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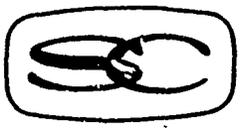

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STUDY OF SCIENTIFIC AND TECHNICAL DATA ACTIVITIES IN THE UNITED STATES --

VOLUME II

PRELIMINARY CENSUS OF SCIENTIFIC AND TECHNICAL DATA ACTIVITIES
Part C

Prepared for

Task Group on National Systems
Committee on Scientific and Technical Information
Federal Council for Science and Technology

DEC. 1968

Final Report
Contract F44620-67-C-0022
ARPA Order: 892 as Amended

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SPONSORSHIP ACKNOWLEDGEMENTS

The work reported herein was sponsored by the Task Group on National System(s), Committee on Scientific and Technical Information (COSATI) of the Federal Council for Science and Technology. Financial support was provided by the Advanced Research Projects Agency of the Department of Defense, with contract administration by the Air Force Office of Scientific Research. Work was initiated, under Air Force Contract F44620-67-C-0022, on 1 September 1966 and completed 30 April 1968.

FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY
COMMITTEE ON SCIENTIFIC AND TECHNICAL INFORMATION
EXECUTIVE OFFICE BUILDING
WASHINGTON,D.C. 20506

DEC 1968

FOREWORD

The Task Group on National Systems for Scientific and Technical Information of the Committee on Scientific and Technical Information (COSATI) is sponsoring a series of studies on aspects of information systems and activities in the United States. This report by Science Communication, Inc., is the result of one such study.

COSATI feels that this report contains much valuable information and many thought-provoking recommendations. Both government and private communities should benefit by having the report widely distributed, and extensively reviewed and discussed. Hopefully professional societies, private groups and interested individuals will continue the analysis of scientific and technical data activities which has been well begun in this report.

Andrew A. Aines
Chairman

Science Communication
Washington, D. C. 200 07
COSATI Data Activities Study
Final Report - F44620-67-C-0022 30 April 1968

ABSTRACT

This volume presents the findings from a preliminary survey of scientific and technical data activities in industry, the professions, and government. The purpose of the survey was compilation of information which could support the development of national policies and plans with respect to data management and data handling systems. The survey constitutes one of a complementary set of exploratory studies sponsored by the Task Group on National System(s) of the Committee on Scientific and Technical Information (COSATI). COSATI is a committee of the Federal Council for Science and Technology.

The survey scope, roughly defined, includes the more important data activities supporting our national science-technology effort. Emphasis is directed to those data activities and formal data handling efforts which would most likely be considered in conjunction with planning and development of national data systems.

This volume consists of three parts. Part A presents scenarios of data activities in ten selected fields of science or technology. Each scenario covers the characteristics of data, data flows, formal data efforts, and representative data related problems or issues identifiable with the field. The fields covered are: aerospace science and technology, electronics and electrical engineering, materials science and engineering, chemistry and chemical engineering, agriculture and food technology, biomedical sciences, pharmacology, social and behavioral sciences, environmental and geosciences, and oceanography. A supplementary scenario describes data activities as conducted within the research, developmental, and applications phases of scientific and technological activity.

Part B summarizes results from probes of selected areas of scientific and technical data activity. Areas probed include data activities of medical research institutions, professional societies and trade associations, commercial data processing service centers, and U. S. Army research, development, test and evaluation activities. Part B also includes a review of equipment capabilities.

Part C consists of a preliminary census of 226 formal data efforts which are representative of those efforts currently operating in the United States. The following types of data efforts are included in the census: Data service centers, Data-document depositories, Data program development and coordination, Non-designated (Agency) data handling and service operations, and Small evolving data handling and service operations.

The information contained in this volume supported the preparation of a plan for actions to improve existing data systems and to further explore the feasibility of national data system concepts. This plan is outlined in Volume I of this report.

