DOCUMENT RESUME

04539 - [B3574848] ~~(Restricted)~~ Released 1/20/78

The Defense Integrated Data System: Is It Efficient and Effective? LCD-77-117; B-163074. December 20, 1977. 47 pp. + 3 appendices (13pp.).

Report to Rep. George H. Mahon, Chairman, House Committee on Appropriations: Defense Subcommittee; Sen. John C. Stennis, Acting Chairman, Senate Committee on Appropriations: Defense Subcommittee; by Elmer B. Staats, Comptroller General.

Issue Area: Automatic Data Processing (100); Facilities and Material Management: Supply and Maintenance Operations Reporting Systems (703).
Contact: Logistics and Communications Div.
Budget Function: National Defense: Department of Defense - Procurement & Contracts (058); Miscellaneous: Automatic Data Processing (1001).
Organization Concerned: Department of Defense; Defense Logistics Agency.
Congressional Relevance: House Committee on Appropriations: Defense Subcommittee; Senate Committee on Appropriations: Defense Subcommittee.
Authority: Defense Cataloging and Standardization Act of 1952. H. Rept. 94-1475.

In May 1965, the Defense Logistics Agency (DLA) began developing the Defense Integrated Data System which was expected to provide for future workload growth by consolidating various logistics subsystems into one integrated data bank. DLA has consolidated the various subsystems into one integrated data bank, centralized the processing and storage of catalog management data to provide uniform control over its accuracy, provided a limited capability for immediate and remote access, and generally improved the quality and quantity of information available to customers and eliminated some duplicative files and publications. Findings/Conclusions: Since the system was declared operational in March 1975, the agency has had problems achieving all its processing goals. Particular problems affected the item identification function, ability to process current workload, elimination of local duplicative files, centralization of publications, and exchange of some data with other logistics systems. Stringent management control might have headed off the agency's problems. Shortcomings in project management permitted development of an inadequately sized system based on understated workload projections and permitted preparation of an overoptimistic economic analysis justifying development of the system and premature operation before all major functions were completely implemented and tested and errors were corrected. To cope with these problems, new hardware was added and software was refined to augment the original system. This augmentation did not provide the processing capability required to meet demands. There is valid need for this system, but the processing

problems have resulted from inadequate system sizing andpremature operations. Recommendations: The Secretary of Defense should require the Assistant Secretary (Manpower, Reserve Affairs and Logistics) to: establish project accountability for the operation and continued development of the Defense Integrated Data System; have a steering committee study the current and projected user requirements for the system; have the steering committee reevaluate the system's major alternatives and determine what modifications are necessary; require the steering committee to use an updated economic analysis is the basis for cost control purposes; require formal management agreements between DLA and the services and agencies to provide improved management control over operations, data base integrity, and the exchange of data between systems; and have the steering committee take firm measures to eliminate all unnecessary duplicate data bases and operations regardless of which service or agency developed, maintains, or uses them. (Author/SW)

REPORT OF THE COMPTROLLER GENERAL OF THE UNITED STATES

The Defense Integrated Data System-- Is It Efficient And Effective?

This study concerns the Defense Logistics Agency's attempt to consolidate various logistics data systems into a single logistics management information system through the use of a large-scale computer system.

The system was declared operational in March 1975, but because of design and development problems, it has not achieved performance objectives.

LCD-77-117

DECEMBER 20, 1977

COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON, D.C. 20548

B-163074

The Honorable George H. Mahon
Chairman, Subcommittee on Defense
Committee on Appropriations
House of Representatives

The Honorable John C. Stennis
Acting Chairman, Subcommittee on Defense
Committee on Appropriations
United States Senate

This is our report on the problems affecting the operating efficiency and effectiveness of the Defense Integrated Data System.

We made our review in response to your request (H. Rept. 94-1475, dated Sept. 3, 1976) to study the operating costs and requirements of and changes made to this system. As requested by your offices, we have not obtained comments from the Secretary of Defense. However, the results of our review were discussed with various Defense Department personnel, including representatives of the Assistant Secretary of Defense (Manpower, Reserve Affairs and Logistics), and their comments were considered in preparing this report.

As arranged with your offices, we are sending a copy to the Secretary of Defense, but unless you publicly announce its contents earlier, we will not distribute this report further until 30 days from the date of the report. At that time we will send it to interested parties and make copies available to others upon request.

Comptroller General
of the United States

REPORT OF THE
COMPTROLLER GENERAL
OF THE UNITED STATES

THE DEFENSE INTEGRATED DATA SYSTEM-- IS IT EFFICIENT AND EFFECTIVE?

D I G E S T

In May 1965 the Defense Logistics Agency started a program for developing the Defense Integrated Data System. This program was expected to provide for future workload growth by consolidating various logistics subsystems into one integrated data bank capable of accommodating at least 13.5 billion characters of data and capable of expanding to 20 billion characters by the mid-1970s.

In addition, the system was supposed to handle at least 60 million transactions yearly, possess immediate and remote access capability, and interface through the Automatic Digital Network with other automatic data processing systems throughout the United States. (See pp. 4 and 5.)

The Defense Logistics Agency has

--consolidated the various subsystems into one integrated data bank,

--centralized the processing and storage of catalog management data to provide uniform control over its accuracy,

--provided a limited capability for immediate and remote access, and

--generally improved the quality and quantity of information available to customers and eliminated some duplicative files and publications.

However, since the system was declared operational in March 1975, the Agency has had problems achieving all its processing goals. Particular problems affected the item identification function, ability to process current workload, elimination of local duplicative files, centralization of

publications and exchange of some data with other logistics systems. (See p. 6.)

Stringent management control might have headed off the Agency's problems. Shortcomings in project management permitted development of an inadequately sized system based on understated workload projections. It also permitted preparation of an overoptimistic economic analysis justifying development of the system and premature operation before all major functions were completely implemented and tested and errors were corrected. (See p. 40.)

To cope with these problems, the Defense Logistics Services Center, before January 1976, augmented the original Defense Integrated Data System by adding a third processor to the original system, installing a second Burroughs 6700 system estimated to be one-tenth the size of the original system, and upgrading and retaining one IBM 360/65 system, originally scheduled to be released. (See p. 18.)

This augumentation did not provide the processing capability required to meet current demands, and there is no reasonable assurance that additional augmentations being considered by the Center will provide a long-term solution to existing processing problems. On the contrary, GAO's audit experience suggests that several additional augmentations may not result in a long-term solution.

Other alternatives should also be considered, such as reevaluating user needs and system requirements with a view toward reducing the scope of the Defense Integrated Data System. In this regard, GAO suggests that the Agency concentrate on developing efficient and effective operation of those functions most critical to satisfying customer needs and defer new or unimplemented features until their operability could be assured.

Another alternative would be to reevaluate the system in light of the mission budgeting concept. This concept is fully described in GAO's report to the Congress, "Mission Budgeting: Discussion and Illustration of the Concept in Research and Development Programs" (PSAD-77-124, July 27, 1977).

Applying this concept to the program would enable the Defense Logistics Agency to identify mission-essential applications more clearly and to focus allocation of its resources on development, implementation, and use of those applications. When reliability of and user confidence in the Defense Integrated Data System are firmly established, an environment should exist in which the System's objectives--such as elimination of duplicative files and publications--could be more readily achieved. (See pp. 41 and 42.)

There is a need for a central Federal repository for item identification and related cataloging data to complement the Federal Supply System. The Defense Integrated Data System fulfills this need.

In its letter report to the Subcommittee on Defense, House and Senate Committees on Appropriations, dated May 5, 1977, GAO recommended that the Subcommittees discuss with concerned officials the existing management plan for the Defense Integrated Data System and the associated cost implications.

GAO also recommended that the Subcommittees review any proposed costs to resolve system performance problems.

Finally, GAO recommended that the scope of the system be limited to item identification and catalog publications. GAO believes that by so limiting the system, only those parts of the following data base segments or functions necessary to support mission objectives would be required at the Defense Logistics Services Center.

--Supply management.

--Utilization and marketing.

--Statistical reports.

--System support record maintenance.

--Special operations.

Agency reaction to our interim report indicated that clarification was necessary for the above recommendation concerning the limitation of system scope. In this regard, we have defined reduction of system scope under development alternatives on page 41 of this report.

In line with the above, GAO recommends that the Secretary of Defense require the Assistant Secretary (Manpower, Reserve Affairs and Logistics) to:

--Establish project accountability for the operation and continued development of the system. A steering committee of key Defense Logistics Agency and service and agency personnel should be responsible for future system development, implementation, and review and should report directly to the Assistant Secretary.

--Have the steering committee study the current and projected user requirements for the system to determine what mission-essential functions other than item identification and cataloging are feasible and necessary.

--Have the steering committee reevaluate the system's major alternatives and determine what modifications are necessary.

--Require the steering committee to use an updated economic analysis as the basis for cost control purposes which include, but are not limited to, implementation of any program change, equipment augmentations, or new design configurations.

--Require formal management agreements between the Defense Logistics Agency and the services and agencies to provide improved management control over system operations, data base integrity, and the exchange of data between systems. The steering committee should have responsibility for seeing that these agreements are complied with and updated as necessary.

--As the above actions are completed, have the steering committee take firm measures to eliminate all unnecessary duplicate data bases and operations regardless of which service or agency developed, maintains, or uses them. (See pp. 44 and 45.)

At the request of the Subcommittees, comments were not solicited from the Secretary of Defense. However, the matters in this report have been discussed with various Defense Department personnel, including representatives of the Assistant Secretary of Defense (Manpower, Reserve Affairs and Logistics), and their comments have been considered in the report.

Contents

ABBREVIATIONS

ADP	automatic data processing
AUTODIN	Automatic Digital Network
DAAS	Defense Automatic Addressing System
DIDS	Defense Integrated Data System
DLA	Defense Logistics Agency
DLSC	Defense Logistics Services Center
DOD	Department of Defense
FIIG	Federal Item Identification Guide
GAO	General Accounting Office
NATO	North Atlantic Treaty Organization
NSN	National Stock Number
TIR	Total Item Record

CHAPTER 1

INTRODUCTION

The Federal Catalog System, 1/ containing about 6 million items of supply, is under Department of Defense (DOD) control. The Office of the Assistant Secretary of Defense (Manpower, Reserve Affairs and Logistics) 2/ is responsible for the direction of this system, and the Defense Logistics Agency (DLA), which reports to the Assistant Secretary, is responsible for the administrative control. The Defense Logistics Services Center (DLSC), under DLA, is responsible for maintaining the Federal Catalog System records, which includes implementing and operating the Defense Integrated Data System (DIDS).

DLA ORGANIZATION

The Defense Logistics Agency, (formerly the Defense Supply Agency) 3/ was organized in 1962 to provide effective and economical logistical support, primarily for common use items, to DOD components, Federal civil agencies, and others as authorized. DLA administers its mission requirements through the following 24 primary field activities.

Supply centers--There are six supply centers responsible for material management of assigned commodities and items of supply relating to food, clothing, textiles, medical, chemical, petroleum, industrial, construction, electronics, and general items of supply. Three of the supply centers also perform depot operation functions for assigned commodities.

1/The Federal Cataloging System was established as a result of the Defense Cataloging and Standardization Act of 1952. It converted many cataloging systems into a single system and, since its completion in 1958, has provided one common supply language for supply systems throughout the Government.

2/This office represents the consolidation of the Assistant Secretary (Manpower and Reserve Affairs) and the Assistant Secretary (Installations and Logistics) after April 20, 1977. Before this date, the Assistant Secretary (Installations and Logistics) was responsible for the Defense Integrated Data System.

3/Name changed effective January 1, 1977.

Service centers--The following five service centers furnish varied support services.

--The Defense Logistics Services Center is reponsible for maintaining the Federal Catalog System records, including developing and disseminating cataloging and item intelligence data to the military services and other authorized customers.

--The Defense Industrial Plant Equipment Center is responsible for the DOD General Industrial Equipment Reserve, the Defense Logistics Agency Industrial Equipment Reserve, and the National Industrial Equipment Reserve under the custody of the General Services Administration.

--The Defense Documentation Center is responsible for the development, maintenance, and operation of the management information system in the field of scientific and technical reports and primary distribution of foreign technical reports.

--The Defense Logistics Agency Administrative Support Center provides administrative support and common service functions to DLA activities in the Washington, D.C., metropolitan area.

--The Defense Property Disposal Service is responsible for the integrated management of the worldwide personal property disposal operations, including reuse of serviceable assets, in support of the military services and other authorized customers.

Contract administrative services regions--Nine regional offices engage in contract administration, production, quality assurance, and financial management activities. They administer industrial security, contract compliance, and small business/labor programs within the United States and such external areas as specifically authorized.

Depots--There are four depots responsible for receipt, storage, and issuance of DLA-managed items.

NEED FOR DIDS

Since 1962, DLA mission responsibilities and demands on automatic data processing (ADP) capabilities have continually increased. The volume of logistical data transactions increased from 10 million in 1963 to 33 million by 1967.

Consequently, ADP files grew from 1.3 billion to 3.9 billion characters of data during that period. Additionally, DLA was confronted with other issues also affecting the efficient and effective processing of logistics information. Among the more significant problems were:

--The number of duplicate items entering the supply system needed to be reduced. Under then-current procedures, about 250,000 items were screened each year to determine if they matched items already in the supply system. This screening disclosed about 10,000 duplicate items; however, improved screening was desired.

