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AD-A204 738

ARI Research Note 88-102

Determination of Research Priorities and Documentation of Information Sources for Army Civilian Personnel Management

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December 1988

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United States Army
Research Institute for the Behavioral and Social Sciences

U.S. ARMY RESEARCH INSTITUTE

FOR THE BEHAVIORAL AND SOCIAL SCIENCES

A Field Operating Agency Under the Jurisdiction of the Deputy Chief of Staff for Personnel

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Research accomplished under contract
for the Department of the Army

Human Resources Research Organization

Technical review by

Charles J. Dole

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

1a. REPORT SECURITY CLASSIFICATION	1b. RESTRICTIVE MARKINGS
Unclassified	--

2a. SECURITY CLASSIFICATION AUTHORITY	3. DISTRIBUTION/AVAILABILITY OF REPORT
--	Approved for public release; distribution unlimited.
2b. DECLASSIFICATION/DOWNGRADING SCHEDULE	
--	

4. PERFORMING ORGANIZATION REPORT NUMBER(S)	5. MONITORING ORGANIZATION REPORT NUMBER(S)
HumRRO FR-PRD-88-24	ARI Research Note 88-102

6a. NAME OF PERFORMING ORGANIZATION	6b. OFFICE SYMBOL (If applicable)	7a. NAME OF MONITORING ORGANIZATION
Human Resources Research Organization	HumRRO	U.S. Army Research Institute for the Behavioral and Social Sciences

6c. ADDRESS (City, State, and ZIP Code)	7b. ADDRESS (City, State, and ZIP Code)
1100 South Washington Street Alexandria, VA 22314-4499	5001 Eisenhower Avenue Alexandria, VA 22333-5600

8a. NAME OF FUNDING/SPONSORING ORGANIZATION U.S. Army Research Institute for the Behavioral and Social Sciences	8b. OFFICE SYMBOL (If applicable)	9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER
		MDA 903-87-C-0846

8c. ADDRESS (City, State, and ZIP Code)	10. SOURCE OF FUNDING NUMBERS			
5001 Eisenhower Avenue Alexandria, VA 22333-5600	PROGRAM ELEMENT NO.	PROJECT NO.	TASK NO.	WORK UNIT ACCESSION NO.
	263731	A792	4.5.4.C	C1

11. TITLE (Include Security Classification)
Determination of Research Priorities and Documentation of Information Sources for Army Civilian Personnel Management

12. PERSONAL AUTHOR(S)
Knerr, C. Mazie, Keller, Susan D., Sticha, Paul J., and Ziemak, John P. (HumRRO) (Continued)

13a. TYPE OF REPORT	13b. TIME COVERED	14. DATE OF REPORT (Year, Month, Day)	15. PAGE COUNT
Final	FROM 9/30/87 TO 9/30/88	1988, December	

16. SUPPLEMENTARY NOTATION

Cost analysis,

Contracting Officer's Representative, Joel M. Savell.

17.	COSATI CODES		18. SUBJECT TERMS (Continue on reverse if necessary and identify by block number)
FIELD	GROUP	SUB-GROUP	Cost/benefit analysis, Leadership research,
			Civilian personnel management, Management training and
			Data index, development (Continued)

19. ABSTRACT (Continue on reverse if necessary and identify by block number)

This report describes the first stage of a multiyear research program. The goal of the overall program is to develop products that will help the Army manage its civilian workforce. Three requirements of this initial stage were to (a) identify research projects and products that offer the highest benefit to Army sponsors and users, (b) document the availability and quality of information pertaining to those projects, and (c) allocate resources to accomplish the goals of the projects.

The most beneficial research projects focused on the selection, training, and development of leaders, supervisors, and managers of the Army civilian workforce. This report documents the methods and results of the focusing process and presents a prototype data index that catalogs the Army civilian personnel data sources and data elements. *Keywords*

20. DISTRIBUTION/AVAILABILITY OF ABSTRACT	21. ABSTRACT SECURITY CLASSIFICATION
☒ UNCLASSIFIED/UNLIMITED ☐ SAME AS RPT. ☐ DTIC USERS	Unclassified

22a. NAME OF RESPONSIBLE INDIVIDUAL	22b. TELEPHONE (Include Area Code)	22c. OFFICE SYMBOL
Joel M. Savell	(703) 274-8293	

DD Form 1473, JUN 86   Previous editions are obsolete.

ARI Research Note 88-102

12. PERSONAL AUTHOR(S) (Continued)

Rose, Donald E., and Hunter, Richard W. (Systems Research and Applications Corporation), and Woolley, Sabra (Caliber Associates)

18. SUBJECT TERMS (Continued)

Personnel research,
Personnel selection and placement,
Prioritization of research. (ST....)

Accession For	
NTIS QRA&I	☑
DTIC TAB	☐
Unannounced	☐
Justification	

By
Distribution/
Availability Codes

Dist	Avail and/or Special
A-1	

The Army's Director of Civilian Personnel has stated, and other Army leaders have concurred, that there is a critical need for applied research and its resultant products to improve civilian personnel management in the Army. One recent effort identified eight broad areas in which research was said to be needed: recruitment, retention, personnel development, organizational productivity, motivational productivity, military-civilian relationships, civilian functions, and future civilian workforce needs. Given the size of this set of potential research topics, the first step was to decide which of these topics could be profitably investigated with the resources available and to obtain clarification about the nature of the problem that the Army Research Institute for the Behavioral and Social Sciences (ARI) was being asked to investigate. The results of this first step included (1) a cost-benefit analysis of the potential research topics, (2) a systems analysis that provided the researchers with context and thus increased understanding of the interrelationships among the areas selected and the other areas that had been identified, and (3) the identification and systematization of personnel measures that currently exist in Army databases and thus are available for use in the projected research.

This effort was part of the Civilian Personnel and Management Task, which is being conducted by the Leadership and Management Technical Area (LMTA). The effort was supported by a Memorandum of Agreement ("Research on DA Civilian Personnel Leadership and Management") dated 13 April 1988. Some of the research was briefed to the Chief, Directorate of Civilian Personnel Planning and Evaluation Division (DAPE-CPP), on 22 January 1988, and the rest was briefed to the Director of Civilian Personnel (DAPE-CP) on 25 July 1988.

The primary outcome of this research was the information it provided for the researchers. The results also, however, benefited the Directorate in that they helped it decide the topic (selection and development of civilian leaders) on which it would request research from ARI.

DETERMINATION OF RESEARCH PRIORITIES AND DOCUMENTATION OF INFORMATION
SOURCES FOR ARMY CIVILIAN PERSONNEL MANAGEMENT

EXECUTIVE SUMMARY

Requirement:

This report presents a part of a larger research program designed to
develop products that will assist Army civilian personnel managers to perform
their functions. This report describes the initial steps of the program,
which had three initial requirements: (a) identify those research projects
that offer the highest benefit to the sponsors and users; (b) document the
availability and quality of information pertaining to those projects; and
(c) allocate resources to accomplish the goals of the program.

Procedure:

The objectives of the portion of the program reported herein were to
focus on particular problems and document the information (in previous re-
ports and data bases) available to solve the problems. The methods applied
to meet these objectives were as follows:

Review of the related reports that identify problems in Army civilian
personnel management and that provide cost and priority data

Systems analysis to organize and describe the context within which this
civilian personnel management system must operate

Cost/benefit analysis to integrate knowledge and data from the recent
reports with management decisions concerning current priorities

Identification and assessment of existing Army civilian personnel data
sources and the measures in them

Development of an automated prototype data base, cataloging the data
sources and measures, to assist policy/decision makers and research
scientists

Findings:

The first stage of the program described the context of the research
and selected a set of goals that the program could achieve given the re-
sources available. Results of the documentation of the context and func-
tions of the Army civilian personnel management system are presented in
Appendix A. The final set of research projects chosen by integrating the
results of the cost/benefit analysis with management decisions were these:

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Personnel Measures. During the first year of this research program, cost/benefit and system analyses were used to identify specific research projects that would be most beneficial to the Army. Existing data and information sources applicable to these specific research projects were documented and put into a prototype data index, which will be completed in fiscal year 1989.

Leader Selection. Efforts in this area will be dedicated to researching and developing procedures to select highly effective leaders for Army civilian supervisory and management positions. The current focus of this research is on developing improved procedures for the selection of first-line supervisors. This will continue to be a focus during fiscal year 1989.

Leader Training and Development. The focus here will be on researching and designing training and career development procedures that will supply superior Army civilian personnel leaders, supervisors, and managers in response to mission requirements.

In summary, this program will develop procedures for leadership selection and development, and assess existing sources of data applicable to this research. We are publishing separately a research plan that describes the measures in detail for fiscal year 1989 and in general for all remaining years. Research recommendations also are presented in that manuscript.

Utilization of Findings:

Use of the research products varies with the goals of the users; therefore, the organization of this report facilitates several different applications.

Users of the data index for Army civilian personnel measures turn directly to the User's Manual in Appendix B. Users can search by data source (e.g., Army Civilian Personnel System) or specific topics (e.g., selection of first-line supervisors). The data index can serve multiple purposes, as indicated by the two search options. New data can be integrated as desired (e.g., data collected during this research program).

Readers interested in the rationale and methods employed can focus on the chapters describing the cost/benefit analysis, the documentation of information sources and creation of the data index, and the systems analysis appendix.

Those who want to review information from previous, related projects can read the background chapter that describes recent reports.

DETERMINATION OF RESEARCH PRIORITIES AND DOCUMENTATION OF INFORMATION
SOURCES FOR ARMY CIVILIAN PERSONNEL MANAGEMENT

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OF INFORMATION SOURCES FOR ARMY CIVILIAN PERSONNEL MANAGEMENT

INTRODUCTION

Civilians are a large and increasingly important part of the total Army workforce. At 485,000 total members, they comprise almost 40 percent of the Army. They perform many of the Army's support functions, often working side by side with their uniformed counterparts in base operations, logistics, engineering, electronics, and a wide variety of other functions. Civilians often supervise military personnel in these capacities, and often military commanders oversee large operations which are primarily civilian.

The Army's civilian workforce is important to the Army mission; however, the management of that workforce within a military structure is complex. Civilian personnel management is governed by an intricate set of civil service laws and regulations developed outside of the Department of Defense to govern the total federal workforce of approximately 2.7 million. This system does not always serve the Army efficiently, and the differences in the military and civilian systems can create inefficiencies and misunderstandings between two personnel systems that must rely upon each other to accomplish common missions.

As the Army's civilian workforce has grown in size and importance, the Army has increased its efforts to bring its civilian personnel planning and management procedures closer into line with state-of-the-art methods to meet the future needs of the Army. Over the past several years, the Directorate of Civilian Personnel (DCP) has conducted several far-reaching efforts to upgrade the Army's civilian personnel systems. Initiatives such as the Army Civilian Personnel System (ACPERS), the Civilian Forecasting System (CIVFORS), the Army Civilian Career Evaluation System (ACCES), the Army Civilian Training, Education, and Development System (ACTEDS), and the Personnel Modernization Task Force all reflect the drive for systematic self-improvement.

To improve a workforce as large and complex as the Army's civilian workforce requires an integrated comprehensive civilian personnel management research program. The first step in that direction was the _Army Strategic Plan for Civilian Personnel Management Research: A Roadmap for the Future_ (Woolley, Croan, and Cohart, 1986). This report is a keystone in the planning for the Army's future civilian personnel system. It is a blueprint for developing the information base that Army civilian managers need to identify problems and design system improvements.

A subsequent set of reports prioritized problems that Woolley, et al. (1986) identified (Clark, Sweeney, and Savell, 1988) and estimated costs of conducting research to solve the problems (Clark and Savell, 1988). The prioritization reports build on the research arrays that Woolley, et al. (1986) designed to solve the Army's civilian personnel management problems. However, those reports did not analyze the cost estimates in conjunction with the benefit priorities to determine which problems would be the most

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cost-effective for the Army to solve. What was needed was a way to integrate this information and to derive a defensible problem-definition and action plan.

Together the Woolley, et al. (1986) and the two prioritization reports can form a guide for managers to focus on the research that is critical to support current and future decisions. However, the information in those reports must be integrated to facilitate that guidance.

Objectives

The goal of the first year of this research program was to identify within the research areas (identified by Woolley, et al.) particular research topics on which to focus and to begin work on these topics. Specifically, the objectives of the first year of this research program were to:

1. Focus the program on research topics to investigate

2. Allocate research program resources to the topics

3. Identify and assess the quality of currently available information sources and data that are relevant to the research topics.

During the first year of this program, research topics that would be most cost-beneficial for the Army were identified and research was begun in a critical problem area within one of those topics. Information concerning what data are available, and the quality of the data, were important considerations in selecting research topics and the levels of resources to devote to them. The documentation of this information constitutes one of the products of the first year of this research program. The activities of identifying this information and assessing its quality came under the personnel measures project described below.

Methods and Products for the Personnel Measures Project

The objectives indicate the need for a multidisciplinary approach that exploits systems analytic and empirical research techniques. The personnel measures project inventoried and assessed existing information sources and data elements and provided a data base for civilian personnel information.

The technical approach used systematic methods to select research areas to investigate, document existing reports and data related to those areas, and match the scope to the resources available to conduct the research. The objectives dictated three tasks during the first year of the personnel measures project; the following paragraphs link the methods and products to the objectives, and Figure 1 displays the linkages:

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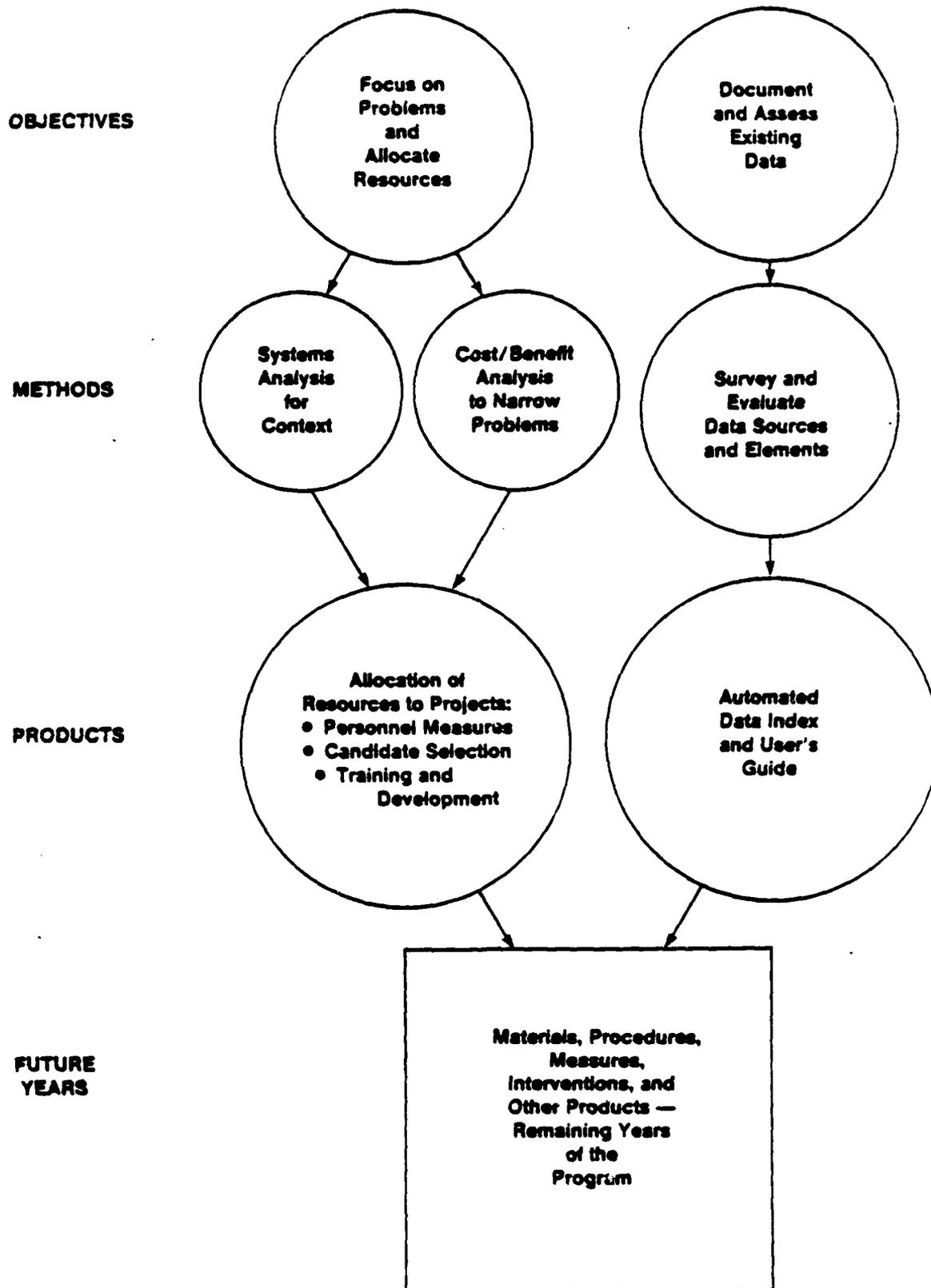
Figure 1. Objectives, methods, and products of the first year of the personnel measures project.

1. Two of the objectives required that we focus on problems to solve, and allocate resources. Two of our tasks, taken together, achieved these objectives.

    ● Before the focus could be completed, we had to clarify and document the context within which the Army civilian personnel managers function. This objective required us to conceptualize Army civilian personnel management problems, through analysis of the system and its functions. We needed to take a systems analytic view of the Army civilian personnel system in order to place the problems in context and determine their functional priorities. The systems analysis defines the important variables and their relationships to each other. The important variables were defined by previous work on Army civilian personnel management (e.g., Woolley, et al., 1986; Clark and Savell, 1988; Clark, et al., 1988). Examples are recruitment, selection, retention, and training of civilian personnel.

    ● The next activity was to narrow the program focus by selecting research requirements based on the relative cost/benefit to the Army and priorities of the sponsors. Thus, we needed a logical, quantifiable method to consolidate existing estimates of the relative costs and benefits of the research with sponsor priorities. We conducted a cost/benefit analysis on the utility of various options to select research topics. The cost/benefit analysis integrated current management priorities with the benefit and cost data from the two previous Army prioritization reports. The end result was the focus on two areas for research: candidate selection and the training and development of leaders, supervisors, and managers. Those research areas became the projects for the remainder of this program.

2. The objective of assessing the existing information sources and data is important to make best use of existing data and to avoid duplicating what is already available. Thus, we needed to inventory existing systems containing data relevant to the Army for civilian personnel management and then document the results (relevant measures, data bases and results from previous research). The information survey cataloged and assessed the data bases and the data elements in them. The survey covered all existing data sources, and emphasized sources pertaining to the selection, training, and development of civilian personnel for leadership positions. The final steps of this task automated the results in a data index and produced an initial user's manual..

Report Organization

This report organizes the results of the first year of the personnel measures project into four chapters and three appendices. The background chapter, immediately following this chapter, summarizes the existing reports and information. We present substantial detail from Woolley, et al. (1986), since we use their research areas in all of the first-year activities, and brief descriptions of the other reports. The background emphasizes findings pertaining to personnel selection and to training and development.

Two technical approach chapters describe the procedures and products. Each presents the rationale and assumptions, methods and products, and the conclusions for that portion of the work.

1. <u>Allocation of program resources to problem areas</u>. The resource allocation method applied cost-benefit analysis to focus the research activities on the issues that are the most cost-effective to the Army. The research design integrated a wealth of knowledge compiled in past and current work to the area of Army civilian personnel issues.

2. <u>Documentation and assessment of existing information and development of the data index</u>. The method employed steps that identified the data sources, defined and applied criteria for assessing the quality of the data, designed and automated a data index, and provided a user's manual that explains how to use the index to search for information supporting personnel management decisions and research.

The final chapter summarizes the results and presents suggestions concerning their use. Appendices present the products and their documentation.

Appendix A describes a systems analysis of the Army civilian personnel management system. It uses a method that structures the analytic process, communicates the results, and provides an audit trail of the analytic steps. The analytical structure shows the Army's civilian personnel system in its larger system's context. It enables the research staff and the users of the research results to examine the elements of the civilian personnel system in the context of the Army's national security functions.

Appendix B presents the initial user's manual for the Army civilian personnel management data index. The manual, like the data index, is at the prototype stage. Appendix C contains supporting material for development of the data index.

A research plan is published separately. It describes the research projects in detail for fiscal year 1989 and in general for all remaining years. This strategic planning process will create an integrated program of research, with each project drawing direction from and providing input to a common planning process.

This program of research builds upon the results of previous work concerning Army civilian personnel management. This chapter describes the following reports and their importance to the research.

- The Army strategic plan for civilian personnel research (Woolley, Croan, and Cohart, 1986)

- The Army prioritization reports (Clark and Savell, 1988; Clark, Sweeney, and Savell, 1988)

- The Professional Development of Supervisor's Study (PDS^2) (Department of the Army, 1987).

The Army Strategic Plan for Civilian Personnel Research

Information from the Woolley, et al. (1986) report forms the basis for this research; thus, much of this chapter is devoted to a discussion of those sections of the report that are relevant to selection and to training and development research. Their objective was to present a plan for identifying, prioritizing, and managing research on Army civilian personnel management issues. Woolley, et al. (1986) worked in conjunction with a Study Advisory Group (including representatives from the DCP, the Army Research Institute, and other key organizations within the Department of the Army) to document the principal objectives (representing the major functions) of the Army's civilian personnel program. They defined the overall function of the Army civilian personnel management system as that of maximizing the contribution of the civilian workforce, in and out of the continental United States (CONUS and OCONUS), to accomplish the Army mission. The functions and their accompanying research areas are listed below and shown in Figure 2:

- Maintaining a qualified and representative workforce tailored to Army needs, including:

  1. Recruiting needed personnel

  2. Managing both retention and separation

- Maximizing the productivity of the civilian workforce, including:

  3. Developing supervisory and non-supervisory personnel

  4. Motivating personnel

  5. Maximizing the efficiency of policies, procedures, and processes

- Ensuring the most effective utilization of civilians within the Army, including:
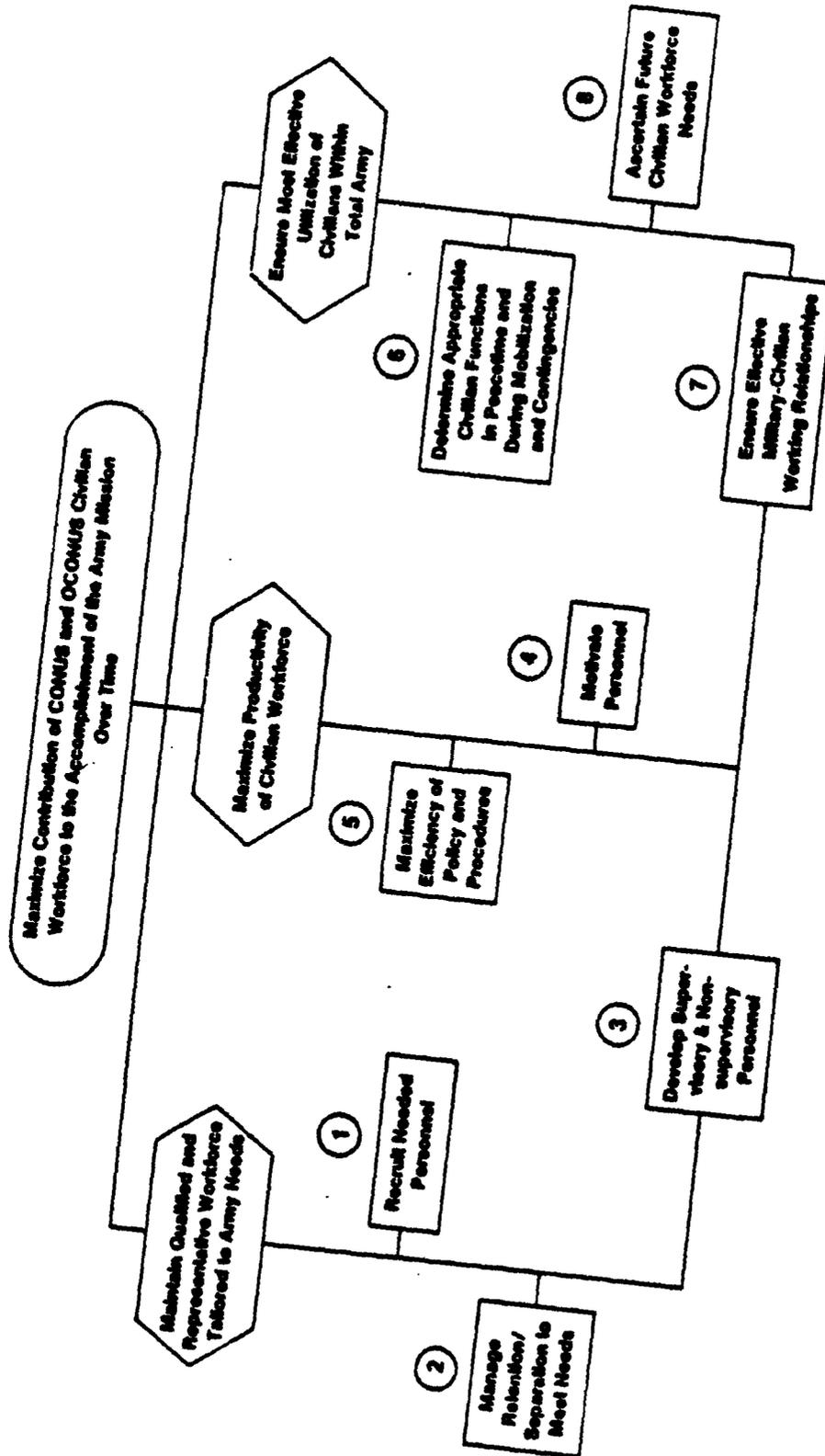
Figure 2.   The Relevance Tree.

NOTE: From Army Strategic Plan for Civilian Personnel Management Research: A Roadmap for the Future (p. 3) by S.F. Weekley, G.M. Croan, and J. Cohart, 1994.

Maximize Contribution of CONUS and OCONUS Civilian Workforce to the Accomplishment of the Army Mission Over Time

Maintain Qualified and Representative Workforce Tailored to Army Needs

Maximize Productivity of Civilian Workforce

Ensure Most Effective Utilization of Civilians Within Total Army

1 Recruit Needed Personnel

2 Manage Retention/ Separation to Meet Needs

3 Develop Supervisory & Non-supervisory Personnel

4 Motivate Personnel

5 Maximize Efficiency of Policy and Procedures

6 Determine Appropriate Civilian Functions in Peacetime and During Mobilization and Contingencies

7 Ensure Effective Military-Civilian Working Relationships

8 Ascertain Future Civilian Workforce Needs

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6. Determining appropriate civilian functions in peacetime and during mobilization

7. Ensuring effective military-civilian working relationships

8. Ascertaining future civilian workforce needs.

Woolley, et al. (1986) conducted in-person interviews with cognizant individuals to obtain information about research issues in the eight research areas. The interview data were consolidated into eight "convergence charts" that depict research arrays, categorized according to the eight enabling objectives. These arrays provide sequences of research activities to support the Army's civilian personnel objectives. Every array contains four potential research phases:

1. Phase I (Establish Baseline Measures) establishes the magnitude of a problem.

2. Phase II (Analyze Issues) defines and documents the problem sufficiently to conceptualize solutions.

3. Phase III (Identify Potential Strategies) builds on preceding research to design strategies to solve the problem.

4. Phase IV (Test and Evaluate Promising Strategies) suggests interventions and evaluation techniques. In most instances, Phase IV research questions were the authors' logical extensions of the research described in Phases I through III.

The following paragraphs present information from Woolley, et al. (1986) in the areas of personnel selection and management training and development, covering the four research phases for those two areas.

Issues in Personnel Selection

A number of interviewees identified recruitment/selection as the "number one issue," partly because of the perception that terminating incompetent employees is so cumbersome. Some individuals stressed the selection aspect of the recruitment process as being most critical, while others were concerned with the formation of the applicant pool from which they had to select. Figure 3 shows the convergence chart for one portion of the recruitment research array, which deals with personnel selection.

Phase I: Establish baseline measures for selection. Interviewees noted a need to conduct more basic research before beginning research on recruitment and selection issues, to develop performance measures, and to assess the current selection standards, recruit population, and recruiting success. Products would enable the Army to determine the extent of current selection deficiencies and prepare more targeted research on the problems and prospective solutions. A related concern was to identify the types of selection criteria now used, so that the Army can assess whether they are valid.

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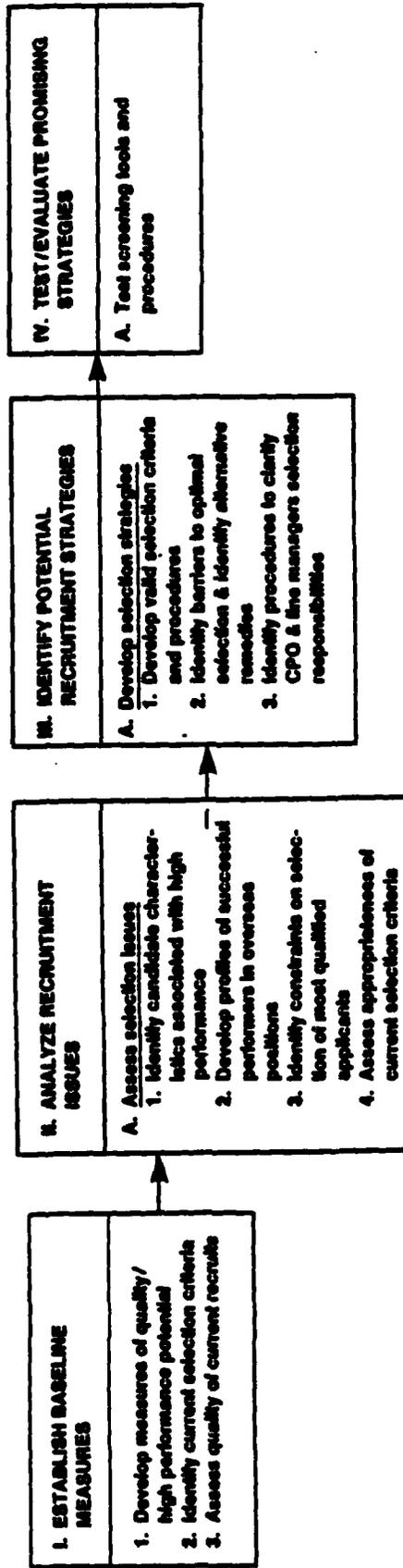
Figure 3. Candidate selection portion of the recruitment research array.

NOTE: From Army Strategic Plan for Civilian Personnel Management Research: A Roadmap for the Future (p. 17) by S.F. Woolley, G.M. Croan, and J. Cohen, 1986.

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Phase II: Analyze selection issues. The first two suggestions in this phase deal with predictor development. The first involves the content of selection instruments and is a logical sequel to research which develops measures of high performance potential.

Phase III: Identify selection strategies. The three suggested research topics related to identifying selection strategies were to develop valid selection instruments, procedures and solutions to selection problems. New selection strategies would stem from a re-examination of current selection standards and procedures, and from identified existing barriers to effective selection.

Phase IV: Test and evaluate promising selection strategies. A possible final step in the research process would be to select a number of the new personnel selection strategies, put them into practice in a limited context, and evaluate the outcome. The MIPS (Model Installation Programs) are potential contexts for (a) testing and evaluating new screening tools, procedures and standards, and (b) modeling streamlined hiring procedures.

Issues in Training and Development

Woolley, et al. (1986) presented no research array designated leadership, supervision, and management training and development. The research array discussed here, "personnel development" is the array most relevant to the topic of leadership training and development (Figure 4).

Policy-level interviews and meetings indicated that the development of knowledge, skills, and abilities (KSAs) of the civilian workforce was linked with the goals of maintaining a qualified workforce and of maximizing the productivity of the workforce. Issues included the needs for structured training and career paths, development of managerial skills, and coordinating training more closely to career advancement.

Phase I: Establish baseline measures for training and development. Research questions in this phase focussed on how to develop linked measures for individual and organizational productivity, and to assess the current level and patterns of mobility.

Phase II: Analyze personnel development issues. This phase has two research clusters: (a) an assessment of KSA issues and (b) career development issues. The underlying questions in the first research cluster had to do with identifying requisite KSAs at each level of supervisory responsibility, ascertaining those KSAs of individuals who were perceived as being effective supervisors and managers, and the present use of funds expended in training. For upper levels of management, research was needed to ascertain the leadership skills which civilians should acquire, particularly at a General Merit 14 and 15 level.

Phase III: Develop personnel development strategies. Based on the research issues identified for personnel development discussed above, strategies in this array include training strategies for KSAs and career development strategies.

