claims that they usually deviate by only a few percent). Even though each model concentrates on forecasting inventory levels for different categories of personnel, the aggregate forecasts of all three models should be comparable. Any discrepancy between these forecasts introduces basic inconsistencies into the total Navy personnel planning process.

Responsiveness

Despite the automation of most of the MPT data, the response of Navy information systems is not as timely as it needs to be. The size and complexity of the FAST system make a full FAST run difficult and time consuming to set up and expensive to execute. Decisionmakers who require inventory forecasts often use less accurate and fully developed models because they cannot obtain a full FAST simulation within the time frame permitted for the decision. The Naval Personnel Research and Development Center has attempted to lessen this problem by constructing and teaching a week-long course on how to run the FAST model for Navy personnel who work with the model.

Software maintenance

Maintenance of software programs is a fourth area of concern--and a large one since the Navy has more than 140 personnel ADP systems. A noted naval authority on manpower planning models cited software maintenance as the single largest problem within the MPT information system. He noted that a minor change to the FAST system rendered the associated Advancement Planning Model (ADIN) inoperable for an entire budget cycle because software changes required for its use of FAST forecasts were not made.

Documentation

Documentation of information systems is critically important for solving other information systems problems. For example, systems cannot be integrated or personnel trained if it is not clear exactly what a specific system does and how it can be operated. The Navy was able to provide documentation for most of the systems which we examined. However, in virtually every case, this documentation described only the general nature of the data maintained by the system. A fully developed set of documentation would also describe the detailed structure of the information system, how the data in the system was updated, and how the system could be operated. The Navy recognizes its system documentation problems. In fiscal year 1985 it plans to spend approximately $3.5 million to improve documentation for 30 personnel systems.

Data quality

The Navy is experiencing significant problems keeping its manpower requirements data updated. In part, these problems stem from difficulties in developing accurate requirements information in the first place. These problems are also due to the fragmented design of the requirements data systems in which major systems independently process requirements data. Another data quality problem stems from the number of different manpower and personnel reporting systems which are currently in use. Each of these reporting systems potentially contains a different

definition for important Navy terms such as "authorization" or "operational unit." The Navy has established an office to review these various reporting systems and to standardize all terms used within these systems.

Personnel

A primary cause of problems in personnel training in the Navy's MPT system is the high rate of turnover of information systems personnel. At the entry conference for this assignment, over half of the Navy personnel attending were due to rotate to new jobs within a 6-month period. In most cases, the officers replacing these departing personnel had little or no computer experience. For example, the officer assigned in charge of an important projection model had just completed a tour as a destroyer commander and had had no prior computer experience.

Equipment

In the area of major MPT equipment, the Navy has found that the age of its hardware significantly impedes its attempts to improve its information systems. Currently, the Navy is attempting to improve the systems designs of many of its information systems. Some examples of new systems are the Total Force Manpower Management System (TFM^2S), a new integrated on-line personnel data system called Source Data System (SDS), and a consolidated personnel payment system (Project Personnel/Pay). In each case, the computer hardware to operate these systems represents 1960's vintage technology. To install the improved systems, the Navy has had to make significant investments in improved computer hardware--$11 million in the case of Project Personnel/Pay and $2.4 million in the case of SDS.

Section II

POSSIBLE SOLUTIONS TO PROBLEMS OBSERVED IN THE MPT INFORMATION SYSTEMS OF THE THREE SERVICES

PROBLEM OBSERVED	POSSIBLE SOLUTION
DUPLICATION OF EFFORT	O Consolidate inventory projection subsystems--e.g., FORECAST and EFMS. O Consolidate requirements and authorizations subsystems--e.g., CMDS.
LACK OF SYSTEMS INTEGRATION	O Institute centralized control of entire MPT information system--e.g., OP-16.
SLOW RESPONSIVENESS OF SYSTEMS	O Streamline internal procedures. O Improve training of personnel--e.g., Navy's training course in operation of FAST.
LACK OF SOFTWARE MAINTENANCE	O Devote more resources to maintenance and documentation of subsystems.
POOR DOCUMENTATION	O Devote more resources to maintenance and documentation of subsystems.
POOR DATA QUALITY	O Consolidate inventory projection subsystems. O Consolidate requirements and authorizations subsystems. O Centrally manage data definitions--e.g., OP-16.
POORLY TRAINED PERSONNEL	O Stabilize tours as was done for management of FORECAST. O Improve documentation of subsystems and personnel training courses.
OUTDATED EQUIPMENT	O Centralize equipment management, e.g., FORECAST. O Invest larger amounts in computer equipment.