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ACCESSIBILITY OF DOCUMENTS CITED IN THIS REPORT

Many of the background documents for this study are reports of Government sponsored studies. Most of these documents are available from the Clearinghouse for Federal Scientific and Technical Information ("CFSTI"), Springfield, Va., 22151. In ordering Clearinghouse documents, use of the "PB" or "AD" numbers is suggested to expedite the processing. The other principal source of government-sponsored documents is the Superintendent of Documents, Government Printing Office ("GPO"), Washington, D.C. 20402.

It is the policy of the President's Science Advisory Committee and the Federal Council for Science and Technology, Committee on Scientific and Technical Information, to make their reports and reports sponsored by them readily available to the public. To assist the reader, therefore, the following information supplements the bibliographic references to such reports as they appear in this report:

1. Progress of the United States Government in Scientific and Technical Communications, Committee on Scientific and Technical Information of the Federal Council for Science and Technology, Executive Office of the President, 1965, PB 173 510. Available from CFSTI.

2. Recommendations for National Document Handling Systems in Science and Technology: Appendix A -- A Background Study -- Volumes I and II, System Development Corporation, Santa Monica, California, September 1965, AD 624 560, PB 168 267. Available from CFSTI.

3. A System Study of Abstracting and Indexing in the United States, System Development Corporation, Falls Church, Virginia, 16 December 1966, PB 174 249. Available from CFSTI.

4. Exploration of Oral/Informal Technical Communications Behavior, Semi-Annual Technical Report, American Institutes for Research, Silver Spring, Maryland, 15 March 1967, AD 650 219. Available from CFSTI.

5. Handling of Toxicological Information, A Report of the President's Science Advisory Committee, The White House, Washington, D.C., June 1966. Available from GPO.

6. Science, Government, and Information, A Report of the President's Science Advisory Committee, The White House, January 10, 1963, GPO (out of print).

7. Report of the Office of Science and Technology Ad Hoc Panel on Scientific and Technical Communications, J.C.R. Licklider, et al., 8 February 1965. Unpublished (out of print).

8. The Copyright Law as it Relates to National Information Systems and National Information Systems and National Programs -- a Study by the COSATI Ad Hoc Task Group on Legal Aspects Involved in National Information Systems, Washington, D.C., July 1967, PB 175 618. Available from CFSTI.

9. Progress of the United States Government in Scientific and Technical Information, Committee on Scientific and Technical Information (COSATI) of the Federal Council for Science and Technology, Washington, D.C., 1966, PB 176 535. Available from CFSTI.

10. Review of Proposal for a National Data Center, Statistical Evaluation Report No. 6, Edgar S. Dunn, Jr., Office of Statistical Standards, Bureau of the Budget, December 1965. Available from Bureau of the Budget, Executive Office Building, Washington, D.C. 20506.

11. President's Message on Communications Policy to the Congress of the United States. The White House, Washington, D.C., August 14, 1967. Available White House Press Office, Washington, D.C., 20506.

12. Scientific and Technological Communication in the Government, (The Crawford Report), Task Force Report to the President's Special Assistant for Science and Technology, Washington, D.C., April 1962, AD 299 545. Available from CFSTI.

13. Information Sciences Technology: First Report of Panel 2, Committee on Scientific and Technical Information of the Federal Council for Science and and Technology, September 1965, PB 169 686. Available from CFSTI.

14. Presidential Message upon signing of the State Technical Services Act, P.L. 89-182, President Lyndon B. Johnson, September 14, 1965. Available from White House Press Office, Washington, D.C., 20506.

INTRODUCTION TO VOLUME II

Content and Objective of the Census

It is axiomatic that the scientific and technical data and information systems of the future should be based on a clear understanding of current activities. Such an understanding can be achieved only through identification of relevant activities, definition of significant elements and characteristics of these activities, and systematic examination of these activities to articulate fundamental structures, functions, and objectives. Consequently, the Committee on Scientific and Technical Information (COSATI) Task Group on National Systems established an objective to inventory and evaluate the resources currently being utilized in national and other selected domestic scientific and technical information and data activities. More specifically, the Task Group has undertaken to:

- Determine why and how the scientist, engineer, manager, and technical public obtain and use scientific and technical information and identify trends that may change these patterns;
- Examine the relationships between generators, processors, users, and systems of scientific and technical data and information to ascertain functions, volumes, economics, trends, problems, etc., both present and future;
- Identify and examine data and information activities being pursued or under development which are of sufficient importance to our national scientific and technical posture to warrant close coordination;
- Consider the development of national data and information systems in relation to trends and requirements as revealed in activities both at the sub-national and international levels; and

- Review the state-of-the-art pertaining to equipments, facilities, techniques, and organizational capabilities as related to existing and potential national data and information system requirements.