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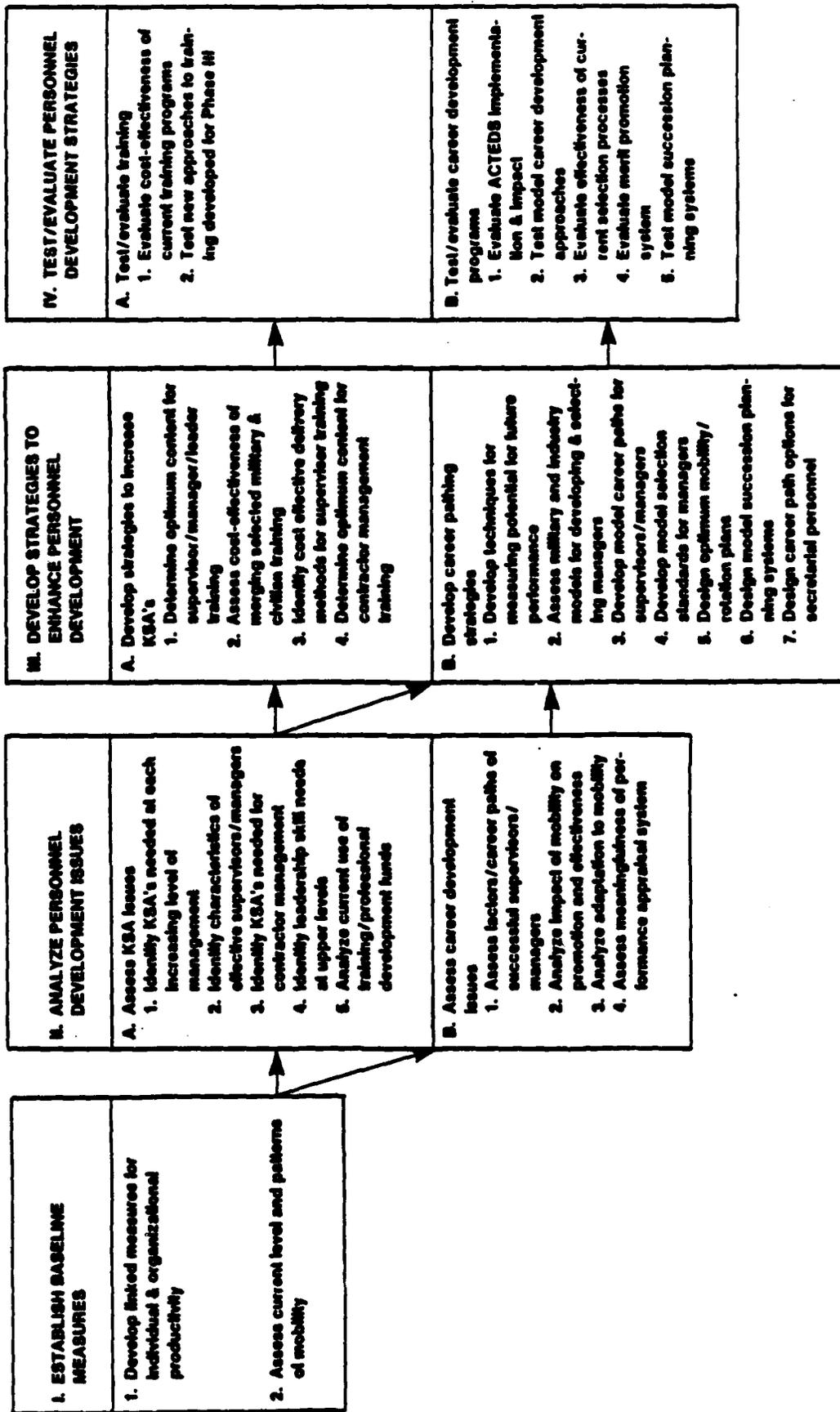
Figure 4.   Personnel development research array.

NOTE: From *Army Strategic Plan for Civilian Personnel Management Research: A Roadmap for the Future* (p. 50) by S.F. Woolley, G.M. Croan, and J. Cohart, 1988.

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Phase IV: Test and evaluate personnel development strategies. A number of evaluation activities were mentioned by interviews, while others were logical follow-ups to strategies suggested in the previous research phase. One example was to evaluate cost-effectiveness of training. Several participants mentioned a need to evaluate the implementation and impact of the new Army Civilian Training and Educational Development System (ACTEDS).

In summary, Woolley, et al. (1986) identified civilian management objectives and a series of potential research endeavors to further those objectives. This work builds on their results. In this first research year, we employ analytic techniques to identify those research tasks whose products would be most beneficial to the Army civilian personnel function.

Army Prioritization Project

Oak Ridge Associated Universities (ORAU) and ARI completed two reports, Establishing Priorities for Civilian Personnel Management Research in the Army (Clark, Sweeney, and Savell, 1988) and Making Decisions about Civilian Personnel Management Research in the Army: Part 2 of the Army Roadmap (Clark and Savell, 1988). The first assigned priorities to 16 research issues (stated in 16 questions designated Q1 through Q16) that were based on the research areas in the Woolley, et al. (1986) report. Table 1 shows the relationship of the 16 prioritization questions to the eight Woolley, et al. (1986) areas. The second report provided estimates of the resources needed to conduct the research.

The recruitment research area entailed both the problem of attracting candidates and selecting them. The prioritization questions elaborated the issues by including attraction of high-quality candidates, selecting candidates, insuring that selected candidates are hired, and identifying candidates for supervisory positions. The last (Q9) also related to the area of personnel development, because candidates for supervisory and managerial positions are, in some cases, selected within the Army civilian personnel workforce rather than from outside. Thus, Table 1 shows both recruitment and personnel development for Q9.

The personnel development area contained three questions in addition to Q9. One question (Q10) pertained to the development of supervisory, managerial, and leadership skills. The other two questions comprised the assessment of employee performance (Q7) and the assessment of supervisor and manager performance (Q11). A critical consideration in logical development of a research plan is that the assessment goals must be reached before the selection or training goals can be adequately addressed.

Clark, et al. (1988) distributed a questionnaire to key individuals throughout the Army asking each to rate the 16 questions on three dimensions:

1. Value of improving things in the area (expressed in the question)

2. Seriousness of the consequences of not improving things

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Table 1

Priority Ratings[a] for Clark, et al. (1987) Research Questions and
Their Relationship to Roadmap Research Areas

Prioritization Project Questions	Roadmap Research Area
TOP PRIORITY	
Q4[b] Retaining productive employees	2[c] Retention/Separation
Q1 Attracting high quality candidates for Army jobs	1 Recruitment
Q9 Identifying good candidates for supervisory and managerial positions	1 Recruitment &
	3 Personnel Development
Q10 Developing supervisory, managerial, and leadership skills	3 Personnel Development
MIDDLE PRIORITY	
Q8 Enhancing individual productivity	4 Motivational Productivity
Q5 Separating poorly performing employees	2 Retention/Separation
Q2 Selecting candidates who have potential for high performance from the pool of qualified applicants	1 Recruitment
Q11 Assessing the performance of supervisors and managers	3 Personnel Development
Q12 Increasing the effectiveness, productivity, and image of civilian personnel offices	6 Civilian Functions
Q13 Building effective military/civilian relations	7 Military/Civilian Relations
Q7 Assessing employee performance	3 Personnel Development
LOWEST PRIORITY	
Q6 Dealing with the impact of mission changes on the workforce	2 Retention/Separation
Q15 Determining appropriate functions for civilian employees in peacetime and during mobilization	6 Civilian Functions
Q3 Making sure that candidates who are selected actually get hired	1 Recruitment
Q16 Forecasting long-term requirements for the Army civilian workforce	8 Future Civilian Workforce Needs
Q14 Developing strategies for improving organizational effectiveness	5 Organizational Productivity

[a]Priorities are based on unweighted composite scores.
[b]Clark, et al. (1987) Question Numbers.
[c]Numbers for Research Areas come from Figure 2.

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3. Likelihood that research findings would be used.

Unweighted composite scores indicated a three level hierarchy of top priority, middle priority and lowest priority. Table 1 presents the priorities of the questions. Of pertinence to this research is the finding that management selection and training issues were deemed top priority (questions 9 and 10), and that personnel selection had middle priority (question 2). The prioritization analysis considered:

1. Interrelationships among research activities (the research tasks, such as the three tasks within Q2, Q9, and Q10)

2. Preliminary research required (e.g., assessments in Q7 and Q11)

3. Estimates of personnel and time resources needed.

Thus, the prioritization reports describe additional details of the research tasks presented by Woolley, et al. (1986). They also provided information on the perceived importance of various research activities and the amount of effort each may require. However, they did not integrate this information to derive cost/benefit recommendations for research (Clark and Savell, 1987, p. 17). This research began where the prioritization project ended. We employed analytic techniques to integrate previous research results to focus research on projects that yield the greatest cost/benefit to the Army civilian personnel system.

Professional Development of Supervisor's Study

The Army has identified selection, training and development of first-line supervisors as an important concern. Therefore, the Professional Development of Supervisor's Study (PDS^2) (Department of the Army, 1987) is directly related to this research. PDS^2 is an Army-wide effort to determine the best approaches for selecting and developing first-line civilian supervisors. PDS^2 is being conducted in three phases. Phase 1 gathered information about the job of first-line supervisors, the ideal personal characteristics of first-line supervisors, and the process whereby first-line supervisors are selected and trained. Phase 2 consolidates the results of Phase 1. Phase 3 produces improvements in the selection and development of first-line supervisors based on the findings of Phases 1 and 2.

Phase 1 had three parts. The first part determined the procedures used to select and develop civilian first-line supervisors. This part was completed by the Atlanta Field Office, U.S. Army Civilian Personnel Center, Office of the Deputy Chief of Staff for Personnel (ODCSPER) (Department of Army, 1987).

The second part gathered job information to improve the selection of first-line supervisors. A concern for the Army is that those individuals responsible for the selection of first-line supervisors may not be using the most appropriate standards in making their selection decisions. A job analysis was needed to identify supervisory selection standards (i.e.,

knowledges, skills, abilities, and other characteristics [KSAOs] that supervisors must meet to perform their supervisory tasks effectively). The job of the first-line supervisor requires both supervisory and technical KSAOs. Rosenthal, Riegelhaupt, and Ziemak (1988) recently completed this job analysis of first-line supervisor jobs. These data are useful for all future research activities on first-line supervisors in the Army civilian personnel system.

Part three examined personal characteristics and traits of effective civilian first-line supervisors and recommended methods for developing them in job incumbents (Camara, Kuhn, and Ziemak, 1987). Data from that project are relevant to training and development research for first-line supervisors.

In Phase 2, the Army integrated the three parts of Phase 1. This phase includes part of the activities of the current program research (those having to do with developing and validating selection instruments for first-line supervisors). Using the data gathered for the job analysis under Phase 1, we will establish linkages between specific job tasks and KSAOs. We will develop standards for first-line supervisor selection and create selection materials. Subsequent research can provide training and development programs for first-line supervisors.

Summary

This background chapter provides the reader with descriptions of important reports that are relevant to the research activities in this research. Consistent with the goals and philosophy of the program of research, the activities build upon prior work. The Woolley, et al. (1986) report and the Army prioritization reports provide data essential for completion of the research activities. Woolley, et al. (1986) provided the basis for the research definition, specification, and planning. The prioritization reports provided data needed for cost/benefit decisions about the topics to address. PDS^2 provided data for the research products for selection and training of first-line supervisors.

COST/BENEFIT ANALYSIS FOR RESOURCE ALLOCATION

Rationale and Assumptions

The cost/benefit analysis addressed the need to allocate resources to research that would provide the maximum benefit to the Army. The analysis integrated data concerning the research areas described by Woolley, et al., (1986) and prioritized by Clark, et al. (1988). This chapter describes the method and results of the cost/benefit analysis. The goals of the cost/benefit analysis were:

1. To specify the factors that should be considered in determining the cost and benefit of conducting research in the areas defined in previous reports

2. To provide a preliminary screening of the research areas according to the benefit/cost ratios of conducting research in each area

3. To focus resources by eliminating low priority research areas.

The cost/benefit analysis screened the research areas to identify a subset that would be most cost-beneficial for the Army to conduct. The analytic method made these assumptions:

1. More potential research areas exist than we can address in this project (i.e., all 16 from the Woolley, et al., (1986) and prioritization reports)

2. We have a wealth of knowledge about those research areas from existing research

3. Existing data provide an information set for selecting among the research areas (i.e., we have a good idea about the kinds of potential solutions and interventions and their relative costs).

Method

We used a resource-allocation method (RAM) of cost/benefit analysis to select the areas for research. The goal of RAM is to aid the decision maker in determining whether resources should be allocated to a project, and if so, the level of resources that would yield the greatest benefit for the cost. This approach is especially useful in deciding how to satisfy several requirements. The RAM simultaneously weights the costs and benefits of various options. It aids decision making by determining the relative costs and benefits of each option.

The use of RAM as a decision aid is not new. Researchers have used it in a wide variety of situations, including the selection of training methods (Donnell, Adelman, and Patterson, 1980; Patterson and Adelman, 1981), the allocation of aircraft to targets (Sticha, Patterson, and Weiss, 1982), and

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problems of system design (Sticha and Patterson, 1981). RAM is the basis of a plan for research in the optimization of training-system design (Young, Luster, Stock, Mumaw, and Sticha, 1986), and for optimizing training-device designs (Sticha, Blacksten, Buede, and Cross, 1986).

RAM uses a benefit/cost ratio to aggregate the judgments of costs and benefits. The RAM analysis organizes, displays, and updates the decision maker's judgments about the relative costs and benefits for each level of satisfaction of each requirement. It identifies the key contributions of options that provide maximum benefit for the amount of resources. Application of the RAM has the following steps:

1. <u>Develop model structure</u>. This step identifies the research questions and the levels at which they might be addressed. It rank-orders the levels so that each level is both more costly and more beneficial than the previous level. For this research, the questions are the sixteen research areas from the prioritization reports (i.e., Clark, et al, 1988; Clark and Savell, 1988) that were based on the eight Woolley, et al. (1986) research areas. The initial model structure used all of the Woolley, et al. (1986) research areas and the research topics within them (e.g., identification of measures for all topics, to avoid duplication of effort and to maximize use of existing information). However, the government decided not to provide guidance at this level of detail, but rather to select broad areas for the contract and to develop a detailed plan for the program at a later date.

Typically, a model structure contains several levels of effort for each research area, since systematic selection of the levels of effort is the purpose of the cost-benefit analysis that the contract required; however, the present application contained just two levels. The purpose of the present analysis was to make gross comparisons between the value of selecting or deleting entire areas. For example, we wanted to determine the value of conducting research in the broad area of supervisory selection relative to that of conducting research in the broad area of organizational effectiveness. We did not consider subareas. Therefore, two levels were appropriate. The first represented not performing research in an area at all; the second level represented performing all the research in an area.

2. <u>Assess costs and benefits</u>. The second step assessed model parameters, assigning each level a cost and benefit. The cost information was from the report by Clark and Savell (1988). We used the estimates of costs defined as the number of professional months needed to accomplish research tasks within each of the sixteen research areas. The cost estimates assume that none of the prerequisite research has been conducted. Thus the total cost for researching an area such as "Q9: To Identify Good Candidates for Supervisory and Managerial Positions" includes the cost of performing the prerequisite research addressing other issues, such as "Q11: To Improve the Assessment of Supervisor and Manager Performance."[1] This

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[1]Research area names are quoted from Clark and Savell, 1988, p. 3.

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simplifying assumption counts costs for prerequisite tasks twice, and hence leads to some inaccuracies in the recommendations. The inaccuracies are small for the first areas selected, and grow as more are selected. Since we selected a small number of areas from the sixteen, and since the level of detail in the analysis is relatively low, the impact of the simplifying assumptions was small.

Table 2 shows the assessed costs and benefits and the analysis results for the variables included in the analysis. The costs are estimates of the number of professional months required to accomplish the tasks at each level of research effort (Clark and Savell, 1988). Other cost figures that might have been used are material costs, computer time costs, and other costs of conducting research.

The benefits indicate the relative importance of the research areas. Clark, et al. (1988) surveyed key Army personnel regarding their opinions about the importance of conducting research to improve each of sixteen personnel functions or areas. They ranked the sixteen areas according to unweighted composites of the importance ratings. We reversed the rankings to produce the benefit values shown in Table 2. Thus, the research area that was ranked first received a benefit of 16; the area ranked second received a benefit of 15; and so forth, until the area ranked sixteenth, which received a benefit of 1.

3. <u>Identify cost-efficient options</u>. This step orders the research levels according to their benefit/cost ratio. The benefit/cost ratio for each research area is calculated by dividing its benefit by its cost. Choosing the research areas that have the highest benefit/cost ratio assures that the research areas chosen have the greatest benefit given the cost. The previous steps provide values for all of the parameters of the resource allocation model. This step performs the calculations to identify cost-beneficial options. Table 2 shows the benefit/cost ratios for each of the sixteen research areas.

Results

Table 2 shows the ordering of the research areas by their benefit/cost ratios. The analysis identified as most cost-beneficial research on (a) attracting high quality candidates to Army jobs, (b) identifying good candidates for supervisory and managerial positions, and (c) developing leadership, supervisory, and managerial skills. Conversely, the least cost-beneficial area was developing and evaluating strategies to improve overall organizational effectiveness.

The results of the RAM were presented to sponsor representatives for review. These personnel then gave their own ranks to the sixteen research projects. They considered management and policy factors in addition to the prioritization report factors.

Table 2

Order of Research Projects by Benefit/Cost Ratio (from Highest to Lowest)

Rank Order[a]	Question No.[b]	Research Project	Cost	Benefit	Benefit/ Cost
1	1	Attracting High Quality Candidates for Army Jobs	232	15	.0647
2	9	Identifying Good Candidates for Supervisory and Managerial Positions	236	14	.0593
3	10	Developing Supervisory, Managerial, and Leadership Skills	262	13	.0496
4	7	Assessing Employee Performance	127	6	.0472
5	2	Selecting Candidates Who Have Potential for High Performance from the Pool of Qualified Applicants	218	10	.0459
6	4	Retaining Productive Employees	372	16	.0430
7	8	Enhancing Individual Productivity	291	12	.0412
8	11	Assessing the Performance of Supervisors and Managers	253	9	.0356
9	5	Separating Poorly Performing Employees	342	11	.0322
10	13	Building Effective Military/Civilian Relations	240	7	.0292
11	12	Increasing the Effectiveness, Productivity, and Image of Civilian Personnel Offices	462	8	.0173
12	3	Making Sure that Candidates Who are Selected Actually Get Hired	175	3	.0171
13	6	Dealing with the Impact of Mission Changes on the Workforce	295	5	.0169
14	15	Determining Appropriate Functions for Civilian Employees in Peacetime and During Mobilization	255	4	.0157
15	16	Forecasting Long-Term Requirements for the Army Civilian Workforce	336	2	.0060
16	14	Developing Strategies for Improving Organizational Effectiveness	227	1	.0044

[a] RAM cost/benefit analysis rank order

[b] Clark, et al. (1987) question numbers

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Figure 5 summarizes the results of the RAM analysis and illustrates how these compare to the prioritization of the research areas by the sponsor and by Clark, et al. (1987). The left half of Figure 5 shows the ranking of the research areas as reported by Clark, et al. (1988). The middle column of the figure shows the rankings by benefit/cost ratio calculated by the RAM analysis. And the right column of Figure 5 shows the ranking of the research projects given by the government representatives during the review meeting. Lines drawn between the three columns of rankings in Figure 5 highlight the differences between the results of the three sets of rankings. For example, the research area "Q2: Selecting candidates who have potential for high-performance from the pool of qualified applicants" was a middle priority topic in both Clark, et al. (1988) and the RAM results; however, the sponsors ranked this as a top priority. Conversely, "Q1: Attracting high quality candidates for Army jobs" was a high priority topic in both Clark, et al. (1988) and the RAM analysis but was unranked by the sponsors.

The difference between the three sets of rankings may be explained by differences in the types of information on which each set of rankings was based. The Clark, et al. (1988) rankings were based on estimates of benefits given by a variety of key Army personnel. The RAM analysis ranking was based on a comparison of the costs presented in Clark and Savell (1988) as well as the benefits reported in Clark, et al. (1988). The sponsor rankings considered management and policy priorities in addition to the information presented in the prioritization reports.

Conclusions

The results of the RAM analysis indicated the following:

1. The four highest ranked research projects according to benefit/cost ratio are (from highest to lowest): attracting high quality candidates for Army jobs, identifying good candidates for supervisory and managerial positions, developing supervisory, managerial and leadership skills, and assessing employee performance.

2. While there were slight differences in the results of the two ranking procedures of the prioritization reports and the RAM analysis, there was also substantial agreement between them. The top three projects identified by the RAM analysis are included in the top four identified by Clark, et al. (1988). The results of the two procedures differed in that the prioritization reports identified retention of productive employees as a top priority topic, whereas, the cost/benefit analysis identified it as a middle priority topic. Also, the prioritization reports identified assessment of employee performance as a middle priority topic, whereas the cost/benefit analysis identified this as a high priority topic.

3. The priorities identified by sponsor representatives were in greater agreement with the ranking by benefit/cost ratio than with the ranking given by the prioritization reports (Figure 5). The three top priority areas identified by the sponsors were chosen from among the top five identified by the RAM analysis and the top seven identified by Clark, et al. (1988).

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Clark, et al. (1987) Priority Results

TOP PRIORITY TOPICS

Q4   Retaining productive employees
Q1   Attracting high quality candidates for Army jobs
Q9   Identifying good candidates for supervisory and managerial positions
Q10   Developing supervisory, managerial, and leadership skills

MIDDLE PRIORITY TOPICS

Q8   Enhancing individual productivity
Q5   Separating poorly performing employees
Q2   Selecting candidates who have potential for high performance from the pool of qualified applicants
Q11   Assessing the performance of supervisors and managers
Q12   Increasing the effectiveness, productivity, and image of civilian personnel offices
Q13   Building effective military/civilian relations
Q7   Assessing employee performance

LOWEST PRIORITY TOPICS

Q6   Dealing with the impact of mission changes on the workforce
Q15   Determining appropriate functions for civilian employees in peacetime and during mobilization
Q3   Making sure that candidates who are selected actually get hired
Q16   Forecasting long-term requirements for the Army civilian workforce
Q14   Developing strategies for improving organizational effectiveness

Cost/Benefit Results*

Sponsor Priority Scale

*Cost/benefit rank order using Clark et al., 1987 and Clark and Savell (1987)

Figure 5.   Prioritization of research.

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Sponsors identified three high priority areas. These areas were (from highest to lowest): identifying good candidates for supervisory and managerial positions; developing supervisory, managerial, and leadership skills; and selecting candidates who have potential for high performance from the pool of qualified applicants.

4. General agreement among the three information sources (the sponsor ranking, the prioritization reports, and the RAM analysis) indicated that research on the two topics of selection and of training and development would be highly beneficial to the Army. Thus, the set of projects based on the sponsor input were:

o "Q9 Identifying Good Candidates for Supervisory and Managerial Positions"

o "Q10 Developing Supervisory, Managerial, and Leadership skills," and

o "Q2 Selecting Candidates who have Potential for High Performance from the Pool of Qualified Applicants" (later restricted to selection of candidate for leadership positions).

5. Consistent with this consensus, the first topic is the selection of first-line supervisors. This focus was chosen for two reasons. First, the Army had already made substantial progress on research in this area, so future efforts would have a strong foundation on which to build. Second, by building on this prior work, present research efforts would soon be able to support practical solutions to meet a crucial need for improvement in the first-line supervisors selection process.

6. Concurrent with the focus on first-line supervisor selection, the research staff began the long-term planning for research on other selection topics and on development and training. Research on these topics is expected to continue for the duration of the program. At a later date, sponsors planned to consider conducting selection research on populations other than first-line supervisors. Furthermore, subsequent program reviews determined that the candidate selection work would deal only with leadership and supervisory levels (rather than, for example, an entry level occupation with high density such as clerk/typists).

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DOCUMENTATION AND ASSESSMENT OF INFORMATION SOURCES AND DATA

Rationale and Assumptions

Manpower and personnel information represent the analytical building blocks needed for this research. To better manage the civilian force, the Army needs management indices for personnel systems such as those used for selection and training of employees. Such indices can serve as signals of the effects current policies are having on the workforce. The Army has several data bases, named in the introduction to this report, that might supply components for the indices. Those data bases include some that pertain to the selection and training areas in this program, and others that pertain to policies beyond the scope of this program (e.g., manpower forecasting in CIVFORS). To meet that need we assume:

1. Data exist that can be used to develop the appropriate management indices

2. The quantity of the data vary by research area or topic

3. The quality of the data vary by data source (dimensions of quality are assumed to be availability, accuracy, reliability, relevance, etc.)

4. The users of the data are research scientists (e.g., for selection of first-line supervisors) and DCP (for policy-making and management analysis on topics outside this program of research).

The initial documents stating the requirements for this research program dictated the identification, evaluation, and documentation of the whole range of data sources. The program staff completed the identification, and set up the structure for the evaluation and documentation, before the government selected the areas on which to focus. Thus, we present the entire array for use outside this contract (e.g., CIVFORS information that does not pertain to this particular program). We anticipate that Army policy makers will use the index at this broad level. The second level of users consists of the staff of this research program. For research use, we elaborated evaluation of the data elements and sources that pertain to the selection and training of leaders, supervisors, and managers.

The information survey addresses the data sources now available, their adequacy for Army civilian personnel management, and what improvements or enhancements the data need. The goals are to:

1. Catalog Army civilian personnel measures and information sources

2. Assess their quality

3. Create an aid to tell users how to access and manipulate the information sources and data.

Given the large number of data sources and elements, the aid for users should be an _automated_ index. Users need to know the source, location (where stored), points of contact, contents (data elements), and procedures for access or manipulation. Therefore, the product is an automated index of information concerning data sources that meets those user needs. This chapter presents the method and results of the information survey and an overview of the data index. Appendix B presents an initial user's guide for the data index, and Appendix C presents supporting material concerning the development of the index.

Method

The approach was an integrative process, beginning with a general review of Army personnel data sources and becoming progressively more focused on the specific research areas of selection and training of civilian employees. This task required determining which data were available to develop management indices for the improved selection and training of Army civilian employees. We examined existing data sources to determine if they provided the information on civilian personnel management. Next, this information was organized into an automated data index. The method entailed the following steps.

1. _Create conceptual design for the data index_. The usefulness of the data index is measured by the degree to which it meets the needs of the user, i.e. it facilitates analysis by guiding the analyst quickly and easily to the appropriate needed information. To do this we organized the index by (a) source, (b) topic, and (c) access procedures. Each represent a separate search path that guide the users to information about specific data in a source/file, then ties data to a topic and finally provides a step by step guide to access the data. The remaining steps discuss how each of these paths are created.

2. _Document existing data sources_. Users need to know what data exist, where the data are, and how to obtain access and use them. Therefore, we identified and documented potential data sources that could support analysis in topic areas of interest to DCP. The initial areas are the selection and training of Army civilian leaders, supervisors, and managers. The initial specific topic is the selection of first-line supervisors.

The documentation of existing data sources began with discussions with data base managers familiar with the CIVFORS, CIVPERSINS, and the Army-wide Survey of Civilian Personnel. Questioning of the data base managers led to information about other relevant data bases. These in turn became potential data sources. In addition, as constituent Army decision makers and the research staff members identify research topics, they also identify data sources or potential measures that should be incorporated into the data index. For each potential data source, the research staff talked with the cognizant data base managers or personnel administrators. As a result of these discussions, we were able to collect information on the existing data,

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systems capabilities, system costs, and criterion variables. A list of the data base managers is provided in Appendix C.

3. _Assess utility of existing data sources_. User's need to know the quality of the information to decide if, and how, to use it. To be useful, the measures must be available, reliable, accurate, feasible, and relevant. Thus, we determined the type and quality of the existing data, frequency of update, verification methods, and limitations. The assessment criteria and how they are applied to evaluate the data sources are described below. For this version of the data index, the assessments of utility were made only of the data source as a whole. However, for selected data elements the prototype data index provides an assessment of the validity parameters. To assess the cost benefit or validity of every data element in every data source would be a monumental task and would be cost-prohibitive. For this project a more realistic approach, and the approach we recommend, is to assess the validity of a selected set of data as we complete the topic branch of the data index. This approach tailors the allocation of program resources to the priorities of the Army.

The data index currently contains binary (yes or no) assessments that are the subjective judgments of the project staff. However, the structure of the index allows users to change the scale and content of the assessments as they learn more about the information sources, or as the sources are improved. The following six dimensions are currently assessed.

Data must be reasonably _available_. It is not cost effective to establish information data bases that would be very expensive for the Army to develop and maintain. This effort exploits the data bases that already exist and helps the Army use them more effectively. To determine availability, we match the data elements of the existing data sources with the information requirements and make a yes or no determination. An example is the collection of responses to the Army-wide survey. Five years worth of rich data were collected, but because of unfortunate circumstances are inaccessible. Appendix C documents the investigation of the Army-wide survey tapes, and the reasons that the data are not available for use.

The data should be _accurate_, i.e., they reflect the true situation being reported. However, accuracy is not necessarily a measure of usefulness. It indicates the degree of precision that is obtained. To apply this criterion to the existing data sources, we verified with the data base managers the amount of error checks made and the degree to which data errors are corrected. For the prototype data index we made an initial evaluation that data sources with the most extensive checks provide the most accurate data. As an example, the Corps of Engineers Management Information System - Personnel Accounting (COEMIS-PA) system has the most extensive checks made; however, the data only apply to the Corps of Engineers civilians. It is the most accurate data source but not useful for Army-wide analysis.

The data must also be _reliable_. The same circumstance must be reported the same way every time regardless of the source or mode of measurement. That is, if two different people measure an effect they both agree; or if

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the same individual measures an effect on two separate occasions, the results are the same. The Army's Civilian Training File (CTF) provides the same data response to independent queries asking the same thing. However, because the data are incomplete the responses are inaccurate for Army-wide application. In contrast, for decisions involving only those installations that submit training data this data source is reliable and accurate. The data index has an initial subjective evaluation of the data's reliability, but also has space for the user to record comments regarding reliability as it pertains to a particular research project.

Potential measures should be feasible; i.e., it should be possible to collect the data. While measurement of any construct may seem possible, the collection of the data must conform to legislative and regulatory standards, some of which could render the data unobtainable (e.g., the Privacy Act may restrict access to some personal data such as social security number [SSN] and name). With respect to feasibility, the data index assumes that existing data are releasable and reflects that as a default in the data summary. The user has the option to change the assessment as new and better information becomes available.

The data should also be acceptable to the user; i.e., they should be adequate enough to satisfy the user's needs with respect to a particular topic. It does no good to measure a particular effect with a set of data, if the data do not allow the users to adequately address their needs. For example, overall tenure could be a measure of job experience, but it does not address what specific job abilities the worker has accumulated over time to make him or her more productive. The user determines the acceptability of the data. To accommodate this the prototype index displays the data as acceptable but the user has the option to change the evaluation.

Finally, the measures must be relevant to the particular research topics. For example, if a training program is implemented at an installation as a remedy to a productivity problem, the relevant baseline measure should use data from that specific installation. A productivity measure based on macro-level (e.g., Army-wide) data may be too generalized to be sensitive to the effects of the installation level intervention. Again we have provided an initial evaluation that assesses the data as relevant but the user can change the evaluation as new and better information becomes available.

Table 3 shows a sample of the assessments of data sources in the prototype data index for the topic of the selection of first-line supervisors. At least four existing data sources have the potential for providing information on this topic: Civilian Personnel Master File (CPMF), COEMIS-PA, Standard Civilian Personnel Management Information System (SCIPMIS), and CTF. In most instances, the data are not acceptable for selection of first-line supervisors, because they are not applicable Army-wide (i.e. CTF is incomplete because it does not require input, and SCIPMIS and COEMIS only contain information on selected subsets of the Army). Entries in this table assumed "yes" except where otherwise noted. "N" indicates "no" and a dash (-) indicates "no entry." The dash is used for

Table 3

Sample Data Evaluation

DATA SOURCES

DATA ELEMENTS	CPMF (1)						COEMIS-PA (2)						SCIPMIS (3)						CTF (13)					
	AVAILABLE	ACCURATE	RELIABLE	ACCEPTABLE	FEASIBLE	RELEVANT	AVAILABLE	ACCURATE	RELIABLE	ACCEPTABLE	FEASIBLE	RELEVANT	AVAILABLE	ACCURATE	RELIABLE	ACCEPTABLE	FEASIBLE	RELEVANT	AVAILABLE	ACCURATE	RELIABLE	ACCEPTABLE	FEASIBLE	RELEVANT
SSN					N					N	N					N	N		N	—	—	N	N	—
Name					N					N	N					N	N					N	N	
Nature of Action										N						N						—	—	
Sex										N						N						N		
Date of Birth										N						N						N		
Citizen										N						N						N		
Veterans Preference										N						N						N		
Tenure										N						N						N		
Handicap										N						N						N		
Schedule										N						N						N		
Pay Plan										N						N						N		
Occupational Series										N						N						N		
Grade										N						N						N		
Step										N						N						N		
Salary										N						N						N		
Pay Basis										N						N						N		
Unit Identification Code										N						N						N		
State										N						N			N			N		
City										N						N			N	—	—	—	—	—
County										N						N				—	—	—	—	—
Position										N						N				—	—	—	—	—
Retired Military										N						N			N			N		
FEGLI[b]										N						N				—	—			—
Position, Supervisory										N						N			N	—	—	N	N	—
Education Level										N						N			N	—	—	N	N	—

[a] All entries are assumed "Yes" unless otherwise noted. N = "No"; — = "No entry".
[b] Federal Employees Group Life Insurance.

the Civilian Training File where six elements are not available, therefore no entries are required for the remaining parameters.

4. **Obtain information requirements for research areas and topics.** We obtain from the researchers the information requirements necessary to explore and analyze the topic area. The only topic designated before the prototype data index was the selection of first-line supervisors; therefore, the prototype contains only requirements for that topic. One of the primary information requirements for the selection of first-line supervisors is to measure productivity. Although productivity as a subordinate employee does not guarantee success as a supervisor, it is a possible indicator; therefore we attempted to isolate all data elements that might be used as a measure of productivity.

5. **Outline potential enhancements and new data sources.** The selection and training projects in this project will assess and determine potential enhancements of existing data to improve usefulness (e.g., for selection of leaders above the level of first-line supervisors). Not all data will have a perfect fit but may require some minor modifications. Where we find a need for potential enhancements, we will assess the cost, timeliness, and benefit of such action. In addition the data index will act as a data base in its own right for the information collected to support research conducted in this program (e.g. the data collected to develop procedures for the selection of first-line supervisors).

6. **Automate the prototype data index.** In building an automated data index we were limited to existing software that was already available to the users. DBase III(plus) was already resident on DCP desk-top computers so we developed the data index as a unique application of that data base management system. Using the features of dBase III we developed a data inventory that allows the user to quickly and easily identify sources of information and data. Although it is a useful operational tool, it is still in the prototype stage. Additionally, the data index does not provide an automated interface with potential data sources but it does provide the user with assistance on how to access those sources. To provide the automated interface would be prohibitive due to data security and the amount of software development required.