POSSIBLE SOLUTIONS TO PROBLEMS OBSERVED IN THE MPT INFORMATION SYSTEMS OF THE THREE SERVICES

Our survey of current practices in the services MPT information systems uncovered a number of encouraging signs as well as seeming deficiencies. In this final subsection, we list some possible improvements to information management in the MPT systems. All the suggestions we advance are already operational within at least one service's system or are being planned for installation by at least one service. In other words, this final subsection is merely an attempt to provide all parties interested in MPT information systems--service personnel, OSD personnel, or GAO evaluators--with a brief status report on the efficiencies achieved by some managers within each service system.

Duplication

The obvious solution to the duplication of effort which we observed within all service MPT information systems is to centralize management of these systems. Each service has established some type of oversight organization to do just that. In the Army, this organization is the Deputy Chief of Staff for Information Management. In the Navy, a Systems Configuration Control Board (OP-167) has been established to synchronize the development of all future MPT systems. In the Air Force, "Project Air Force" is responsible for all system research and development activity.

Systems integration

There are several specific examples of service attempts to replace fragmented individual models which duplicate each other with single integrated systems. For example, the Army's FORECAST and the Air Force's EFMS are prominent efforts in integrating personnel systems. The Air Force has already centralized the management of its authorizations and requirements data within CMDS. The VFDMIS project will establish a similarly integrated manpower system for the Army.

Responsiveness

System responsiveness would be improved if internal procedures in the MPT information systems were streamlined. Such a streamlining would involve, such changes as a single set of data definitions to be used by all personnel, agreement by all personnel to use a common set of assumptions when performing analyses, the use of structured programming logic, and the use of a common computer language. This streamlining could be a natural by product of centralization of information systems re-

commended above. Also, improved training in the use of systems would allow both system users and systems operators to access MPT information more quickly. Courses like the NPRDC course on the use of the FAST system would significantly improve the ability of MPT personnel to use their information systems.

Software and documentation maintenance

There is no easy answer to the problem of software maintenance and documentation. An increased emphasis is needed on spending the time to revise software when necessary and to complete documentation on all systems. The advantage to doing this, however difficult it may be in the short term, is a significant improvement in systems operation in the long term. Personnel training, systems integration, and data quality are particularly dependent on this work.

Data quality

Much of the data quality problem stems from the disjointed nature of the current system design. Because each individual subsystem operates with different definitions of key data items or on a different time schedule, coordination of information within the system requires approximations, and crude data "fix-ups." The system integration efforts recommended above and already underway in many areas should help to overcome much of this problem. An additional step which might further improve data quality would be the establishment of a single office to oversee all data definitions used within the system. The Navy has established this type of activity to ensure that all MPT personnel use identical definitions when entering and using data within their information system.

Personnel

MPT management is not an easy area to master. Information systems management is even more difficult. It is unrealistic to expect even the brightest personnel to achieve competency in these difficult skills in a limited time. The services may need to work harder on achieving stabilized tours for military members working within their MPT information systems. Furthermore, the services should consider managing the entire careers of their MPT and information systems personnel more intensively. There is a price for rotating personnel who have gained considerable expertise in these specialized areas to nonrelated "career broadening" assignments. Also, the learning time for inexperienced personnel would be considerably shortened if better documentation of the systems were available.

Equipment

Finally, the services may need to rapidly upgrade their computer equipment. Most of the current hardware of the service's MPT information systems represents 1960 vintage technology. The large integrated systems recommended above are well within the state of the art but do require sophisticated 1980 vintage hardware for most efficient operation. While the expenditure of millions of dollars on improved computer hardware may seem expensive, it pales in comparison to the importance of obtaining maximum efficiency out of the $68 billion now being spent on military personnel.