The Task Group has sponsored a complementary set of studies to accumulate and articulate background information relevant to its investigation of the requirements and feasibility factors relating to national scientific and technical information system concepts. The first study examined the current status of document handling activities and made recommendations concerning a national document handling system.* A second study dealt in depth with abstracting and indexing services in the United States.** Another study analyzed the structures and functions of informal information-communication systems.*** Reported herein is an exploratory examination of the scientific and technical data activities and related systems currently operational or under development. Emphasis is directed to those data activities, formal efforts, and systems which would most likely be considered in conjunction with planning and development of national systems.

Based upon results of the above studies and other findings, the Task Group is formulating recommendations and plans for the development of national information and data systems which include actions for government agencies, suggestions for actions by the private sector, and steps to move from current to advanced systems. The Task Group is currently considering a plan for actions to improve existing data systems and to further explore the feasibility of national data system concepts. Development of this plan, which is presented in Volume I of this report, was supported by the background information contained in this Volume.

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* Recommendations for National Document Handling Systems in Science and Technology: Appendix A -- A Background Study -- Volumes I and II, System Development Corporation, Santa Monica, California, September 1965. Contract AF 19 (628) - 5166.

** A System Study of Abstracting and Indexing in the United States, System Development Corporation, Falls Church, Virginia, 16 December 1966. Contract NSF-C-464.

*** Exploration of Oral/Informal Technical Communications Behavior, Semi-Annual Technical Report, American Institutes for Research, Silver Spring, Maryland, 15 March 1967. DAHC-04 67 C0004.

Scope of Census Efforts

In September 1966, Science Communication, Inc. undertook the development of a preliminary census of scientific and technical data activities in industry, the professions, and government. As noted above, the end objective was compilation of information which could support the development of national policy with respect to systems for data collection, reduction, storage, retrieval, analysis, and dissemination. The census scope, roughly defined, was intended to include the more important data activities supporting the national science-technology effort. Specifically, the scope was defined as including data activities involving the following types of data:

- Data acquired in the course of conducting experiments or examining natural phenomena, or in the course of performing tests according to prescribed procedures;
- Data which describe the characteristics or performance of a natural phenomenon, a material, a device, or a component; and
- Data which instruct, guide, or aid skilled or semi-skilled persons in the proper use, maintenance, or replacement of artifacts, or in techniques and procedures.

The scope and diversity of these activities precludes an explicit listing of inclusions and exclusions of specific data activities; therefore, the following criteria were used to guide the determination as to whether or not a type of data or data activity was within the scope of the census effort:

- Data generated in any of the basic and applied physical, biological, and environmental sciences, basic and applied engineering disciplines and related technologies are included within the scope. Behavioral and human factors data generated in the social sciences are also included; data generated in the other areas of the social sciences are included to the extent that the data are used by scientists or engineers engaged in scientific and technical activities.

- Data embodied in any physical format, from magnetic tape through standard reference manuals and handbooks to programmed or other instructional manuals, are within the scope. Oral and other informal media of data communication are not included except as required to characterize important interfaces between formal and informal data communication media or systems.

- Data in all stages of refinement, from raw measurements through reduced and analyzed data to standard reference data, are within the scope.

- Data in the public domain are within the census scope; in addition, other data are included, if potentially available to the scientific and technical community. Data held by Government intelligence agencies or other highly restricted data are not within the scope. Proprietary data held by private organizations, but made available for external use under appropriate conditions, are included; but private data are excluded.

- Data activities involving either the collection, reduction, analysis, storage, retrieval, analysis, or dissemination of data are included within the scope. Activities predominantly involving the abstracting, subject indexing, or other handling of research reports and other low data content documents are not included.