The Army Civilian Personnel Management Data Index

The product of the steps described above is an automated prototype for the Army civilian personnel management data index. The purpose of the index is to catalog and describe the data elements relevant to Army civilian personnel policy makers. The remainder of this chapter describes the data index and an overview of its operation.

Data Index Description

Users of the data index need to be able to locate information concerning sources of data, ways to access the data sources, and data pertaining to the personnel topic at hand. The data index provides these different perspectives, organized into four levels of specificity (Figure 6).
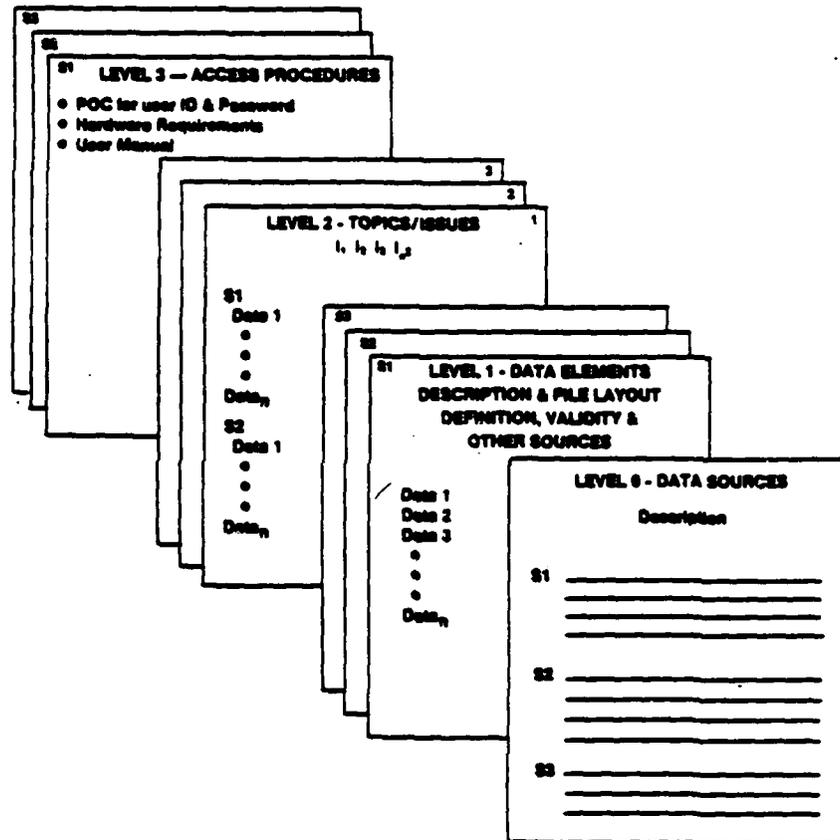
Figure 6. Four levels of the data index.

Level 0: Overview. The initial level, or level 0, is the most general and simply describes the data sources. It tells the user where to look for data. It is stored in the index as a summary page for each data source. The summary identifies the data source's capabilities and functions and describes the nature of the data. A short note gives the following information:

● Point of contact (organization, position of the data manager, current incumbent, telephone number)

● Interaction with other data sources

● Whether the data source is automated or manual

● Update frequency.

Figure 7 presents one sample, showing the information for the Civilian Personnel Master File (CPMF). Appendix C presents the information for 14 data sources planned for the index. Table 4 lists their titles and acronyms. The table also shows how many data elements the source contains, and how many of them are in the prototype version of the data index.

CIVILIAN PERSONNEL MASTER FILE
CPMF

CPMF - this file is an extract of CIVPERSINS that is used on the HQDA Decision Support System to complement CIVFORS. The Civilian Master file contains data on all U.S. direct hire employees of the U.S. Army (NationalGuard technicians and DoD teachers are not included). The CPMF is a snapshot of the civilian workforce for a given date. The file has 114 data elements including 18 flags that are used by HQDA only.

DATA MANAGER: Mr. Penn, TAPA, 325-7612

Press Any Key to Return to Previous Menu

Figure 7. Information for the CPMF in the zero-level data index.

Level 1: Data sources. The first level of the index is a data element dictionary for each of the data sources listed in Table 4. The data element description contains the following information:

- Name of the data element

- Format and position in the data file

- Current validity rank, and whether the rank has changed

- Current assessment of validity parameters, with space for comments

- Description of the data (if applicable)

- Other sources for the data

Table 4

Data Sources and Number of Data Elements in the Prototype and Final Indices

Data Source Title	Acronym	Number of Data Elements	
		Prototype	Final
Index			
Civilian Personnel Information System	CIVPERSINS	90	90
Civilian Personnel Master File	CPMF	116	116
Defense Civilian Personnel Data File	DCPDF	94	94
Civilian Training File	CTF	42	42
Nonappropriated Fund Personnel System	NAFS	0	44
Automated Career Referral System/ Army Civilian Evaluation System	ACARS/ACCES	0	TBD
Standard Civilian Personnel Management Information System	SCIPMIS	0	152
Corps of Engineers Management Information System - Personnel Accounting	COEMIS-PA	171	171
Civilian Personnel Accounting System	CPAS	0	TBD
Standard Army Civilian Pay System	STARCIPS	0	685
Army Civilian Personnel System	ACPERS	364	364
Army-Wide Survey of Civilian Personnel	ARMY SURVEY	0	0
Civilian Forecasting System	CIVFORS	0	59
Civilian Personnel Office for each Installation	CPO INITIATIVES	0	0

NOTE: TBD = To be determined.

The current assessment of validity in the prototype uses a yes or no judgment on each of the criteria described in the method section of this chapter. Users can revise the assessments based on new information. If this new information causes the relative ranking of the data element to change then the index will change the order in which it displays data to the user (the most useful is always displayed first). The index provides space for the user to enter comments to explain the judgments.

Level 2: Topics. This level of the index links the available data sources to research areas and topics (e.g., topics that the Army identified as problems and therefore are likely to need management decisions). The research areas are those from Woolley, et al. (1986), and the topics are those identified within those areas, in the prioritization reports, or in discussions with users and sponsors. For example, the research area of candidate selection contains the topic of selection of first-line supervisors.

This level of the index includes a separate automated sheet for each topic. Each sheet identifies the topic and each of the major requirements necessary to analyze it. The data index at this point displays the data element and source to meet the information requirements of the user.

The prototype index contains information concerning the selection of first-line supervisors; the index has place-holders for the research staff to add topics during the ensuing years of this research program (e.g., selection of leaders above the level of first-line supervisors). It will provide a display of the appropriate information to the user that will help solve problems. Also, the index allows the user to insert shorthand notes.

Level 3: Access procedures. The index will have a level that provides access procedures that allow the user to exercise the data source. Access procedures will include information that explains the specific steps the user must take to gain access to the data source. It will also include a "mini-users manual" on how to operate each system described in the index, including:

● Points of contact and telephone numbers for information, access, and data manipulation

● Requirements for user identification, passwords, etc.

● Documentation and how to obtain it (user's manual, data element dictionary, etc.)

● A step by step guide to accessing the data source to include examples of written requests for data.

● Classification or privacy restrictions.

This level of the index is necessary because users cannot access all of the potential data sources directly due to data security and programming

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problems. Users of the data index will have direct access to some data sources such as the data generated during the research in this program.

Use of the Data Index

The purpose of this section is to provide an overview of the data index as well as providing an indication of the system requirements and user preparation.

Figure 8 indicates what the user will do with the data index. In the upper left corner is a box that represents an issue or trend that decision makers want to make a decision about or follow. If analysts on the decision maker's staff already have some measures available, nothing would change; they would use their own data for the decision. If their analysts do not have their own data, they would use the data index; it would indicate whether or not measures are available, where to find them, and how to obtain access to them. The analyst can go into the appropriate data sources and obtain the data. The figure shows the example of the Civilian Personnel Master File (CPMF), for which the access system is S2K, System 2000. The user submits a query, with a set of pertinent questions, and receives the data in response to those questions, conducts the analysis, and presents the results for decision. If the data index determined that measures are not available, this would provide information to the decision makers concerning whether or not to design and collect information.

Two different search options are available to the user, both providing a way to obtain detailed information on the data elements contained in the data systems. Figure 9 shows the screen map, a tree with several branches; the user tracks through the tree to know the location in the index.

The user starts with the main menu, which gives the options of searching by topic or by data source, obtaining help, or learning how to access the data sources (Figure 10). All the data sources catalogued in the data index have an overall description and are captured in help screens (the description of the CPMF was in Figure 7). This represents the level 0. The branch of the tree that guides the user in a search by data source represents level 1 of the data index. The branch that guides the search by topic represents level 2. Directions for access procedures are in the final branch of the index, however, the current prototype only has a placeholder for these procedures.

Search by source. The first search option available is by specific data source (called a file in the index). All data sources that are catalogued in the data index are made available to the user (Figure 11). If the user is unfamiliar with the data source there is a help option that displays a discussion of its capabilities and functions. After a specific source has been selected, there are two different ways to view the data element information: select a particular element(s) for review or review all the data elements in the order in which they appear in the data source. The user's manual, in Appendix B, presents a list of all the data elements in the prototype data index.

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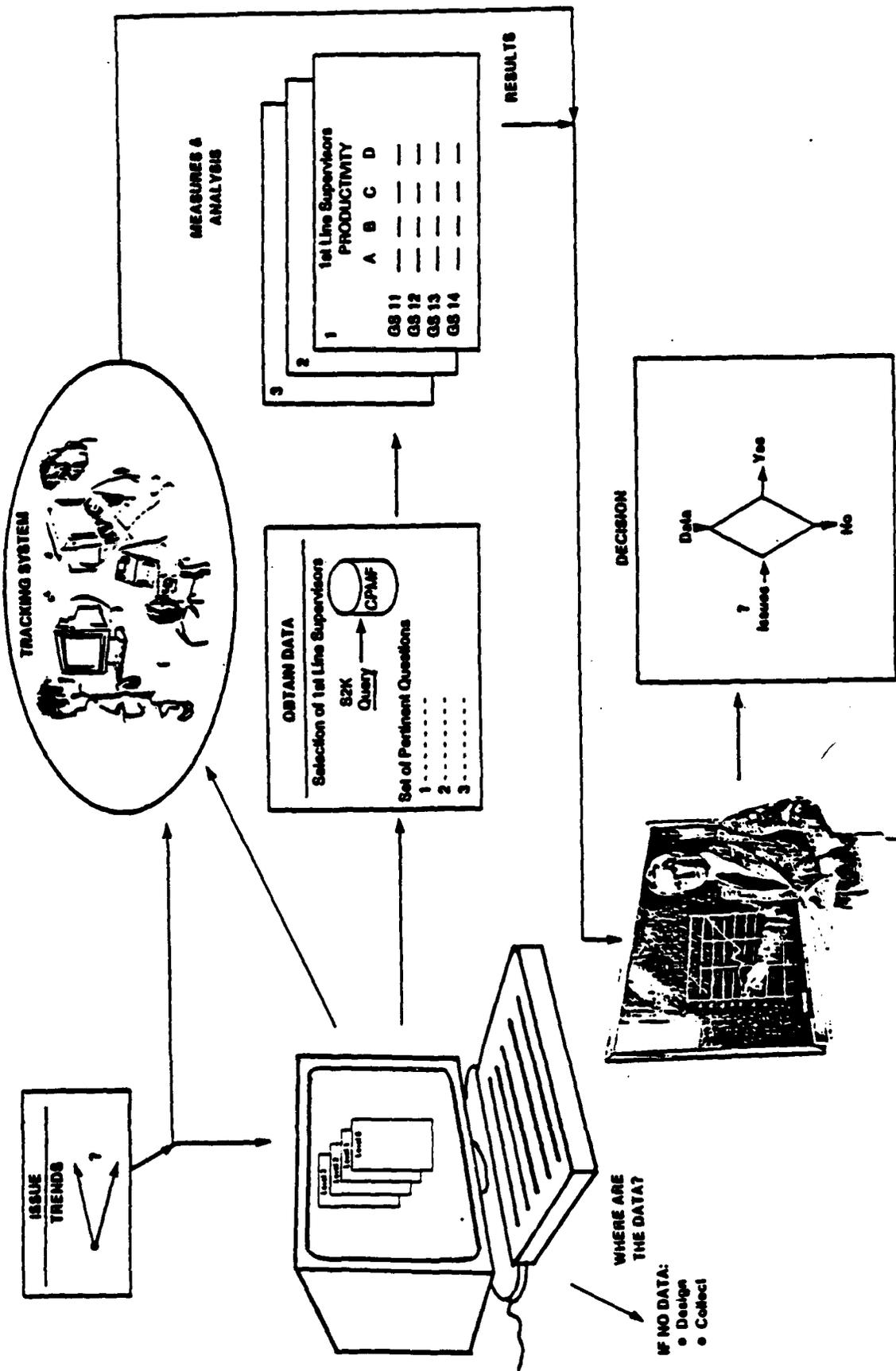
Figure 8. What the data index will do.
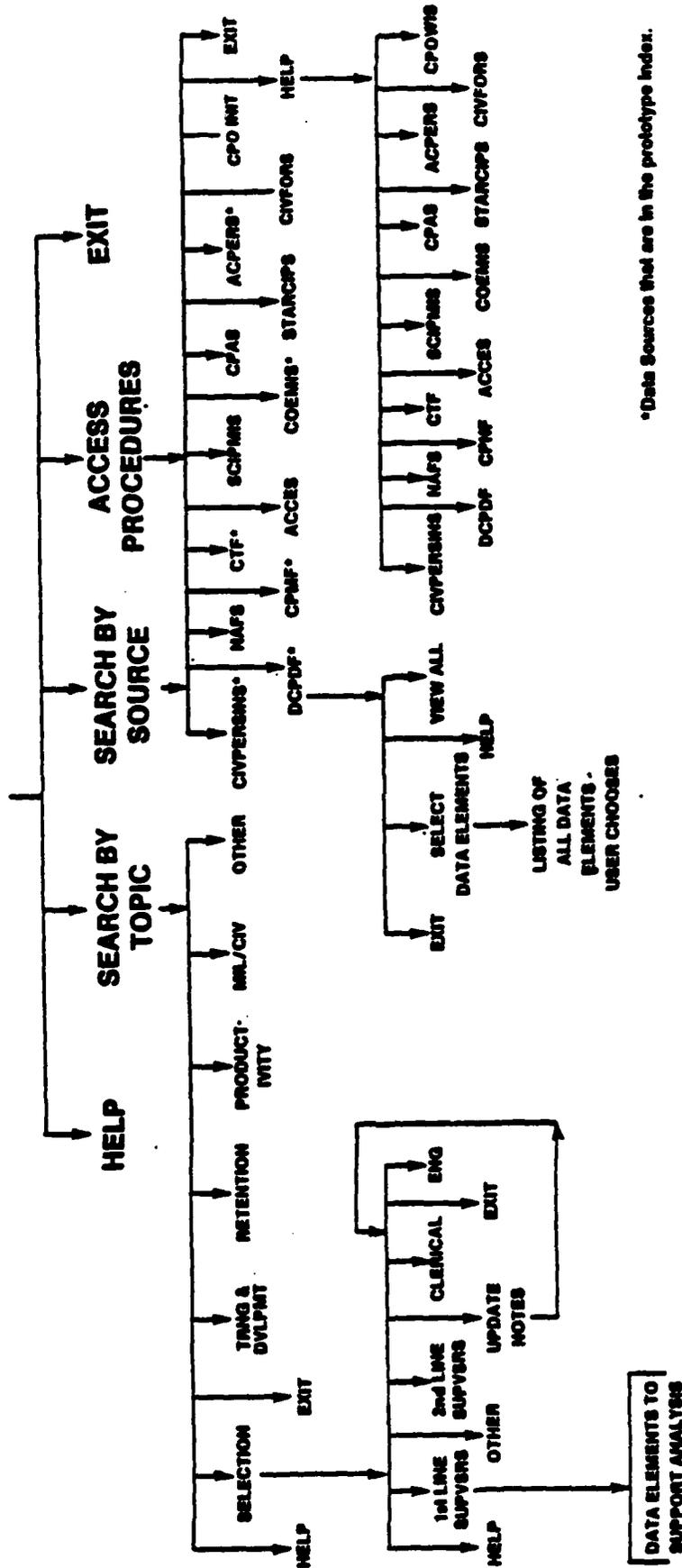
Figure 9. Data Index screen map.
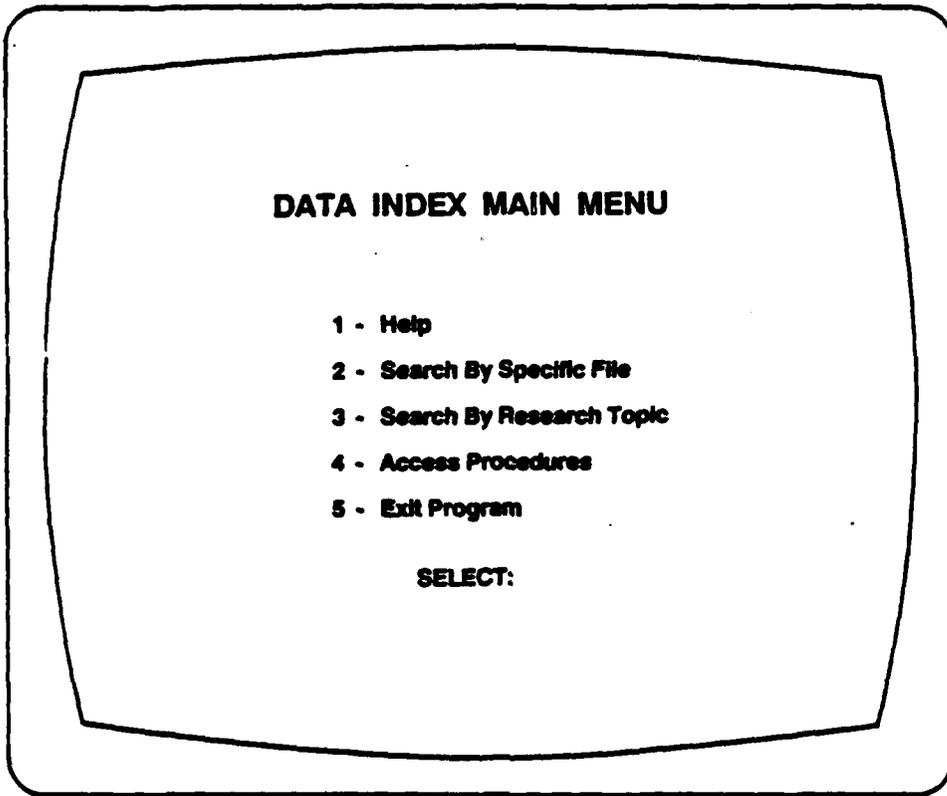
Figure 10.   Data index main menu screen.
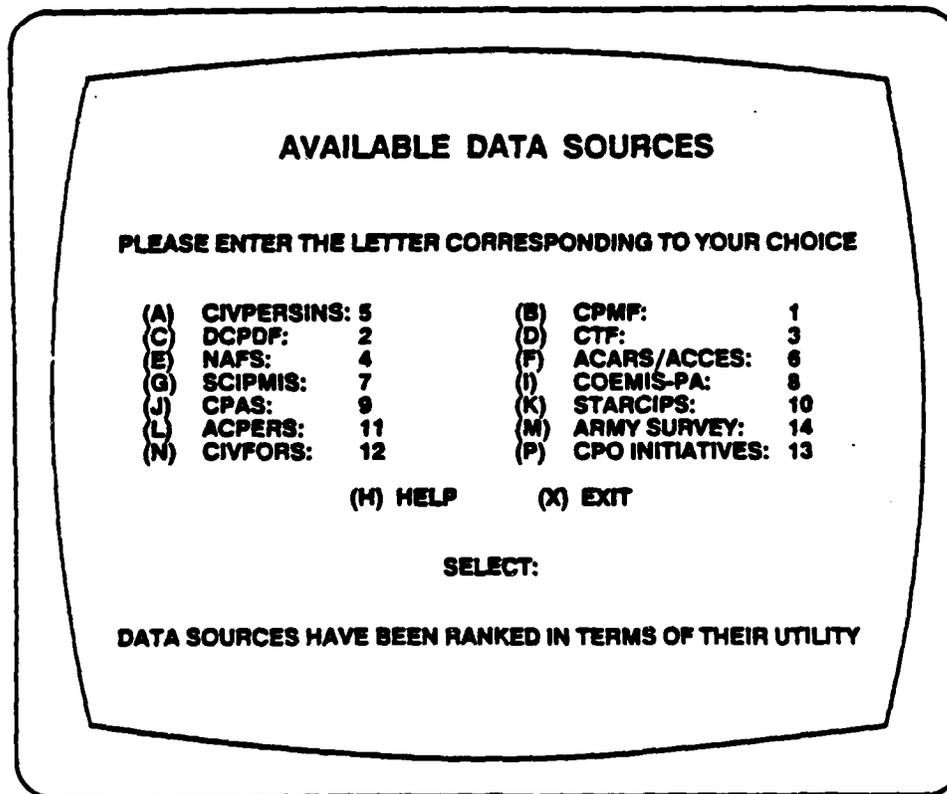
Figure 11.   Menu screen for data sources.

Search by topic. The second search option available is by topic. If the user selects the option of search by topic (e.g., to search for data for a policy or management decision, or to perform research on a topic), then the index displays the screen that lists the topics available (Figure 12). The prototype data index has place-holders for the some of the topics identified in previous research, with space for users to insert others. For example, future users may want to evaluate new personnel data bases, and thus may catalog their evaluation data.

If the user chooses the topic of selection measures, the index displays the subtopics for selection. The prototype has a predetermined list of subtopics; it has the measures pertaining to the selection of first-line supervisors and place-holders for the other subtopics (Figure 13). Once a subtopic is selected, all data elements relating to it are displayed. These data elements may be found in various data sources. At this point, the information being displayed by the data index is the most specific information available on the data elements. It first displays the data from that source considered to be the most useful.

TOPICS AVAILABLE

PLEASE ENTER THE LETTER CORRESPONDING TO YOUR CHOICE

(A) SELECTION MEASURES
(B) RETENTION
(C) RECRUITMENT
(D) PERSONNEL DEVELOPMENT
(E) MOTIVATIONAL PRODUCTIVITY
(F) ORGANIZATIONAL PRODUCTIVITY
(G) MILITARY-CIVILIAN RELATIONSHIP
(J) CIVILIAN FUNCTIONS
(K) FUTURE WORK FORCE TRENDS

(I) PROGRAM INITIATIVES RELATED TO ABOVE TOPICS

(H) HELP   (X) EXIT

SELECT: __

Figure 12. Menu screen for topics.

```
  ┌─────────────────────────────────────────────┐
  │   ╭───────────────────────────────────────╮  │
  │  ╱                                          ╲ │
  │ │                                            ││
  │ │   AVAILABLE SUBTOPICS FOR:  SELECTION MEASURE│
  │ │                                            ││
  │ │                                            ││
  │ │   PLEASE ENTER THE LETTER CORRESPONDING TO YOUR CHOICE │
  │ │                                            ││
  │ │                                            ││
  │ │      (A)  Selection of First-Line Supervisors │
  │ │      (B)  Selection of Second-Line Supervisors│
  │ │      (C)  Selection of Clerical Employees   ││
  │ │      (D)  Selection of Engineers            ││
  │ │      (E)  Other                             ││
  │ │                                            ││
  │ │                                            ││
  │ │   (H) HELP     (U) UPDATE NOTES     (X) EXIT││
  │ │                                            ││
  │ │              SELECT: A                      ││
  │ │                                            ││
  │  ╲                                          ╱ │
  │   ╰───────────────────────────────────────╯  │
  └─────────────────────────────────────────────┘
```

Figure 13. Available subtopics for selection measures.

Figure 14 shows the information on one data element of possible value for the selection of first-line supervisors. This item from the CPMF, "position, supervisory," is defined as "The nature of management, supervisory, or non-supervisory responsibility assigned to a position; and, identification of an employee as high potential" (Department of the Army, 1986, AR 680-30, page 63). One of the codes for this data item is "6 - Employee has been formally identified as having high potential for promotion or reassignment to a managerial position... and currently does not occupy a supervisory position as defined in the Supervisory Grade Evaluation Guide" (Department of the Army, 1986, AR 680-330, p. 64). On the surface, the item appears suitable selection of first-line supervisors. However, raters do not use all of the codes, and often enter codes that pertain to the position, and not to the incumbent; therefore, this item is not a reliable one.

```
┌─────────────────────────────────────────────────────────────┐
│ DATA FILE:  CIVPERSINS*                    ELEMENT NO. 1 OF 90 │
│                                                               │
│                UTILITY RANK OF DATA FILE:  5                  │
│  ┌─────────────────────────────────────────────────────────┐ │
│  │ Data Element:  Position Supervisory                      │ │
│  │                                                          │ │
│  │ Abbreviation:                   Format:  One Alpha/Numeric│ │
│  │                                                          │ │
│  │ Format/Position in File:                                 │ │
│  │                                                          │ │
│  │ Current Assessment of Validity Parameters:               │ │
│  │           (Applies only when selected for a specific topic)│ │
│  │                                                          │ │
│  │ Available:      Feasible      Acceptable:      Relevant: │ │
│  │                                                          │ │
│  │ Accurate:       Comments:                                │ │
│  │ Reliable:       Comments:                                │ │
│  │                                                          │ │
│  │ Description:    The nature of managerial, supervisory, or non supervisory│ │
│  │                 responsibility assigned to a position; and, identification│ │
│  │                 of an employee as high potential.        │ │
│  │                                                          │ │
│  │ Other Sources:                                           │ │
│  └─────────────────────────────────────────────────────────┘ │
│                                                               │
│  (F) Forward    (B) Backward   (M) More Information   (X) Exit Select [ ] │
└─────────────────────────────────────────────────────────────┘
```

Figure 14. Data element screen for supervisory position.

User's Manual for the Prototype Data Index

Appendix B presents a set of user instructions. The instructions
explain how to select a series of menus to guide the user through the
various data sources and ultimately to the appropriate data. The process is
similar to the series of menu screens that are used on the FORECAST system.
Users who are familiar with FORECAST should be able to operate the data
index in a very short time. The manual discusses system hardware and
software requirements, installation procedures, and operation of the data
index.

To operate the data index a user must already have installed on a hard
disk the dBase III(plus) software. Since this is the primary data base
management system used by the DCSPER, we assume that all users have access
to it and are familiar with its operation. The only other system
requirement for the data index is at least an additional 2.5 megabytes of
space on the hard disk.

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Conclusions

After the initial search and analysis of the available data sources, we incorporated the information into a data index. The data index prototype that we delivered to the Army now allows the user to search for information in a particular data source or to search for the best available data elements for a particular research topic. Data in the index potentially address all of the issues identified by Woolley, et al. (1986); for example, data in CIVFORS pertain to manpower issues that were not chosen for research in this program. Army policy makers, therefore, can use the index to search for a broad range of data.

The data index provides a system of indexing that gives us a structured catalog of information that we can quickly and easily access to use for the current program of research. The data index focuses on the selection and training issues chosen for this program. The first issue is selection and training of first-line supervisors. We will incorporate new information as we gather it for research purposes (e.g., supervisors at levels above first-line).

Because we were constrained to the use of existing software available to the Army, we developed the data index as a unique application of the dBaseIII(plus) data base management system. Using the rules of that system we developed menus that allow any user with dBase III(plus) to operate the data index. That particular data base management system was chosen because it is used by DCP analysts.

During the next year of research in this program, we will complete Levels 2 and 3, and provide a complete index by the end of fiscal year 1989. The product package will contain magnetic disks, the user's manual, and complete documentation in final form. It will give the user a guide to selecting data for specific research topics and a guide to accessing data sources. However, the prototype is operational and can be used by the Army now. We welcome their feedback as users exercise the index. The usefulness of this index is measured in user application and we need user feedback to enhance that use.

SUMMARY

The major product of this first stage of the personnel measures project is the prototype data index. Other, interim products required to focus on selected problems and to allocate resources were the cost/benefit and systems analyses. The methods ensured that the results met the objectives of clarifying the focus of the program, assessing the existing data sources, and allocating resources to projects of the greatest benefit to the Army. The following paragraphs summarize the methods, products, and suggestions concerning their use.

The Data Index

The data index catalogs the Army civilian personnel data sources and data elements. The prototype contains only part of the ultimate content. Production of the index will continue during the second year of the program, and the user's manual will be revised.

The data index can serve multiple purposes, as indicated by the two search options. The index serves management by mapping existing data and data sources against information requirements. The results integrate records (e.g., ACPERS), and projection data (e.g., CIVFORS) to provide an information tool that is responsive to Army decision-making and management needs. New data can be integrated as desired.

This index also serves research on specific personnel topics and guides decisions for further data collection. By using the index, researchers can identify existing data pertaining to personnel issues. In some cases, the index indicates that little, if any, information exists. In these instances, research may be conducted to collect the needed information. In other cases, data may exist but may not be of sufficient quality to use. Assessments of the quality of the data are preliminary in the prototype.

Lessons learned in the course of developing the data index include the need of safeguarding and documenting data bases. Plans for analyzing the Army-wide survey data had to be dropped because the tapes did not contain the data and were not documented.

Systems Analysis and Its Role in the Research

The purpose of the systems analysis is to provide a conceptual framework for this Army civilian personnel management research program. The requirements for research must be derived specifically from the functions and needs of the Army civilian personnel decision makers. The systems analysis integrated previous research (e.g., linkages of Woolley, et al. [1986] and prioritization reports), and identified the system-wide impact of a particular research project. The results describe the environment in which the civilian personnel system operates to support the Army in accomplishing its national security mission. We use the results to provide a context and for focusing analyses and applications of our research. Appendix A presents the method and results.

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Cost/Benefit Analysis for Selecting Problems for Research

A general and powerful Resource Allocation Method (RAM) formed the basis for the cost/benefit analysis to select the problem areas for research. The goal of RAM is to aid the decision maker in determining whether resources should be allocated to a project; and, if so, the level of resources that would yield the greatest benefit for the cost. This approach is especially useful in designing a system that must satisfy several requirements. The RAM simultaneously weights the costs and benefits of various options. It aids decision making by describing for the decision maker the relative costs and benefits of each option.

The RAM in this instance analyzed the benefit and cost data from previous Army prioritization reports, and merged them with current management priorities. Final areas chosen were three defined in the prioritization reports. In the rank order given by the sponsor's priorities they were:

Q9: Identifying good candidates for supervisory and managerial positions

Q10: Developing supervisory, managerial, and leadership skills

Q2: Selecting candidates who have potential for high performance from the pool of qualified applicants

The initial topic for research was that of selecting first-line supervisors. That work, which continues into the second year of the program, will be reported separately when it is completed. Subsequent decisions by the government limited the research areas to selection and training of leaders, supervisors, and managers rather than entry-level personnel.

Overview of the Program

The final program has three research areas, leading to an integrated system for Army civilian personnel selection and training.

1. **Personnel measures.** During the first year of this research program, cost/benefit and system analyses were used to identify specific research projects which would be most beneficial to the Army. Existing data and information sources applicable to these specific research projects were documented and put into a prototype data index. This index will be completed in FY89.

2. **Leader selection.** Efforts in this area will be dedicated to researching and developing procedures to select highly effective leaders for Army civilian supervisory and management positions. The current focus of this research is on the development of improved procedures for the selection of first-line supervisors. This will continue to be a focus during FY89.

3. **Leader training and development.** The focus here will be on researching and designing training and career development procedures that

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will supply superior Army civilian personnel leaders, supervisors, and managers in response to mission requirements.

In summary, this program will develop leadership selection, training and development procedures, and assess existing sources of data which are applicable to this research. We are publishing separately a research plan that describes the personnel measures, leader selection and leader training and development activities in detail for fiscal year 1989 and in general, for all remaining years. Research recommendations also are presented in that manuscript.

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APPENDIX A

SYSTEMS ANALYSIS FOR CONCEPTUALIZATION OF THE ARMY
CIVILIAN PERSONNEL SYSTEM

Rationale and Assumptions

This task sets the conceptual context for the overall research program. The first activity was to select from among the host of potential projects a few specific ones to accomplish in this research. We assume that the research should improve the ability of the Army civilian personnel system to support the Army and, in turn, to contribute to the nation's national security objectives and operations. We concluded that a systems analysis of the national security system provides the best context in which to frame the research effort. Establishing a systems context helps ensure that the selected topics represent the most valuable use of the Army's resources. Thus, we used an analytical technique to view the elements of the civilian manpower and personnel systems on which we are working in the context of the larger systems of which they are a part. This appendix summarizes the procedure and findings.

Method

We selected a top-down, structured, hierarchical systems analysis method called IDEF. The Integrated Computer-Aided Manufacturing Office (ICAM) developed IDEF (ICAM DEFinition) as a tool to analyze and describe system functions and data (SofTech, Inc., 1981). IDEF is a systems analysis technique that enables people to understand complex systems, and to communicate their understanding to others. IDEF describes the system functions performed by decomposing the system into its components, stating how each component processes information, and specifying how different components interact. A method such as IDEF allows an accurate and rigorous systems analysis and problem definition.

This technique requires analysts with functional expertise to decompose an overall system into its component parts focusing on the functional elements of primary relevance to the research being conducted. We drew on previous research and the expertise of the research staff to develop an analytical structure of the context for the Army civilian personnel system. The previous research includes in-depth analyses of the national security system, defense manpower and personnel systems, the Civil Service System, command and management in DOD and the Army, mobilization, readiness, and other relevant subjects.