--The amount of time required to assign National Stock Numbers (NSNs) needed to be shortened. This procedure, which was taking 4 to 14 days, was supposed to be reduced to 4 to 72 hours.

--Unnecessary duplicate files and records maintained by customers needed to be eliminated. An estimated 30 million manual and 30 million mechanized records were maintained by services and agencies that could be eliminated.

--Centralization of catalog publication data was considered necessary. DLA wanted to reduce the cost of supply publications by centralizing distribution and converting hard copy material to microfiche.

Beginning in 1964 DLA tried to resolve these problems by installing a third-generation computer. However, this equipment provided only temporary relief and did not permit DLSC to effectively meet agency mission responsibilities.

At this time, the logistics information processing system included the following eight separate, nonintegrated subsystems:

--The Federal Catalog System, providing a single, unique stock number for each different item of supply.

--The DOD Materiel Utilization Program, designed to achieve maximum use of DOD assets.

--Supply management data, providing information as to how, why, where, when, and by whom items of supply are managed.

--Federal Supply Catalog publications, providing various publications pertaining to the Federal Catalog System (compiled by DLSC and the services and agencies).

--Provisioning screening, designed to determine whether items of supply are in the supply system.

--Item entry control, a system designed to prevent the entry of duplicate items into the Federal supply inventory.

--Utilization and marketing, a system designed to maximize use of assets declared excess to DOD and to dispose of assets excess to Federal needs.

--The Management Data System, providing statistics concerning the management of items in the supply system.

ORIGINAL DIDS OBJECTIVES

To further resolve DLA's information-processing problems, DLSC began developing the DIDS concept in May 1965. Its purpose was to achieve a long-term processing capability by developing a system that could handle expected workload expansion and not require major system redesigns or acquisition of totally new ADP equipment.

On March 31, 1972, DOD formalized the concept and issued its Directive 4100.39, entitled "The Defense Integrated Data System," which established the policy guidelines for system design, development, operation, and maintenance. The directive provided for a central repository of logistics data that was to be maintained as a single integrated record. The system was to be structured to fully use advanced ADP and communications technology.

In this regard, DLA established the following objectives for DIDS:

--To consolidate the eight subsystems identified above into a single integrated data bank of at least 13.5 billion characters capable of expanding to 20 billion characters by the mid-1970s.

--To provide a capability of processing 60 million transactions yearly.

--To provide immediate and remote access capability.

--To provide a means of communicating with other ADP systems through the Automatic Digital Network (AUTODIN).

--To reduce or eliminate existing logistics files maintained by DLSC customers.

--To develop and use standard and uniform data elements.

--To maintain data integrity at all times.

--To provide a means to quickly and effectively process changes to the data bank.

--To provide rapid response to customer requirements.

--To centralize publication preparation and distribution.

Although DLSC declared DIDS to be operational in March 1975, it has not fully achieved its objectives Substantial design changes are necessary to enable the system to fully realize the benefits expected from its continued operation. As explained in the following chapters, many of the system's operating deficiencies resulted from inaccurate workload estimates upon which the original system design was based (that is, the total amount of work to be accomplished by DIDS was vastly underestimated, resulting in too small a system). Also, the absence of strong centralized control over system development and implementation resulted in the continued use of application programs that did not take full advantage of available computer-processing capabilities.

CHAPTER 2

PROBLEMS IN ACHIEVING DIDS OBJECTIVES

Although the Defense Integrated Data System has made some significant achievements in logistics data management, it has not completely fulfilled the objectives set forth by the Department of Defense. The Defense Logistics Agency has been able to consolidate various separate subsystems into one integrated data bank; centralize the processing and storage of catalog management data (source of supply, price, unit of issue, etc.), providing uniform control over the accuracy of this information; provide limited capability for immediate and remote access to the data bank; generally improve the quality and quantity of information available to customers; and eliminate some duplicative files and publications.

DIDS is an overall improvement to the Federal Supply System; however, the system is having problems achieving all processing goals. Particular problems affected the (1) item identification function, (2) ability to process current workload, (3) elimination of local duplicative files and centralization of catalog publications, and (4) exchange of some data with other logistics systems.

An assessment of the impact of these problems within the logistics community requires an understanding of the complexities of the operating environment and data flows associated with DIDS. For this reason, a description of the DIDS operating environment is included.

CURRENT OPERATING ENVIRONMENT

DIDS is the focal point of the entire Federal cataloging process. As such, it is the heart of an extremely complex information network with a multitude of participants, including DOD components, about 72 civil agency activities, and 25 foreign governments. DIDS has been built and is maintained with information provided by these participants.

Therefore, DIDS is activated by its participants and exists primarily to satisfy their needs. The foldout chart

on page 9 is a general overview 1/ of how information flows into and out of DIDS. Simply stated, the information flow consists of participant-generated data, data bank manipulation, and products that flow back to the participants in various forms. Although data may be submitted to DLSC in a variety of forms (card, tape, etc.) and through various media (mail, telephone, etc.), the primary source of communications used to transmit data into and out of the system is AUTODIN.

The various components of this network can be generally described as follows.

Participant-generated inputs

DIDS participants are identified by authorized activity codes (see chart on p. 9 and app. II) and interact with the DIDS data bank through a series of authorized transaction codes. These codes indicate the type of transactions authorized for a particular user. For example, one code may permit a customer to interrogate or search the DIDS inventory for information, while another code permits the customer to add, delete, or change data in the data bank. In addition, certain participants are designated as item managers and submit transactions that alter catalog management data. This information, which is critical to the supply management function, includes such data as source of supply, unit of issue, and dollar value.

In the case of the military services and DLA, a hierarchy exists in which various activities interface directly with the data bank through one or more activity input codes, and subordinate units or activities obtain access to the data bank only through those activities authorized to directly submit data.

About 72 civil agency activities interface with the data bank for file data requests only; that is, they can interrogate the DIDS data bank, but cannot add, delete, or change data in it. The General Services Administration, designated as an item manager for items concerned with

---

1/The chart contains some slight variations from actual data flow due to a printing error. These variations involve only four individual activity codes and do not materially affect the validity of the chart. See appendix II for corrections.

civil agencies, is authorized to submit transactions that could alter data in the DIDS data bank.

In addition to the military services and civil and defense agencies, about 25 foreign governments are permitted to exchange information with DIDS. They communicate with the system through DLSC's International Codification Division for new item identification, but may go directly to the data bank for file maintenance transactions.

The Army's Military Traffic Management Command is shown separately on the chart because it is the single manager in the Federal Catalog System for confirmed freight classification data and provides this information to DIDS for dissemination to other system participants.

Data bank organization

The DIDS data bank is organized into two basic parts--item-oriented data and system-oriented data. Item-oriented data includes National Item Identification Numbers, item characteristics and reference numbers, and Catalog Management Data. System-oriented data encompasses such information as item names, Federal supply classification codes, and activity addresses. Through indexing techniques, the various kinds of item-oriented data are stored, updated, and retrieved. The first part of the data bank is known as the Total Item Record (TIR), and the second part is called the System Support Record. The TIR is oriented to National Item Identification Numbers and contains item identification and logistics management information. The System Support Record contains all information, such as edit and validation tables, format guides, controls, statistics, codes, and terms, that are required to support or specify the content and use of data in the TIR. The TIR is established through a file buildup of current system data and is maintained by input transactions that have been processed by various functional segments. The System Support Record is also established through continuous updating and serves as a tool to maintain the TIR.

DIDS has eight interrelated functional segments, which are broken down into several operations that either contribute to the content of the data bank or pull and use that content for such purposes as interrogation and publications production. (See graphic representation of the data bank in app. I.) The functional segments include:

OVERVIEW – DEFENSE INTEGRATED DATA SYSTEM

ARMY

Activity Code	Name	Office Symbol
CJ	LOGISTICS SYSTEM SUPPORT	DRXLS-LF
AM	MEDICAL MATERIEL	SGMMA-LDC
D3	ELECTRONICS COMMAND	AMSEL-PP-ED
D4	MOBILITY EQUIPMENT R&D CENTER	AMSME-RZK-KX
AJ	TROOP SUPPORT COMMAND	DRSTS-STX
AZ	TANK AUTOMOTIVE COMMAND	DRSTA-FC
BD	MISSILE COMMAND	DRSMI-SC
BF	ARMAMENT COMMAND	DRSAR-MMC
CD	GENERAL MATERIEL & PETROLEUM ACTIVITY	STSGP-T
CL	ELECTRONICS COMMAND	DRSEL-MM-C
CM	COMMUN. SECURITY LOGISTICS AGENCY	DRSEL-CCM-NICP-LS
CT	AVIATION SYSTEMS COMMAND	DRSAV-QC
CU	ARMY SECURITY AGENCY	IAMIC/C
AC	EDGEWOOD ARSENAL	SAREA-DE-EC
AN	CATALOG DATA AGENCY	DRXCA-C
BL	PICATINNY ARSENAL	SARPA-AD-M-F
BN	PICATINNY ARSENAL	SARPA-ND-M-P-C
CA	ARMY SUPPORT ACTIVITY	STSAP-AC
D2	NATICK LABORATORIES	AMXNM-EPS
D6	FRANKFORD ARSENAL	SARFA-MDM
EN	INTERNATIONAL LOGISTICS CENTER New Cumberland Army Depot	

NAVY

QM	FLEET MATERIAL SUPPORT OFFICE	CODE 91123
GP	AVIATION SUPPLY OFFICE	DAI GP
HE	AIR ENGINEERING CENTER	ESSD-CODE X-32
GH	FLEET MATERIAL SUPPORT OFFICE	CODE 91123
HD	SHIPS PARTS CONTROL CENTER (Ship & Base Material)	
HH	SHIPS PARTS CONTROL CENTER	CODE 815
HW	MILITARY SEALIFT COMMAND	MTSC
HX	SHIPS PARTS CONTROL CENTER (Special Propulsion Plant Material)	
JF	SHIPS PARTS CONTROL CENTER (Nuclear Equipment Support)	
JQ	SHIPS PARTS CONTROL CENTER (Ammunition Division)	
JS	SEABEE SYSTEMS	CODE 16432
KE	AVIATION SUPPLY OFFICE	CODE DAP-A
Q5	NAVAL AMMUNITION DEPOT	CODE-03
HC	ELECTRONICS SYSTEM COMMAND	CODE-ELEX 504231
HP	SUPPLY SYSTEMS COMMAND	CODE SUP10
JB	SHIPS PARTS CONTROL CENTER	CODE-880 TRIDENT
JV	SYSTEMS PROJECT OFFICE VITRO LABORATORIES	CODE MSC
NOTE 2 J4	JOINT CHIEFS OF STAFF LOGISTICS DIRECTORATE	

AIR FORCE

SA	LOGISTICS COMMAND	ACAI
SC	SAN ANTONIO LOGISTICS CENTER	SWRC-Atomic Ordinance
SD	LOGISTICS COMMAND	MMOA
SE	SAN ANTONIO LOGISTICS CENTER	MMSC
SU	OGDEN LOGISTICS CENTER	MMSC
SX	OKLAHOMA CITY LOGISTICS CENTER	MMSC
TA	SACRAMENTO LOGISTICS CENTER	MMSC
TG	WARNER-ROBINS LOGISTIC CENTER	MMSC
TY	TECHNICAL MATERIEL FIELD OFFICE	AFMMFO
SJ	AFCD/LOGLEC (San Antonio)	
SP	SAN ANTONIO LOGISTICS CENTER	SFRL
ST	AIR FORCE SERVICES OFFICE (AFLC)	DPK
TU	CATALOGING & STANDARDIZATION OFFICE	
TW	CATALOGING & STANDARDIZATION OFFICE	

MARINE CORPS

PA	MARINE CORPS SUPPLY ACTIVITY	CODE-840
PB	MARINE CORPS SUPPLY CENTER	Albany, Georgia
PC	MARINE CORPS SUPPLY CENTER	Barstow, California
PD	MARINE CORPS BASE	Camp Pendleton, California
PE	MARINE CORPS BASE	Camp Lejeune, North Carolina
PM	MARINE HEADQUARTERS	CODE-LMO-1

SUBORDINATE ACTIVITIES

SUBORDINATE ACTIVITIES

CIVIL AND DEFENSE AGENCY— USERS

GENERAL SERVICES ADMINISTRATION

CENTRAL INTELLIGENCE AGENCY

FEDERAL BUREAU OF INVESTIGATION

(72 AGENCIES)

BUREAU OF MINES

DISTRICT OF COLUMBIA GOVERNMENT

ETC.