- Data activities of national scale are included within the census scope. Data activities serving a regional or a specialized mission are within the scope if the use of the data activity is of national importance. Data activities of an international scope are included if they impinge significantly on national level activities. Data activities of only local scope and without existing or potential national importance implications are excluded, except as specimen cases of local scale data activities which, in the aggregate, are of national significance.

- Data activities located within or sponsored by government, the professions, non-profit organizations, or commercial firms are all within the census scope, except data activities devoted exclusively to formal instruction in colleges and universities.

The above scope delineations can be summarized as follows: Scientific and technical data activities which have not been examined previously in any broad-scale systematic manner, but are potentially amenable to coordination for the purpose of improving our national scientific and technical posture.

Structure of Census Effort

Since the resultant product was intended to guide the formulation of national policy, the census effort requirement was broad in scope and of a summary nature. In addition, no precedent existed for the conduct of such a broad-scale census of scientific and data activities. Consequently, the effort, by necessity, involved development of structuring and inventorying concepts for scientific and technical data and data activities. Since this census effort is a pioneering endeavor, it must be expected to be coarse and incomplete with respect to detail. However, it should achieve the important objective of revealing patterns and trends important in the national context. The selected approach achieves this objective; in addition, it provides a structure on which other, more definitive studies and purposive actions can be built.

At the broader level, the concept of "community of interest" proved to be helpful in structuring the census effort. By definition, a community of interest exists when individuals and/or organizations identify with a common scientific and technical mission, goal, or objective. A normal manifestation of a community of scientific or technical interest is the development of an effort to generate and conserve the data required to pursue the common missions or goals of the community. These data efforts and the larger system of which they are a part may be well articulated and formally structured, or they may be hardly discernible and informally structured. In the communities of interest context, scientific and technical data efforts fall into three major categories:

- Efforts primarily associated with basic and applied research missions;

- Efforts primarily associated with design, development, and test missions; and

- Efforts primarily associated with production, operation, maintenance, and training missions.

In the first category, a community of interest evolves in conjunction with a mission to conserve and advance the scientific and technical knowledge in a discipline such as chemistry or a sub-discipline such as analytical chemistry. In the second category, the community of interest associates not only with specific developmental disciplines, such as aeronautical engineering, but also with specialized fields of development such as spacecraft design and developmental or clinical testing of drugs. In the third category, the community of interest is formed along industrial classifications such as transportation and metal fabrication, or around an applied profession such as medical practice.

The community of interest model has particular merit in making visible the motivational patterns that lend meaning to the structure and functions of data activities associated with each scientific and technical mission. This essentially social model also accommodates the important dynamic functions of data conversion and transfer processes. This model displays the structure of communities and enhances the opportunity to identify meaningful patterns related to data activities within the community. Various communities of interest have developed data communication activities which utilize the following channels or, stated in other terms, operate in one or more of the following system modes:*

Generator↔User
Generator→Document Publisher→User
Generator→Document Publisher→Document Processor↔User
Generator→Document Publisher→Data Processor↔User
Generator→Document Publisher→Document Processor↔Data Processor↔User
Generator↔Data Processor↔User
Generator↔Data Processor→Document Processor↔User

*Arrows indicate directions of major flows of data.

Previous studies of the Task Group on National Systems have covered those three communication channels of system modes shown above which do not involve a data processor component. Therefore, the type of data activity most central to the census objective is that which includes a formal data processing component or effort. The visibility of formal data processors such as data collection networks, data storage and retrieval centers, etc. provides identifiable focal points for census efforts. However, it is recognized that such formal data efforts or data processors represent the intersection of two communities of interest. One is concerned with advancing a particular scientific or technical mission and the other concerns the mission of attaining more effective means of handling scientific and technical information and data. A census effort which was limited to coverage of the data efforts and thereby excluded the broader community of interest which they serve would not fully meet the objectives of the census. Therefore, a census approach was selected which provided for assembly of:

(1) Information concerning data activities as conducted within broad communities of interest, such as a discipline or technology;

(2) Information which characterizes specific types of formal data efforts or processing operations; and

(3) Information which characterizes the elements of data activity found in either specific data efforts or in the broader context of the data activities serving a specific scientific or technical community.