Figure A-1 depicts the initial broad systems overview and illustrates how this overview decreases in perspective as the systems analysis increases in detail. In developing the context structure, we decomposed the national security system into its component parts. We focused on the components that lead to the civilian personnel system and then decomposed that system into

SYSTEM ANALYSIS FOCUS   OVERALL SYSTEM
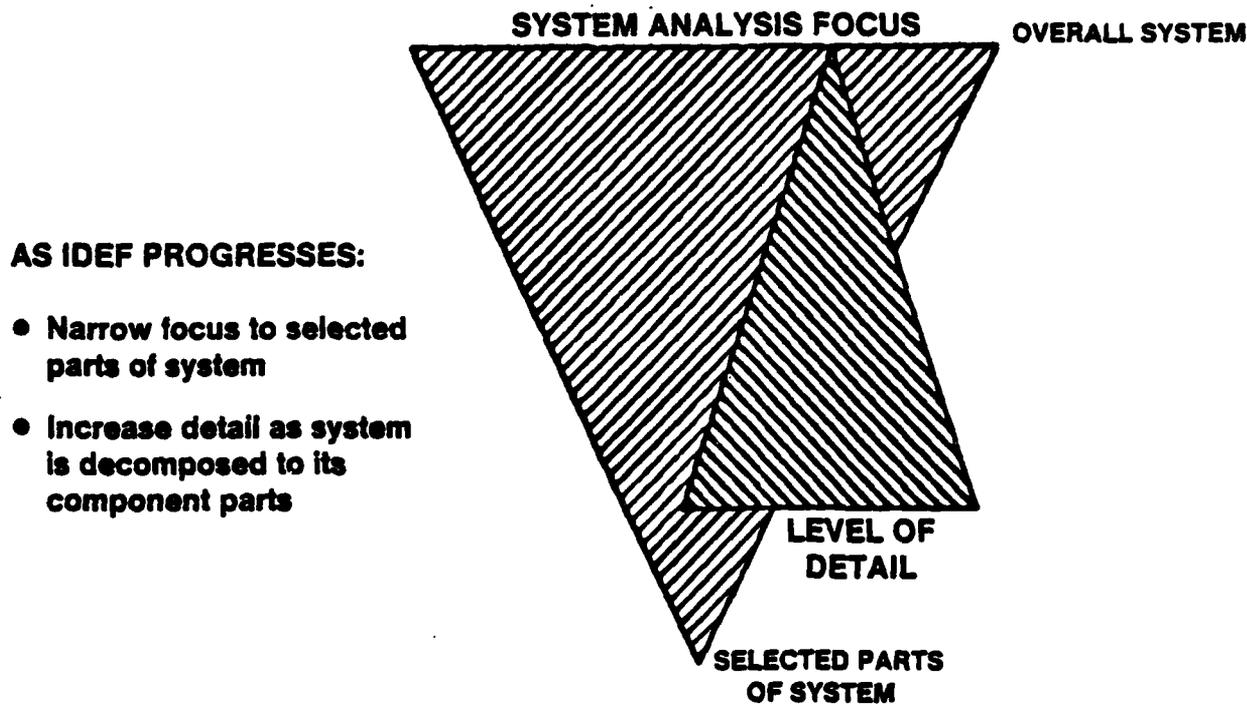
AS IDEF PROGRESSES:

● Narrow focus to selected parts of system

● Increase detail as system is decomposed to its component parts

LEVEL OF DETAIL

SELECTED PARTS OF SYSTEM

Figure A-1.   IDEF goes from the general to the specific.

its primary elements. For each element in that chain, we analyzed subelements that comprise that element. The results helped in identifying the relationships of particular research projects to each other and the impact of each project on other components of the system.

We have applied IDEF in past research to clarify relationships among system functions and to focus product development. The technique has proven especially useful in cases where the objective is to develop a product for government users to implement. In some cases, the products have been procedures and instruments to assist policy makers (Elder, Sticha, DeYoe, Napolitano, Knerr, Blacksten, & Barnes, 1986). In other cases, the products have been new decision support systems or training data analysis tools (Sticha, Blacksten, Buede, Singer, Gilligan, Mumaw, & Morrison, 1988; DeYoe, Elder, Knerr, & Rositol, 1987). IDEF was initially developed to aid design for manufacturing defense systems. It has also been validated, however, for human-machine simulations such as operation of surface-to-air missiles (Bachert, Evers, Hoyland, & Rolek, 1982). The current application was curtailed at the request of the government; thus, most of the potential benefits were not realized. Benefits were restricted to achieving the program focus, within the research staff, during the two days dedicated to conducting the IDEF analysis.

IDEF Procedures and Notation

This section presents IDEF procedures, conventions and notation, abstracted from an application to military training data systems (Elder, et

A-2

al., 1986). The objective in this example was to describe existing Army and Air Force data bases, to improve their use by military policy makers. IDEF portrays the system decomposition as a series of related diagrams; each diagram describes a component or function.

IDEF decomposes the system from the top down. As Figure A-2 illustrates, it starts with the overall system at a very general level. As the analysis progresses, it narrows the focus of the parts being analyzed and expands the level of detail. The top level is the most general description of the system, represented in a diagram as a single box; that box is subsequently broken into a number of more detailed boxes, each of which represents a component part. The component parts are then detailed, each on another diagram, and so forth, until the system is described to the desired level of detail. Lower-level diagrams are detailed components of higher-level diagrams. At each stage, the higher-level diagram is the "parent" of the lower-level "detail" diagrams. The process ends when the analyst reaches the part of the system and level of detail needed for the research goals. Figure A-2 shows the relationship between diagrams at different levels.

IDEF diagrams use a two-page format. The subject diagram is shown on the top of the right page. The parent of the subject diagram, shown on the top of the left page, indicates the location of the subject node. On the bottom half of both pages is text describing the operations performed by each activity represented in the diagram.

IDEF diagrams show the component parts as numbered boxes. The place of each diagram in a model is indicated by a "node number" derived from the numbering of boxes. For example, A21 is the diagram which details the first box (box 1) in the A2 diagram. Similarly, A2 details box 2 on the A0 diagram, which is the top diagram of the model. A node list, an index of diagram names in the hierarchy, serves as a table of contents. Figures A-3 and A-4 demonstrate the notation for the example problems of developing a data system (Elder, et al. 1986). The example in Figure A-3 shows that "Develop system" (A0) has three sub-functions, A1 through A3. "Design system" (A2) has three more detailed sub-functions (A21 through A23).

IDEF diagrams contain boxes and arrows. IDEF boxes represent component functions or activities, and arrows represent relationships between them. Labels inside each box (verbs) and along each arrow (nouns) describe their meaning (Figure A-4). The arrow structure of an IDEF diagram represents a constraint relationship among boxes. It does not represent flow of control or sequence. The arrows entering a box show all that is needed by the box to perform its function. Therefore, the box is constrained by its inputs and controls.

The side where an arrow enters or leaves a box shows its role as an input, control, output, or mechanism for the box (Figure A-5). Inputs and outputs represent <u>what</u> is done by the process, controls represent <u>why</u> it is done, and mechanisms represent <u>how</u> it is done.

- Input: Arrows entering from the left represent inputs (raw materials or data used by the activity).
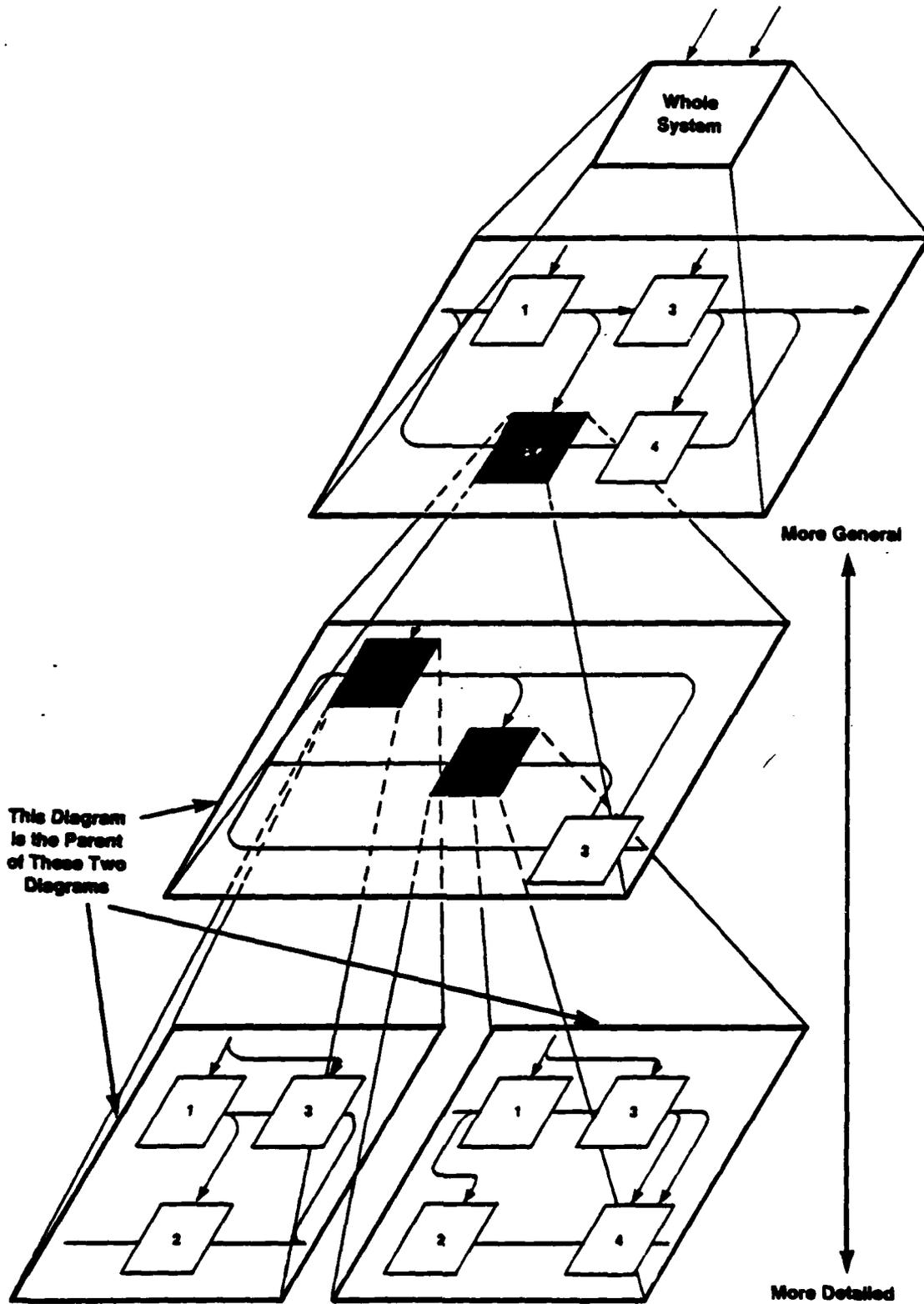
Figure A-2. Example of a hierarchical, top-down model.

LEVELS OF DIAGRAMS
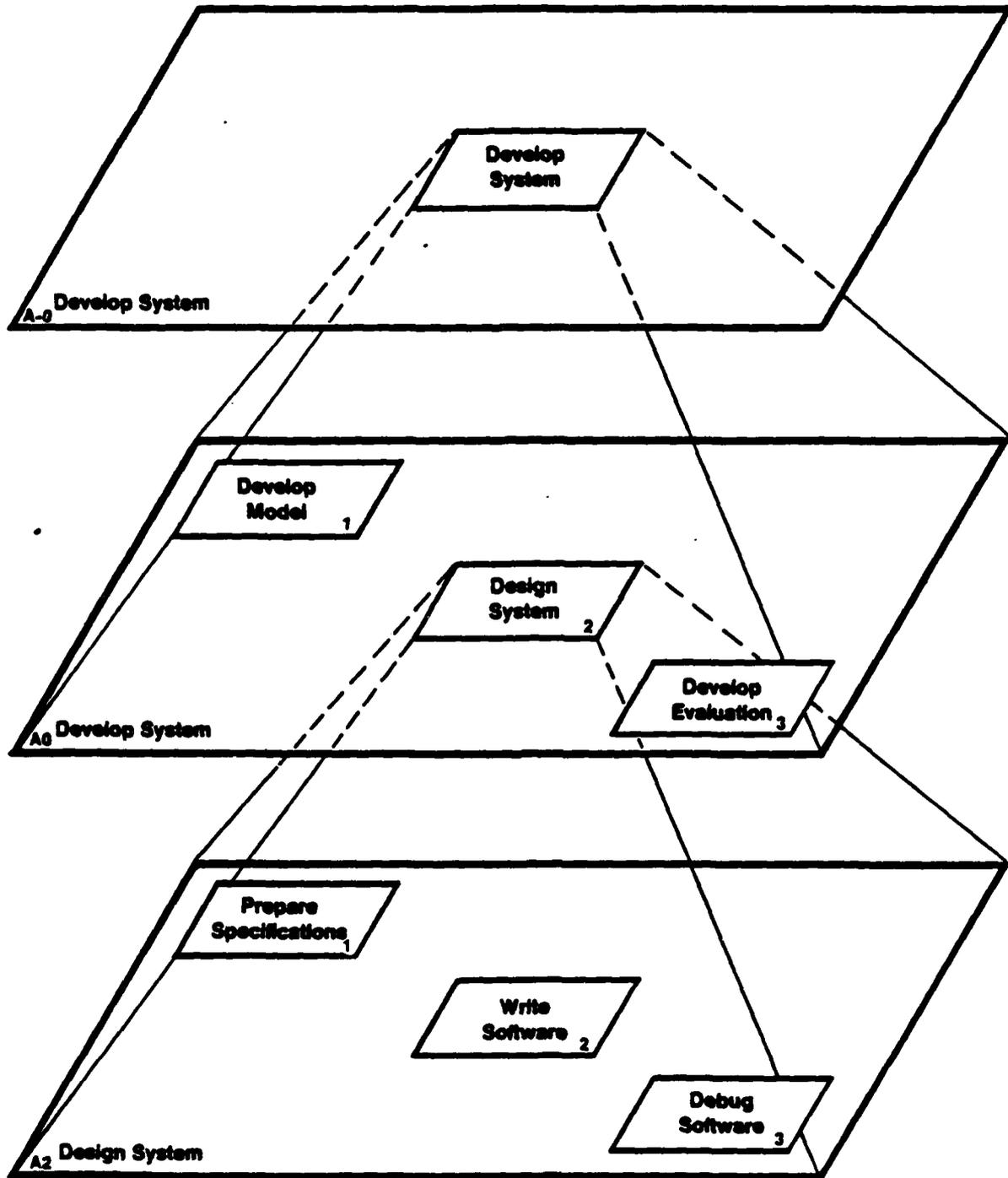
Figure A-3. IDEF node numbering convention.
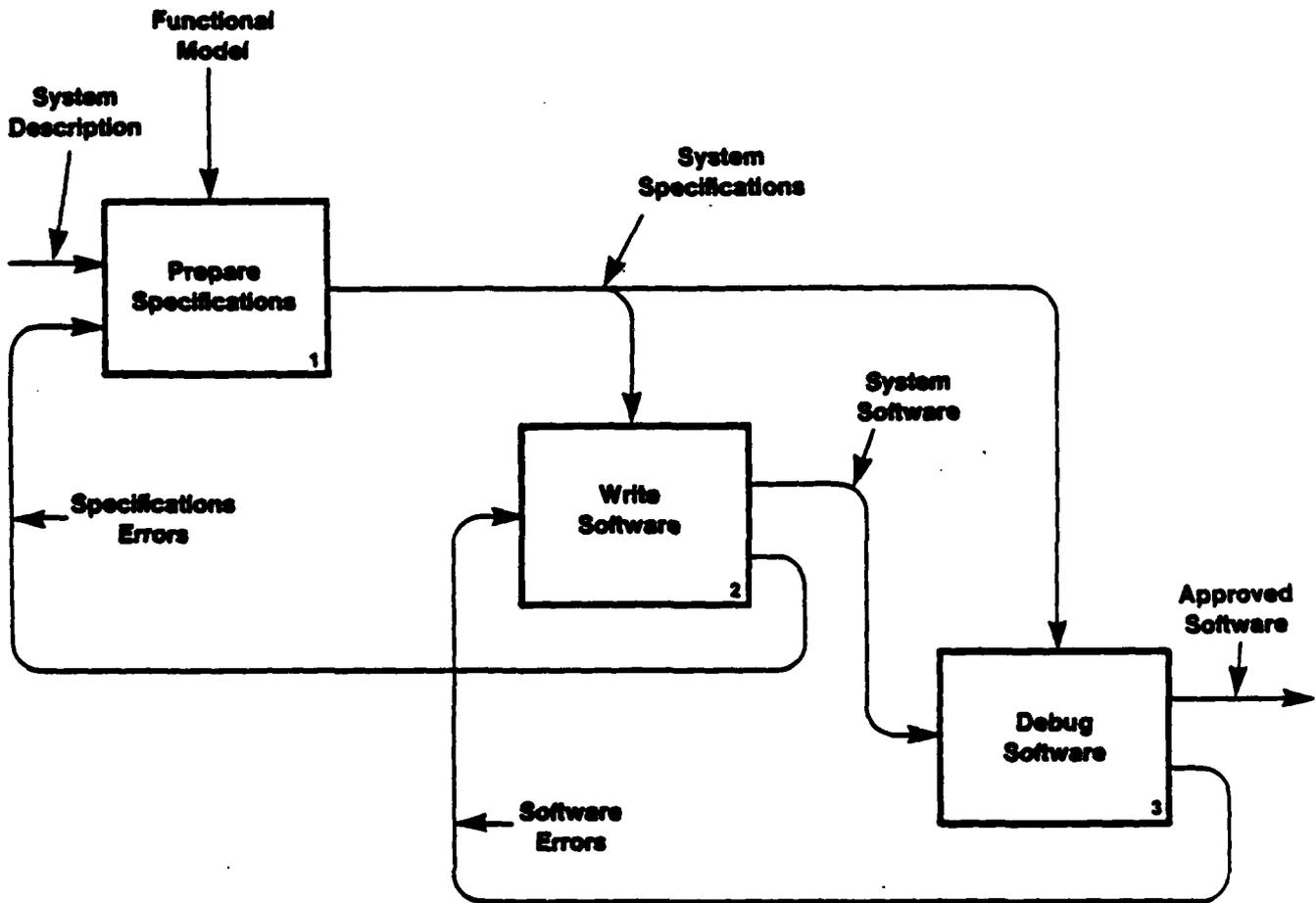
Figure A-4. Sample IDEF diagram.
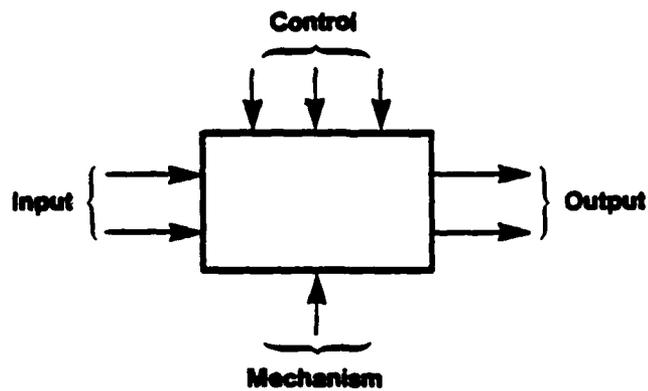
Figure A-5. Sample IDEF diagram showing box and arrow syntax.

- Output: The outputs are represented by arrows that emanate from the right side of the box.

- Controls: Arrows entering a box from the top represent controls on the activity. Controls are data that provide catalysts or constraints for the represented activity.

- Mechanisms: Arrows that enter a box from the bottom represent mechanisms. Mechanisms are the agents that perform the activities represented in the box.

Some arrows show both their source and destination boxes on the same diagram, while others have one end unconnected (Figure A-6). The unconnected arrows represent inputs, controls, or outputs of the parent box. To find the source or destination of these unconnected arrows, the reader must locate the matching arrows on the parent diagram. All unconnected arrows must continue on the parent for the diagrams to be complete.
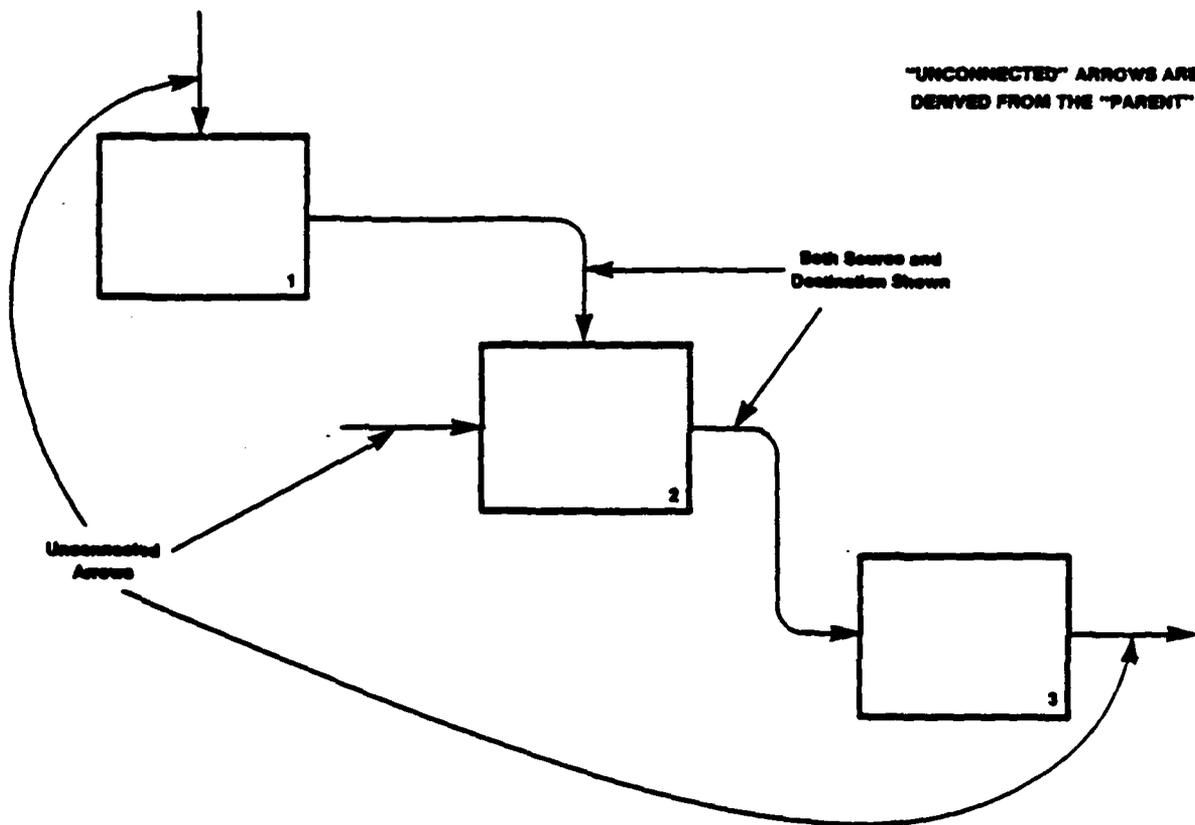
Figure A-6.   Sample IDEF diagram showing source and destination.

Although arrow connections from parent-to-detail diagrams may be obvious from the labels, a special notation allows users to match them. Unconnected arrows relate to the arrows in the parent diagram. The number of the arrow is preceded by an I (input), C (control), M (mechanism), or O (output) to indicate what it represents in the original diagram. Thus, an arrow labeled "C1" is the first control listed in the original diagram. Similarly, an arrow labeled "O3" is the third output in the original diagram.

Some data elements serve as input to some subactivities, and controls for others. In this case, the data are represented as a control in the parent diagram, and as a control and input in the detailed diagram. Both the input and control arrows in the detailed diagram will have the label that corresponds to the control in the parent diagram (e.g., C2).

Results

We now move from a general description of the IDEF method to the analysis for the Army civilian personnel system as part of the National Security System (NSS). This section starts with figures that summarize the hierarchical structure (Figure A-7) and list the nodes (Figure A-8). The diagrams in the remainder of this appendix use the IDEF numbering conventions.

The IDEF tree for this application begins with a single box for the National Security System. Figure A-7 shows that we did not decompose all of the elements in the top five boxes in the hierarchy; we do not need the details for those components, and therefore we simplified the analysis.

However, at the function called "Provide Civilian Manpower" we decompose all elements as they relate to the civilian personnel system. Each Army civilian personnel management function or process is divided, hierarchically, to the smallest elements necessary for the appropriate understanding of that process. Each diagram is accompanied by text that describes what the diagram represents.

Ten nodes comprise the analyses (Figure A-8). Nodes at the same level with the same parent have the same level of indentation. Figure A-8 serves as an index to the IDEF analyses.

Node A-0 is the overall, single box system. Node A0 decomposes Node A-0 into its primary components. "Develop Forces" is box 4 on Node A-0 and becomes Node A4. Single node decompensation continues until we reach Node A4123, "Provide Civilian Manpower." We decompose that node into its three components (A41231, Acquire Civilian Manpower; A41232, Maintain Workforce; A41233, Process Losses). This section describes each of these nodes, and one node of Maintain Workforce, Node A412322, "Manage Local Workforce." Thus, the nodes stop with the one that focuses on the broad areas chosen for this research program, but includes functions above that node, including the ones identified by Woolley, et al. (1986).
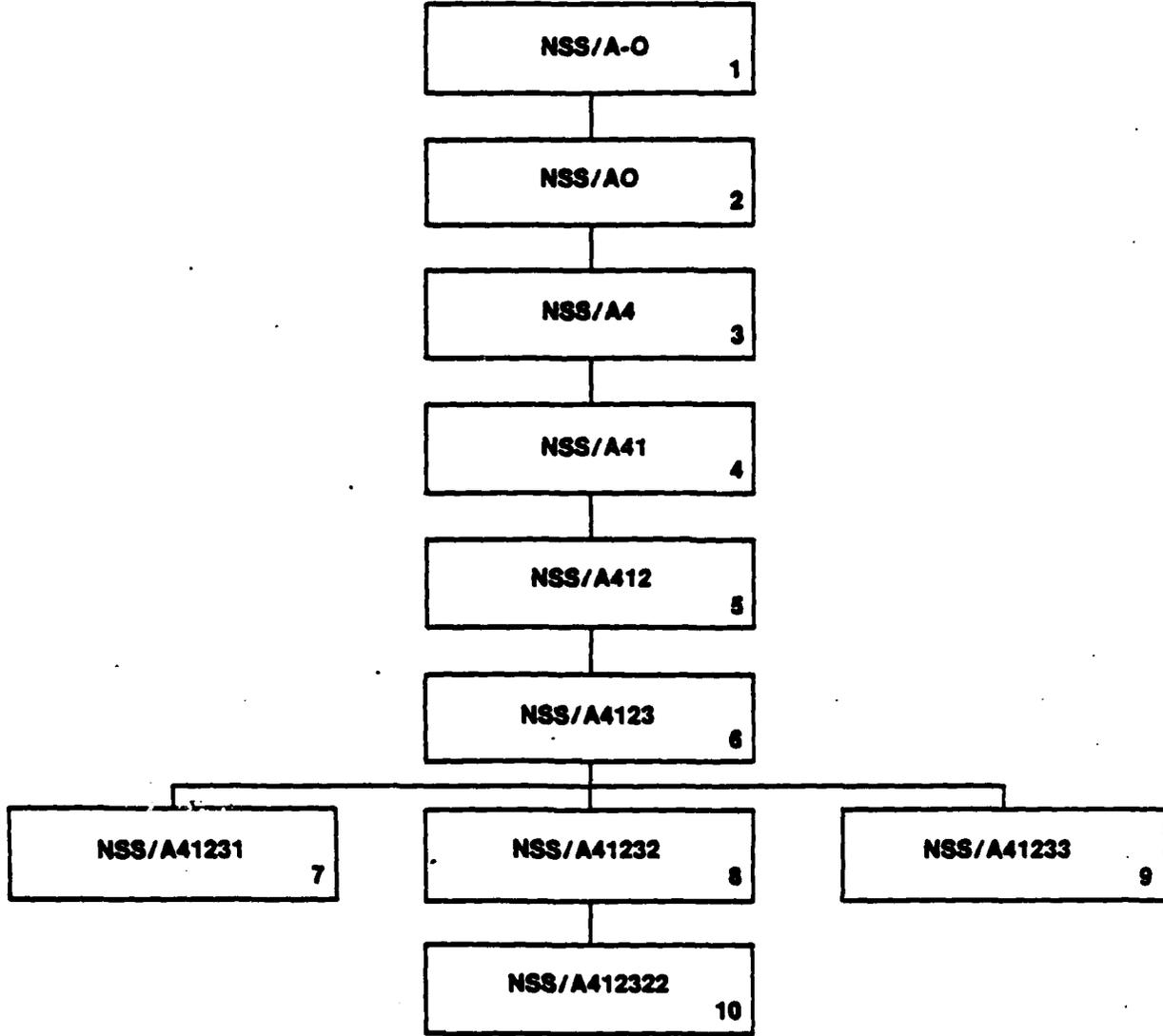
Figure A-7.   IDEF node numbering convention.

```
NSSA/A-0:  National Security System (No. 1)

NSS/AO:  Provide National Security No. 2)
   |
   L►NSS/A4:  Develop Forces (No. 3)
        |
        L►NSS/A41:  Develop Land Forces (No. 4)
             |
             L►NSS/A412:  Provide Manpower (No. 5)
                  |
                  L►NSS/A4123:  Provide Civilian Manpower (No. 6)
                       |
                       |►NSS/A41231:  Acquire Employees (No. 7)
                       |
                       |►NSS/A41232:  Maintain Workforce (No. 8)
                       |    |
                       |    L►NSS/A412322:  Manage Local Workforce (No. 10)
                       |
                       L►NSS/A41233:  Process Losses (No. 9)
```
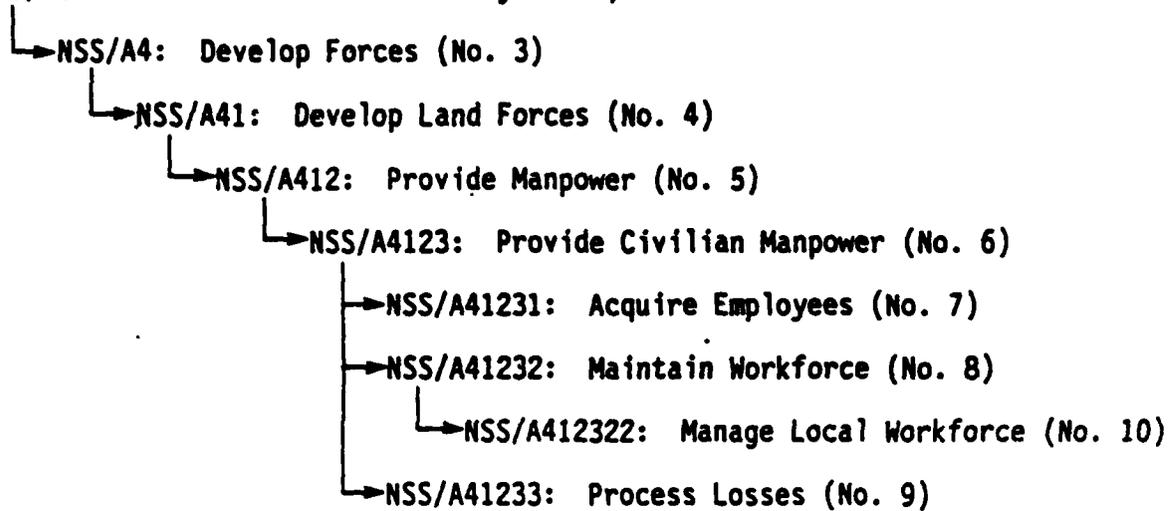
Figure A-8. IDEF node list for the National Security System description.

NSS/A-0 NATIONAL SECURITY SYSTEM (No. 1)

The purpose of the National Security System is to provide national
security to the United States. It involves all of the government agencies
that contribute to national security, but the primary agency is the
Department of Defense.

In providing national security, the function must establish national
security objectives, assess potential threats, make national security
decisions, develop forces, and execute the national security policy.

The outputs of the process are deterrence, defense, and force
projection. Deterrence prevents potential adversaries from taking actions
that threaten the security of the United States by making the potential
adversaries consider the potential benefit from their adverse action not
worth the risks that they would incur. Defense provides the ability to
withstand the adverse actions if they are taken. Force projection provides
the means to implement offensive national security policies.

NOTE: The headings and IDEF diagrams in the remainder of this Appendix use
the IDEF conventions. The headings are all bold capital letters, and the
diagrams do not have figure names and numbers. Additional figure names and
numbers would be redundant with the Node names and numbers.

```
                    C2              C3
          C1      Executive     Congressional        C4
          Laws    Directives    Authorizations    International
                  & Regulations & Appropriations   Developments
           │          │              │                │
           ▼          ▼              ▼                ▼
      ┌─────────────────────────────────────────────────────┐
 I1 Information ──►                                          ──► O1 Deterence
                  │                                          │
 I2 People     ──►│        PROVIDE NATIONAL SECURITY         │──► O2 Defense
                  │                                          │
 I3 S          ──►│                                          │──► O3 Force Projection
                  │                                          │
 I4 Materiel   ──►│                                          │
      └─────────────────────────────────────────────────────┘
           ▲          ▲              ▲          ▲        ▲
           │          │              │          │        │
          M1         M2             M3         M4       M5
          C4I        Joint          PPBS       Service  CINC
          Sys        Planning       Resource   Acquisition Operations
                     Sys            Mgt Sys    Training &
                                               Support Sys
```

NODE NSS/A-O	TITLE: NATIONAL SECURITY SYSTEM	NO. 1

The four major controlling components from outside the system are:
(1) Laws, (2) Executive Directives and Regulations, (3) Congressional
Authorizations and Appropriations, and (4) International Developments.

The national security system employs the following five major
mechanisms to provide national security: (1) Command, Control,
Communications, Computers, and Intelligence (C4I); (2) The Joint Planning
System, (3) Resource Management Systems; (4) the Military Services
Acquisition, Training, and Supports Systems; and (5) the Operations of the
Unified and Specified Commanders.