FEDERAL AVIATION ADMINISTRATION

COAST GUARD

DEFENSE NUCLEAR AGENCY

NATIONAL SECURITY AGENCY

A = FILE DATA REQUESTS
C = ITEM IDENTIFICATION DATA SUBMITTER
N = NONCONFIRMED FREIGHT DATA
Q = FILES COMPATIBILITY

INPUT CODES	
A = FILE DATA REQUESTS	INTERROGATE OR SEARCH
B = NATO + FRIENDLY FOREIGN GOVTS.	ADD/DELETE OR CHANGE
C = ITEM IDENTIFICATION DATA SUBMITTER	ADD/REINSTATE/ CHG DELETE/ FOL-UP/REC
D = ALL TRANSACTIONS	ADD/CHANGE OR DELETE
F = CONFIRMED FREIGHT CLASS DATA	ADD/CHANGE OR DELETE
H = STANDARDIZATION DATA	ADD/CHANGE OR DELETE
N = NONCONFIRMED FREIGHT CLASS DATA	ADD/CHANGE OR DELETE
Q = FILES COMPATIBILITY	COMPARISON CHECK
R = ORGANIZATIONAL ENTITY DATA	ADD/CHANGE OR DELETE
S = DEFENSE AUTO ADDRESSING OFFICE	SCREEN BY REFERENCE #
T = DEFENSE LOGISTICS SERVICES CENTER-T	SELECTED TRANSACTIONS ADD/CHANGE OR DELETE

NOTE 1

COMMUNICATIONS LINK (AUTODIN)

TIR FILE

Provisioning Screening
VENDORS & USER INVENTORY CONTROL POINTS

ITEM IDENTIFICATION (I.I.)
ITI/CATION & MARKETING
INTERCHANGEABILITY SUBSTITUTABILITY (I&S)
PUBLICATIONS
SUPPLY MANAGEMENT INFORMATION
STATISTICAL REPORTS
SYSTEM SUPPORT RECORD MAINTENANCE
SPECIAL OPERATIONS
DIDS DATA BANK

CATALOG MANAGEMENT DATA

NOTE 5

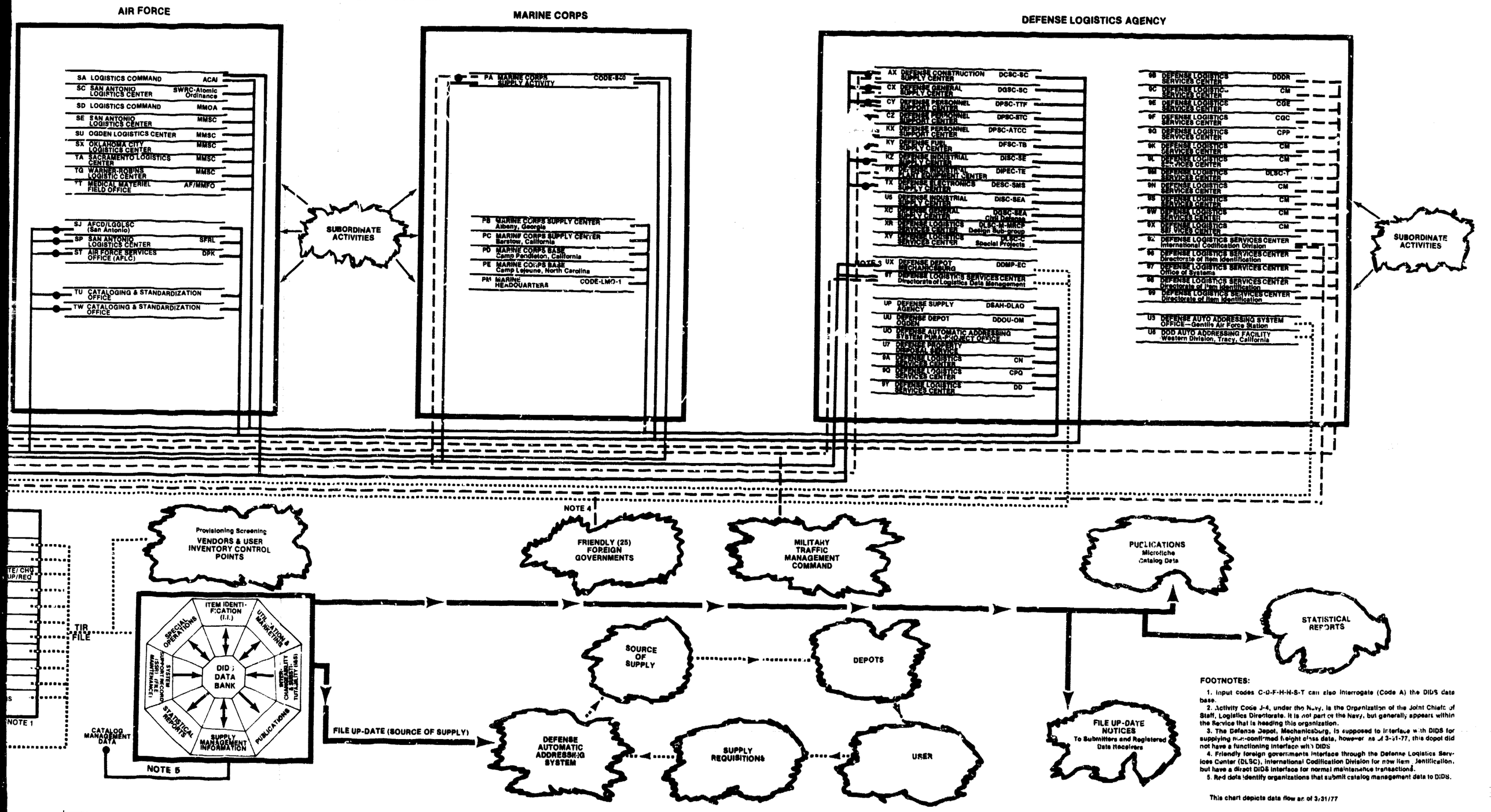
FILE UP-DATE (SOURCE OF SUPPLY)

NOTE 4

FRIENDLY (25 FOREIGN GOVERNMENT

DEFENSE AUTOMATIC ADDRESSING SYSTEM

OVERVIEW – DEFENSE INTEGRATED DATA SYSTEM



FOOTNOTES:

1. Input codes C-0-F-H-H-S-T can also interrogate (Code A) the DIDS data base.
2. Activity Code J-4, under the Navy, is the Organization of the Joint Chiefs of Staff, Logistics Directorate. It is not part of the Navy, but generally appears within the Service that is heading this organization.
3. The Defense Depot, Mechanicsburg, is supposed to interface with DIDS for supplying non-confirmed freight class data, however as of 3-31-77, this depot did not have a functioning interface with DIDS
4. Friendly foreign governments interface through the Defense Logistics Services Center (DLSC), International Codification Division for new item identification, but have a direct DIDS interface for normal maintenance transactions.
5. Red dots identify organizations that submit catalog management data to DIDS.

This chart depicts data flow as of 3/31/77

Item identification. This segment collects, maintains, and disseminates stock-number-related item characteristics, part numbers, and other identifying data necessary to establish the unique character of an item of supply and differentiate it from all other items in the Federal stock inventory.

Utilization and marketing. 1/ This segment contains the necessary information to permit optimum use of an item in the Federal stock inventory during its life cycle to: (1) preclude concurrent procurement and disposal of assets for which a valid requirement exists, (2) preclude the repair or overhaul of unserviceable assets when identical serviceable excess assets are available for redistribution, and (3) obtain the best rate of return when the property is sold as surplus.

Interchangeability and substitutability. This segment records military service and civil agency decisions regarding the relationships of items of supply and disseminates this information to users. It also provides information for use of engineering standardization decisions.

Publications. This segment contains operations that mechanically compile and compose various publications, such as books, listings, or manuals.

Supply management. This segment deals with operations to record and use data applicable to logistics management. It provides data on how, why, where, when, and by whom items in the Federal inventory were managed or used during their life cycles.

Statistical reports. This segment provides for the collection, storage, retrieval, and dissemination of statistical information for quality control, as well as management information for determining the efficiency and effectiveness of user programs.

1/These subsystems were administratively segregated from the DIDS requirements for the Burroughs computer configuration and are currently run on the IBM 360/65 retained to support the Defense Property Disposal Service. (See p. 18.)

System support record item maintenance. This segment contains operations and processes required to maintain the system support record, which is all information (guides, tables, statistics, controls, etc.) needed to support and specify the content of the TIR.

Special operations. This segment contains several operations that did not fall logically into one of the other segments. This enables file interrogations tailored to customers' specific needs and provides a capability to make mass changes to the data bank. In addition, it is supposed to include processes to make an automated followup on delinquent transactions and a report generator for extracting data or reports to satisfy customers' needs without delay.

DIDS products and services

DIDS products and services can be generally categorized as (1) those that are disseminated to data submitters and authorized data receivers and (2) file updates of source-of-supply information for the Defense Automatic Addressing System. Included in the first category are publications, statistical reports, and file update notices.

Publications--DIDS is supposed to provide for the production of all Federal Catalog System publications for distribution to both Government and industry users, as appropriate. These include the Management Lists, Item Identification Lists, and various handbooks as well as lists or catalogs of excess personal property and material declared surplus. The output products are issued in microfiche.

Statistical reports--The system is supposed to provide for the generation and dissemination of statistical documents to support logistics program managers.

File update notices--For purposes of our description of the DIDS data flow, we have defined these notifications as any notice to a system participant of an action taken on data submitted; that is, acceptance or rejection and, in the case of acceptance, notification of all authorized data receivers to update their files.

The other category, file update of the Defense Automatic Addressing System, is supposed to provide a capability

for updating source-of-supply information for supply management purposes. These updates are made from catalog management data received and manipulated in the DIDS data bank.

ITEM IDENTIFICATION HAS BEEN GENERALLY IMPROVED, BUT PROBLEMS REMAIN

An important part of the catalog system is positive and unique identification of items-of-supply. Under the Federal Catalog System, the concept of an item-of-supply is expressed in a National Item Identification and fixed by a National Stock Number. A National Item Identification consists of the minimum data necessary to establish the essential characteristics of the item that give it its unique character and differentiate it from every other item-of-supply used in the Federal Government. Each National Item Identification is applicable to one item-of-supply and, conversely, each item-of-supply has only one National Item Identification.

Characteristics are basically physical or functional (performance) and are defined by technical research, the foundation for the process of item identification or cataloging. This process incorporates Item Name, Item Identification (descriptive and/or reference data), Item Classification (Federal Supply Classification), Stock Number (National/North Atlantic Treaty Organization (NATO) Stock Number), and Publication (Federal Supply Catalogs).

DIDS was intended to enhance this process by (1) fully automating it, (2) extending the capability of screening item characteristics for assigning NSNs, (3) introducing characteristics search capabilities (exact and parametric), and (4) introducing a prototype item description technique, making it easier to enter items into the supply system.

Generally, automation of the item identification function has resulted in less duplication of items entering the supply system--more than doubling pre-DIDS performance. However, DLSC has had problems in fully implementing all the above aspects of this function. Although the system has enhanced the new item screening capability, problems exist with implementing the characteristic search capability and updating Federal Item Identification Guides (FIIGs). In addition, an original DIDS requirement--prototype item description--has not yet been incorporated into the system.

New item screening

Before DIDS, new item entry screening was essentially a manual operation. Limited computer screening was done to identify two or three characteristics. Then, hard copy cards (Form DD146) containing complete item characteristic data for any matches obtained from the limited computer screening were reviewed manually to further determine similarities. DIDS has eliminated hard copy cards, and automated characteristics screening is now accomplished on an exact or possible match basis for all characteristics.

Screening for NSN assignment is being done faster and more effectively. According to the June 1972 DLA economic analysis, DLSC had been taking from 4 to 14 days to process NSN assignments. The goal was to reduce this time to 72 hours or less. We reviewed agency statistics for July 1976 through February 1977 and found that 86 percent of the NSN assignment transactions received by DLSC have been processed within 72 hours.

Screening effectiveness is measured by the number of NSN requests for which like items or potentially like items were identified as being already in the system. Screening effectiveness has improved greatly under DIDS. During 1976, of 221,260 NSN assignments or requests, 20,016 were identified as actual duplicates and 5,495 as possible duplicates. This represents 11.5 percent of the NSN requests submitted. Pre-DIDS statistics cited in the June 1972 economic analysis show that only 4 percent of the new items proposed annually matched an item already in the system.

Characteristic search

This application provides services and agencies and other logistic customers with the ability to search characteristic data in the DIDS data bank for a single item or a group of similar items. The application is used for various purposes, such as preprovisioning screening, parts control, standardization, item reduction studies, item entry control, and special projects. A characteristic search is different from a characteristic screening because it does not result in an NSN assignment.

There are two types of characteristic searches--nonparametric and parametric. A nonparametric search attempts to obtain exact matches between the characteristics of the

item being compared and characteristics of items already in the supply system.

Eventually, 433 FIIGs involving 2,542,730 items are scheduled for nonparametric search. As of March 1977, 117 FIIGs--863,119 items--have been implemented. Another 62 FIIGs are from 1 to 10 months behind their implementation schedule. The entire schedule is supposed to be implemented by February 1980.

A parametric search does not attempt to make an exact match. Item matches within predetermined tolerances or parameters are sought (for example, all 3- to 5-foot desks, metal and wooden). Parametric search requests are coded based on predetermined key characteristics (for example, height, length, and number of drawers). Later cycles are made through the "matched" items for each additional characteristic desired by the requester. This process continues until all the possible key matches have been eliminated or a match is made on an item or group of items that fully satisfies the requester's requirements.

Parametric search transactions require considerable processing time. DLSC statistics for the 12-month period ended February 1977 show that the average computer processing time for a single transaction is about 6 minutes 1/ with a range of 3 to 16 minutes. In addition, there are indications that this application has not been extensively used. For the same 12-month period, transactions averaged about 34 a month on implemented FIIGs.