The scope and diversity of information enumerated above precludes use of a single means of assembling and presenting the total census. Information in category (1) is not readily amenable to comprehensive, in-depth censusing of a quantitative or analytical nature. Therefore, the census approach chosen was development of descriptive write-ups which show only the gross characteristics of these broad-scale data activities. In contrast with Category 1, information in Category 2 is more amenable to quantitative and analytical treatment. The approach chosen to collect and present this class of information, therefore, follows normal census practices. Within the census budget allocated, relative little effort could be directed specifically to inventorying of

the individual elements of data activities and efforts. It was necessary to limit the direct examination of these elements to a set of census probes. However, an awareness of these elements was incorporated into the approaches used to collect and structure the other categories of census information.

Table i-1 outlines the general methodology used to assemble and structure the census information.

TABLE i-1

METHODOLOGY FOR DEVELOPMENT

OF CENSUS OF DATA ACTIVITIES

Work Objective	Method of Accomplishment
Identify and acquire literature describing current status of data activities.	Scan announcement bulletins of document centers, search through document storage and retrieval systems, trace citations in key documents.
Identify key organizations and individuals concerned with data activities.	Personal interviews, literature reviews, and workshops with leading data specialists.
Identify current data activities in the various sciences and technologies and in the different phases of these sciences and technologies.	Draft write-ups describing the data characteristics, data flow, data efforts, and issues associated with each area of scientific and technological effort.
Compile census-like facts currently available for formal data efforts.	Extract census information from documents and interviews and record in worksheets.
Verify the accuracy and completeness of descriptions and census facts about data activities and formal data efforts.	Expose preliminary findings in interviews and workshops with leading data management specialists.
Generate comprehensive write-ups covering selected communities of interest within scientific and technical data activity.	Integrate contributions from interviews and workshops into final write-ups of current status of data activities in the various areas of science and technology. Conduct limited surveys to probe selected data activities.
Structure and analyze preliminary census of formal data efforts.	Survey formal data efforts by mail questionnaires and by facility visits. Prepare directories and tabulations of characteristics of formal data efforts. Analyze information assembled and relate to national system requirements.

PART C

I. RATIONALE, STRUCTURE AND CONTENT OF THE CENSUS OF DATA EFFORTS

Whereas the preceding parts of Volume II considered on a broad scale the many facets of data generation, packaging, evaluation, transmission, storage, retrieval and use, this section of the volume explores a specific segment of scientific and technical data activity. In particular, the census effort reported herein covers those formal data efforts which were deemed potentially amenable to coordination at the national level. This census effort constitutes a pioneering endeavor to identify, describe, and correlate the characteristics of those formal data efforts which are representative of the many efforts existing presently within U. S. scientific and technological activities.

The following sections outline the rationale and methods used in the census effort. In general, the approach was found applicable to the census task defined by the study objectives. In addition, the census structure, as well as the categorization and classification schemes, appear useful as means of articulating this area of data activity. It is hoped that this initial effort, although crude and incomplete in many aspects, will provide a firm foundation for future study and censusing of scientific and technical data efforts and systems.

A. Rationale

The context of the census effort can be viewed as shown in Figure I-A-1. Within a defined sphere of scientific and technical activity, many channels--both formal and informal--are used to communicate data from generators to users. In addition, there are intermediary data handlers whose purpose is to facilitate desirable flows of data. Our census effort, in accordance with the current study objectives, focuses on those data handling efforts which facilitate the formal flow of data between generators and users. At the onset of this effort, no definition existed for a formal data effort. It was, therefore, necessary to examine scientific and technical data activities to articulate a working definition.