The National Security System provides national security using national
resources and the above mechanism and controls. The national resources
input to the system include information, people, materiel, and dollars.

```
                        C2              C3
                   Executive       Congressional
           C1      Directives      Authorizations        C4
          Laws    & Regulations   & Appropriations   International
                                                      Developments

                         │               │               │               │
                         ▼               ▼               ▼               ▼

I1 Information  ──►  ┌─────────────────────────────────────────┐  ──►  O1 Deterence
                    │                                           │
I2 People      ──►  │        PROVIDE NATIONAL SECURITY          │  ──►  O2 Defense
                    │                                           │
I3 S           ──►  │                                           │  ──►  O3 Force Projection
                    │                                           │
I4 Materiel    ──►  └─────────────────────────────────────────┘

                     ▲        ▲        ▲          ▲           ▲

                    M1       M2       M3         M4          M5
                    C4I      Joint    PPBS       Service     CINC
                    Sys      Planning Resource   Acquisition Operations
                             Sys      Mgt Sys    Training &
                                                 Support Sys
```

NODE NSS/A-0	TITLE: NATIONAL SECURITY SYSTEM	NO. 1

NSS/A0   PROVIDE NATIONAL SECURITY   (No. 2)

This figure decomposes NSS/A-0, showing the five primary components needed to provide national security.

NSS/A1   ASSESS THREATS. The C4I systems provide information on international developments and other factors that are potential threats to national security. The National Command Authority and risk evaluators at lower levels make estimates of the risk to national security of specific situations as they develop. They make these estimates in the context of the world situation as provided by the C4I systems and other available information.   The validity, availability, and credibility of the information represent the major constraint of the risk assessment process. The resulting risk estimates are inputs to national security decision making and represent major constraints on establishing objectives and executing national security plans and policies.

NSS/A2   ESTABLISH NATIONAL SECURITY OBJECTIVES. This function focuses on the ultimate goals of the national security process. It processes information using the C4I, Joint Planning and Resource Management mechanisms to produce national security objectives. In addition to the Executive and Congressional controls shown on the parent node, it must consider the risk assessment and international developments (to include the potential effect its objectives may have on international relations and the world situation). The last constraints on objectives are the nation's warfighting capabilities and limitations. This stage in the process considers capabilities and limitations in a very general sense.

Warfighting Capabilities/Limitations

Risk Estimate

C1 C2 C4

Objectives

C1 C2 C3 C4

Make National Security Decisions 3

Priorities

Guidance/Policies

Plans

C1 C2 C3 C4

Establish National Security Objectives 2

I1

Execute National Security Plans 5

O1
O2
O3

M1 M2 M3

I1

Assess Threats 1

M1 M2 M3

I1
C4

Risk Estimate

M1

C1 C2 C3

M1 M2 M5

I2
I3
I4

Develop Forces 4

Armed Forces

M3   M4

Force Requirements & Tasking

NODE NSS/A0	TITLE: PROVIDE NATIONAL SECURITY	NO. 2

NSS/A3 MAKE NATIONAL SECURITY DECISIONS

This function focuses on specific decisions to control the use of forces to achieve the nation's security objectives in view of the existing threats, capabilities, and limitations. At the highest level this function is performed by the National Command Authority. The decision-makers at all levels use the information, planning, and management systems available to them to make and communicate their decisions.

NSS/A4 DEVELOP FORCES. The Armed Services have the responsibility to create, prepare, and deploy armed forces. The inputs are people, materiel, and money. The primary mechanism are their acquisition, training and support systems. They use their resource management systems to control the flow of resources to their primary force development systems. The remaining IDEF analysis focuses on decomposing functions in this node.

NSS/A5 EXECUTE NATIONAL SECURITY PLANS. This node uses the armed forces to execute national security plans subject to the priorities, guidance, policies, risk assessments, and international developments. At the highest level, this function is performed by the Unified and Specified Commanders and their respective staffs. The CINCs and their operational commanders in the field depend on the C4I for operational information and intelligence and on the joint planning systems for operational plans. This node provides three major outputs: (1) deterrence, (2) defense, and (3) force projection; and two additional outputs: (1) the operational assessment of the nation's warfighting capabilities and limitations, and (2) the force requirements and tasking. These outputs are important inputs and constraints to other nodes in the system.

A-13

NODE NSS/A0	TITLE: PROVIDE NATIONAL SECURITY	NO. 2
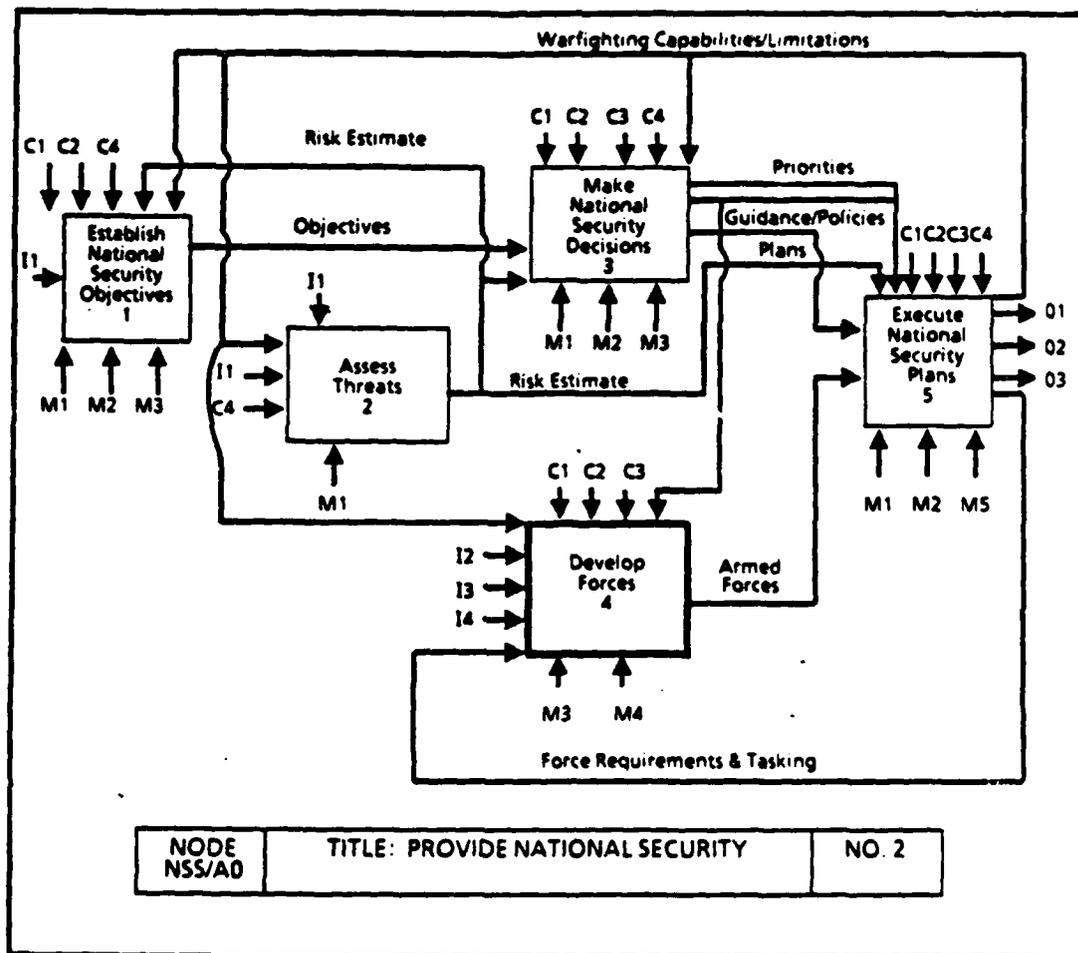
NSS/A4 DEVELOP FORCES (No. 3)

This node creates, prepares, and deploys the armed forces. This process is divided into the three major kinds of forces: (1) land forces, (2) maritime forces, and (3) aero/space forces. Each is performed by separate Military Departments. The Department of the Army provides land forces, the Depart of the Navy provides the maritime forces, and the Department of the Air Force provides the aero/space forces. As shown on the parent diagram, people, materiel, money, warfighting capabilities and limitations, and force requirements and tasking are inputs to each of the three nodes in this diagram. Each of the Military Departments uses its resource management and acquisition, training and support systems to buy all of the materiel, recruit and train all of the people, and develop all of the operational military units needed for its output. The outputs are the armed forces.

A-14

NODE NSS/A4	TITLE: DEVELOP FORCES	NO. 3
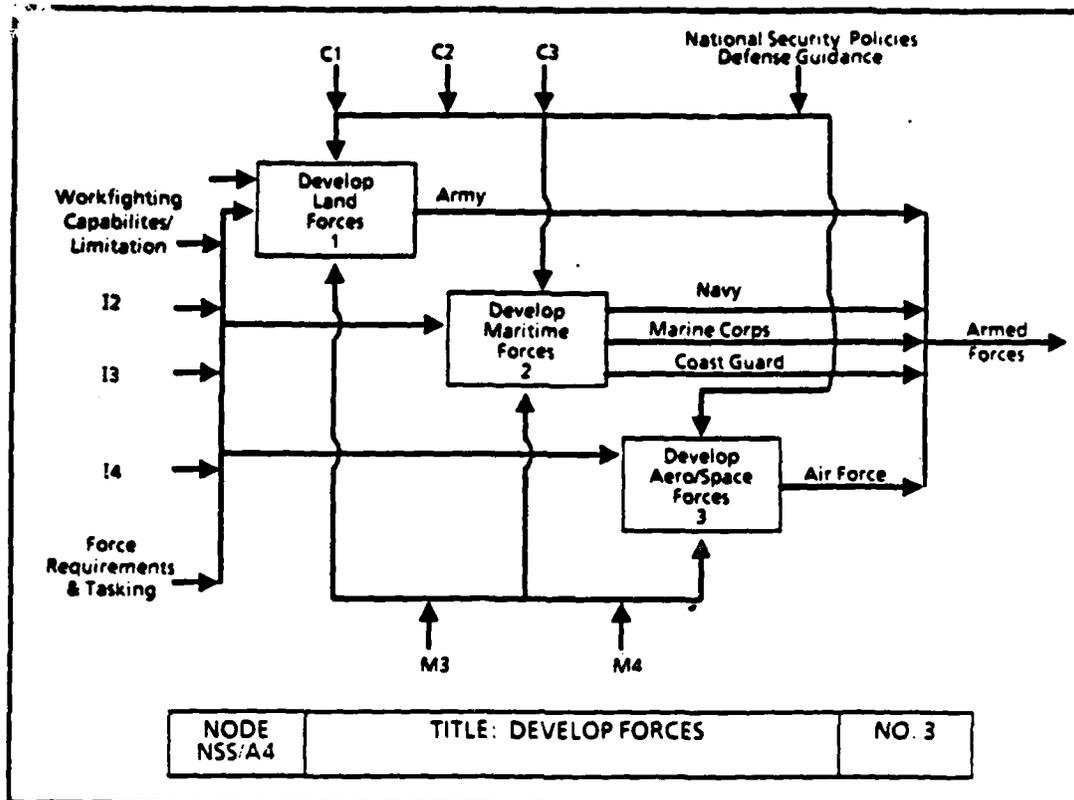
NSS/A41 DEVELOP LAND FORCES. The output is the U.S. Army. The subsequent IDEF development will concentrate on this node.

NSS/A42 DEVELOP MARITIME FORCES. This node develops the U.S. Navy, U.S. Marine Corps, and U.S. Coast Guard. Note that the Coast Guard is under the Department of Treasury during peace time and has other missions, but its national security mission places it in this node.

NSS/A43 DEVELOP AERO/SPACE FORCES. This node develops the U.S. Air Force.

| NODE NSS/A4 | TITLE: DEVELOP FORCES | NO. 3 |
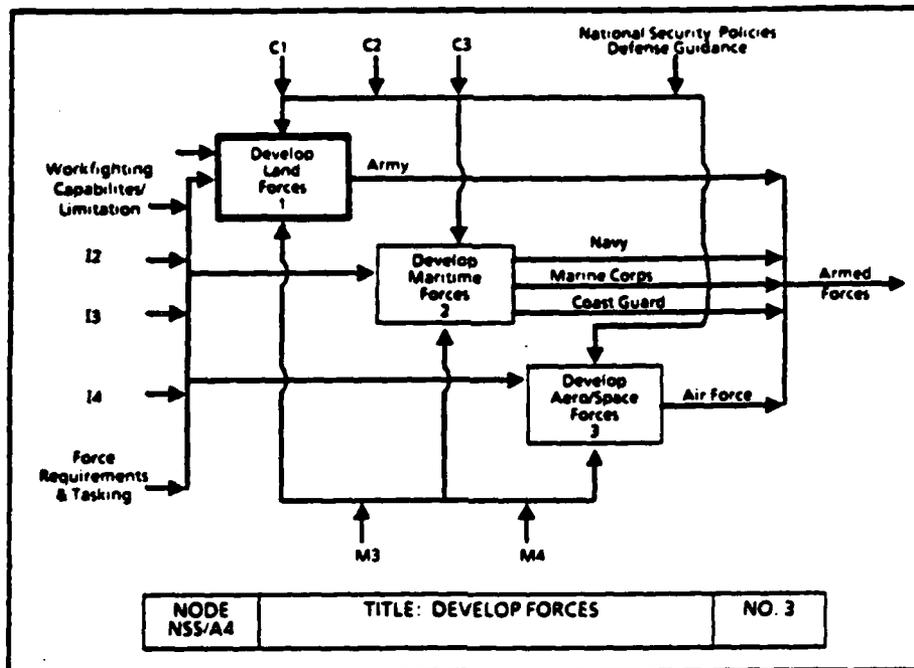
NSS/A41 DEVELOP LAND FORCES (No. 4)

This node creates, prepares and deploys the U. S. Army using the following four processes: (1) Establish Doctrine, (2) Provide Manpower, (3) Provide Materiel, and (4) Prepare Land Forces.

NSS/A411 ESTABLISH DOCTRINE. This function takes inputs of the existing Army force structure and its warfighting capabilities and limitations and establishing doctrine to control all aspects of developing and employing an Army. This doctrine controls all of the other functions in this node. The relevant laws, regulations, directives, policies, guidance, and PPBES decisions serve as constraints of this function. The overall doctrine is established at the national Army level by Headquarters Department of the Army and the Training and Doctrine Command, but every level in the Army exercises some aspects of this function by interpreting higher level doctrine and determining how it and its subordinate elements will carry out their responsibilities.

NSS/A412 PROVIDE MANPOWER. This function provides all of the people needed by the Army for all of the Army's various functions. The output includes soldiers (officer and enlisted, active and reserve component), civilian workers (general schedule and wage board civil service, various host nation support and other foreign nationals, non-appropriated fund activity personnel), and contractor support labor. In addition to people, materiel, and money, this function uses the force requirements and tasking from all levels of the Army and those who employ the Army in the field. The rest of this IDEF procedure will decompose this node.

A-16

```
                        Army Force Structure
              National Security Policies/Defense Guidance
          C1  C2
                    M4
                                Land Warfare Doctrine                          C1
                        Procurement/Logistics/Maintenance Doctrine             C2
      Establish                                                          M3   C3
      Doctrine          Training/Organization/Manpower Doctrine
         1
  Warfighting
  Capabilities                                                          Prepare      Army
  Limitations                        M3  C1                             Land
                                         C2                             Forces
            I2                            C3                               4
            I3
          Force         Provide               Army Manpower
          Req/          Manpower                                        C1
          Tasking          2                                            C2
                                       Material                    M3  C3
                                       Support
                                       Personnel
                                M3                                          M4
                              Force Req  →   Provide         Armed
                                            Material         Material
       M4                         I3   →       3
                                  I4   →
                                            MSS
                MPTS                                   M3
                              M4
                        Manpower Support Material
```

NODE NSS/A41	TITLE: DEVELOP LAND FORCES	NO. 4

MPTS   Manpower, Personnel, Training (MPT) Systems
MSS   Material Support Systems

NSS/A413 PROVIDE MATERIEL. This function acquires, catalogs, controls, stores, distributes, maintains, collects, repairs, and disposes of all of the things that the Army needs from multi-billion dollar weapon systems to toilet paper.

NSS/A414 PREPARE LAND FORCES. This function takes Army manpower and materiels and combines them into effective organizations and units to provide all of the combat, combat support and support missions of the Army. It deploys the organizations to where they are needed, provides unit training, and does all of the functions necessary to prepare and deliver effective combat forces to the unified and specified operational commanders in the field.   Its output is the United States Army.

A-17

| NODE NSS/A41 | TITLE: DEVELOP LAND FORCES | NO. 4 |

MPTS   Manpower, Personnel, Training (MPT) Systems
MSS   Materiel Support Systems
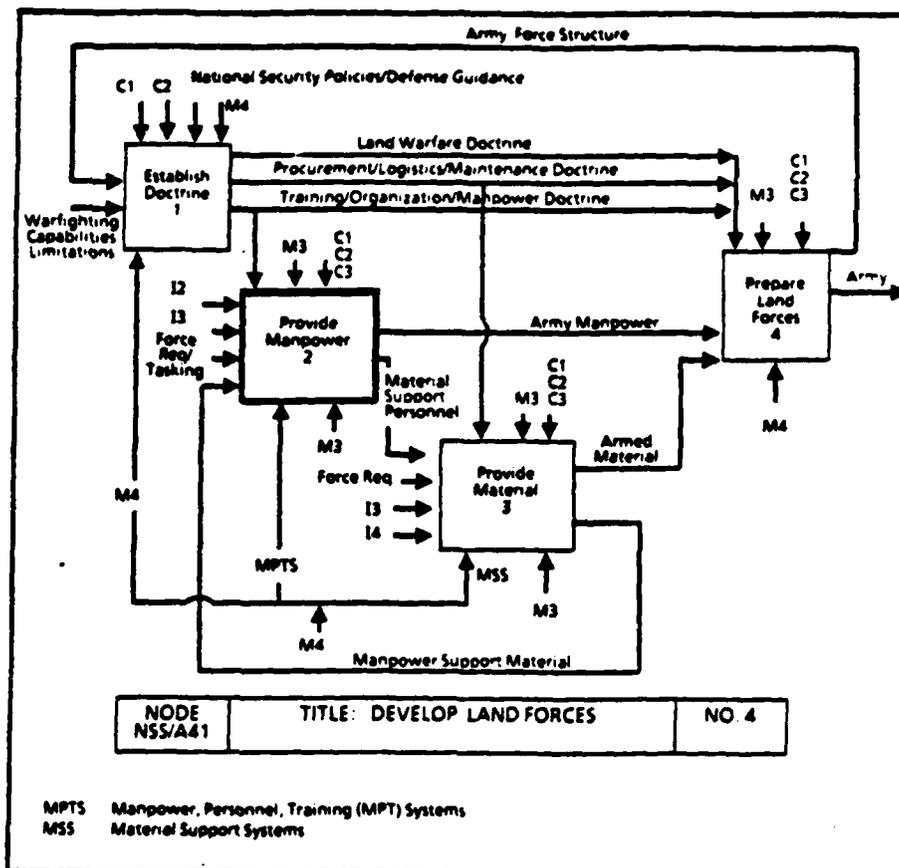
NSS/A412 PROVIDE MANPOWER (No. 5)

This node consists of the following four functions: (1) determine the manpower mix among military, civilian, and contractor personnel; (2) provide military manpower; (3) provide civilian manpower, and provide contractor support. The output is all of the labor used by the Army in all of its functions. The major inputs are all of the force requirements and tasking imposed on the Army by outside authorities, people, materiel, and money.

NSS/A4121 DETERMINE MANPOWER MIX. This function uses the PPBES system, the military-civilian policies of the MPTS, and OMB Circular A-76 procedures under constraint of Army doctrine, DoD policy, and Congressional authorizations and appropriations to convert force requirements and tasking into labor requirements for military, civilian, and contractor personnel. Manpower dollars are allocated to the three manpower providing systems through the PPBES process and become constraints on the operation of each of those systems. Through participation in the PPBES and through military-civilian, all levels participate in this mix determination process. Some aspects of the civilian-military relations issues appear in this process (deciding who will perform what functions and who will supervise whom in what relationships).

NSS/A4122 PROVIDE MILITARY MANPOWER. This is a highly centralized personnel system that establishes military requirements by MOS and grade (or skill level), recruits, trains, assigns, reassigns, promotes, disciplines, and discharges soldiers. It includes officers and enlisted personnel of the active and reserve components. Many of the manpower and personnel functions are performed worldwide for all of the Army.

NODE NSS/A412	TITLE: PROVIDE MANPOWER	NO. 5
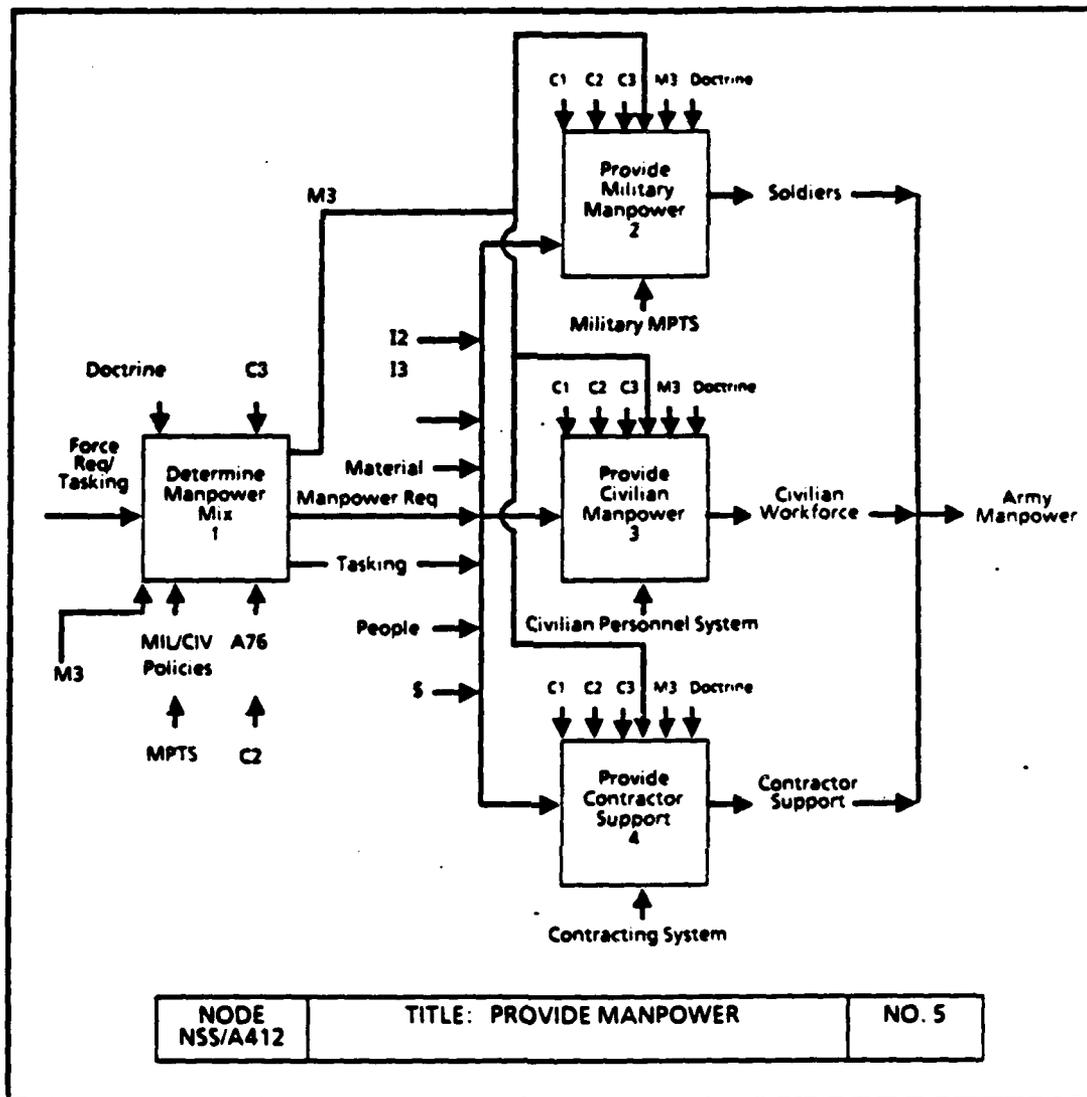
NSS/A4123 PROVIDE CIVILIAN MANPOWER. The civilian personnel system is
very decentralized with most personnel functions performed at a local level.
This node produces the civilian workforce for the Army. The workforce
includes those who leave the system each year and their. The remainder of
the IDEF process concentrates on decomposing this function.

NSS/A4124 PROVIDE CONTRACTOR SUPPORT. This is the least centralized
and the least controlled of the labor sources available to the Army. The
people work for private corporations under contract with the Army to provide
products or services. The controls are almost exclusively on the
contracting process rather than the personnel system of the contractors.
The Army has relatively little control over the individuals employed by the
contractor, but also is free of the personnel management responsibilities.

A-19

| NODE
NSS/A412 | TITLE: PROVIDE MANPOWER | NO. 5 |
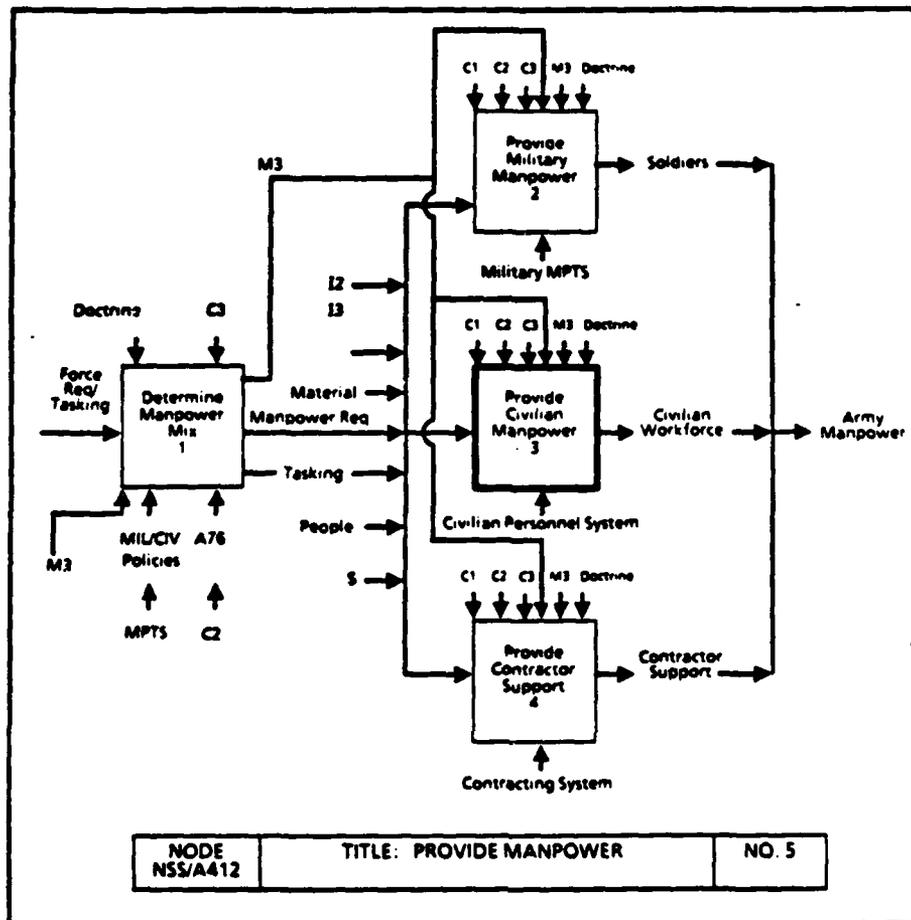
NSS/A4123 PROVIDE CIVILIAN MANPOWER (No. 6)

This function is decomposed into three nodes: (1) acquire employees, (2) maintain the workforce, and (3) process losses. All three of these functions are of direct interest to this research effort and each will be decomposed in turn.

NSS/A41231 ACQUIRE EMPLOYEES. This process turns hiring requests into vacancies, solicits applicants to fill those vacancies, qualify the applicants and selects the best qualified on a position-by-position basis. Its primary input is people (including those already in the Army civilian workforce, in other government organizations, and outside the Federal workforce). The outputs are workers, and the mechanisms are the Civil Service and other civilian personnel systems available to the Army.

NODE NSS/A4123	TITLE: PROVIDE CIVILIAN MANPOWER	NO.6
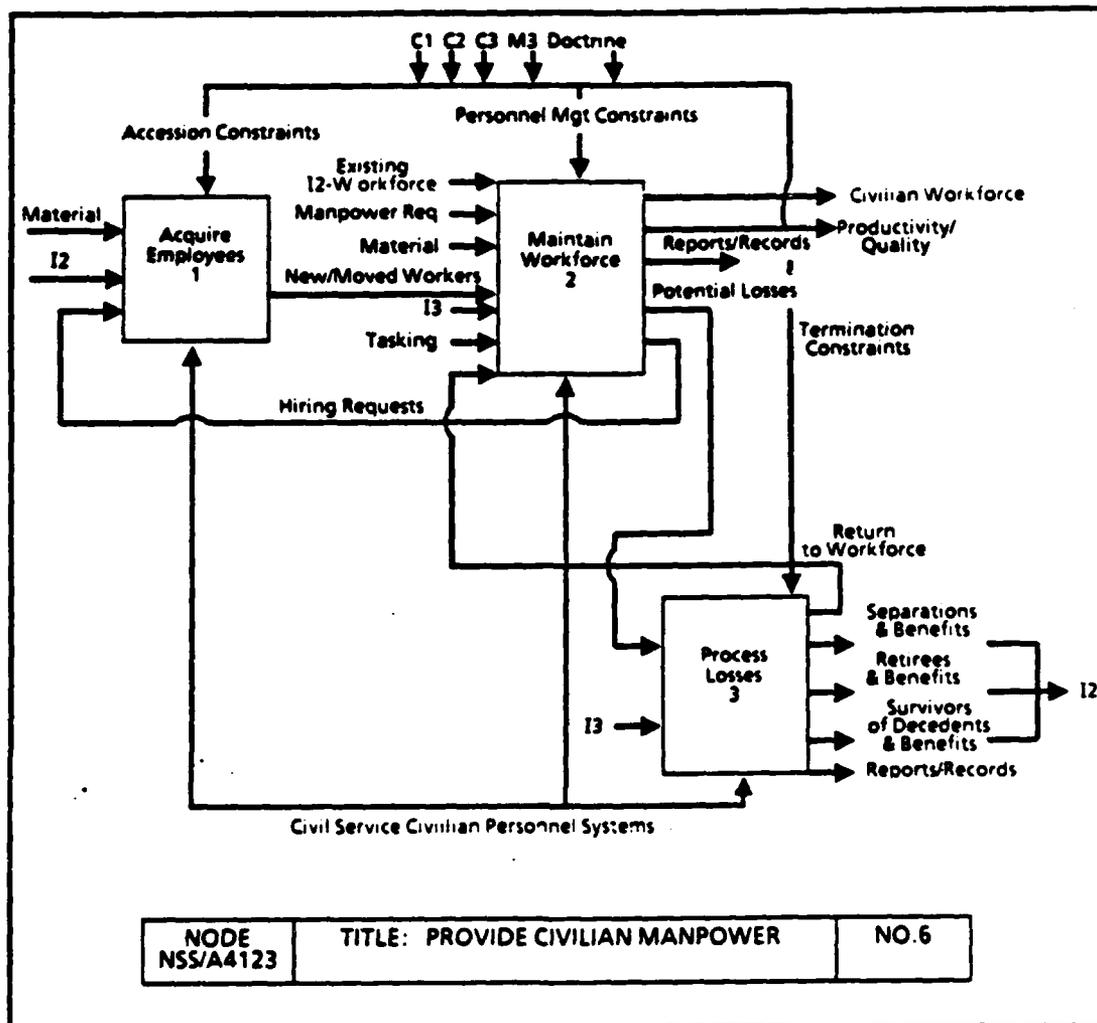
NSS/A41232 MAINTAIN WORKFORCE.   This node performs both manpower and personnel functions. The manpower functions provide national level management of the decentralized civilian manpower and personnel systems, local operation of those systems, supervision of the workers, and the actual performance of work. The output is productivity, high quality work, the civilian workforce, and potential losses from that workforce. Among its personnel functions, this node determines who will continue in the workforce and who wants to or should be removed from the workforce.

NSS/A41233 PROCESS LOSSES. The civil service laws provide every individual selected for separation from the civilian workforce the right to internal and external review of his or her rights, situation, and circumstances. Therefore, processing losses is shown as a separate part of the system. The outputs include people returned to the workforce and survivors, retirees (voluntary, mandatory, and disability), and separations and their respective benefits.

A-21

| NODE NSS/A4123 | TITLE: PROVIDE CIVILIAN MANPOWER | NO.6 |
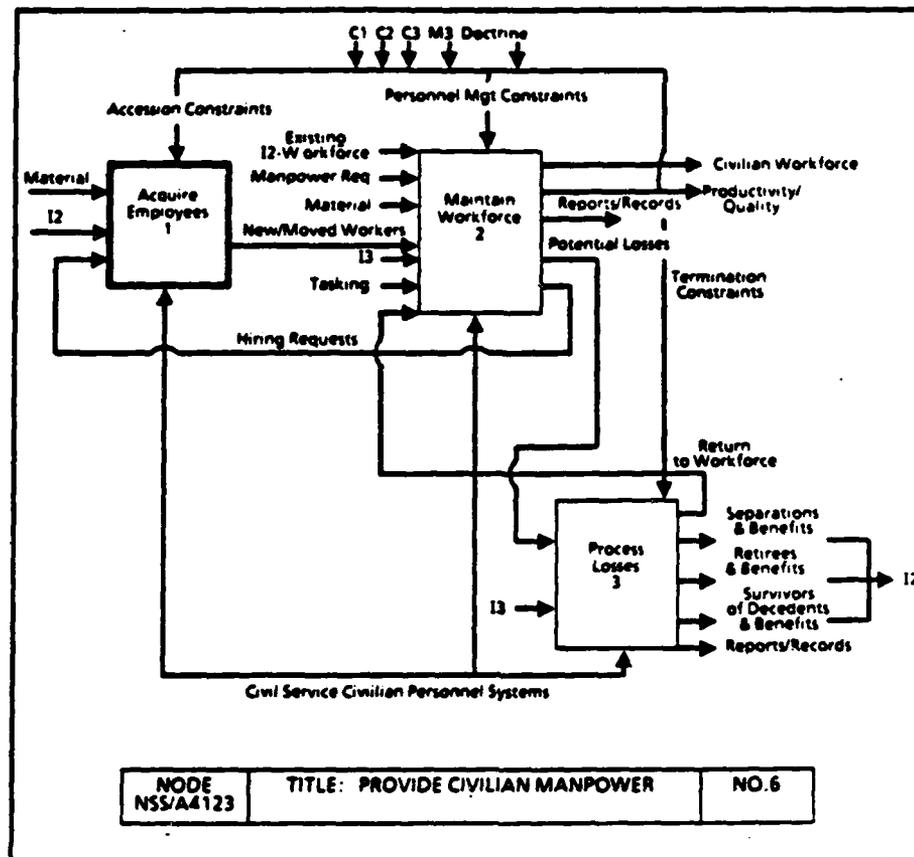
NSS/A41231 ACQUIRE EMPLOYEES (No. 7)

This node contains four functions: (1) process hiring requests, (2) obtain applicants, (3) qualify applicants, and (4) select the best qualified applicants. This function involves workers already in the Army or other Federal agencies, as well as those outside the workforce.