DLSC plans to implement 42 FIIGs--1,692,592 items--for parametric searches. Only two FIIGs had been implemented as of March 1977. The others are scheduled for implementation by November 1979.

Because of the long processing time involved in the parametric search application, some restrictions on this application may be necessary. DLSC is considering reducing the use of this application by the 2,500 activities now permitted to make searches. This restriction would involve either (1) restricting the number of Government users or (2) precluding contractors from searching competitors'

1/The DLSC statistics, from which these times were calculated, were based on wall clock time.

files. In addition, reducing the maximum number of possible substitute items from 1,000 to 100 per search transaction has been considered.

Considerable effort has already been expended on developing the parametric screening and search application. Since May 1973 an estimated 22,726 staff-hours have been spent developing this application. The amount of computer time used is not known. Agency officials have estimated future development through 1979 to require at least

--3,660 elapsed machine processing hours and

--nine programmers on a 5- to 50-percent basis.

Because of the possible restrictions on its use and the extent of effort required to implement all FIIGs, we believe continued development of this application should be reevaluated to determine whether it is necessary and whether it should proceed in competition with other, more critical functions.

FIIG updating

Characteristic data for a significant number of items in the DIDS data bank, an estimated 40 percent, does not accurately express the descriptions called for by applicable FIIGs. Some characteristic data formats are inaccurate because changes to FIIG requirements are not reflected for all applicable items. New items entering the system conform to current FIIG requirements, but characteristic data was not updated to the new formats for all items already in the system when the FIIG requirements were changed.

Updating item characteristics data to conform to the latest FIIGs is being done on a revised schedule as computer time becomes available. In 1975 DLSC officials tried to schedule FIIG revisions for a 5-year period. However, the schedule was later found to be unrealistic because of transaction backlogs and the general unavailability of computer time for processing FIIG revisions. As a result, a FIIG steering committee met in September 1976 to schedule FIIG revisions through 1977. As of September 1976, 28 FIIG revisions had been implemented, and the committee has scheduled an additional 53 revisions through 1977. As of March 1977, DLSC had implemented 15 of the scheduled revisions; 8 revisions had been made on schedule, but the other 7

missed the implementation date by a few days to 3 months. The other 38 FIIGs ae still scheduled for revision by the end of 1977.

According to DLSC officials contacted, unrevised FIIGs should not hamper parametric screening for NSN assignments. Although a request for an NSN may not get an exact match with an item in the TIR, it will probably get a possible "ballpark" match, permitting the requester to consider the item.

Prototype item description

Currently, a proposed new item must be completely described for NSN assignment purposes, even though many of its characteristics are the same as an item already having an NSN (for example, a proposed new brown shoe, identical to an existing black shoe except for color). One unimplemented feature of DIDS--prototype item description--would require the submission of only those characteristics of a new item that are different from an existing item. The June 1972 economic analysis specified that an estimated personnel savings of about $800,000 a year would be realized by implementing prototype processing.

DLA has initially reviewed the plan showing how the prototype processing will be implemented and has forwarded it to the services and agencies for comment. As of February 1977, four of them have had difficulties with the plan. Although DLSC officials are working to resolve these differences, they have not scheduled a completion date for this application.

EXPECTED PROCESSING PERFORMANCE NOT ACHIEVED

DIDS has had continued processing difficulty since it was declared operational in March 1975. These problems can be largely attributed to an underestimation of the total workload, resulting in inadequate system sizing, and the use of computer programs that do not take advantage of the computer's total processing capabilities. DLA attempted to solve these problems by augmenting hardware and refining software, but this was not sufficient to overcome current workload processing demands.

Attempts to improve processing performance by augmentation

On March 13, 1972, the Burroughs Corporation was awarded the contract for implementing the DIDS computer configuration. This configuration was composed of a Burroughs 6700 computer system with two central processing units, related operating software, and peripheral equipment.

The system, upon becoming operational, could not adequately process DLSC's workload. According to DLA documentation, this was because of an underestimation of workload requirements made in the early stages of DIDS development.

To compensate for the underestimate and improve processing capability, DLSC augmented the original DIDS configuration by:

--Adding a third processor to the original system.

--Installing a second Burroughs 6700 system consisting of dual processors and peripheral equipment (estimated to be one-tenth the size of the original system).

--Upgrading and retaining one IBM 360/65 system, originally scheduled to be released as a result of DIDS implementation. According to DLSC, this system had to be retained to support the Defense Property Service's Integrated Disposal Management System. A second 360/65 was released.

Although the above-mentioned hardware helped the situation, it was still not enough to meet current workload demands. The following schedule, showing average daily backlogs for July 1976 through March 1977, is typical of transactions backlogs encountered since operations began with the augmented system.

1976	Actual transaction backlogs	Transactions awaiting computer availability
July	187,440	736,704
August	137,640	3,305,619
September	106,847	2,521,334
October	41,664	1,302,535
November	26,112	657,720
December	52,850	580,053
1977		
January	8,759	366,532
February	27,012	999,648
March	55,745	876,813

Another part of the DIDS processing objective, as outlined in the June 1972 economic analysis, was to respond to all customer inquiries on a priority basis from 4 to 72 hours. Priorities would be rated 1 through 4 and assigned by the transaction originator. The system has had problems achieving performance rates on priority processing, as indicated below. The table shows monthly performance rates on priority transaction processing for July 1976 through March 1977.

1976	1 1-4 hours	2 1-12 hours	3 1-48 hours	4 1-72 hours
	(percent)			
July	50	46	47	63
August	55	24	60	58
September	48	55	45	61
October	91	59	56	70
November	58	67	70	67
December	79	44	40	62
1977				
January	71	84	88	85
February	80	77	89	84
March	90	41	37	38

The impact of these processing problems is demonstrated in a DLA order issued on August 4, 1976, which requested defense supply centers to temporarily rely on their own files until DIDS could effectively handle its workload. Our review

has shown, however, that the supply centers still do some limited interrogation processing through DIDS.

DOD consultants recommend additional hardware and software improvements to overcome processing inefficiencies

To gain insight into the underlying causes of processing problems encountered in DIDS, the Office of the Assistant Secretary of Defense (Manpower, Reserve Affairs and Logistics) contracted with the Logistics Management Institute, a consulting organization, to assess the computer system's performance. The study was to determine whether additional hardware would solve the efficiency and capability problems and whether the present hardware could be used more effectively.

The Institute, 1/ in a report issued in February 1977, described DIDS as a large-scale, centralized, multiprocessor system that uses a functionally integrated data base of some 8 billion characters and processes 2.5 million transactions monthly. (The size of the data bank and amount of transactions processed are substantially less than was originally envisioned. See p. 4.)

In their report, the consultants determined that the current DIDS system configurations are virtually workload saturated and that there are problems with workload scheduling and application program processing. Refering to the latter, the consultants pointed out that considerable processing is required for the application programs to access the TIR because of interface inefficiencies, limited asynchronous processing, and ineffective handling of variable length fields and records by the Burroughs computer software. Further, the manual workload scheduling method limits throughput on the primary Burroughs computer configuration. Also, the preemptive introduction of high-priority (levels 1 and 2) transactions, in inefficient queue lengths, into the workload stream disrupts the work flow and limits throughput volume.

1/According to the consultants, the brevity of their study precluded the computation of DIDS workload and ADP capacity estimates in terms of central processor unit hours. Consequently, they used DLSC estimates based on wall clock hours, which are not as appropriate as processor hours.

The consultants concluded that effectiveness could be increased through system optimization and additional hardware implementation. They recommended specific improvements for operating software, application programs, data bank changes, workload scheduling, and job scheduling.

In addition, they recommended that a two-phase hardware augumentation be implemented. First, for the short term, to correct immediate processing bottlenecks, they recommended adding additional hardware to the existing Burroughs computer configurations involving estimated expenditures of $350,000 to $400,000. 1/ They recommended that, if expected workload trends materialize, a second augmentation be made, combining existing Burroughs computer equipment with a larger Burroughs single computer system. This augmentation was expected to cost between $1,104,000 to $1,768,000. 1/ According to the consultants, this augmentation must be preceded by the short-term augmentation or its cost-effective equivalent and a comprehensive 5-year projection of DIDS workload must be prepared.

REDUCTION OF LOCAL DUPLICATIVE FILES NOT FULLY REALIZED

The DOD policy directive requires DOD components to employ procedures in mechanized logistics functions that insure maximum use of the DIDS data bank in lieu of maintaining duplicative files. Based on this policy guidance, DLA established as a DIDS objective that the system eliminate these duplicative files and provide a single source of the most current logistics data, thereby improving the quality of material in the supply system.

Many files and records have been eliminated. For example, the following files were eliminated at the defense supply centers:

File		Quantity at each center
Identification List--Descriptive	(mechanized)	1
Identification List--NSN Index	(")	1
Reference Number Master	(")	1
Identification List--Reference NR Master	(")	1
Catalog Management Data	(")	1
Characteristic Data File	(manual)	a/1 2

a/Portions of this file were reinstated to the local TIR.

1/Figures are in 1977 dollars.

In additon, some files at the services and agencies were eliminated. Among these were the Master Army Catalog File (DD 635) maintained on tapes, portions of the Army Master Data File, and the Navy DD 635 files.

Although progress has been made in this area, duplicate files still exist and DIDS customers contacted have indicated that some files that could be eliminated probably won't be unless problems in obtaining timely information from DIDS are alleviated. In other instances, according to customers, local file duplication is necessary to carry on their day-to-day operations.

The problems experienced by the services and agencies contacted primarily deal with processing turnaround time, transaction backlogs at DLSC, and the data format needed by local users. Examples of these problems are more fully described below.

Defense supply centers

In November 1974 DLA tried to reduce local files by issuing an order to supply centers to eliminate all computer catalog files duplicating DIDS data and to rely completely on the system's ability to furnish data. These duplicate files were to be eliminated when (1) DIDS met required response time and data quantity and quality, (2) the supply centers were no longer responsible for publication of the Identification List, and (3) DLSC could support mass inquiries for deciding which items are standard. In this regard, DLA expected the supply centers to eliminate duplicate local files by April 1, 1977, 2 years after DIDS began operations.

However, on September 30, 1976, DLA canceled the order because of "interminable difficulties in getting DIDS responses."

We contacted officials at the Defense Personnel Support Center, Philadelphia, Pennsylvania; the Defense Electronics Supply Center, Dayton, Ohio; and the Defense Construction Supply Center, Columbus, Ohio. These officials generally do not believe that eliminating all duplicate local files is a viable objective for DIDS. For example, in May 1976, the Defense Electronics Supply Center, in a letter to DLA, said that, because of the DIDS processing backlog, it had to postpone $10 million worth of recommended buys and was experiencing delays in processing requisitions

and a complete slowdown in other logistics processes. In discussing the system, the Electronics Supply Center said: "The DIDS concept of the central file at this point is not credible. To overcome the shortcomings, increased dependence must be placed on the local TIR."

Another problem that the Center pointed out involves a manufacturer discontinuing production of a Center-managed item. To identify all the items for which it needs to find an alternate source, the Center has to interrogate the data bank. Using DIDS, it took up to 5 months to get a mass data retrieval. Using the Center's local file, it takes 1 week.

DIDS has improved the response time for mass data retrieval since the May 1976 letter, but Supply Center officials still feel that DIDS is not flexible enough to meet specific user requirements. In addition, the system does not furnish some data in the format required by the centers and does not tailor responses to users' specific wants. For example, if the Center needs to know all the items manufactured by a company for one specific Federal stock class, DIDS will furnish a list of items manufactured by the company for all Federal stock classes; the local file, on the other hand, is programmed to meet this specific need.

Although the DIDS programs could be redesigned to make them more responsive to users, both the Electronics and Construction Supply Centers believe the local files are needed since they offer reliable data, faster turnaround time for interrogations, and low-cost emergency backup.

Military users

The military services generally maintain local files that duplicate data contained in the DIDS data bank. We visited various Army, Navy, and Air Force activities and found that these activities continue to maintain duplicative local files. Officials contacted believed that complete local files will continue to be needed to provide quick response to local users.

Officials at the Air Force Logistics Command, Wright-Patterson Air Force Base, Dayton, Ohio, said that the Air Force does not plan to eliminate its local catalog files. The Air Force maintains automated systems that duplicate DIDS data at three levels. These are at the Air Force Logistics Command, each of the five air logistics centers,

and each air force base functioning on the Standard Base Supply System.

Officials maintain that local files must be retained since the Air Force's Stock Number User Directory depends on data from the Logistics Command files. They said air logistics center and base level files will always be needed since they furnish information to local users.

The U.S. Army Tank Automotive Materiel Readiness Command, Warren, Michigan, maintains two files that duplicate DIDS data. They are:

NSN master data record. This is the Command's primary computer file. It provides supply managers with a full range of supply information on an immediate inquiry basis. Some of this information--NSN, unit of issue, price, shelf-life, etc.--is included in the DIDS data bank. According to Command supply officials, this information is used daily by item managers. They told us they need fast response time for this information and could not wait for responses from DLSC.