NSS/A412311 PROCESS HIRING REQUESTS. Although exact processes vary somewhat across the Army, someone in the maintain workforce node usually triggers the civilian personnel acquisition process by some kind of hiring request indicating a need for a person with certain qualifications and experience to perform a specific function in a specific position. This node processes that request and prepares and distributes a vacancy announcement. Distribution may be narrowly limited to an immediate office or may be very broad, even worldwide, in scope.

NSS/A412312 RECRUIT/ADVERTISE/SOLICIT APPLICATIONS. This function does what is necessary to obtain applications to fill the vacancies. It may be as simple as accepting applications turned in by local workers, or as complicated as operating a nationwide recruiting effort at universities and colleges. The output is applicants for specific positions. Vacancies are a constraint on this process because no matter how well qualified applicants may be or how severely they are needed, the process generates applications only for vacant positions that have been announced.

A-22

NODE NSS/A41231	TITLE: ACQUIRE EMPLOYEES	NO. 7
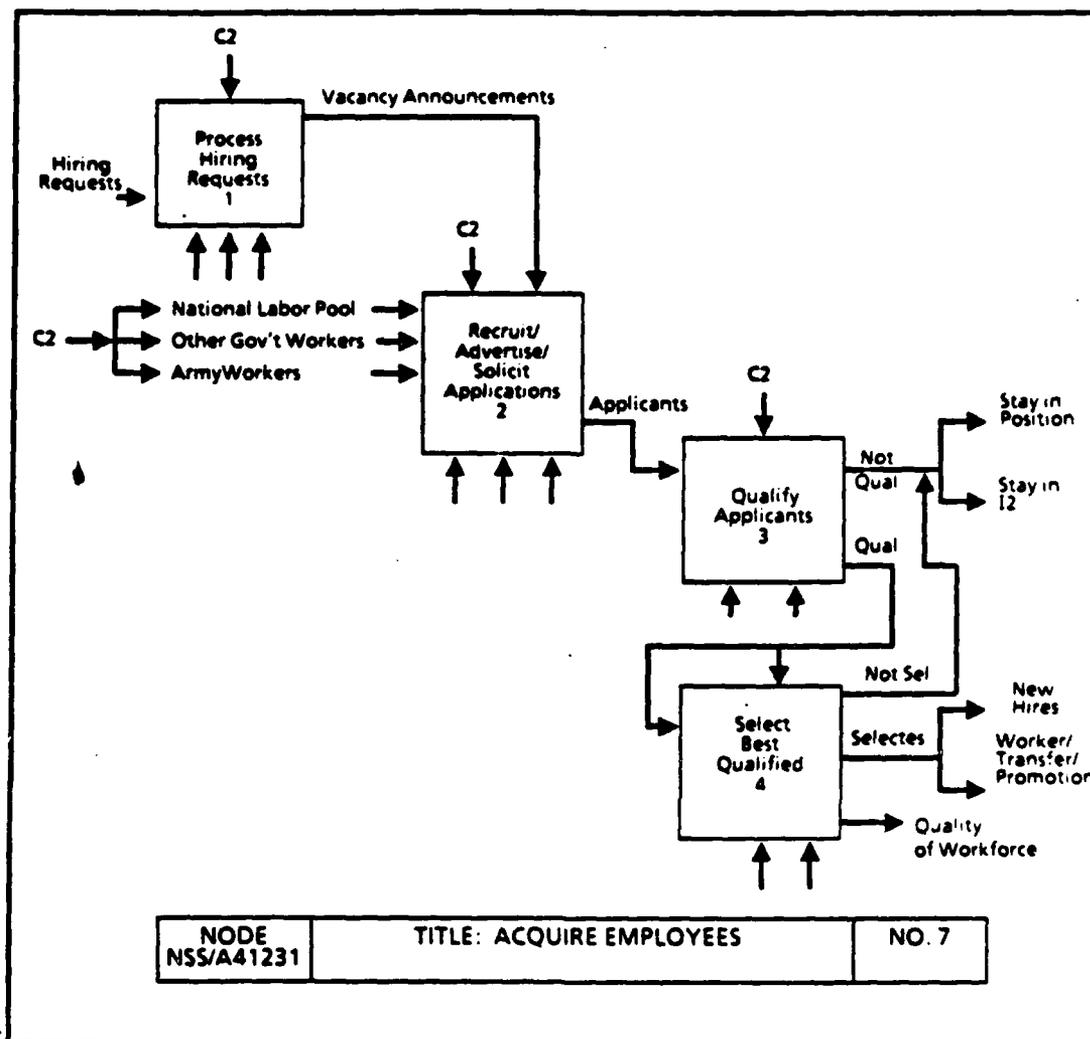
NSS/A421233 QUALIFY APPLICANTS. This function evaluates all of the applications for a vacancy and determines which meet the qualification standards for the position. This process may be very structured including performance tests or very general considering only the background and experience of the applicant. Sometimes it is performed by OPM, but more often it is performed in the local personnel office. If the applicant is determined not to be qualified for this position, he or she remains in his or her current position.

NSS/A421234 SELECT BEST QUALIFIED. This process selects the worker who is best qualified for the position from among the qualified applicants. The immediate supervisor of the vacant position usually makes the selection decision. The local personnel office then processes the necessary paperwork and notifies the individual selected when and where to report for further processing and to start work. Those not selected follow the same processes as those deemed to be not qualified.

A-23

| NODE NSS:A4123 | TITLE: PROVIDE CIVILIAN MANPOWER | NO. 6 |
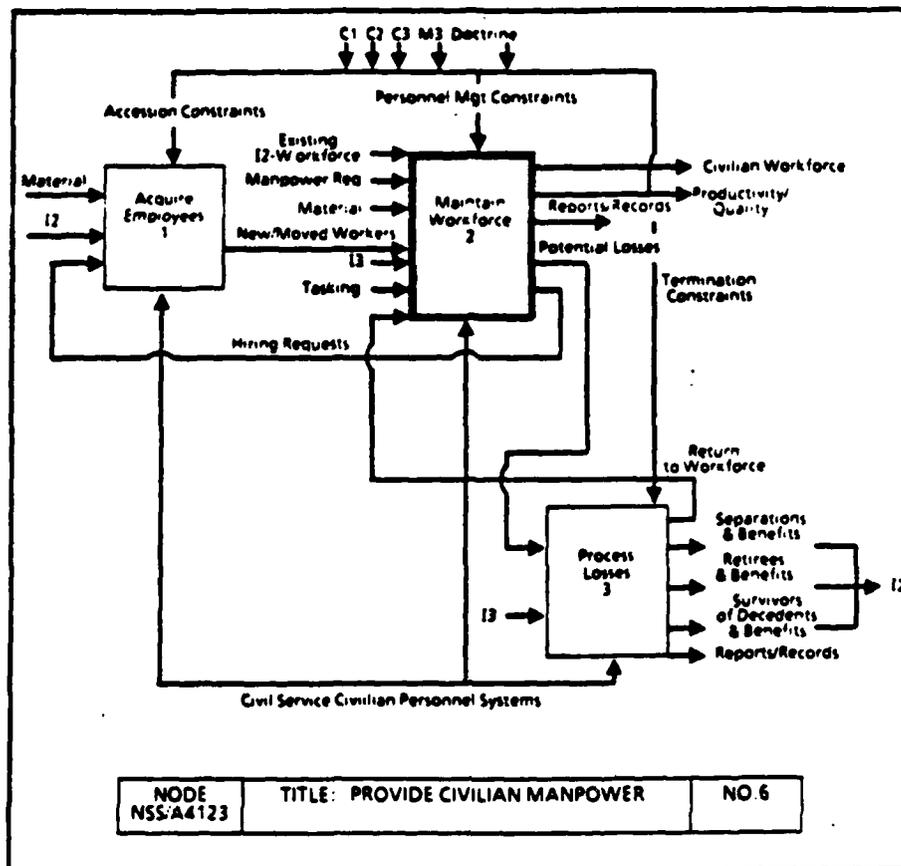
NSS/A41232 MAINTAIN WORKFORCE (No. 8)

Maintain the workforce contains two management functions: supervision and performance. Every level in the Army is involved in accomplishing at least one of these functions. This is one of the most important nodes for this research effort. This node contains all of the actions needed to maintain an effective workforce from establishing policies and guidance at the highest level to actually performing work in the lowest job in the workforce. The outputs are the workforce itself, its quality and productivity, and its potential personnel losses.

NSS/A412321 MANAGE THE NATIONAL WORKFORCE. This function develops and publishes Army-wide plans, reports, policies, guidance, and regulations that control the other elements in the maintain workforce node. It receives information from the local workforce managers. It operates under control of laws and regulations and guidance from OSD, OMB, OPM, the Merit Systems Protection Board and other organizations outside the Army. Controls from within the Army include the PPBES and other guidance within the Department of the Army Headquarters. Individual personnel do not flow though this node as they do in the national level of the military system. In the civilian system, nearly all personnel actions occur at local levels.

A-24

| NODE
NSS/A41232 | TITLE: MAINTAIN WORKFORCE | NO.8 |
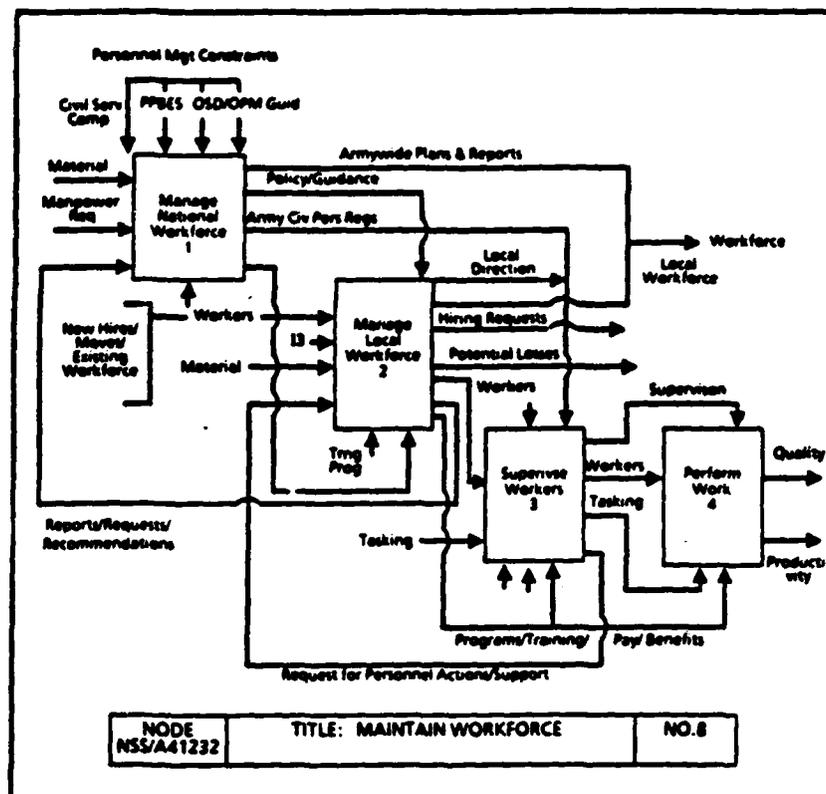
NSS/A412322 MANAGE LOCAL WORKFORCE. This node is the heart of the civilian personnel management system because most civilian personnel management actions take place in this node. It performs two general functions: manpower and personnel. The manpower functions manage positions and the personnel functions manage people. The outputs of this process include individual workers, potential losses, local workforce information, and various programs to help the supervisors and workers (including pay, benefits, other incentives, and training).

NSS/A412323 SUPERVISE WORKERS. The supervisory function directs and controls the efforts of the workers. The local workforce management does not provide that tasking; it comes from operational commanders and those who support operational commanders through line management channels to the supervisors. Military-civilian relationships are very important here. Military personnel supervise civilians, civilians supervise military personnel, and both supervise contractors.

NSS/A412324 PERFORM WORK. Workers perform under the direction of their supervisors using the tasking, programs, training, incentives, and other methods available to them. The output is work measured in quality and productivity. Sometimes this work is performed in a solely civilian context, but more often it uses an integrated workforce of military, civilian, and contract personnel under mixed supervision.

A-25

| NODE NSS/A4123 | TITLE: PROVIDE CIVILIAN MANPOWER | NO. 6 |
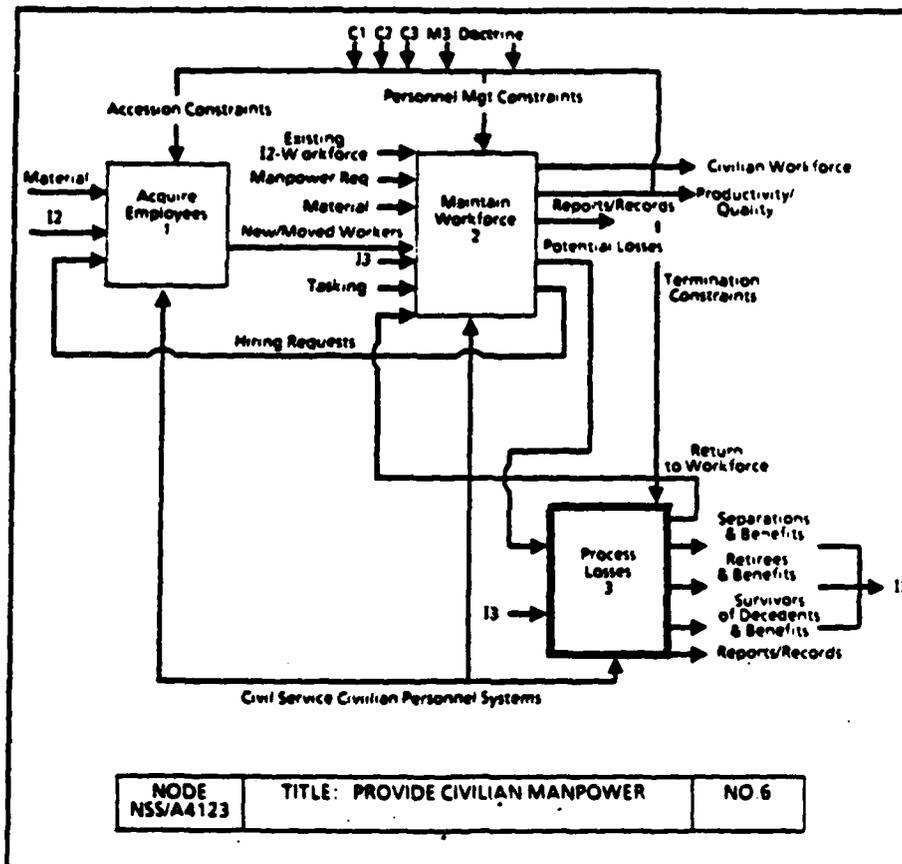
NSS/A41233 PROCESS LOSSES (No. 9)

This function processes those who have been determined by the local workforce managers to be potential losses, provides them due process, and separates them from the Army civilian workforce or returns them to duty. The outputs include people returned to the workforce, survivors, retirees, separations, and the information on all of these actions. Almost all of those who leave the workforce receive benefits.

NSS/A4123331 DETERMINE STATUS, RIGHTS, BENEFITS. This node processes potential losses to determine their status, rights, benefits, and alternatives. It determines what will happen to these people using reviews within the local organization, the Army, and higher levels in the Department of Defense. Administrative review includes all of the processes provided by the civil service personnel system. Judicial review includes actions by the Federal courts. In some cases, workers return to the workforce. Review reverses adverse actions, determines that the individuals were not eligible for retirement or other programs, or results in some who requested voluntary separations and deciding to remain in the workforce.

NSS/A412332 PROCESS RETURNS. This node processes those returning to the workforce and provides them benefits.

A-26

NODE NSS/A41233	TITLE: PROCESS LOSSES	NO. 9
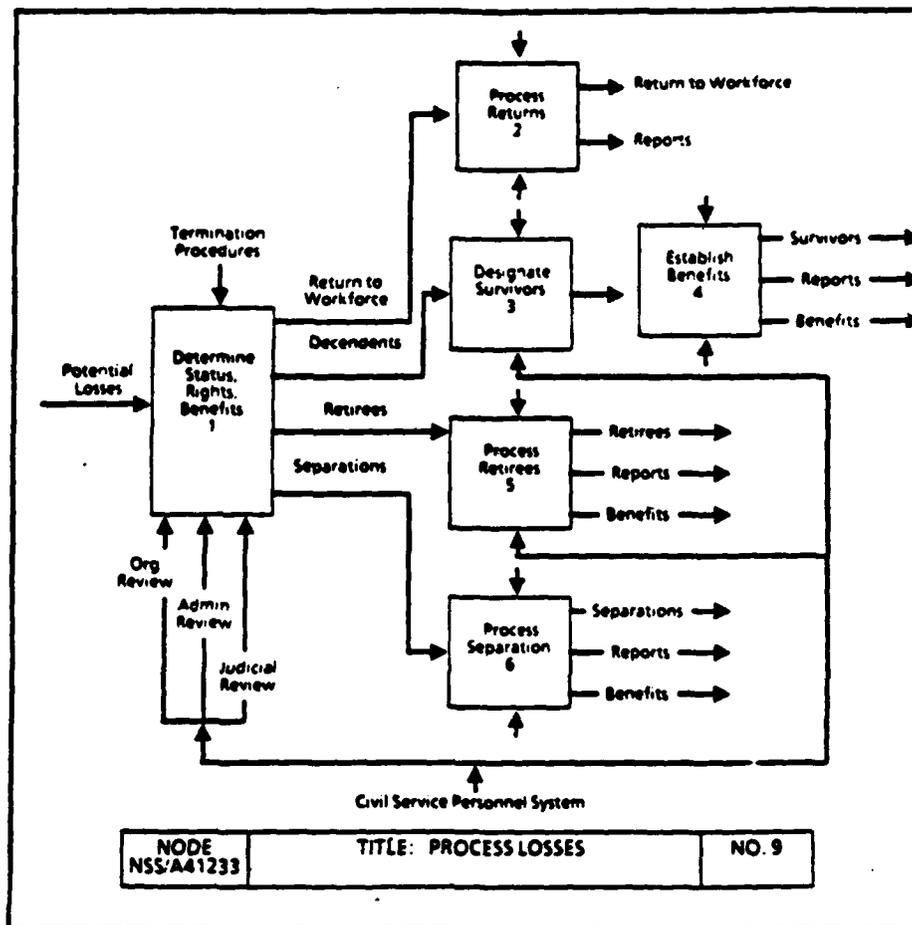
NSS/A412333 DESIGNATE SURVIVORS. When workers die while in the workforce, the Army usually determines appropriate survivors and makes an original estimate of potential benefits. Survivors may be within or outside the workforce on their own right, but as survivors they may be entitled to certain benefits. OPM reviews these decisions and makes final determinations. For those who die after they are retired, OPM determines eligible survivors. OPM's decisions are subject to judicial review, but are generally outside the Army civilian personnel system by that time.

NSS/A412334 ESTABLISH BENEFITS. Within the Army personnel system, this node establishes the initial level of benefit to recommend to OPM for survivors of those who die while in the workforce.

NSS/A41235 PROCESS RETIREES. The Army processes those requesting retirement, those with disabilities, and those reaching mandatory retirement to verify initial eligibility and recommended level of benefits. OPM reviews all retirement cases and makes final determination and manages the Federal retirement system.

NSS/A412336 PROCESS SEPARATIONS. Both those who are being separated voluntarily and involuntarily are processed after their status, rights, and benefits have been determined by the appropriate reviews. The Army usually processes separation without direct contact with OPM or other organizations. The Army usually pays separation benefits in lump sum and then the employee departs the workforce.

| NODE
NSS/A41232 | TITLE: MAINTAIN WORKFORCE | NO.8 |
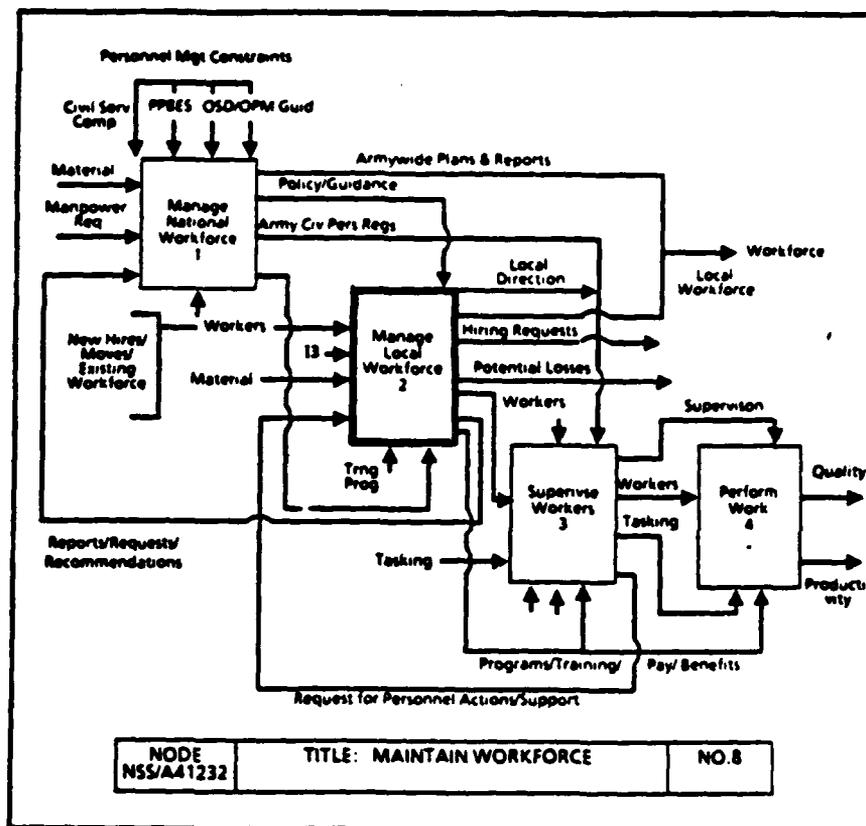
NSS/A412322 MANAGE LOCAL WORKFORCE (No. 10)

This node is divided into six functions. The first three are manpower functions dealing with positions. Number 4 and 5 are personnel functions dealing with people and programs that affect people. The last is an information function that provides information and programs for both manpower and personnel. The local civilian personnel office, local finance office, and local command headquarters usually perform these functions in support of supervisors and workers.

NSS/A4123221 EVALUATE JOBS. This node takes general requirements statements and requests for manpower actions and support, evaluates the work that must be done and prepares position (or job) descriptions explaining exactly what the worker must do in each specific position. This function is performed by the local civilian personnel office working in conjunction with the line organization that needs the position.

NSS/A4123222 CLASSIFY POSITIONS. This function applies OPM standards to determine the occupational series and grade level of the position. The output of this process is the local workforce position structure. The local civilian personnel office must classify a position before a worker can be hired or assigned to that position. The outputs are local workforce positions and manpower information about the local workforce that feed nodes 3 and 6.

NSS/A4123223 DETERMINE HIRING NEEDS. This node compares the personnel in the actual workforce with the positions approved for the workforce. It considers available funding and ceiling points if they are being used as a constraint and determines hiring requirements. The outputs are hiring requests for specific positions within the workforce manpower structure. Those hiring requests drive node NSS/A41231 (No. 7).

| NODE NSS/A412322 | TITLE: MANAGE LOCAL WORKFORCE | NO. 10 |
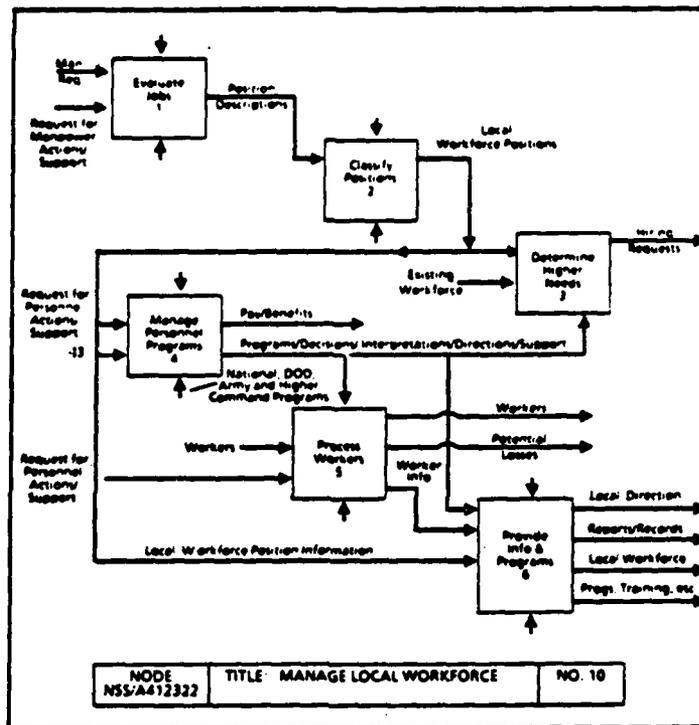
NSS/A4123224 MANAGE PERSONNEL PROGRAMS. This node involves the civilian personnel office, the local commanders, local training organizations, local finance office, and many other organizations that manage (at the local level) the vast array of personnel programs. This function responds to a large percentage of the requests for personnel actions and support that come from supervisors and workers. The outputs include training programs, pay and benefits, educational opportunities, savings bond drives, industrial safety programs, and thousands of others. The management of these programs also produces a continuous flow of decisions, interpretations, directions, and support for supervisors, commanders, and workers. The effectiveness of these programs contribute substantially to overall workforce productivity and quality at the local level.

NSS/A4123225 PROCESS WORKERS. The civilian personnel office has a major role in this function, but is not the only player. The finance office, local line commanders, and many other military and civilian managers participate. Determination of satisfactory performance and rewards and punishments occur in this function. This includes the designation and initial processing of potential losses. This function also generates most of the personnel information that relates to the specific worker. The most important output is workers who report to supervisors to perform the work required of their positions in support of the Army's missions.

NSS/A4123226 PROVIDE INFORMATION AND PROGRAMS. One of the most important functions of local workforce management is providing information and programs to all other parts of the system (dissemination of information to local supervisors and workers; maintenance of personnel and program records; submission of reports to local commanders and higher levels in the manpower organization; and the execution of the programs, training, etc. required by the local workforce, including the structure of the workforce itself and the working conditions under which supervisors and workers function).

A-29

APPENDIX B

USER'S MANUAL FOR THE PROTOTYPE DATA INDEX

1. INTRODUCTION

Manpower and personnel information represent the analytical building blocks needed to conduct this civilian personnel research program. The data index assists users in locating the information needed for conducting research or any other analysis and to provide information about points of contact, hardware requirements, access procedures, user's manuals, and specific information about data elements. This is version 2.0 and it is a prototype; however, even in this state the data index is a useful tool.

The data index has three search paths: search by file (data source), search by topic area, and access procedures. The final version will have a fourth path that will allow the user to search for the most appropriate data source that contains a specific data element.

The data index requires no data entry. It can best be described as an automated "card catalogue" that allows the user to browse through a listing of available data sources. After selecting a data source, the user can browse the data elements. The data index does <u>not</u> act as an interface with the data source the user is selects. It does, however, provide the appropriate information that allows access.

A series of menus, similar to those used in FORECAST, leads the user through the data index. It is user-friendly and easy to operate.

1.1 Purpose of this Manual

This user's manual provides the user with instructions on the operation of the index. It also serves as a reference to those who are already familiar with the operation of the index.

The manual guides the user through the system by displaying the appropriate screens and describing their function and operation. The user should review the listed options and instructions described for each screen and follow the steps described for that screen.

1.2 System Requirements

The data index is a unique application of the dBase III(plus) data base management system. In order for the data index to operate, the following requirements must be met.

    a.   The computer hardware must be an IBM, or IBM compatible personal computer. An AT style is preferred but the data index also operates on an XT.

    b.   The computer must have a hard disk with at least three megabytes free, and dBase III(plus) should already be installed on the hard disk.

    c.   The computer should have at least one floppy disk drive with a capacity of at least 360K bytes.

d.   If printouts of any of the data screens are desireable, the
        computer must have an IBM compatible printer.

1.3 Installation

To install the civilian personnel information systems data index (this
set of instructions assumes that the user has already installed dBase
III(plus) on the PC), insert each data index diskette, in succession, into
the floppy disk drive and copy the contents into the same directory as your
dBase III programs. If your dBase III is in a directory named "dbase" and
your floppy disk drive is the A drive, then your sequence of commands is:

```
a:<ENTER>
copy *.* c:\dbase
```

Repeat these commands for each data index diskette.

2.   USING THE DATA INDEX

2.1 Beginning Operation

Once all the files have been transferred to the hard disk, the data
index is ready to be activated. First activate dBase III by typing
"dbase"<ENTER>. This command activates the dBase data base management
system and, after displaying the licensing agreement, initially presents an
"assist" menu of options. To operate in the dbase III(plus) system we
recommend the user follow the instructions in the dbase III(plus) user's
manual.

To activate the data index first escape from the "assist" menu by
depressing <ESC>, then type "do index"<ENTER>. If you have a color monitor
you will see a blue screen with a white border and the title for the data
index. Press any key to continue. You should now be in the main menu.
From the main menu you have several options;

        A.   Help
        B.   Search by File
        C.   Search by Topic[1]
        D.   Access Procedures
        E.   Exit

To exercise any of these options just type the appropriate letter and
<ENTER>. Every time you make a choice of options a new sub-menu appears

----

[1]When searching by topic, the user will have the ability to alter the
data assessment. This capability was provided because the user maya access
to better or more recent information that would cause the validity of the
data to change. When a data element screen is displayed, the cursor will
automatically prompt you to respond with a Y/N (yes or no) to determine if
the ranking should be changed.

until you have the information you are seeking. This rule applies almost universally with the exception of entering text.[2]

2.2 Search by File

The first level of disaggregation is a search of the data sources by individual data source or data file. From the main menu the user would respond to the cursor prompt by typing the number 2. Figure B-1 shows the screen that appears.

```
                    AVAILABLE DATA SOURCES

                    PLEASE ENTER THE LETTER
                   CORRESPONDING TO YOUR CHOICE


        [A]  CIVPERSINS              [B]  CPMF

        [C]  DCPDF                   [D]  CTF

        [E]  NAFS                    [F]  ACARS/ACCES

        [G]  SCIPMIS                 [I]  COEMIS-PA

        [J]  CPAS                    [K]  STARCIPS

        [L]  ACPERS                  [M]  ARMY SURVEY

        [N]  CIVFORS                 [P]  CPO INITIATIVES


              [H] HELP                   [X] EXIT


                        SELECT:
```
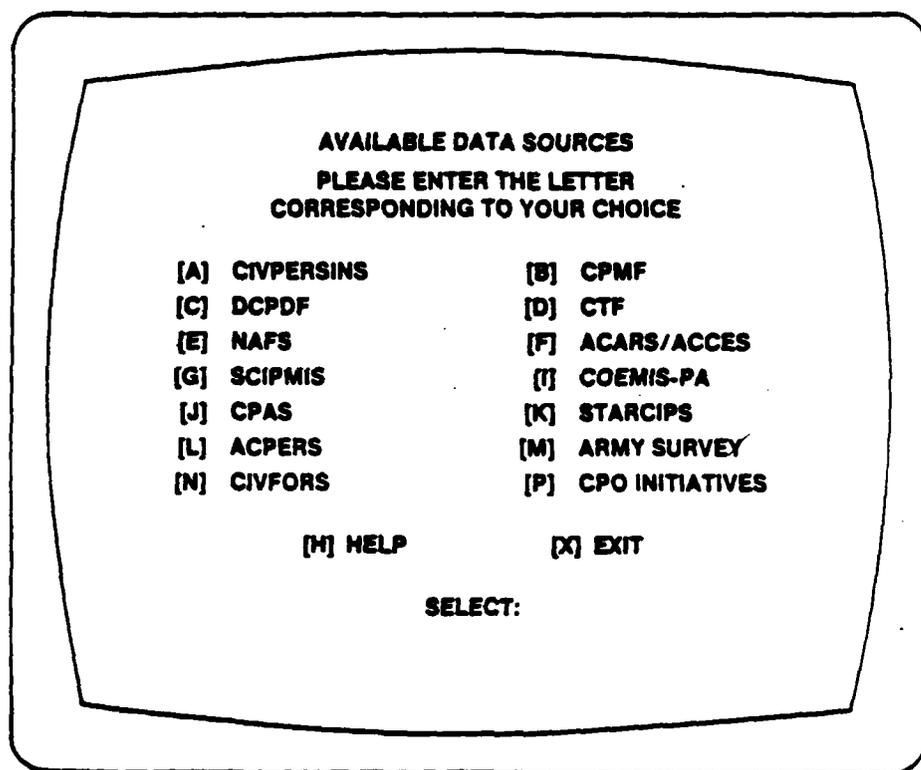
Figure B-1. Available data sources.

_____

[2]When searching through the "Topic" branch of the data index, it is possible to input short hand notes at two different places.

    a. After selecting a research topic, the user will see a screen with several sub-topic choices and three additional choices. One of those additional choices "U" will allow you to input text or short hand notes regarding the analysis.

    b. Likewise after selecting a sub-topic and viewing a data element, you can input text concerning your analysis on a subsequent page.

As shown in the figure the user is presented with a list of all the data sources that have been surveyed with a utility ranking provided to the right of each data source. This ranking indicates the relative usefulness of each of the data sources with the CPMF being the most useful (ranked number 1). "HELP" and "EXIT" are listed as well. By typing <h> the user has access to a series of screens that present overviews for each of the data sources surveyed. Figure B-2 shows the first screen seen. By typing the letter corresponding to a data source the user sees an overview for that data source. This information is helpful to understanding the purpose of the data source.

To return to the "Available Data Sources" menu the user types <x>. From this menu (Figure B-1) the user can select a data source to review by typing the corresponding letter to the data source. At this point a screen like the one in Figure B-3 provides three more options (this example shows the CIVPERSINS file).

Option A allows the user to select specific data elements within a data source to review; option B allows the user to review all the data elements in the data source in the sequence they are stored; and option C allows the user to update the utility ranking of the data source.

DEFINITIONS OF DATA SOURCES

(A) CIVPERSINS	Civilian Personnel Information System	
(B) CPMF	Civilian Personnel Master File	
(C) DCPDF	Defense Civilian Personnel Data File	
(D) CTF	Civilian Training File	
(E) NAFS	Nonappropriated Fund Personnel System	
(F) ACARS/ACCES	Automated Career Referral System/ Army Civilian Evaluation System	
(G) SCIPMIS	Standard Civilian Personnel Management Information System	
(I) COEMIS-PA	Corps of Engineers Management Information System - Personnel Accounting	
(J) CPAS	Civilian Personnel Accounting System	
(K) STARCIPS	Standard Army Civilian Pay System	
(L) ACPERS	Army Civilian Personnel System	
(M) ARMY SURVEY	Army-Wide Survey of Civilian Personnel	
(N) CIVFORS	Civilian Forecasting System	
(P) CPO INITIATIVES	Civilian Personnel Office for each Installation	

LEVEL 0 descriptions are available for all of the above data sources.
Please enter the letter corresponding to your choice or [X] to exit.
SELECT:

Figure B-2. Definitions of data sources.

```
THE SELECTED DATA FILE IS CIVPERSINS

PLEASE ENTER THE LETTER CORRESPONDING
          TO YOUR CHOICE


[A] SELECT A PARTICULAR DATA ELEMENT
[B] VIEW ALL DATA ELEMENTS IN THE FILE


    [H] HELP     [X] EXIT
         SELECT:
```
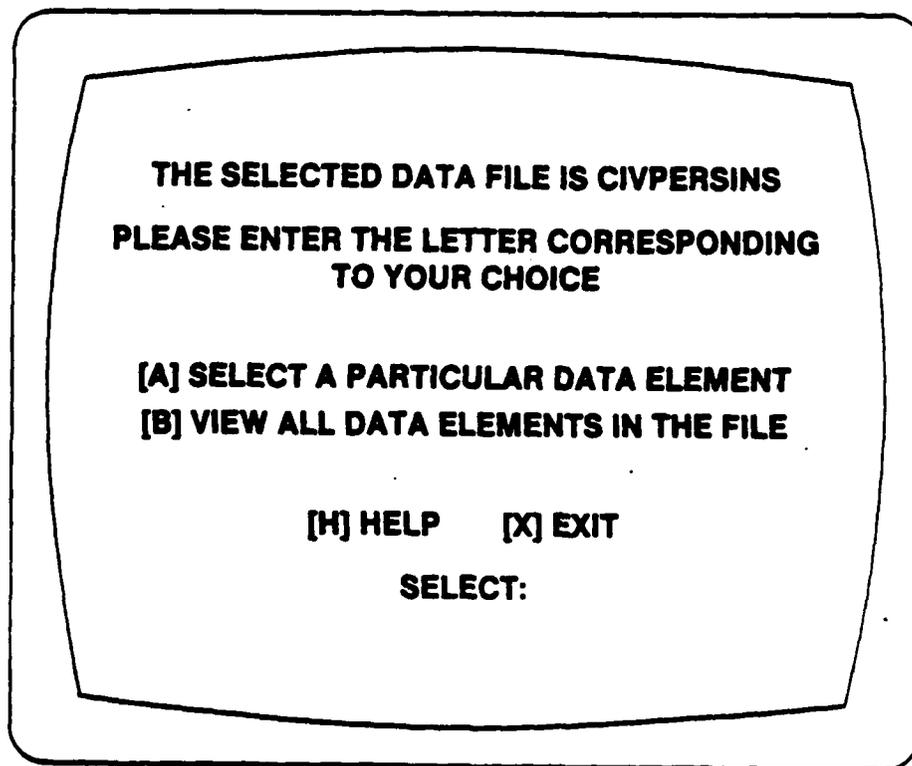
Figure B-3. CIVPERSINS data file.

Option A. If option A is chosen the user is presented with a listing
of all the data elements in the data source. To select a data element for
review the user should type <y> next to each data element desired. At the
end of each page of listing, the screen prompts the user to select one of
the following:

1. (C) Continue - Continue on to the next page of data elements.

2. (D) Done - The user has selected all the data elements for review.

3. (X) Exit - The user wants to exit back to the previous menu.

Once the data elements have been selected and the user types <d>, the
data index then displays a separate screen for each data element selected.
Figure B-4 shows a sample data element screen.

Each data element is described by:

1. Data Element: The name of the data element.

2. Abbreviation of element: Short title.

B-5

DATA FILE: CIVPERSINS

Data Element: Position, Supervisory

Abbreviation of Element:

Format/Position in File:

Current Validity Rank: 2   Has The Rank Changed (Y/N)?

Current Assessment of Validity Parameters:
 Available: Yes   Feasible: Yes   Acceptable: Yes   Relevant: Yes
 Accurate: Yes   Comments:
 Reliable: No   Comments: Not All Supvars Use All Data Codes
Has the Above Information Changed (Y/N)?

Description:

Other Sources:

Figure B-4.   Sample data element screen.

3.   Format/Position in File: This entry describes the format the code
       has for this data element, and indicates its position on the data
       file (source).

4.   Current Validity Rank: All data sources are assumed valid to some
       degree. The data index stores the relative validity but allows
       the user to change or update based on better or more recent
       information.

5.   Current Assessment of Validity Parameters: Validity is composed
       of six parameters. While searching by file the data index does
       not provide any information pertaining to these parameters;
       however, when searching by topic, the data index provides an
       assessment of each of the parameters in relation to that topic.
       The data index gives a yes/no assessment for each one. "Accuracy"
       and "Reliability" are yes/no with qualifications.

6.   Description: A description of the data element in lay terms.

7.   Other Sources; A cross reference to other data sources that
       contain this data element. The prototype data index does not yet
       have the cross reference.

8. More Information: Each data element has a second page available
    for expanding the description.

After the data element screen has been viewed the user may continue to
the next data element in sequence, or may return to the main menu by
"backing out" through the menu screens. This is done by typing a series of
<x>s until the user is at the main menu.

Option B. If option B is chosen, the user is presented with all data
elements in the data source. The same information is presented for each
data element as was shown in option A.

Option C. If option C is chosen the user is given the current utility
ranking of the data source and is asked to enter a new ranking. If more
than one data source is to be reranked, it is best to start with the highest
ranked data source and move to the lowest.

2.3 Search By Topic/Issue

To search for information related to a particular topic or issue, the
user may select option 3 off the main menu. This option displays a set of
general topics followed by a set of more specific sub-topics. After typing
<3> in response to the main menu prompt, the user sees the screen in Figure
B-5.

TOPICS AVAILABLE

PLEASE ENTER THE LETTER
CORRESPONDING TO YOUR CHOICE

[A] Selection Measures

[B] Training & Development Measures

[C] Retention/Separation Measures

[D] Productivity Measures

[E] Military Civilian Relationship Measures

[F] Future Measures

[H] HELP   [X] EXIT

SELECT: A
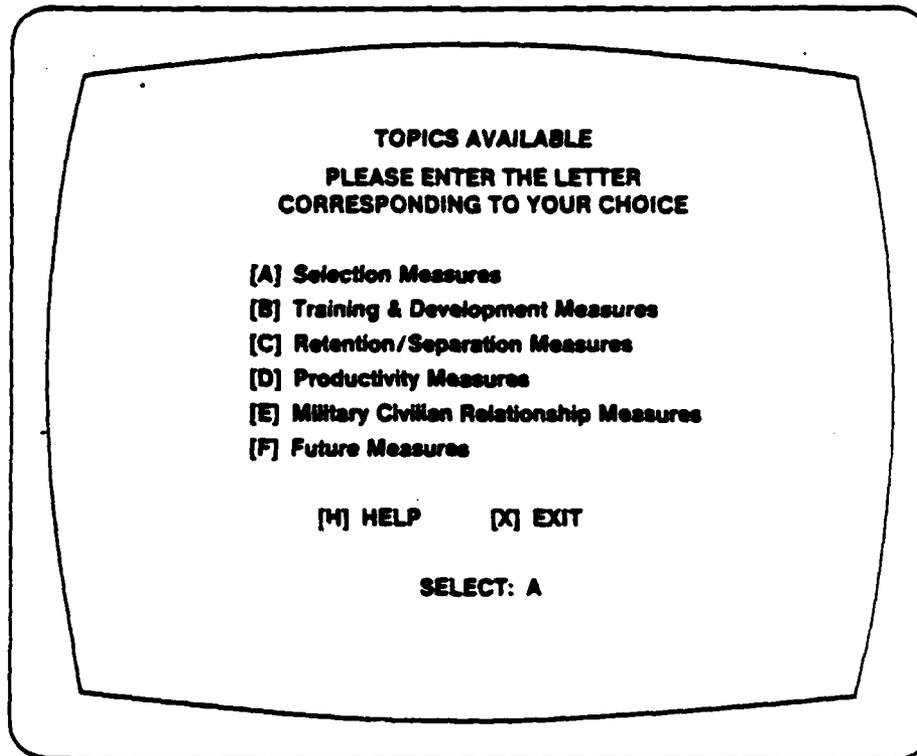
Figure B-5. Topics available.

Before you search each of the topic areas, you may want to review the current Army initiatives related to each of the topic areas. To do this type <i> and then type the appropriate letter corresponding to the desired topic area. This option should display the Army's goals and needs related to the particular topic as well as list the initiatives and POCs. When you are finished viewing the screens the index will return you to the search by topic menu to allow you to proceed.

From the menu of topics the user can select by typing the appropriate letter corresponding to the desired topic. The initial topics placed in the data index are those identified by Woolley, et al. (1986); however, at users can expand the number of topics. After typing the appropriate letter the data index displays a screen similar to that in Figure B-6.

This screen displays sub-topics to the previous screen. For each sub-topic listed the data index will display a set of data elements that could be used to conduct analysis or research in that area. (At the present time this part of the data index is incomplete, as it only contains data elements for the sub-topic "Selection of first-line supervisors." This path is expected to be completed in the second year of the contract.) To view the data elements the user should type the letter corresponding to the

AVAILABLE SUBTOPICS FOR: SELECTION MEASURES

PLEASE ENTER THE LETTER
CORRESPONDING TO YOUR CHOICE

[A] Selection of First-Line Supervisors
[B] Selection of Second-Line Supervisors
[C] Selection of Clerical Employees
[D] Selection of Engineers
[E] Other

[H] HELP   [U] UPDATE NOTES   [X] EXIT
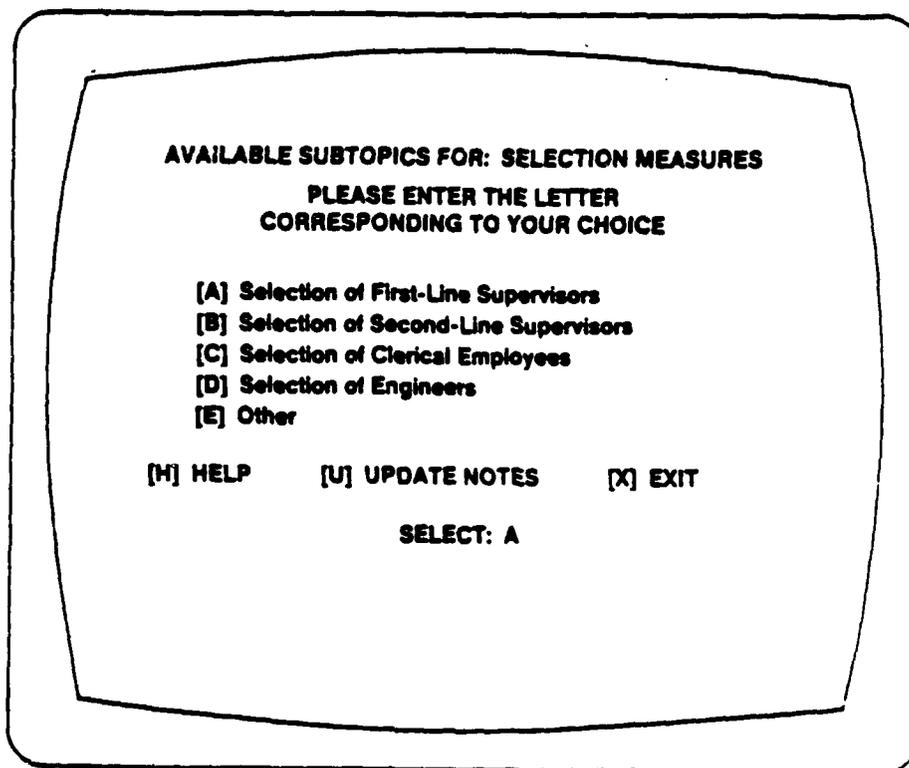
SELECT: A

Figure B-6. Available subtopics for: Selection Measures.

desired sub-topic. The data index then automatically displays the first
data element. The user has the option to continue to the next data element
or exiting to the previous menu.[3]

To return to the main menu, again the user simply "backs out" using a
series of <x>s.

2.4 Access Procedures

A third search path guides the user to a discussion of the access
procedures needed to gain access to a particular source of data. The
discussion presented to the user indicates points of contact for such things
as user's manuals, user identification, system passwords, and information
regarding hardware requirements. In addition there will be a step-by-step
guide explaining what the user must do to gain access to a data source. At
the present time this option is a place holder on the main menu. Access
procedures will be entered into the data index during fiscal year 1989.

---

[3]The data elements displayed while on this search path are from the
data source considered to be the one with the highest validity ranking.

APPENDIX C

SUPPORTING MATERIAL FOR DEVELOPMENT OF THE DATA INDEX

LIST OF ELEMENTS IN FILE CIVPERSINS

[ ]ACADEMIC DISCIPLINE

[ ]ACTION INDICATOR

[ ]AMOUNT OF PMRS MERIT INCREASE

[ ]AMOUNT OF PMRS CASH AWARD

[ ]AMOUNT OF PMRS PERFORMANCE AWARD

[ ]ANNUITANT INDICATOR CODE

[ ]ARMY MANAGEMENT STRUCTURE CODE

[ ]BARGAINING UNIT STATUS CODE

[ ]CAREER PROGRAM

[ ]CITIZENSHIP

[ ]CIVILIAN PERFORMANCE RATING

[ ]COMMAND

[ ]CURRENT APPOINTMENT AUTHORITY

[ ]DATE DEGREE ATTAINED (YEAR)

[ ]DATE OF BIRTH

[ ]DATE OF ESTIMATED RETURN FROM OVERS

[ ]DATE OF INCREASE

[ ]DATE OF CASH AWARD

[ ]DATE OF PERFORMANCE RATING

[ ]DATE OF RETURN FROM OVERSEAS

[ ]EDUCATION LEVEL, ACADEMIC

[ ]EFFECTIVE DATE OF ACTION

[ ]EMPLOYEE TENURE

[ ]EMPLOYEE STATUS

[ ]FAIR LABOR STANDARD ACT STATUS

[ ]FAMILY MEMBER CODE

[ ]FEDERAL EMPLOYEES GROUP LIFE INSUR

[ ]FUNCTION DESIGNATOR

[ ]FUNCTIONAL CLASSIFICATION

[ ]GSA LOCATION

[ ]GRADE OR LEVEL

[ ]KEY EMPLOYEE

[ ]LEAVE WITHOUT PAY (LWOP)

[ ]LEGAL AUTHORITY

[ ]NAFI ADMINISTRATOR

[ ]NAME OF EMPLOYEE

[ ]NATURE OF ACTION (NOA)

[ ]NATURE OF ACTION SUFFIX

[ ]OCCUPATIONAL SERIES

[ ]OFF-DUTY MILITARY

[ ]PAY BASIS

[ ]PAY PLAN

[ ]PAY RATE DETERMINANT

[ ]POSITION OCCUPIED

[ ]POSITION SUPERVISORY

[ ]POSITION TENURE

[ ]POSITION TITLE CODE

[ ]RACE/NATIONAL ORIGIN

[ ]REPORTABLE HANDICAP

[ ]RESERVE STATUS CODE

[ ]RETAINED PAY

[ ]RETIREMENT

[ ]RETIRED MILITARY

[ ]SALARY

[ ]SCHEDULED HOURS

[ ]SCHEDULED SALARY

[ ]SERVICE COMPUTATION DATE

[ ]SEX

[ ]SOCIAL SECURITY NUMBER

[ ]SPECIAL EMPLOYMENT PROGRAM

[ ]SPEP - DATE ENTERED

[ ]SPEP - DATE OF GRADUATION/LOSS

[ ]SPEP - ENTRY GRADE

[ ]SPEP - ENTRY OCCUPATIONAL SERIES CD

[ ]SPEP - ENTRY PAY PLAN

[ ]SPEP - PROPOSED DATE OF GRADUATION

[ ]SPEP-SPECIAL EMPL PRG GRAD/LOS REAS

[ ]SPEP-SPECIAL EMP PRG GRAD/LOSS IDEN

[ ]SPEP - SOURCE OF INTAKE

[ ]SPEP - TARGET GRADE

[ ]SPEP-TARGET OCCUPATIONAL SERIES CD

[ ]SPEP - TARGET PAY PLAN

[ ]SPEP - TRAINING COMMAND

[ ]SPECIAL PROGRAM IDENTIFIER

[ ]STEP OR GRADE

[ ]SUBMITTING OFFICE NUMBER (SON)

[ ]TRAINING, DATE OF COMPLETION

[ ]TRAINING, DIRECT COSTS

[ ]TRAINING, INDIRECT COSTS

[ ]TRAINING, NONDUTY HOURS OF

[ ]TRAINING, ON DUTY HOURS OF

[ ]TRAINING, PRINCIPAL PURPOSE OF

[ ]TRAINING, SPECIAL INTEREST PROGRAM

[ ]TRAINING, SOURCE

[ ]TRAINING, TYPE

[ ]TYPE OF APPOINTMENT

[ ]UNIT OF IDENTIFICATION CODE

[ ]VETERANS PREFERENCE

[ ]VIETNAM ERA VETERAN INDICATOR CODE

[ ]WORK SCHEDULE

LIST OF ELEMENTS IN FILE CPMF

[ ]SOCIAL SECURITY NUMBER   [ ]EMPLOYEE NAME
[ ]NATURE OF ACTION CODE (NOA)   [ ]EFFECTIVE DATE OF ACTION
[ ]SEX   [ ]DATE OF BIRTH
[ ]CITIZENSHIP   [ ]VETERAN'S PREFERENCE
[ ]EMPLOYEE TENURE   [ ]SERVICE COMPUTATION DATE
[ ]REPORTABLE HANDICAP   [ ]WORK SCHEDULE
[ ]POSITION TENURE   [ ]PAY PLAN
[ ]OCCUPATIONAL SERIES   [ ]FUNCTIONAL CLASSIFICATION CODE
[ ]GRADE OR LEVEL   [ ]STEP OR RATE
[ ]SALARY   [ ]PAY BASIS
[ ]PAY RATE DETERMINANT   [ ]COMMAND CODE
[ ]UNIT IDENTIFICATION CODE   [ ]STATE/COUNTRY
[ ]CITY   [ ]COUNTY
[ ]FUNCTION DESIGNATOR   [ ]POSITION OCCUPIED
[ ]TYPE OF APPOINTMENT   [ ]CAREER PROGRAM
[ ]PERSONNEL OFFICE IDENTIFIER (POI)   [ ]CRITICAL DATA ELEMENT FLAG
[ ]PAY DATA CHAIN COMPATABLE FLAG   [ ]APPOINTMENT STATUS COMPATABLE FLAG
[ ]COMMAND CODE/UIC COMPATABLE FLAG   [ ]FUNCT DESIGN/CMD COMPATABLE FLAG
[ ]NATURE OF ACTION CODE   [ ]SPID COMPATABLE FLAG
[ ]EDUCATIONAL LEVEL FLAG   [ ]OCC SERIES/FUNCT CLASS FLAG
[ ]PAY PLAN/SUPERVISORY FLAG   [ ]SUMMER EMPLOYMENT FLAG
[ ]FAMILY MEMBER CODE   [ ]GRADE/PAY RETENTION FLAG
[ ]INTERMITTENT FLAG   [ ]RACE AND NATIONAL ORIGIN
[ ]CPDF TRANSMITTAL FLAG   [ ]UPDATE CYCLE FLAG
[ ]SCHEDULED HOURS   [ ]ACTIVE/INACTIVE INDICATOR
[ ]PREVIOUS SUPERVISOR CODE   [ ]DATE LAST CHANGED SUPERVISOR
[ ]PREVIOUS POI   [ ]PREVIOUS UIC
[ ]PREVIOUS COMMAND CODE   [ ]EFFECTIVE DATE LAST TRANSFER
[ ]NON-CRITICAL ERROR COUNTER   [ ]ACCESSION DATE
[ ]ACCESSION NATURE OF ACTION   [ ]SPECIAL PROGRAM IDENTIFIER
[ ]RETIRED MILITARY CODE   [ ]FEGLI CODE
[ ]RETIREMENT CODE   [ ]POSITION, SUPERVISORY
[ ]EDUCATIONAL LEVEL   [ ]ACADEMIC DISCIPLINE
[ ]YEAR DEGREE ATTAINED   [ ]INTRANSIT INDICATOR
[ ]ARMY MANAGEMENT STRUCTURE CODE(AMS)[ ]ERROR FLAGS
[ ]RESERVE STATUS CODE   [ ]BARGAINING UNIT STATUS CODE (BUS)
[ ]CURRENT APPOINTMENT AUTHORITY 1   [ ]LEGAL AUTHORITY 1
[ ]LEGAL AUTHORITY 2   [ ]VIETNAM ERA VETERAN CODE
[ ]ANNUITANT INDICATOR CODE   [ ]FAIR LABOR STANDARDS ACT CODE
[ ]CREDITABLE MILITARY SERVICE   [ ]PRIOR PAY PLAN
[ ]SCHEDULED SALARY   [ ]AMOUNT OF MERIT INCREASE
[ ]DATE OF MARIT INCREASE   [ ]AMOUNT OF MERIT PAY CASH AWARD
[ ]DATE OF MERIT CASH AWARD   [ ]PERFORMANCE APPRAISAL
[ ]DATE OF PERFORMANCE APPRAISAL   [ ]DATE FIRST SUPERVISORY APPOINTMENT
[ ]KEY EMPLOYEE   [ ]DTE EXPECTED TO RETURN FROM OVERSEA
[ ]DATE RETURNED FROM OVERSEAS   [ ]CURRENT APPOINTMENT AUTHORITY 2
[ ]PMRS AMOUNT   [ ]PMRS DATE
[ ]FROZEN CSRS   [ ]PRIOR GRADE
[ ]SPEP COMPATIBILITY FLAG   [ ]SPECIAL EMPLOYMENT PROGRAM (SPEP)
[ ]SPEP SOURCE OF INTAKE   [ ]SPEP TRAINING COMMAND
[ ]SPEP ENTRY PAY PLAN   [ ]SPEP ENTRY OCCUPATIONAL SERIES
[ ]SPEP ENTRY GRADE   [ ]SPEP TARGET PAY PLAN
[ ]SPEP TARGET OCCUPATIONAL SERIES   [ ]SPEP TARGET GRADE
[ ]SPEP DATE ENTERED   [ ]SPEP PROPOSED DATE OF GRADUATION
[ ]SPEP GRADUATION/LOSS INDICATOR   [ ]SPEP DATE OF GRADUATION/LOSS
[ ]SPEP GRADUATION/LOSS REASON   [ ]PREVIOUS RETIREMENT COVERAGE
[ ]PRIOR OCCUPATIONAL SERIES   [ ]PRIOR WORK SCHEDULE
[ ]PRIOR PAY RATE DETERMINATE   [ ]HEALTH PLAN

LIST OF ELEMENTS IN FILE DCPDF

[ ]SOCIAL SECURITY NUMBER	[ ]SERVICE COMPUTATION DATE
[ ]CITIZENSHIP	[ ]DATE OF BIRTH
[ ]WORK SCHEDULE	[ ]PERSONNEL OFFICE IDENTIFIER
[ ]EFFECTIVE DATE OF PERSONNEL ACTION	[ ]SALARY(CHARACTER)
[ ]OCCUPATIONAL SERIES (CHARACTER)	[ ]FUNCT. CLASS. OF SCIENTISTS OF ENG.
[ ]STATE/COUNTRY CODE	[ ]CITY
[ ]COUNTRY	[ ]TIME IN HOURS
[ ]HANDICAP CODE	[ ]PAY RATE DETERMINENT
[ ]PAY BASIS	[ ]VETERANS PREFERENCE
[ ]EMPLOYEE TENURE	[ ]FEDERAL EMPLOYEES GROUP LIFE INSUR.
[ ]RETIREMENT CODE	[ ]POSITION OCCUPIED
[ ]DOD TRANSFER INDICATOR	[ ]SEX
[ ]AGENCY	[ ]BUREAU
[ ]PAY PLAN	[ ]GRADE
[ ]STEP	[ ]NATURE OF ACTION CODE (CHARACTER)
[ ]SUPERVISORY	[ ]EDUCATION LEVEL
[ ]YEAR DEGREE ATTAINED	[ ]ACEDEMIC DISCIPLINE
[ ]RACE (MINORITY GROUP)	[ ]UNIT IDENTIFICATION CODE(CHARACTER)
[ ]PROGRAM ELEMENT CODE (CHARACTER)	[ ]CIVIL FUNCTION INDICATOR
[ ]MILITARY TECHNICIAN FLAG	[ ]APPROPRIATION CODE(CHARACTER)
[ ]ACTIVE STRENGTH FLAG	[ ]TOTAL FEDERAL SERVICE IN MONTHS
[ ]YEARS OF FEDERAL SERVICE	[ ]AGE IN YEARS
[ ]FUNCTIONAL OCCUPATIONAL GROUP	[ ]FUNCTIONAL AREA
[ ]YEARLY COMPENSATION(CHARACTER)	[ ]PATCO
[ ]METROPOLITAN STATISTICAL AREA(SMSA)	[ ]WAGE CODE
[ ]OVERSEAS EMER. ESSENTIAL AGREE.FLAG	[ ]RETIREMENT ELIGIBLE CODE
[ ]DoD OCCUPATIONAL GROUP	[ ]FILLER
[ ]RATING OF RECORD	[ ]YEAR OF BACHELOR'S DEGREE
[ ]PMRS ALLOCATION (CHARACTER)	[ ]BARGAINING UNIT STATUS
[ ]ANNUITANT STATUS	[ ]FAIR LABOR STANDARDS ACT STATUS
[ ]LEGAL AUTHORITY 1 (CHARACTER)	[ ]LEGAL AUTHORITY 2 (CHARACTER)
[ ]VIETNAM ERA VETERAN	[ ]FILLER
[ ]SEASONAL FLAG	[ ]OPM REGION
[ ]CENSUS REGION	[ ]CENSUS DISTRICT
[ ]EMPLOYEE NAME (CHARACTER)	[ ]CURRENT APPOINTMENT AUTHORITY (CHR)
[ ]FILLER	[ ]HEALTH PLAN (CHARACTER)
[ ]CREDITABLE MILITARY SERVICE	[ ]DATE OF LAST PROMOTION
[ ]DATE ENTERED CURRENT GRADE	[ ]PROMOTION SENSITIVITY
[ ]LEVEL OF ACCESS TO SENSITIVE INFO.	[ ]DATE OF CURRENT SECURITY CLEARANCE
[ ]SECURITY INVESTIGATION TYPE	[ ]FROZEN CSRS SERVICE
[ ]PREVIOUS RETIREMENT COVERAGE	[ ]LANGUAGE IDENTITY FIRST LANGUAGE
[ ]LANGUAGE LISTENING PROF. LEVEL	[ ]LANGUAGE READING PROFICIENCY LEVEL
[ ]LANGUAGE SPEAKING PROFICIENCY LEVEL	[ ]LATEST PROFICIENCY EVALUATION DATE
[ ]LANGUAGE IDENTITY-SECOND LANGUAGE	[ ]LANG.LISTENING PROF. LEVEL-SEC LANG
[ ]LANG.READING PROF. LEVEL-SEC LANG.	[ ]LANG. SPEAKING PROF. LEVEL-SEC.LANG
[ ]LATEST PROF. EVAL. DATE- SEC. LANG.	[ ]FERS COVERAGE
[ ]ARMY SERVICE CAREER PROGRAM	[ ]USAF "PACER SHARE" OCCUPATION

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LIST OF ELEMENTS IN FILE CTF

[ ]SOCIAL SECURITY NUMBER   [ ]NAME
[ ]SUBMITTING OFFICE NUMBER   [ ]TRAINING, PRINCIPAL PURPOSE OF
[ ]TRAINING, TYPE   [ ]TRAINING, SOURCE
[ ]TRAINING, SPECIAL INTEREST PROGRAM [ ]TRAINING, DIRECT COST
[ ]TRAINING, INDIRECT COST   [ ]TRAINING, DATE OF COMPLETION
[ ]TRAINING, ON-DUTY HOURS   [ ]TRAINING, NON-DUTY HOURS
[ ]MINORITY GROUP DESIGNATOR   [ ]SEX
[ ]DATE OF BIRTH   [ ]CITIZENSHIP
[ ]VETERANS PREFERENCE   [ ]EMPLOYEE TENURE
[ ]PHYSICAL HANDICAP   [ ]WORK SCHEDULE
[ ]POSITION TENURE   [ ]PAY PLAN
[ ]OCCUPATIONAL SERIES   [ ]FUNCTIONAL CLASSIFICATION
[ ]GRADE OR LEVEL   [ ]SALARY
[ ]PAY BASIS   [ ]COMMAND CODE
[ ]UNIT IDENTIFICATION CODE   [ ]FUNCTION DESIGNATOR
[ ]POSITION OCCUPIED   [ ]TYPE OF APPOINTMENT
[ ]CAREER PROGRAM   [ ]SPECIAL PROGRAM IDENTIFIER
[ ]POSITION, SUPERVISORY   [ ]ACADEMIC EDUCATION LEVEL
[ ]ACADEMIC DISCIPLINE   [ ]YEAR DEGREE ATTAINED
[ ]PROCESSING DATE   [ ]CANCEL CODE
[ ]ARMY MANAGEMENT STRUCTURE CODE   [ ]BLANK

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LIST OF ELEMENTS IN FILE COEMIS-PA

[ ]ORGANIZATION CODE ID=28E	[ ]PAY-PLAN ID=29A
[ ]GRADE ID=30A	[ ]SOCIAL SECURITY NUMBER ID=02A
[ ]FUNCTION DESIGNATOR ID=36A	[ ]WORK SCHEDULE ID=16A
[ ]VETERANS PREFERENCE ID=05A	[ ]TRANSMISSION CODE ID=90L
[ ]COMPET AREA CODE ID=13C	[ ]KEY EMPLOYEE ID=46A
[ ]EMPLOYEE NAME ID=01A	[ ]FILLER
[ ]DIV/DIST/SEP ACT NAME ID=28A	[ ]SUBMITTING OFFICE NUMBER ID=39K
[ ]DATE RETURNED FROM OVERSEAS ID=56A	[ ]DTE OF EST RET FROM OVERSEAS ID=56B
[ ]FILLER	[ ]FED EMPL HEALTH BNFT CDE ID=90C
[ ]ORGANIZATION NAME ID=28B	[ ]AMOUNT OF MERIT INCREASE ID=60C
[ ]SERVICE COMP DATE-RIF ID=06B	[ ]LAST PERS ACTION DATE ID=44B
[ ]SCHEDULED SALARY-GM ID=60B	[ ]POSITION TITLE ID=27A
[ ]POSITION NUMBER ID=27B	[ ]OCCUPATIONAL SERIES ID=29B
[ ]SALARY - FIRST SHIFT ID=32A	[ ]RETIREMENT SYSTEM ID=08A
[ ]BIRTHDATE ID=04A	[ ]STEP ID=31A
[ ]SERVICE COMP DATE ID=06A	[ ]FUNCTIONAL CLASS ID=39E
[ ]ARMY MGT SRTUCTURE CODE ID=36B	[ ]POSITION COUNT
[ ]COMPETITIVE LEVEL ID=13A	[ ]PROF LICENCE REG ID=90H
[ ]TYPE OF APPOINTMENT ID=18L	[ ]WAGE AREA CODE ID=32J
[ ]HANDICAP CODE ID=39L	[ ]SPEC PROG IDENT ID=81A
[ ]PROMOTION TYPE	[ ]BARGAINING UNIT STATUS ID=39D
[ ]RET MIL RIF ENTITLEMENT ID=05B	[ ]SUPERVISORY POSITION ID=39A
[ ]POSITION TENURE ID=27C	[ ]POSITION OCCUPIED ID=35A
[ ]TENURE GROUP ID=07A	[ ]SEX OF EMPLOYEE ID=11A
[ ]"X" IF EMPL EXCEEDS POSITION COUNT	[ ]LWOP-FURLOUGH-SUSPENSION
[ ]CAREER PROGRAM ID=39Q	[ ]FAIR LABOR STANDARDS STATUS ID=10A
[ ]LAST EQUIVALENT INCREASE ID=53E	[ ]PSUEDO SORT KEYS
[ ]POSITION SENSITIVITY ID=03A	[ ]EMPLOYEE CLEARANCE ID=03D
[ ]ORGANIZATION CHIEF ID=90G	[ ]FA ORGANIZATION CODE ID=28G
[ ]FA EFFECTIVE SALARY	[ ]EDUCATION LEVEL ID=39F
[ ]EARLY POSITION COUNT	[ ]SUSPENSE DELETE DATE
[ ]RACE AND NATIONAL ORIGIN ID=39M	[ ]CORPS STRATIFICATION ID=27D
[ ]GEOGRAPHICAL LOC CODE ID=39J	[ ]HIGH POTENTIAL CODE ID=30Z
[ ]OBLIGATED POSITION ID=90J	[ ]PAY-BASIS ID=33A
[ ]DEPENDENT STATUS CODE ID=90K	[ ]CITIZENSHIP ID=12A
[ ]FEGLI ID=09A	[ ]RETIRED MILITARY STATUS ID=05C
[ ]RESERVE STATUS ID=05D	[ ]PAY RATE DETERMINANT ID=39C
[ ]PAYROLL BLOCK ID=00A	[ ]PAYROLL LOCATION ID=00B
[ ]SCHEDULED HOURS ID=90B	[ ]TRAINING AGREE EXP DTE ID=51G
[ ]TRANS AGREE EXP DATE ID=51F	[ ]MERIT PAY UNIT DESIG ID=60A
[ ]UNIT IDENT CODE ID=00C/00M/00P	[ ]PERFORMANCE RATING ID=42A
[ ]DATE OF PERF RATING ID=42B	[ ]SUGGESTION AWARD(S) ID=45A
[ ]INVENTION AWARD(S) ID=41A	[ ]DATE OF PROMOTION ID=90E
[ ]PERFORMANCE APPR DUE DTE ID=52C	[ ]CURRENT APPT AUTHORITY ID=18C
[ ]VIETNAM ERA VETERAN ID=39B	[ ]ANNUITANT INDICATOR ID=15A