DIDS master data record. The Command maintains this file which duplicates DIDS data for such information as Major Organizational Entity rules, standardization data, interchangeability and substitutability, and catalog management data. According to Command cataloging officials, the DIDS master data record is maintained at the Command to provide immediate access to the above data.

CENTRALIZATION OF CATALOG PUBLICATIONS HAS NOT ELIMINATED DUPLICATION

Before DIDS, responsibility for completing and producing various publications supporting logistics-oriented functions was vested in DLSC, the DLA supply centers, and the military services. Based on recommendations contained in a 1965 study 1/ and initial DIDS requirements established in early 1966, DLSC assumed responsibility for publishing Identification Lists, Management Lists, and Master Cross Reference Lists formerly produced by the centers and services. Later decisions expanded DIDS requirements to include

---

1/"Progressive Refinement of Integrated Supply Management (PRISM)," Department of Defense, March 1965.

additional publications and the use of microfiche as the primary publication medium. The various DLSC publications available provide the descriptive and management data necessary for requisitioning, procurement, shipping, receiving, warehousing, and technical research. Catalogs are supposed to be compiled in tailored form listing only items of interest to a particular service and/or in consolidated form listing all items in the DOD supply system regardless of service interest.

In reviewing publications used by various inventory control points, posts, camps, and stations, we found that the DIDS data bank does not contain all of the data elements peculiar to the various users. Therefore, many local publications are produced that not only provide data not normally provided by DIDS but also duplicate data that is provided. Also, some users contacted said they require customized data formatting that is not provided by DIDS.

We examined Army and Navy publications in detail to develop some concept of the extent of information duplication, cost, and need for specific publications. Also, our contacts with other users have provided specific examples of only secondary reliance upon DIDS-produced information to satisfy user needs.

Army-Navy catalog publications

We compared eight Army publications 1/ with comparable DIDS publications and found that 16 of 17 data elements contained in a DIDS-produced Army Management List are duplicated in the Army Master Data File. In addition, the Army publication contains an additional 13 data elements, 12 of which are classified as Army unique and 1 which is published in another DIDS file.

Army and DIDS freight classification file publications contain comparable data except for one additional element contained in the Army's publication. The six other Army publications have both DIDS common and Army unique data elements in varying degrees.

1/Army publications selected: (1) Army Master Data File, (2) Interchangeable and Substitute File, (3) SAILS-Master Data File, (4) Master Data Record, (5) Packaging Publication, (6) Automatic Return Item List, (7) Freight Publication, and (8) Reference and History File.

Five Navy publications 1/ were selected for comparison and a similar situation was found to exist. For example, the Navy's Clothing Price List is duplicated by DIDS publications known as Catalog Management Data and the Management List. In addition, more than 75 percent of three other Navy publications are duplicated in DIDS publications.

Some examples of local duplicate publications

In addition to the detailed analysis made of Army and Navy materials previously discussed, our review disclosed the following specific examples of catalog information duplication.

The Defense Electronics Supply Center produces a microfiche of their local TIR file, which is updated quarterly and distributed in 46 copies to six offices within the Supply Center and to four external activities. Supply Center officials said they need this local publication because all the needed data is not included in the DIDS publications. Also, it is easier, quicker, and cheaper to use the locally produced microfiche than to interrogate the local TIR file. Producing this publication costs about $8,000 annually.

The Air Force produces a microfiche of the Air Force interchangeability and substitutability system. The system contains family groups of items that can be interchanged and describes the conditions for interchangeability. According to Air Force officials contacted, the DIDS publications contain only item-to-item information with no family groups and conditions. The Air Force produces and distributes 4,200 copies of this catalog every 2 months at an estimated cost of $18,000 per year.

The Army supply activity in Hawaii does not use the DIDS consolidated publications, such as the Master Cross Reference List and the Catalog Management Data, which contain all stock items in the Federal Supply System. Instead, they use the Army Catalog Data Agency's versions of these publications, which contain only Army items. The

---

1/Navy Publications selected: (1) List of Items Requiring Special Handling, (2) Master Repairable Item List, (3) Consolidated Hazardous Item List, (4) Afloat Shopping Guide, and (5) Clothing Price List.

Army supply personnel saw little need to have the Government-wide data since they seldom use non-Army items.

The military services contacted in Europe use a combination of DIDS and service publications; however, they also rely primarily on catalog data furnished by their own services.

DOD is studying the need for and adequacy of publications

In June 1976, the Office of the Assistant Secretary of Defense (Manpower, Reserve Affairs and Logistics) requested that a study group be established to determine the adequacy of Federal catalog publications. On August 10, 1976, the study group, made up of representatives from the armed services and DLSC, met to start the study. Initially, the study was directed at an evaluation of DIDS publications; however, in March 1977 it was changed to include catalogs still being produced by the military services. The group has identified some catalogs that could be eliminated, due either to limited use or duplication of DIDS catalogs.

An example of DIDS duplication is demonstrated in the publication of Catalog Management Data and the Management List. These publications contain almost identical data, and DLSC has recommended that the Catalog Management Data publication be eliminated and that the Management List be expanded by three data elements that were unique to Catalog Management Data. DLA distributed the proposal to services and agencies in May 1976. As of April 1977, no responses from users had been received.

DIFFICULTIES WITH INFORMATION EXCHANGE

DIDS has had some difficulties with its ability to exchange data with other agency systems. Problems are being experienced in the method devised to control the flow of source-of-supply and freight classification data.

Inaccurate source-of-supply data

The Defense Automatic Addressing System (DAAS) automatically routes supply documents from the originator to the source of supply (the activity responsible for managing and issuing items).

DAAS receives, addresses, and retransmits an average of 30 million supply documents monthly, many of which are requisitions. The DAAS file contains source-of-supply information for the Army, the Air Force, the Navy, the Marine Corps, the Coast Guard, DLA, and the General Services Administration.

Before DIDS, DAAS developed and maintained its own source-of-supply address file directly from service and agency input. DAAS averaged 4,000 to 6,000 cases monthly in which the source of supply shown for the user of an item did not agree with source of supply shown for the manager of that item.

Now that DAAS relies on DIDS for updates, it reportedly averages about 15,000 cases in which the source of supply does not agree. These exceptions cause requisitions to be misrouted, and when that happens, the supplies are not received by the customers, some of whom support combat forces.

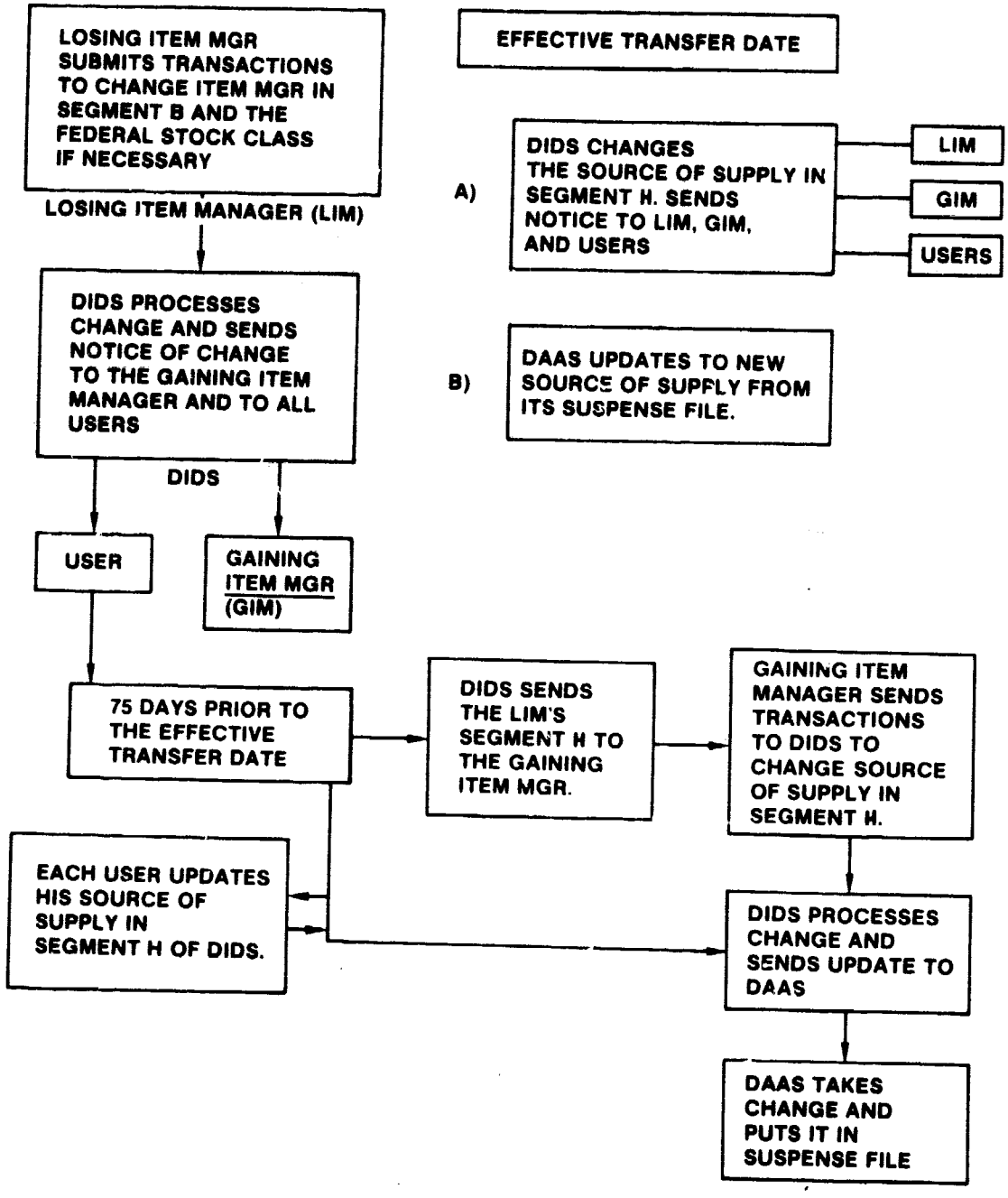
Users believe that the method used to update source of supply when items are transferred from one manager to another is a major cause of file discrepancies.

Item management transfers

When supply activities transfer management of items, they must update segments B and H of the DIDS Total Item Record. Segment B lists the manager and all users of an item, while segment H lists catalog management data, such as source of supply, price, unit of issue, and shelf-life, by item manager and user. Before transfers occur, the manager losing responsibility for the item sends a transaction to DIDS changing segment B to show the new item manager. Seventy-five days before the agreed transfer date, the new item manager sends a transaction to DIDS changing segment H to show the new source of supply. All users are also responsible for updating their own sections of the segment H record. (See chart on the following page.)

We reviewed item management transfers at the Defense Electronics Supply Center and the Air Force Logistics Command. The Supply Center had 1,670 management transfers from January 1, 1976, through December 31, 1976. We statistically sampled these transfers and found that either the gaining manager or the user of the item, and sometimes both, failed to update their sources of supply 52 percent of the time.

FLOW CHART OF LOGISTICAL TRANSFER



From January 1976 to March 1977, the Air Force gained item management responsibility for 430 items. Of these, 383 belonged to the Air Force Cryptologic Depot, a tenant organization of the San Antonio Air Logistics Center, and 47 were managed by other centers.

We reviewed 10 percent (38) of the 383 item management transfers for the Air Force Cryptologic Depot and found that the source-of-supply information was properly updated and compatible with information in the DIDS system. We also reviewed the 47 item management transfers for the other centers and found only one such transfer for which the source-of-supply information was properly updated and compatible with the information in DIDS.

According to Air Force officials contacted, the Cryptologic Depot does not process its transactions through the internal Air Force logistics system, known as the DO36 system, but is tied directly to DIDS and there is no problem with the interface. However, problems concerning automatic update exist between the DO36 system, which normally processes transactions for the air logistics centers, and DIDS. These problems arise because the DIDS output is not entirely compatible with that of the DO36 system and source-of-supply information cannot be automatically updated between these two systems.

Defense Electronics Supply Center officials said they have had similar problems in updating source of supply. When items are transferred from one supply center to another, the Standard Automated Material Management System should automatically change the source of supply. This automatic updating has not worked, however, and the supply centers have had to manually update their records.

An official at the Data Systems Automation Office, which is responsible for programming the Standard Automated Material Management System, said that a misunderstanding between DLSC and DLA caused this problem. The misunderstanding involved the type of TIR data that DLSC was to send to the supply centers. According to the official, the problem has been resolved and automatic updating of source of supply data will now work, except that the gaining item manager must request information from DIDS.

Attempts to correct source-of-supply errors

DIDS includes a segment J of the TIR, which is generated as an output only and should be identical to the DAAS source-of-supply file. In January 1976, DLSC compared the DIDS segment J record with the DAAS file and found that more than 2 million of the almost 6 million items were different. These differences were never resolved. (DOD officials told us, during our informal discussions regarding their comments, that this large difference was due to a logic error, which has been corrected.)

Six months later, DLSC compared item manager data in segment B and the source of supply in segment H of the DIDS files. Differences were sent to the services, the supply centers, and the General Services Administration to correct. The following table summarizes the number of differences found for each user.

User	Number of differences
Army	101,293
Air Force	154,196
Navy	163,999
Marine Corps	80,104
DLA	34,917
General Services Administration	2,563
Total	537,072

The three most prevalent conditions were:

--The service was listed in segment B as a manager or user of an item, but there was no service segment H record on file.