[ ]SPEC EMPLOYMENT PROG   ID=82A   [ ]SPEP SOURCE OF INTAKE   ID=85A
[ ]SPEP TRAINING COMMAND   ID=85B   [ ]SPEP ENTRY PAY PLAN   ID=85C
[ ]SPEP ENTRY SERIES   ID=85D   [ ]SPEP ENTRY GRADE   ID=85E
[ ]SPEP TARGET PAY PLAN   ID=85F   [ ]SPEP TARGET OCC SERIES   ID=85G
[ ]SPEP TARGET GRADE   ID=85H   [ ]DATE OF ENTRY INTO SPEP   ID=85J
[ ]SPEP PROPOSED DTE OF GRAD   ID=85K [ ]SPEP GRAD/LOSS IDENT   ID=85L
[ ]SPEP DATE OF GRADUATION   ID=85M   [ ]SPEP GRAD/LOSS/REASON CDE   ID=85N
[ ]YEAR DEGREE AWARDED   ID=39G   [ ]ACADEMIC DISCIPLINE   ID=39H
[ ]ORGANIZATIONAL NAME   ID=28C   [ ]ORGANIZATIONAL NAME   ID=28D
[ ]SECURITY INVEST DATE   ID=03B   [ ]TYPE INVESTIGATION   ID=03E
[ ]SECURITY CLEARANCE   ID=03C   [ ]CAREER INTERN APPR DUE DATE   ID=52E
[ ]PATCO   ID=39N   [ ]SCD LENGTH SERVICE   ID=06C
[ ]FILLER   [ ]DUPL ORG CD (IF DIST/DIV OPT USED)
[ ]CASH AWARD DATE/AWARD   ID=61B/61A [ ]CASH AWARD DATE/AWD-2
[ ]CASH AWARD DATE/AWD-3   [ ]CARRIER CONTROL NUMBER   ID=90P
[ ]DATE OF DETAIL   ID=51J   [ ]TEMPORARY PROMOTION   ID=51D
[ ]TEMPORARY APPOINTMENT   ID=51E   [ ]DUTY.STATION   ID=34A
[ ]SUSPENSION   ID=51A   [ ]FURLOUGH   ID=51B
[ ]LWOP   ID=51C   [ ]ENTRANCE ON DUTY DATE   ID=91A
[ ]EXP DTE OF VRA APPT   ID=54B   [ ]CONV TO CAREER STATUS   ID=54A
[ ]OFFICE SYMBOL   ID=28S   [ ]REGULAR HOURLY PAY
[ ]SUPV PROB PERIOD END DATE ID=52D   [ ]FTE-FUNCTION-CODE   ID=36C
[ ]LOCAL USE 1   ID=92A   [ ]LOCAL USE 2   ID=92B
[ ]LOCAL USE 3   ID=92C   [ ]LOCAL USE 4   ID=92D
[ ]TEMP TOUR OF DUTY NTE   ID=51L   [ ]PHYSICAL EXAM DUE DATE   ID=55C
[ ]PERFORMANCE AWARD   ID=62A   [ ]PERFORMANCE AWARD DATE   ID=62B
[ ]BUDGET ELEMENT   [ ]LOCAL USE 5   ID=92E
[ ]LOCAL USE 6   ID=92F   [ ]LOCAL USE 7   ID=92G
[ ]LOCAL USE 8   ID=92H   [ ]LOCAL USE 9   ID=92J
[ ]PERF RATING 1st PRIOR   ID=42C   [ ]PERF RTNG DATE 1st PRIOR   ID=42D
[ ]PERF RATING 2nd PRIOR   ID=42E   [ ]PERF RTNG DATE 2nd PRIOR   ID=42F
[ ]SAVED GRADE   ID=31B   [ ]SAVED PAY PLAN   ID=31C
[ ]8 MO PROBATION EXP DTE   ID=52B   [ ]TEMP REASGN EXP DATE   ID=31R
[ ]TEMP CHG TO LOWER GR EXP DTE ID=51M[ ]MAX-OVT
[ ]RATE-ONE   [ ]RATE-TWO
[ ]FROZEN CSRS SERVICE   ID=48A   [ ]CREDITABLE MILITARY SVC   ID=49A
[ ]PREVIOUS RET COVERAGE   ID=47A   [ ]RETAINED GRADE EXP DTE   ID=51K
[ ]DATE OF MERIT INCREASE   ID=60D   [ ]SAVED SALARY EXP DATE   ID=50A
[ ]FOLLOW-UP ON PLACEMENT   ID=51H   [ ]VESSEL QUAL TO OPERATE   ID=90M
[ ]GOV'T DRIVER'S LICENSE   ID=55A   [ ]FOOD HANDLER PERMIT   ID=55B
[ ]FILLER   [ ]

LIST OF ELEMENTS IN FILE ACPERS

[ ]ACAD-DISCIPLINE
[ ]ACADEMIC-SAL-LANE
[ ]ACT-INACT-STR-IND
[ ]ACTIVITY-NAME
[ ]ADDR-CITY
[ ]AFD
[ ]AGE-RETIRE
[ ]AGENCY-CODE
[ ]ANNUITANT-INDICATOR
[ ]APPEAL-TYPE
[ ]ARBITRATION-NBR
[ ]AUTH-DESIG
[ ]AWD-AMT
[ ]AWD-RECIP-SVC-STS
[ ]BASIS-FOR-ALLEGED-DISCR
[ ]BUS
[ ]CAA-1
[ ]CAREER-PROG
[ ]CASE-SUPPLEMENTED-IND
[ ]CIV-RES-STATUS
[ ]CMD-CD
[ ]CRED-MIL-SVC
[ ]DATA-ITEM-CODE
[ ]DATABASE-FIELD-ABBR
[ ]DATE-AWD-SERVED
[ ]DATE-BRIEF-SUBMITTED
[ ]DATE-CLASS-APPEAL-APPEL-DECS
[ ]DATE-COMMIT-PLMT-ACT
[ ]DATE-DECISION
[ ]DATE-ENTERED-SPEP
[ ]DATE-FCCIR-DECISION
[ ]DATE-FLRA-CMPLNT-NON-CMPLNT
[ ]DATE-HEARING
[ ]DATE-MAND-RETIRE
[ ]DATE-PERF-RAT-LEV
[ ]DATE-PMC-APPEAL-RCVD-CPO
[ ]DATE-PMC-SURV-COMPL
[ ]DATE-POSN-VACANT
[ ]DATE-REC-ADD
[ ]DATE-RECVD
[ ]DATE-RECVD-IN-CPO
[ ]DATE-REQ-PERS-ACT-REL-CPO
[ ]DATE-RTN-CONUS
[ ]DATE-SUSPENDED
[ ]DATE-SVC-COMP-RIF

[ ]ACAD-DISCIPLINE-MINOR
[ ]ACPERS-USER-ID
[ ]ACTEDS-KEY-POSN
[ ]ADD-AWD-AMT
[ ]ADDR-ZIP-CODE
[ ]AGE
[ ]AGENCY-BEING CORR
[ ]AMS-CD
[ ]APPEAL-DECS-CLASS-STD
[ ]AFPRO-CD
[ ]ARBITRATION-TY
[ ]AUTH-SAL-SCHED-DODDS
[ ]AWD-BENEFIT-BAS
[ ]AWD-TY
[ ]BENEFIT-AMT
[ ]C-TYPE
[ ]CAA-2
[ ]CASE-ISSUES
[ ]CITIZENSHIP-STATUS
[ ]CMD-AGAINST
[ ]CMD-CD-FULL-NAME
[ ]DATA-ITEM-ABBR
[ ]DATA-ITEM-NAME
[ ]DATE-APPELLANT-LEV
[ ]DATE-BRIEF-DUE
[ ]DATE-CASE-SUPPLEMENTED
[ ]DATE-CLASS-REVIEW-APPROVAL
[ ]DATE-CURR-PAY-GRADE-LEV
[ ]DATE-ELIGIBLE-RET
[ ]DATE-EST-RTN-CONUS
[ ]DATE-FIRST-SUPV-APPT
[ ]DATE-GRIEV-INIT
[ ]DATE-LAST-PROM
[ ]DATE-PERF-RAT-DUE
[ ]DATE-PMC-APPEAL-DEC
[ ]DATE-PMC-SURV-BGNS
[ ]DATE-POSN-ESTAB
[ ]DATE-PROPOSED-GRAD-SPEP
[ ]DATE-REC-UPDT
[ ]DATE-RECVD-BY-APPELL-AUTH
[ ]DATE-REQ-PERS-ACT-RECVD-CPO
[ ]DATE-RESOL
[ ]DATE-SCTY-CLNC
[ ]DATE-SVC-COMP-OPM-RET
[ ]DATE-ULP-INITIATED

[ ]DATE-UNION-CONTRACR-EFF

[ ]DATE-UNION-CONTRACT-EXP

[ ]DATE-USACARA-INVESTIG-ASSIGNED

[ ]DATE-USACARA-DISP-CMDR

[ ]DELEGATED-CLASSIFICATION-AUTH

[ ]DISP-RESOL-GRIEV-EEO-CMPLNT

[ ]DOB

[ ]DOD-TRANSFER-FLAG

[ ]DOLLS-VALUE-POSN-MGT-ACT

[ ]DUAL-PAY-STATUS-IND

[ ]DUI-NBR-CHAR

[ ]EDOA

[ ]EDOA-BEING-CORR

[ ]EDUC-LEV

[ ]EEDP

[ ]EMPL-ID-1

[ ]EMPL-ID-CORR

[ ]EMPL-NAME

[ ]EMPLOYEE-RECORD-TYPE

[ ]FAM-MBR-EMPL-PREF

[ ]FAM-MBR-NBR

[ ]FED-CIR-COURT-DECS-NBR

[ ]FED-CIR-COURT-NBR

[ ]FEGLI ·

[ ]FERS-COV

[ ]FLRA-CASE-NBR

[ ]FLRA-CMPLNT-ISSUED

[ ]FLRA-DECISION-NBR

[ ]FLRA-IND

[ ]FLRA-TYPE

[ ]FLSA-EXEMPT-STAT

[ ]FORMAL-INFORMAL-IND

[ ]FROZEN-CSRS-SERVICE

[ ]FUNC-TRN-POSN

[ ]FUNCT-CLASS-SCI-ENGR

[ ]FUNCT-DESIG

[ ]GRIEV-ID-NBR

[ ]GRIEV-IND

[ ]GRIEV-SEQ

[ ]GRIEV-TYPE

[ ]GRIEV-YR

[ ]GSA-LOC-DSG-1

[ ]GSA-LOC-DSG-2

[ ]GSA-LOC-DSG-3

[ ]HAZARD-ENVIRON-DIFF-CAT

[ ]HEALTH-PLAN

[ ]HI-VAL-ROLL-UP-RANGE

[ ]HRS-COUNSELING

[ ]IND-GROUP-AWD

[ ]INI-AWD-AMT

[ ]INTERDISCIPLINARY-POSN

[ ]INTERDISCIPLINARY-SERS

[ ]JOB-NBR

[ ]LAC-NAR1

[ ]LAC-NAR2

[ ]LANG-IDENT

[ ]LANG-LISTEN-PROF

[ ]LANG-READ-PROF

[ ]LANG-SPEAK-PROF

[ ]LEGAL-AUTH-1

[ ]LEGAL-AUTH-2

[ ]LOC-CODE

[ ]LOSS-REASON

[ ]LWOP-IND

[ ]MEDICAL-SKILLS

[ ]MER-GRIEV-STATUS

[ ]MOB-EMPL

[ ]MOB-POSN

[ ]NAF-APPT-TYPE

[ ]NAF-EMPL-ST

[ ]NAF-EMPL-TENURE

[ ]NAF-OFF-DUTY-MIL

[ ]NAF-POSN-TITLE-DSG

[ ]NAF-RETAINED-PAY

[ ]NAF-STANDARD-RMKS

[ ]NAF-TDA-LINE-NBR

[ ]NAF-TDA-PARA-NBR

[ ]NAF-UPI-KEY

[ ]NAF-VET-PREF

[ ]NAFI-BUSINESS

[ ]NAFI-CMD

[ ]NAFI-DEPT

[ ]NAFI-GLA

[ ]NAFI-LOCATION

[ ]NAFI-TYPE

[ ]NAME-PMC-APPEAL-GROUP-REP

[ ]NAME-POSN-CLASS-SPEC

[ ]NATURE-ACTION-1

[ ]NATURE-ACTION-2

[ ]NATURE-ACTION-BEING-CORR

[ ]NBR-APPELLENTS
[ ]NBR-DAYS-PROCESS-PERS-ACT
[ ]NBR-OF-PROPOSALS
[ ]NBR-PROP-HDQ-WTH
[ ]NBR-PROP-NON-NEG
[ ]NEGOT-DA-IND
[ ]NOA-TRANS-PROC
[ ]OPER-AGENCY
[ ]ORGN-TITLE
[ ]PATCO-CODE
[ ]PAY-GRADE-LEV
[ ]PAY-GRADE-LEV-EQUIV
[ ]PAY-PLAN-CODE
[ ]PAY-STATUS
[ ]PERF-LEV-ID
[ ]PMC-APPEAL-CURR-FLSA
[ ]PMCOAPPEAL-CURR-PAY-GRADE-LEV
[ ]PMC-APPEAL-DEC
[ ]PMC-APPEAL-DEC-OCC-SERS
[ ]PMC-APPEAL-DEC-PAY-PLAN
[ ]PMC-APPEAL-NBR-APPELLANTS
[ ]PMRS-ALLOC
[ ]POI-OSC
[ ]POSN-ACTION
[ ]POSN-SENEITIVITY
[ ]POSN-TITLE-ABBR
[ ]PERM-PAY-TY-IND
[ ]PRIOR-OCC-SERS
[ ]PRIOR-PAY-GRADE-LEV
[ ]PRIOR-PAY-RATE-DET
[ ]PRIOR-STEP-OR-RATE
[ ]QUERY-VALIDITY-IND
[ ]REAS-POSN-ABOL-CANCEL
[ ]REF-LIST-NBR
[ ]RELIEF-SOUGHT-GRIEV-APPEAL-ULP
[ ]REQ-FLSA
[ ]REQ-PAY-GRADE-LEV
[ ]REQ-POSN-TITLE-ABBR
[ ]RESOL-LEV
[ ]RET-ELIGIBILITY
[ ]RET-PLAN
[ ]RETAINED-PAY-PLAN
[ ]REVIEW-FINDINGS
[ ]REVIEW-METHOD
[ ]ROLL-UP-GROUP

[ ]NBR-DAYS-FILL-POSN
[ ]NBR-NAF-FN
[ ]NBR-PROP-FLRA-DMD
[ ]NBR-PROP-NEG
[ ]NBR-PROP-UNION-WTHDRW
[ ]NOA-NTE-DATE
[ ]OCC-CODE
[ ]ORGANIZATIONAL-COMPONENT
[ ]OVERSEAS-EMPL-STATUS
[ ]PAY-BASIS-CODE
[ ]PAY-GRADE-LEV-ASG-INT-MIL-POSN
[ ]PAY-GRADE-LEV-PERM
[ ]PAY-RATE-DET
[ ]PCT-PERM-PAY
[ ]PERF-RATING-SYSTEM
[ ]PMC-APPEAL-CURR-OCC-SERS
[ ]PMC-APPEAL-CURR-POSN-TITLE-ABBR
[ ]PMC-APPEAL-DEC-FLSA
[ ]PMC-APPEAL-DEC-PAY-GRADE-LEV
[ ]PMC-APPEAL-DEC-POSN-TITLE-ABBR
[ ]PMC-APPEAL-AUTH
[ ]POI
[ ]POS-FIL
[ ]POSN-OCCUPIED
[ ]POSN-TENURE
[ ]POSN-TITLE-FULL
[ ]PREV-RET-COV
[ ]PRIOR-PAY/BASIS
[ ]PRIOR-PAY-PLAN
[ ]PRIOR-SAL
[ ]PRIOR-WORK-SCHED
[ ]RATING-STATUS
[ ]REEMPL-REST-RIGHTS-POSN
[ ]RELIEF-GRANTED
[ ]REPORTABLE-HANDICAP
[ ]REQ-OCC-SERS
[ ]REQ-PAY-PLAN
[ ]RESOL
[ ]RESOURCE-CMD
[ ]RET-MIL-CD
[ ]RETAINED-GRADE
[ ]RETAINED-STEP-OR-RATE
[ ]REVIEW-LEVEL
[ ]RNO-ID
[ ]SALARY

LIST OF ELEMENTS IN FILE ACPERS

[ ]SCHED-HRS
[ ]SERV-COMP-DATE
[ ]SEX
[ ]SICK-LV-CURR-BAL
[ ]SNN
[ ]SPEC-SAL-SCHED-FN
[ ]SPEP-DATE-GRAD-LOSS
[ ]SPEP-ENTRY-PAY-GRADE-LEV
[ ]SPEP-SOURCE-OF-INTAKE
[ ]SPONSOR-COMP
[ ]SSN
[ ]SSN-PMC-APPEAL-GROUP-REP
[ ]STD-VIOL
[ ]STEP-OR-RATE
[ ]SUPV-LEVEL
[ ]TAR-OCC-SERS
[ ]TAR-PAY-PLAN
[ ]TDA-PARA-NBR
[ ]TELE-NBR-DUTY-AUTOVON-PFX
[ ]TELE-NBR-WORK
[ ]TIME-UPDT
[ ]TRADE-CAT-FN
[ ]TRNG-COST-DIR
[ ]TRNG-COURSE-CAT-NBR
[ ]TRNG-DUTY-HRS
[ ]TRNG-LOCATION-CITY
[ ]TRNG-METHOD
[ ]TRNG-PRIN-PURPOSE
[ ]TRNG-SOURCE
[ ]TRNG-TYPE
[ ]TY-APPT
[ ]TY-SCTY-INVES
[ ]UIC
[ ]ULP-CHARGE-IND
[ ]ULP-REGION
[ ]ULP-SEQUENCE
[ ]ULP-STAT-CIT-SUB
[ ]UNION-LOC-ID-NBR
[ ]UPDATE-SEQ
[ ]UPI-SEQ
[ ]USACARA-DOCKET-NBR
[ ]USACARA-OFC-ASG
[ ]VET-PREF-CAT
[ ]WAGE-AREAS-FN
[ ]WORK-HOURS-FN
[ ]YR-DEGREE-ATTAIN
[ ]YR-MO-PROF-TESTED

[ ]SECURITY-CLEAR
[ ]SEV-PAY-ENTITLEMENT
[ ]SF52-REMARKS
[ ]SICK-LV-USED
[ ]SPEC-ACT-AWD-CAT
[ ]SPEP
[ ]SPEP-ENTRY-OCC-SERS
[ ]SPEP-ENTRY-PAY-PLAN
[ ]SPEP-TRNG-CMD
[ ]SRC-EXEC-INTAKE
[ ]SSN-BEING-CORR
[ ]STATE-RES-CURR
[ ]STEP-FN
[ ]STREET-ADDR
[ ]SUPV-NON-SUPV-IND
[ ]TAR-PAY-GRADE-LEV
[ ]TDA-LINE-NBR
[ ]TELE-NBR-AUTOVON
[ ]TELE-NBR-DUTY-EXT
[ ]TENURE-CODE
[ ]TOT-AMT-INCENTIVE-AWD
[ ]TRANSFER-AGENCY
[ ]TRNG-COST-INDIR
[ ]TRNG-COURSE-TITLE
[ ]TRNG-LOCATION
[ ]TRNG-LOCATION-STATE
[ ]TRNG-NON-DUTY-HRS
[ ]TRNG-PRIORITY
[ ]TRNG-SPEC-INTEREST-PROG
[ ]TRNG-VENDOR
[ ]TY-POSN
[ ]TYPE-RESERVE-TECH
[ ]ULP-CASE-NBR
[ ]ULP-INITIATING-PARTY
[ ]ULP-RESPONDENT
[ ]ULP-STAT-CIT-PFX
[ ]ULP-STATUTORY-CITATION
[ ]UPDATE-PROG
[ ]UPI-KEY
[ ]UPWD-MOB-BRIDGE-POSN-DESIG
[ ]USACARA-FINDING
[ ]USACARA-TVL-COST
[ ]VEV-IND
[ ]WAGE-SAL-SCHED-FN
[ ]WORK-SCHED-CODE
[ ]YR-DEGREE-BACH
[ ]YRS-SVC

CIVILIAN PERSONNEL INFORMATION SYSTEM

CIVPERSINS

CIVPERSINS is a centrally maintained data base which uses 90 data elements to classify and record current status of all individual civilian Army employees; originally designed and implemented in 1980 to support strength accounting, this data base is the by-product of installation level systems and is updated semimonthly; data includes information on academic discipline and data of degree, occupational series, location, grade and step, salary, scheduled hours, amount and date of most recent merit pay and/or cash award, as well as a number of other potentially useful data elements; this data base maintains no history of transactions; CIVPERSINS directly supplies input to SAX, CTF, and Report Master File. Systems input is reported from manual and automated personnel records maintained at the installation or activity servicing COP through the use of punched cards or card images (majority of the input) and AUTODIN (or in some cases, courier services).

Error checks are made on all incoming data in three ways:

1. Data Element Check - all data is checked to insure that it matches the authorized codes and values. In addition, the size of the field and the source of the data is checked. If any of these do not match the data input is rejected.

2. Data Compatibility - checks are made on uniquely related data elements. If the related data elements do not match the input is rejected. If input is modifying one of the related data elements, then compatibility of the remaining elements in the "data chain" are considered.

3. Data Processing - if a transaction does not conform to any of the reporting requirements as outlined in AR 680-330 then the input is rejected.

CIVPERSINS is the source of all extracts and reports that satisfy management needs at HQDA, OSD, OPM, and other agencies. The primary extracts are the Civilian Personnel Master File extract (CPMF), the DMDDC Civilian Master File extract, and the CIVFORS extract.

DATA MANAGERS: Ms. Pinson, TAPA, 325-7610
Mr. Penn, TAPA, 325-7612

CIVILIAN PERSONNEL MASTER FILE

CPMF

CPMF - this file is an extract of CIVPERSINS that is used on the HQDA Decision Support System to complement CIVFORS. The Civilian Master File contains data on all U.S. direct hire employees of the U.S. Army (National Guard technicians and DoD teachers are not included). The CPMF is a snapshot of the civilian workforce for a given date. The file has 114 data elements including 18 flags that are used by HQDA only.

DATA MANAGER: Mr. Penn, TAPA, 325-7612

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DEFENSE CIVILIAN PERSONNEL DATA FILE

DCPDF

DCPDF - this file is an extract of CIVPERSINS that could be used for evaluating the civilian force. The DMDC Civilian Master File contains 94 data elements some of which are calculated, and some of which are added by DMDC (OPM region, census region, and census district). With the exception of the OPM and census items, the DMDC Civilian Master File can be considered a subset of the CPMF. The DMDC master file is readily available and should be given strong consideration if timely analysis is considered necessary.

DATA MANAGER: Mr. Creager, DMDC, (408) 646-2951
                                      AV 878-2951

CIVILIAN TRAINING FILE

CTF

CTF - records the training of individuals of 4 or more hours; a record is created when a training transaction is received by CIVPERSINS. The CTF records the type of training, the costs, and whether it was duty/nonduty. Data in this file is available but unreliable for drawing army-wide conclusions. Installation commanders have the option to submit/not submit transactions, therefore the file is incomplete. If analysis is anticipated at installation level, however, the CTF should be considered as a valid source.

DATA MANAGER: Mr. Penn, TAPA, 325-7612

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NONAPPROPRIATED FUND PERSONNEL SYSTEM

NAFS

NAFS - designed in 1976 as a stand-alone system, however has been integrated into CIVPERSINS as a one way card input system. Contains 24 data elements per record. The file contains data on all nonappropriated fund employees hired by the U.S. Army.

DATA MANAGER: Ms. Penson, CIVPERCEN, 325-9012
Ms. Cuckierman, ACFSC, 325-0194

STANDARD CIVILIAN PERSONNEL MANAGEMENT INFORMATION SYSTEM

SCIPMIS

SCIPMIS - maintained locally at the CPO level; contains 150 data elements in each record; implemented in 1976-1977 to provide automated support to installation personnel managers and by-product generation of transactions to satisfy most of the strength accounting requirements of CIVPERSINS. Data is first collected into a regionalized data base and then transmitted to HQDA. Does not generate extracts but does generate standard reports. In addition, system allows queries using the DATACOM VER 7 query system. SCIPMIS includes position data but only if the position is filled. Army Regulation 680-340 applies.

DATA MANAGERS: Mr. Houston, ISEC, 756-5944
Mr. Bartley, ISEC, 756-5906

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CORPS OF ENGINEERS MANAGEMENT INFORMATION SYSTEM - PERSONNEL ACCOUNTING

COEMIS-PA

COEMIS-PA - division-wide, centralized data base developed and maintained by the U.S. Army Corps of Engineers to meet their own unique reporting requirements; each record contains 140 data elements, approximately 40 of which are not contained in CIVPERSINS; used at the CPO level; generates input to CIVPERSINS. COEMIS drives the finance and accounting data base so accuracy of the data is relatively good. COEMIS also feeds the central payroll system which not only pays with Army appropriated funds but is 75% civil funds.

Daily updates are made from SF52 input. Internal validity and compatibility checks are made prior to transmittal to CIVPERSINS. At least twice a year comparisons are made with CIVPERSINS on month end snapshots.

DATA MANAGER: Mr. Heiser, CPO; COE, 272-0545

CIVILIAN PERSONNEL ACCOUNTING SYSTEM

CPAS

CPAS - developed by the U.S. Army Management Systems and Support Agency for use by a limited number of CPOs in the Military District of Washington, and Fort Sam Houston, Tx; generates input to CIVPERSINS on a semi-monthly basis with the standard error checks being conducted by CIVPERSINS.

DATA MANAGER: Ms. Tullock, CPO; MDW, 475-1594
               Ms. Logan, 475-0974/5/6

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STANDARD ARMY CIVILIAN PAY SYSTEM

STARCIPS

STARCIPS - maintained at the Installation level to record cost/compensation data; specific data elements in each individual record are not consistent across installations. Only compatibility check made is with SCIPMIS interface listing. Data base dictionary does not exist. This data base could be useful because of the sick leave data and information on unions.

DATA MANAGERS: Mr.Cash, USAFAO, (317) 542- 3213
                Mr. Kostecka, ISEC, 756-5735

ARMY CIVILIAN PERSONNEL SYSTEM

ACPERS

ACPERS - data base system not yet delivered; will serve as interface between Vertical Force Development Management Information System (VFDMIS), Standard Financial System (STANFINS), STARCIPS, CIVFORS, and CPMF; will be maintained and utilized centrally.

DATA MANAGERS: Mr. Houston, ISEC, 756-5944
                 Mr. Lipscomb, CIVPERCEN, 325-9012

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AUTOMATED CAREER REFERRAL SYSTEM/ARMY CIVILIAN EVALUATION SYSTEM

ACARS/ACCES

ACARS/ACCES - developed and implemented in 1978-1979; provides automated support for the career referral process by identifying best qualified candidates for position vacancies; maintains geographic availability and referral category data on each employee registered n 5 career programs (civilian personnel, manpower and force management, librarian, EEO, and commissary) administered by CIVPERCEN. Other career programs to be included in the near future are: logistics, supply management, material maintenance management, transportation management, communications, and education services. Individuals wishing to participate must submit form to CIVPERCEN through local CPO.

DATA MANAGER: Ms. McFadden, DAPE-CP, 695-6717

CIVFORS

CIVFORS - a policy-modeling, strength management system that produces forecasts of civilian requirements and strength and supports personnel management data forecasting requirements in peacetime (mobilization, war, and demobilization scenario capabilities are planned). The major performance capabilities are listed below.

a.   Develop manpower requirements and targets

b.   Strength management capabilities

c.   Analysis and presentation capabilities

d.   Develop operational requirements

DATA MANAGER: MAJ. Elam, DAPE-MB, 695-3857

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CPO INITIATIVES

This data source lists several installation initiatives that have been locally successful and are being offered for consideration army-wide. This is not a traditional data source in the sense that there is a record layout and data dictionary. These initiatives do, however, provide the analyst with a source of ideas for use in analyzing a problem. These initiatives will be accessed through this data index.

DATA MANAGER: Ms. Funes, DAPE-CP, 695-4121

ARMY-WIDE SURVEY OF CIVILIAN PERSONNEL

ARMY SURVEY - anonymous longitudinal survey administered every two years to sample of supervisors and employees; most questions in survey ask for subjective measures of various elements which could affect individual performance, job satisfaction, and, ultimately employee turnover; results of surveys have yet to be consolidated for use as a meaningful tool in management research. Contract has just been let to collect survey data.

DATA MANAGER: Mr. Kingsley, DAPE-CP, 697-2444

M E M O R A N D U M

FOR: Dr. Joel Savell, ACVPERS COTR, ARI

THROUGH: Dr. Mary Kralj, ACVPERS Project Director, HumRRO

FROM: Mr. Don Rose, Project Manager, SRA Corporation

SUBJECT: Army-Wide Survey

DATE: June 16, 1988

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1. This memorandum documents the steps taken by SRA Corporation to obtain and consolidate the response data collected in 1977, 1979, 1981, 1983, and 1985 in connection with an Army administered survey that was conducted Army-wide to collect attitude data with respect to the management of army civilians. SRA was charged with obtaining the response data and has made every effort to do so but as noted below, after an extensive search effort was unable to locate any useable data.

2. All the survey response data was presummed to be on 10 magnetic tapes. Mr. Kingsley, DAPE-CP, provided SRA with the 10 tapes that were to be read and analysed. Of the ten tapes read only two appeared to have any useable data. The rest either had garbage or irrelevant data. The two tapes that appeared to have useable data were labeled "FY81" anbd "FY83" and were assumwed to have response data for those years. FYs 77, 79, and 85 were unaccounted for. We attempted to interprete the FY81 and FY83 files; however, the file formats provided did not match the data so several trial and error attempts were made to determine the file layout. After several futile tries, SRA contacted Dr Crum, the author of the original survey. We asked him to review the data with us in the hopes that he would recognize the data and possibly how it should be formatted. Upon review of the data Dr. Crum determined that the two files did not contain survey data from the Army-Wide Survey.

3. Several attempts were made to locate copies of the data but nothing was found. Since the original contractor, INTRAN, was no longer in business, SRA contacted individuals who had worked with the contract now at QUESTAR and NCS. In both cases SRA was informed that all documentation and data had been turned over at the termination of the contract to the Total Army Personnel Agency.

4. SRA next contacted Ms. Masser at Ft. Detrick, Md. where the tapes were originally processed after INTRAN had collected and forwarded the response data. This was done after each survey was administered. It was at Ft. Detrick that the survey data was merged with army-wide installation data and then analysed by Ft Detrick analysts. Ms. Masser informed us that all tapes and documentation had been turned over at the termination of the contract to the Total Army Personnel Agency.

5. SRA then contacted Mr. Penn in the CivPerCen at TAPA to verify if any of the survey files had been saved. Information concerning tape and disk labels were provided; however, after a thorough search of the system it was determined that the tapes and/or disks no longer existed.

7. After more than two months of extensive search, we concluded that the Army no longer has the data files from the Army-Wide Survey administered in 1977, 1979, 1981, 1983, and 1985.

8. To avoid this occurring in the future SRA recommends that certain actions be taken:

      a. Develop formal procedures for the storage of valuable data such as the survey results. These procedures should allow for permanent storage of certain data.

      b. Create duplicate or backup files of all data collected or created to avoid data loss.

      c. Provide more complete documentation of data files. Documentation should include tape labels, file formats, save card information, storage location, etc.

9. Throughout this whole effort we worked directly with Mr. Kingsley who was designated as the ODCSPER point of contact. He was helpful and cooperative in our efforts to recapture the survey information.