--The agency or service was listed as an active manager or user in segment B, but the applicable segment H data was inactive.

--The service or agency was not listed as a manager or user in segment B, but it had an active segment H record on file.

DLSC is planning further reconciliations to resolve differences between segment B and segment H and within segment H. These reconciliations will cover all records in DIDS and are planned to be finished before DLSC makes a major system programming change in April 1978. This change will require segment H data to be submitted along with segment B data for new items entering the system as well as for changes in item management. DIDS users that we contacted hope that the new procedures will correct many source-of-supply errors, but they are concerned that such a major change might create problems and result in more processing backlogs.

Lack of adequate interface impairs efficient use of freight classification information

DOD Directive 5160.53, dated March 24, 1967, established a single manager service assignment within DOD to eliminate duplication and overlapping of effort, with respect to DOD military freight traffic, between and among military departments, defense agencies, and other DOD components.

The Military Traffic Management Command, under the Army, was designated single manager with the responsibility to develop and maintain a Freight Classification Guide System. This system provides freight classification data to all items covered by National Stock Numbers. The proper freight classification or tariff description is essential for determining applicable freight rates, obtaining proper handling in transit, and processing freight claims for loss or damage. DLSC disseminates this information into the military supply systems through DIDS.

Items are segregated into two freight classification categories--confirmed and nonconfirmed. When an item receives a freight classification code from the Traffic Management Command, it is categorized as confirmed. Freight classification codes assigned by services and agencies before Command confirmation are categorized as nonconfirmed.

When items have to be shipped, the service or agency interrogates the DIDS data bank to determine whether a confirmed freight classification code has been assigned to the item. If no confirmed freight classification has been assigned, the service or agency is supposed to assign a nonconfirmed freight classification code and ship the item. The nonconfirmed code is entered into the service and agency logistic system, such as the Mechanization of Warehousing

and Storage Procedures System, and it is supposed to be simultaneously submitted to DIDS. DIDS automatically forwards the nonconfirmed freight classification information to the Traffic Management Command for confirmation.

Since the implementation of DIDS, not all items have received confirmed freight classification codes. We found that logistical systems such as the Mechanization of Warehousing and Storage Procedures System do not all communicate directly with DIDS (see p. 9, note 3), the Air Force does not submit nonconfirmed freight classification codes to the DIDS data bank, and services and agencies are not complying with established directives regarding freight classification procedures.

Therefore, many items in the DIDS data bank that are managed by DLA, the Air Force, and others contain nonconfirmed freight classifications simply because the items were not forwarded to the Traffic Management Command for confirmation. As of December 1976, the DIDS data bank contained 5,971,266 NSN items. Only 3,071,131 had confirmed freight classification codes. The other items had either nonconfirmed freight classification codes or no codes at all.

CHAPTER 3

DIDS ECONOMIC ANALYSIS IS OF QUESTIONABLE VALUE

In June 1972, the Defense Logistics Agency issued a formal economic analysis to justify development and implementation of the Defense Integrated Data System at the Defense Logistics Services Center, at military services, and at defense and other Federal agencies. There were significant shortcomings involved with the development and use of this document.

ANALYSIS COMPLETED AFTER CONTRACT AWARD

DLA made various studies concerning the economic justification of DIDS. Initial efforts began in July 1966, and updates were made in 1967 and 1968. However, until 1968 these studies did not include data from the participating services and agencies. Additional cost and benefit estimates were made from December 1969 through November 1970, but not until June 1972, 3 months after the Burroughs contract was awarded, were the last efforts to finalize savings and benefits made and the formal document issued.

Policy and procedural guidance for preparing and using an economic analysis supporting DOD investments are contained in DOD Instruction 7041.3, entitled "Economic Analysis of Proposed Department of Defense Investment." At the time of the DIDS investment, the instruction, dated February 26, 1969, 1/ was in effect and stipulated that:

1. Economic analysis will be used in planning studies involving relative comparisons and tradeoffs among investment alternatives to achieve stated objectives; effect cost reductions; or add to, delete, or adjust the scope of approved programs.

2. An analysis of benefits and costs or cost effectiveness will normally provide the primary basis for recommending and selecting among investment options. Decisions should be made considering the cost-benefit

---

1/This instruction has been superseded by DOD Instruction 7041.3, dated October 18, 1972. The content of this instruction is generally the same as the earlier one.

implications of investment options. The procedures described herein will be used to provide information for recommending and making investment decisions.

3. Proposed DOD investments will be evaluated and the relative merits of alternative proposals compared in order to recommend investments likely to be the most productive and beneficial.

It appears that DLA did not fully comply with the intent of this instruction, since major system acquisition commitments were made before the formal analysis was completed (that is, the Burroughs contract was awarded March 13, 1972). In addition, there was no comparison of alternatives, other than the then-current system and DIDS, or any indication that other alternatives were explored. The analysis states that DIDS is the only alternative to the present system for achieving the objectives and concepts directed by the Office of the Assistant Secretary of Defense (Manpower, Reserve Affairs and Logistics).

In our opinion, if the analysis were to be fully effective as a management tool to achieve the above-mentioned policy objectives, a more adequate discussion of system alternatives was necessary. For example, design alternatives that could be examined include the existing system, various modifications to the existing system, augmentations to the existing system, and new system configurations. Without the cost and benefit relationship of available alternatives, top management does not have enough information to select the most cost-effective and beneficial system configuration and justify funding for the proposed system.

In addition, we believe that DLA should have completed the analysis early in the system design stage, before releasing the request for proposals. Had this been done, a more thorough assessment of alternatives, costs, and expected benefits might have evolved, providing a sounder basis for determining the original configuration.

SYSTEM COST-BENEFIT ESTIMATES

In its economic analysis DLA estimated that DIDS would have a present value 1/ development and implementation cost of $39.19 million 2/ and net benefits of $43.70 million over an 8-year economic life. Also, annual operating costs were estimated to be about $14 million. We have calculated that DOD actual costs for development and implementation of DIDS amounted to $74.3 million and that annual operating costs would be about $14 million to $19 million.

1/Office of Management and Budget Circular A-94 defines present value costs and benefits as each year's expected cost or benefit multiplied by its discount factor and then summed over all years of the planning period. The discount factor is the factor for any specific discount rate which translates expected cost or benefit into its present value. It is equal to $1/(1+r)t$, where (r) is the discount rate and (t) is the number of years since the date of initiation, renewal, or expansion of a program or project.

2/Does not include sunk cost of $14.9 million incurred before January 1, 1972.

Development and Implementation Costs

	(thousands)
Capital cost:	
Site preparation	a/$ 2,683.1
ADP equipment purchase	b/1,849.2
Other capital	c/3,923.6
	8,455.9
Conversion costs:	
ADP salaries	22,406.5
Other salaries	23,314.1
Administrative overhead and supplies	d/8,570.7
ADP equipment rental	e/8,886.7
Contractual	f/ 454.5
AUTODIN upgrade	2,244.5
	65,877.0
Total DOD cost	g/$74,322.9

a/1. Uninterruptable power supply building modification, $283.1.
2. New building modifications at DLSC, $2,400.

b/1. Purchase of uninterruptable power supply equipment, $31.2.
2. Purchase of telecommunications equipment, $18.
3. Purchase of B6700-109 (second system), $1,800.

c/Purchase of microfiche equipment.

d/Includes administrative overhead at 15 percent, supplies (personnel), supplies (ADP equipment), and temporary duty costs.

e/1. DLA centers, $190.7.
2. DLSC, $8,275.5. This is the implementation portion of the contract with Burroughs.
3. Military services, $420.5.

f/ADP support provided by Burroughs and printing costs for DIDS procedures manual.

g/Includes sunk costs of $14,904.5. These costs were incurred before Jan. 1, 1972.

When DIDS was declared operational in March 1975, the Assistant Secretary of Defense (Manpower, Reserve Affairs and Logistics) requested DLA to review the system and revalidate the economic analysis. In October 1976 DLA forwarded its findings to the Assistant Secretary. The report said that the total amount of work to be processed by the system was grossly underestimated even though externally generated transactions were less than anticipated. Estimates were especially low in the area of characteristic data processing (that is, the maintenance of characteristic data through the Federal Item Identification Guide Program and the publication and distribution of characteristic data Identification Lists and Federal Item Logistics Data Records). The report said that, as a result of the low estimates, equipment eventually selected on the basis of the request for proposals (a dual processor Burroughs 6700 system) was inadequate. Because of this, the modifications and augmentations described on page 18 were made to the initial equipment configuration before January 1976.

Annual operating costs

DLA provided cost information for DLSC for the 24-month period April 1975 to March 1977. These were actual costs except for the quarter ended March 1977. The data was arranged according to its relationship to DIDS as follows:

	Total cost	Personnel	Nonlabor (note a)	Reimbursed
	(millions)			
Direct DIDS	$27.2	$19.0	$11.8	$-3.6
Indirect DIDS	1.5	1.5	0	0
Administrative	5.3	5.0	1.0	-0.7
Pure cataloging	1.7	1.6	0.1	0
Miscellaneous	2.5	2.6	0.3	-0.4
Total	$38.2	$29.7	$13.2	$-4.7

a/Composed primarily of equipment rental and maintenance purchased services and supplies.

We have averaged the above costs to arrive at an approximate annual operating cost of $19 million for the system. DLA officials expressed the view that administrative support, pure cataloging, and miscellaneous are not actually attributable to DIDS, since these activities would be carried on whether or not DIDS existed. However, we believe that, since DIDS is the heart of DLSC operations, all costs discussed above shoul be considered DIDS operating costs.

Benefits

The above-mentioned DLA report to the Assistant Secretary of Defense (Manpower, Reserve Affairs and Logistics) pointed out that actual personnel resource savings through fiscal year 1976 and revised estimates through fiscal year 1982 indicate a 66-percent decrease. This means that the originally estimated staff-year savings of about 2,212 would decrease by 1,458 staff-years. Also, the report said that savings of about $14 million attributed to recovery of cost avoidance were virtually nonexistent. Cost avoidance savings are potential savings expected to accrue to the DOD logistics system through the avoidance of future costs.

In conclusion, the report stated

> "Based on this reevaluation of previous expected savings resulting from DIDS, it can be stated that there are no quantifiable dollar savings resulting from DIDS. Intangible savings * * * will result in an overall improvement of the total logistics services provided by DLSC and will provide a modernized ADP base for further enhancements."

We agree that an overall improvement of total logistics services can be expected, and although the above-mentioned DLA operational review indicates that no quantifiable savings are resulting from DIDS, we believe that future quantifiable benefits can and should be expected. However, the method DLA used to develop the June 1972 economic analysis did not include the flexibility to track changes in system development and, subsequently, could not function as a management tool to predict future adjusted benefits. As mentioned on page 38, the DLA economic analysis was developed from faulty estimates of the total workload. Later milestone reports prepared to update the analysis concentrated on additional staff-years and costs to be incurred but did not attempt to adjust anticipated benefits.

We believe that the economic analysis should be used as a tool to continually monitor a system's development and implementation. Therefore, the entire document should be updated regarding all elements of costs and benefits. Had DLA done this, the June 1972 economic analysis could probably have been adjusted to permit management to make reasonable predictions of adjusted costs and benefits.

CHAPTER 4

IS A LARGE, COMPLEX, INTEGRATED SYSTEM SUCH AS DIDS FEASIBLE?

The data flow model discussed in chapter 2 demonstrates the complex interrelationships involved in developing a large, integrated data system. Our review of the Defense Integrated Data System indicates that implementing the total concept is feasible and that large portions of each of the functional segments are operational. However, development of this system has not provided the efficient, effective operation expected by the Defense Logistics Agency in the areas discussed in previous chapters.

SUCCESSFUL SYSTEM INTEGRATION

The design and development efforts required for complex, integrated systems are costly, constrained by time, and affected by changing technology and management. Moreover, they greatly affect functional users and the efficiency and effectiveness of their operations. Each effort requires (1) numerous systems analysts, (2) programmers, who are generally in short supply, and (3) financial and managerial resources, which are also limited.

The success of such efforts depends greatly on a disciplined approach and the proper assessment and management of needed data processing resources. These resources should be used to facilitate the furnishing of logistical support to military units regardless of whether those units are operating under peacetime or emergency conditions.

Our experience in auditing large system developments, such as DIDS, indicates that development efforts lacking strong and authoritative management control usually result in prolonged system development cycles, sizeable cost overruns, and user dissatisfaction with the system products because they are not timely or reliable. DIDS is experiencing all three of these problems.

In our opinion, the stringent management control required for this complicated system integration was not provided. We believe this is the cause of the problems DLA is having in achieving operational goals. This lack of strong project management control permitted an inadequately sized system to be developed predicated on understated workload projections. It also permitted the system to become operational before all

major functions were completely implemented and tested and errors were corrected. Consequently, the modification and augmentations made so far to compensate for sizing and premature operation have not provided the processing capability originally thought to be required.

We think, logically, that these conditions strongly reinforce system participant motivations to maintain duplicate files and issue duplicative supply publications.

In our discussions with DOD officials about the content of this report, they maintained that past and present management control for DIDS have been adequate. They cited such practices as management reviews, joint service/agency conferences, and designation of focal points for cataloging functions as indications of a competent management structure. However, although the organizational structure for management control exists, the controls were not functioning effectively.

DEVELOPMENT ALTERNATIVES

The augmentations to DIDS (see p. 18) have not provided the processing capacity required by the system to meet current demands, and there is no reasonable assurance that another augmentation will provide a long-term solution to existing processing problems. On the contrary, our audit experience suggests that even several additional augmentations may not result in a long-term solution.

Further augmentation is an alternative, but it is not the only one. Another approach might be to reevaluate user needs and system requirements rather than to continue assuming the validity of the perceived role for DIDS--initially conceived more than 10 years ago. In this regard, a reduced system scope could prove more beneficial, particularly in view of the concerns expressed by many of the users of DIDS and set forth elsewhere in this report. By reduction of scope, we mean developing efficient and effective operation of functions most critical to satisfying customer needs. For example, new features, such as parametric search, prototype item descriptions, and other features not yet implemented, could be phased in later, after their operability could be assured.

Moreover, resources should be applied on a priority basis to correcting the processing deficiencies identified by the consultant. (See p. 20.) This approach would reduce the risk of uncertainties and possible system failure in the

more critical DIDS operations. Reducing the scope of DIDS can be helpful, but this in itself is not sufficient to assure success without providing long-term project management.

Another alternative would be to reevaluate DIDS in light of the mission budgeting concept. This concept is fully described in our report to the Congress, "Mission Budgeting: Discussion and Illustration of the Concept in Research and Development Programs (PSAD-77-124, July 27, 1977). Although this report used research and development programs to illustrate the concept, it is equally applicable to system development activities, such as DIDS. Applying this concept to DIDS would enable DLA to more clearly identify mission-essential applications and to focus its allocation of resources on development, implementation, and use of those applications.

It would seem to follow that, when system reliability and user confidence in DIDS are firmly established, an environment would exist in which the system's objectives--such as the elimination of duplicative files and publications--could be more readily achieved.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

The Defense Integrated Data System demonstrates the need for strong central management control over the development of large integrated data systems. Management must recognize that the various phases of system development (that is, determination of need, development of requirements, economic justification, planning of system specifications, detailed system design, programming, and testing of equipment and software) are interrelated and that each phase depends on the successful completion of preceding phases. In addition, management must be deliberate in identifying mission-essential applications and allocating resources to develop these applications before beginning to develop others that are feasible but less essential.

We believe that the stringent management control necessary for the proper development of this system was not exercised. Consequently, the system was not properly implemented and tested and errors were not corrected before it was declared operational in March 1975. As a result, a lot of time and money is being spent for system modifications and augmentations to make the system perform as it was intended to. Our experience with this management approach has been that it usually involves prolonged system development cycles and sizeable cost overruns.

We believe that there is a valid need for a central Federal repository for item identification and related cataloging data to complement the Federal Supply System and that DIDS fulfills this need. In this regard, the system has already made some significant achievements in the area of logistics data management. It has provided for the consolidation of separate subsystems into one integrated data base; it has centralized catalog management data to provide uniform control over data accuracy; it has provided limited capability for immediate and remote access to the data bank; it has enhanced the quality and quantity of information available to customers; and it has eliminated some duplicative files and publications. However, system development has been accompanied by processing problems resulting from inadequate system sizing and premature operations.

The Defense Logistics Services Center, which is responsible for the system's operation, has attempted to improve DIDS processing capabilities by augmenting hardware and refining software but, although some progress has been made, serious problems still exist.

In our opinion, there is no assurance that the completed or planned modifications and upgrades will eliminate processing difficulties for any sustained period, without a reevaluation of customer needs and system requirements. This reevaluation should be made with a view toward reduced scope of operations for DIDS, if necessary. By reduced scope, we mean that development of new functions, not previously provided to customers by DLSC, could be deferred until adequate processing capacity is available and their reliable operation can be assured.

The Defense Logistics Agency did not prepare an adequate economic analysis in the initial planning stages of DIDS. We believe that, in developing systems such as DIDS, special attention should be given to preparing this document early in the concept planning stage, that is, before the release of a request for proposals. Such a document should clearly show the difference between several alternatives, not just the existing system and the chosen alternative. For example, it might include the costs, benefits, and differences among the existing system, various modifications to the existing system, augmentations to the existing system, and new system configurations. In this way, top management could select and justify the most cost effective and beneficial system configuration and use the economic analysis as a management tool to monitor costs and benefits of system implementation.

RECOMMENDATIONS

In our letter report to the Subcommittees on Defense, House and Senate Committees on Appropriations, dated May 5, 1977, we recommended that the Subcommittees discuss with concerned officials the existing management plan for the Defense Integrated Data System and the associated cost implications.

We also recommended that the Subcommittees review any proposed costs to resolve DIDS performance problems.

Finally, we recommended that the scope of DIDS be limited to item identification and catalog publications. We believe that by so limiting the system, only those parts of the following data base segments or functions necessary to support mission objectives would be required at the Defense Logistics Services Center.

--Supply management.

--Utilization and marketing.

--Statistical reports.

--System support record maintenance.

--Special operations.

Agency reaction to our interim report indicated that clarification was necessary for the above recommendation concerning the limitation of system scope. In this regard, we have defined reduction of system scope under development alternatives on page 41 of this report.

In line with the above, we recommend that the Secretary of Defense require the Assistant Secretary (Manpower, Reserve Affairs and Logistics) to:

--Establish project accountability for the operation and continued development of DIDS. A steering committee of key DLA and service and agency personnel should be responsible for future system development, implementation, and review and should report directly to the Assistant Secretary.

--Have the steering committee study the current and projected user requirements for DIDS to determine what mission-essential functions other than item identification and cataloging are feasible and necessary.

--Have the steering committee reevaluate DIDS' major alternatives and determine what modifications are necessary.

--Require the steering committee to use an updated economic analysis as the basis for cost control purposes which include, but are not limited to, implementation of any program change, equipment augmentations, or new design configurations.

--Require formal management agreements between DLA and the services and agencies to provide improved management control over DIDS operations, data base integrity, and the exchange of data between systems. The steering committee should have responsibility for seeing that these agreements are complied with and updated as necessary.

--As the above actions are completed, have the steering committee take firm measures to eliminate all unnecessary duplicate data bases and operations regardless of which service or agency developed, maintains, or uses them.

CHAPTER 6

SCOPE OF REVIEW

Management responsibility for the Defense Integrated Data System is vested in the Defense Logistics Agency, with operational control located at the Defense Logistics Services Center, Battle Creek, Michigan. Our review was primarily concerned with Department of Defense components--DLA, defense supply centers, defense service centers, and military departments--that manage, direct, coordinate, and use DIDS. Also, NATO was included in this review to determine (1) the compatibility of its cataloging systems with the Federal Catalog System and (2) how this organization interfaces with DIDS.

We evaluated the DIDS program's policies, objectives, plans, principles, and procedures. We also interviewed responsible DOD officials and reviewed planning documents, memorandums, internal reports, and cost data. Our work was done at the following locations.

Department of Defense

Department of Defense, Pentagon, Washington, D.C.
Defense Logistics Agency, Alexandria, Va.
Defense Logistics Services Center, Battle Creek, Mich.
Defense Electronics Supply Center, Dayton, Ohio
Defense Construction Supply Center, Columbus, Ohio
Defense Personnel Support Center, Philadelphia, Pa.
Defense Automatic Addressing Systems Office, Dayton, Ohio

Air Force

Air Force Logistics Command, Dayton, Ohio
Wright-Patterson Air Force Base, Dayton, Ohio
Rickenbacker Air Force Base, Columbus, Ohio
Headquarters, U.S. Air Force in Europe, Ramstein, West Germany
86th Tactical Fighter Wing, Ramstein Air Base, West Germany
50th Tactical Fighter Wing, Hahn Air Base, West Germany
Headquarters, Pacific Air Force, Hawaii
18th Tactical Fighter Wing, Kadena Air Base, Okinawa, Japan

Army

Catalog Data Agency, New Cumberland, Pa.
Tank Automotive Materiel Readiness Command, Warren, Mich.
Military Traffic Management Command, Washington, D.C.
Army Material Management Center, Zweibruecken, West Germany
Army Support Command and Army Supply Activity, Hawaii

Navy

Naval Supply Systems Command, Washington, D.C.
Naval Sea Systems Command, Washington, D.C.
Fleet Material Support Office, Mechanicsburg, Pa.
Ships Parts Control Center, Mechanicsburg, Pa.
Aviation Supply Office, Philadelphia, Pa.
Naval Air Facility, Sigonella, Sicily, Italy
Pacific Division, Naval Facilities Engineering Command, Hawaii
Pearl Harbor Naval Shipyard, Hawaii
Naval Supply Center, Pearl Harbor, Hawaii

Marine Corps

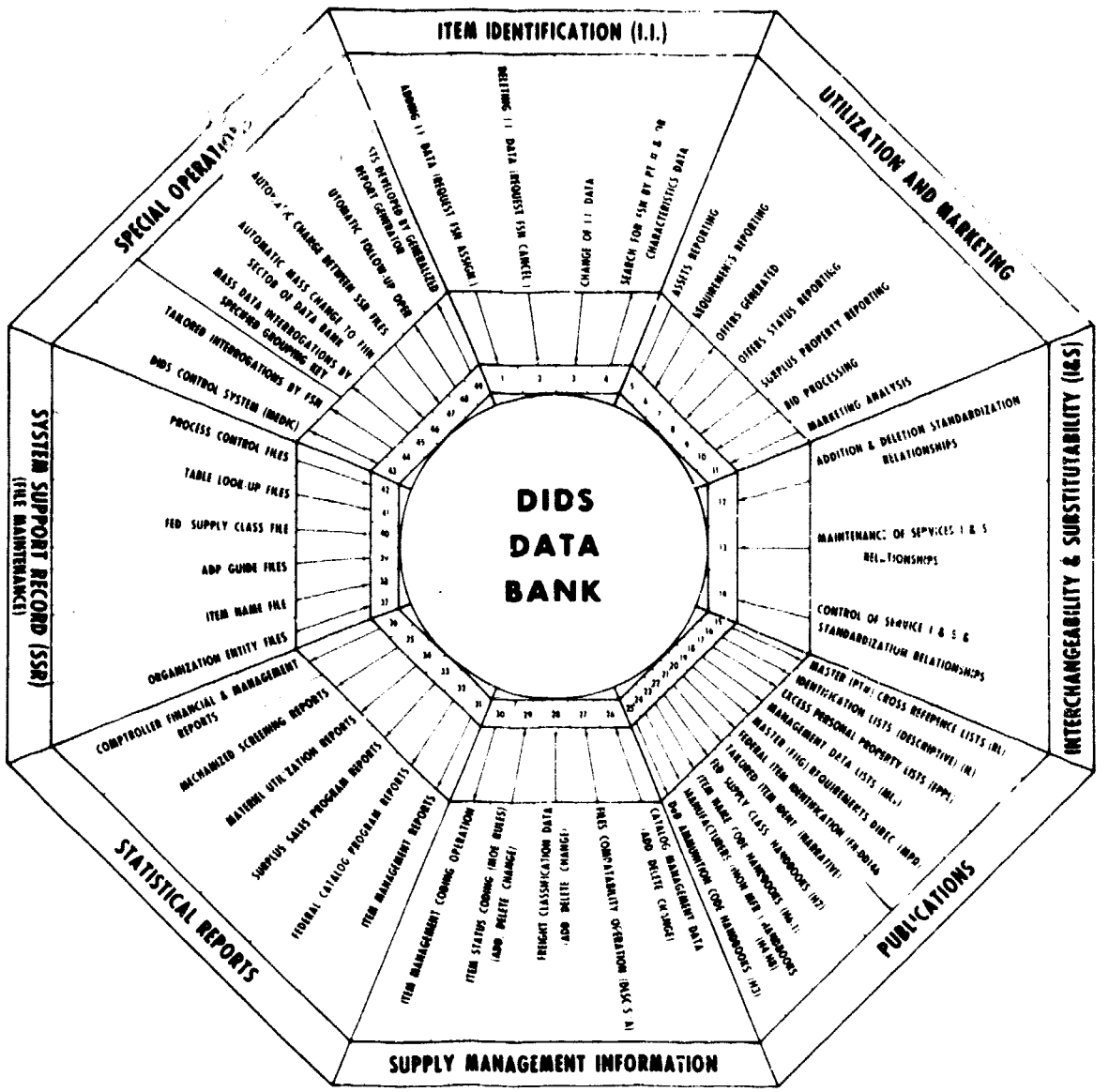
Marine Corps, Headquarters, Washington, D.C.
1st Marine Brigade, Marine Corps Base, Kaneohe Bay, Hawaii
Marine Corps Base, Camp Butler, Okinawa, Japan
3d Force Service Support Group, Camp Foster, Okinawa, Japan
1st Marine Air Wing, Futenma, Okinawa, Japan
Marine Corps Air Station, Futenma, Okinawa, Japan

NATO

NATO Supply Center, Capellon, Luxembourg

APPENDIX I

DEFENSE INTEGRATED DATA SYSTEM OVERVIEW



NOTE: ARROWS POINTING TO DATA BANK INDICATE DATA IS AFFECTED.
ARROWS POINTING AWAY FROM DATA BANK INDICATE DATA IS BEING PUSHED OR PULLED WITH NO AFFECT ON DATA BANK CONTENT.

APPENDIX II

ADDENDUM TO GAO OVERVIEW--

DEFENSE INTEGRATED DATA SYSTEM

This addendum corrects the printing error in the chart on page 9 and shows the complete addresses for activity codes listed on the chart. The following printing variations were noted:

Marine Corps:

--Activity code PA includes a solid blue line indicating an input code for standardization data (H); however, it should be a solid black line for files compatability input (Q).

Defense Logistics Agency:

--Activity code TX should include a dashed orange line for Organizational Entity Data (R).

--Activity code UX should not include a dotted red line for (T) Defense Logistics Services Center-T.

--Activity code UP reads Defense Supply Agency, DSAH-DLAO. However, it should read Defense Logistics Agency, DLAH-DLAO.

USER ACTIVITY CODE ADDRESSES

Army

AC
Edgewood Arsenal
SAREA-DE-EC
Aberdeen Proving Ground, Md. 21010

AJ
U.S. Army Troop Support Command
DRSTS-STX
St. Louis. Mo. 63120

AM
U.S. Army Medical Materiel Agency
SGMMA-LDC
Frederick, Md. 21701

AN
U.S. Army Catalog Data Agency
DRXCA-C
New Cumberland Army Depot
New Cumberland, Pa. 17070

APPENDIX II

Army

AZ	U.S. Army Tank-Automotive Command DRSTA-FC Warren, Mich. 48090
BD	U.S. Army Missile Command Directorate of Material Management Cataloging Division DRSMI-SC Redstone Arsenal, Ala. 35809
BF	U.S. Army Armament Command DRSAR-MMC Rock Island, Ill. 61201
BL	Picatinny Arsenal SARPA-AD-M-F Dover, N.J. 07801
BN	Picatinny Arsenal SARPA-ND-M-P-C, Building 3002 Dover, N.J. 07801
CA	U.S. Army Support Activity, Philadelphia STSAP-AC Philadelphia, Pa. 19101
CD	U.S. Army General, Material and Petroleum Activity STSGP-T New Cumberland Army Depot New Cumberland, Pa. 17070
CJ	Director U.S. Army Logistics Systems Support Agency ATTN: DRXLS-LF Chambersburg, Pa. 17201
CL	U.S. Army Electronics Command DRSEL-MM-C Fort Monmouth, N.J. 07703
CM	U.S. Army Communications Security Logistics Agency DRSEL-CCM-NICP-LS Fort Huachuca, Ariz. 85613

APPENDIX II

Army

CT	U.S. Army Aviation Systems Command DRSAV-QC St. Louis, Mo. 63166
CU	U.S. Army Security Agency Materiel Support Command IAMIC/C Vint Hill Farms Station Warrenton, Va. 22186
D2	U.S. Army Natick Laboratories AMXNM-EPS Natick, Mass. 01760
D3	U.S. Army Electronics Command AMSEL-PP-ED Ft. Monmouth, N.J. 07703
D4	U.S. Army Mobility Equipment Research and Development Center AMSME-RZK-KX Ft. Belvoir, Va. 22060
D6	Commander Frankford Arsenal Attn: SARFA-MDM Philadelphia, Pa. 19137
EN	Department of the Army U.S. Army International Logistics Center New Cumberland Army Depot New Cumberland, Pa. 17070
XZ	Military Traffic Management Command MTMC-INNC Department of the Army Washington, D.C. 20315

Navy

GH	Navy Fleet Material Support Office Code 91123 Mechanicsburg, Pa. 17055

APPENDIX II

Navy

GM	Navy Fleet Material Support Office Code 91123 Mechanicsburg, Pa. 17055
GP	Commanding Officer Navy Aviation Supply Office Attn: DAI-GP 700 Robbins Avenue Philadelphia, Pa. 19111
G5	Naval Ammunition Depot Code 03 Crane, Ind. 47522
HC	Naval Electronics Systems Command Code ELEX 50423 Washington, D.C. 20360
HD	Navy Ships Parts Control Center (Ships and Base Materiel) Mechanicsburg, Pa. 17055
HE	Naval Air Engineering Center ESSD, Code X-32 Philadelphia, Pa. 19112
HH	Navy Ships Parts Control Center Code 815 Mechanicsburg, Pa. 17055
HP	Naval Supply Systems Command Code SUP10 Department of the Navy Washington, D.C. 20360
HW	Military Sealift Command M4SC Washington, D.C. 20390
HX	Navy Ships Parts Control Center Special Propulsion Plant Material Mechanicsburg, Pa. 17055
JB	Navy Ships Parts Control Center Attn: Code 880 (TRIDENT) Mechanicsburg, Pa. 17055

Navy

JF	Navy Ships Parts Control Center Nuclear Equipment Support Branch Mechanicsburg, Pa. 17055
JG	Navy Ships Parts Control Center (Ammunition Division) Mechanicsburg, Pa. 17055
JS	Naval Construction Battalion Center Seabee Systems Engineering Office Code 15432 Port Hueneme, Calif. 93043
JV	Strategic Systems Project Office Vitro Laboratories (Code MSC) Silver Spring, Md. 20910
J4	Organization of the Joint Chiefs of Staff Logistics Directorate (J-4) Mobility Operation Division Logistics Coordination Center Room 2C836, Pentagon Washington, D.C. 20301
KE	Navy Aviation Supply Office Code DAP-A Philadelphia, Pa. 19111

Air Force

SA	Air Force Logistics Command ACAI Wright-Patterson AFB, Ohio 45433
SC	San Antonio Air Logistics Center SWRC (Atomic Ordnance) Kelly AFB, Tex. 78241
SD	Air Force Logistics Command MMOA Wright-Patterson AFB, Ohio 45433

APPENDIX II

Air Force

SE	San Antonio Air Logistics Center MMSC Kelly AFB, Tex. 78241
SJ	AFCD/LGGLSC San Antonio, Tex. 78243
SP	San Antonio Air Logistics Center SFRL Kelly AFB, Tex. 78241
ST	Air Force Services Office (AFLC) DPK Philadelphia, Pa. 19101
SU	Ogden Air Logistics Center MMSC Hill AFB, Utah 84406
SX	Oklahoma City Air Logistics Center MMSC Tinker AFB, Okla. 73145
TA	Sacramento Air Logistics Center MMSC McClellan AFB, Calif. 95652
TG	Warner-Robins Air Logistics Center MMSC Robins AFB, Ga. 31098
TT	Air Force Medical Materiel Field Office AF/MMFO Frederick, Md. 21701
TU	AFLC Cataloging and Standardization Office Battle Creek, Mich. 49016
TW	AFLC Cataloging and Standardization Office Battle Creek, Mich. 49016

Marine Corps

PA	Marine Corps Supply Activity Code 840 Philadelphia, Pa. 19146
PB	Commanding General Marine Corps Supply Center Albany, Ga. 31704
PC	Commanding General Marine Corps Supply Center Barstow, Calif. 92311
PD	Commanding General Marine Corps Base Camp Pendleton, Calif. 92055
PE	Commanding General Marine Corps Base Camp Lejeune, N.C. 28542
PM	Headquarters, U.S. Marine Corps Code LMO-1 Washington, D.C. 20380

Defense Logistics Agency

AX	Defense Construction Supply Center DCSC-SC Columbus, Ohio 43215
CX	Defense General Supply Center DGSC-SC Richmond, Va. 23297
CY	Defense Personnel Support Center DPSC-TTF Philadelphia, Pa. 19101
CZ	Defense Personnel Support Center DPSC-STC Philadelphia, Pa. 19101
KX	Defense Personnel Support Center DPSC-ATCC Philadelphia, Pa. 19101

APPENDIX II

Defense Logistics Agency

KY	Defense Fuel Supply Center DFSC-TB Cameron Station Alexandria, Va. 22314
KZ	Defense Industrial Supply Center DISC-SE Philadelphia, Pa. 19111
PX	Defense Industrial Plant Equipment Center DIPEC-TE Memphis, Tenn. 38114
TX	Defense Electronics Supply Center DESC-SMS Dayton, Ohio 45444
UP	Defense Logistics Agency ATTN: DLAH-DLAO Cameron Station Alexandria, Va. 22314
UU	Defense Depot Ogden DDOU-OM Ogden, Utah 84401
UX	Defense Depot Mechanicsburg DDMP-EC, Building 09 Mechanicsburg, Pa. 17055
U0	PURA Project Office Defense Automatic Addressing System Gentile Air Force Station Dayton, Ohio 45444
U3	Defense Automatic Addressing System Office Gentile Air Force Station Dayton, Ohio 45444
U5	Defense Industrial Supply Center DISC-SEA Philadelphia, Pa. 19111

APPENDIX II

Defense Logistics Agency	
U6	DOD Automatic Addressing Facility Western Division c/o Defense Depot Tracy Tracy, Calif. 95376
U7	Defense Property Disposal Service Federal Center Battle Creek, Mich. 49016
XC	Defense General Supply Center DGSC-SEA (Civil Defense) Richmond, Va. 23219
XR	Defense Logistics Services Center DLSC-M-MRCP Design Sup-Group Battle Creek, Mich. 49016
XY	Defense Logistics Services Center Directorate of Item Identification Attn: DLSC-C/Special Projects Battle Creek, Mich. 49016
96	Defense Logistics Services Center Directorate of Item Identification Battle Creek, Mich. 49016
97	Defense Logistics Services Center Office of Systems Battle Creek, Mich. 49016
98	Defense Logistics Services Center Directorate of Item Identification Battle Creek, Mich. 49016
99	Defense Logistics Services Center Directorate of Item Identification Battle Creek, Mich. 49016
9A	Defense Logistics Services Center CN Battle Creek, Mich. 49016
9B	Defense Logistics Services Center DDDR Battle Creek, Mich. 49016
9C	Defense Logistics Services Center CM Battle Creek, Mich. 49016

APPENDIX II

Defense Logistics Agency

9E	Defense Logistics Services Center CGE Battle Creek, Mich. 49016
9F	Defense Logistics Services Center CGC Battle Creek, Mich. 49016
9G	Defense Logistics Services Center CPP Battle Creek, Mich. 49016
9K	Defense Logistics Services Center CM Battle Creek, Mich. 49016
9L	Defense Logistics Services Center CM Battle Creek, Mich. 49016
9M	Defense Logistics Services Center Directorate of Logistics Data Management DLSC-T Battle Creek, Mich. 49016
9N	Defense Logistics Services Center CM Battle Creek, Mich. 49016
9Q	Defense Logistics Services Center CPQ Battle Creek, Mich. 49016
9S	Defense Logistics Services Center CM Battle Creek, Mich. 49016
9T	Defense Logistics Services Center Directorate of Logistics Data Management Battle Creek, Mich. 49016
9W	Defense Logistics Services Center CM Battle Creek, Mich. 49016

APPENDIX II

Defense Logistics Agency

9X	Defense Logistics Services Center CM Battle Creek, Mich. 49016
9Y	Defense Logistics Services Center DD Battle Creek, Mich. 49016
9Z	Defense Logistics Services Center International Codification Division Battle Creek, Mich. 49016

APPENDIX III

PRINCIPAL OFFICIALS RESPONSIBLE FOR ADMINISTERING ACTIVITIES DISCUSSED IN THIS REPORT

	Tenure of office	
	From	To
DEPARTMENT OF DEFENSE		
SECRETARY OF DEFENSE:		
Harold Brown	Jan. 1977	Present
Donald H. Rumsfeld	Nov. 1975	Jan. 1977
James R. Schlesinger	July 1973	Nov. 1975
William P. Clements, Jr. (acting)	May 1973	July 1973
Eliot L. Richardson	Jan. 1973	May 1973
Melvin R. Laird	Jan. 1969	Jan. 1973
Clark M. Clifford	Mar. 1968	Jan. 1969
Robert S. McNamara	Jan. 1961	Feb. 1968
ASSISTANT SECRETARY OF DEFENSE (MANPOWER, RESERVE AFFAIRS AND LOGISTICS) (note a):		
John P. White	May 1977	Present
Dale R. Babione (acting)	Jan. 1977	May 1977
Frank A. Shrontz	Feb. 1976	Jan. 1977
Dr. John J. Bennett (acting)	Apr. 1975	Jan. 1976
Arthur I. Mendolias	June 1973	Mar. 1975
Hugh McCullough (acting)	Feb. 1973	June 1973
Barry J. Shillito	Feb. 1969	Feb. 1973
Thomas D. Morris	Sept. 1967	Feb. 1969
Paul R. Ignatius	Dec. 1964	Aug. 1967
DIRECTOR, DEFENSE LOGISTICS AGENCY (note b):		
Lt. Gen. W. W. Vaughan	Dec. 1975	Present
Lt. Gen. Wallace H. Robinson, Jr.	Aug. 1971	Dec. 1975
Lt. Gen. Earl C. Hedlund	July 1967	July 1971
Adm. Joseph M. Lyle	July 1964	June 1967

a/This office represents the consolidation of the Assistant Secretary (Manpower and Reserve Affairs) and the Assistant Secretary (Installations and Logistics) after April 20, 1977.

b/Before January 1, 1977, the title was Defense Supply Agency.

(941114-II)