Initially, it was agreed that data efforts go beyond providing access to literature or providing guides to the location of data, and deal with the data themselves. Interviews and workshops with leading data specialists in selected scientific and technological communities identified several types of formal data handling efforts which exist in one or more communities and are amenable to census-like descriptions. The following types were differentiated on the basis of the data handling functions they perform:

- Data Collection Networks
- Specialized Data Publishing Programs
- Data Service Centers
- Data-Document Depositories

Figure I-A-2 shows these data efforts enmeshed in a community of generators and users of data. Obviously, some communities do not employ all of these formal efforts to facilitate communication and use of data. Actually, in some cases, real world data efforts combine data handling functions differently from the classification shown. A common occurrence is the performance of a given function, such as data collection, by informal, rather than formal, means. In other cases, the functions are combined as one integrated effort. In addition to the operating data efforts, many communities have organized formal groups, committees, panels,

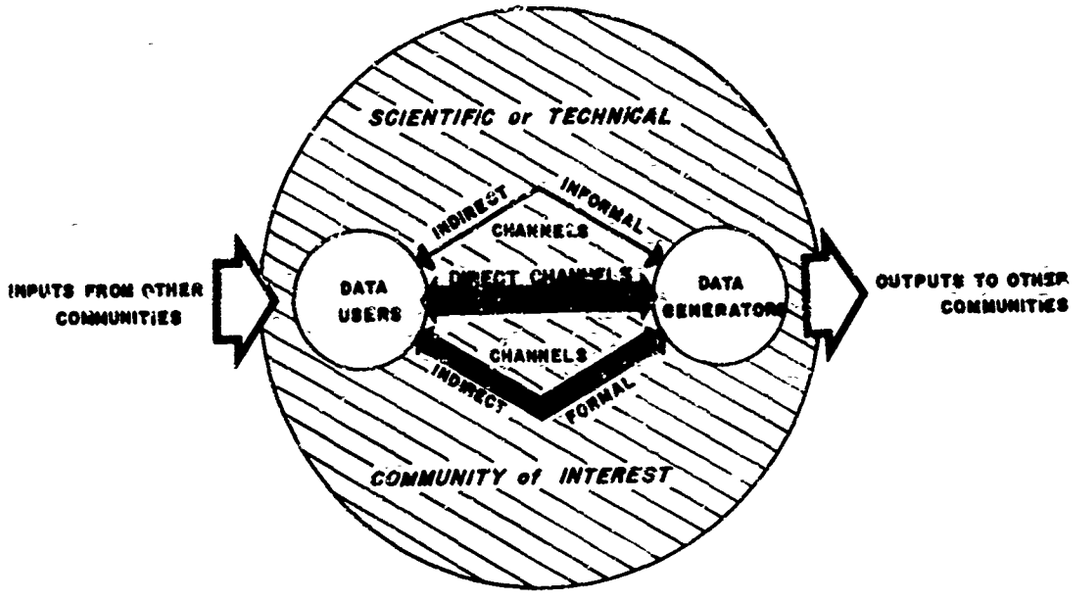


Figure I-A-1 Basic Schematic of the Data Communications Sphere of a Defined Community of Scientific or Technical Interest

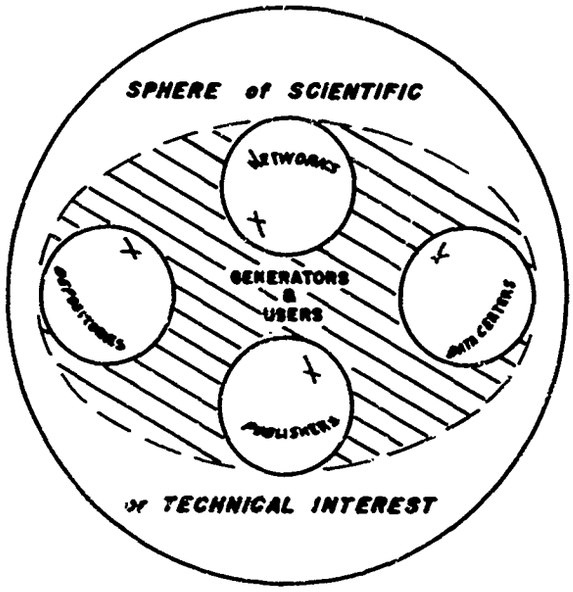


Figure I-A-2 Formal Data Efforts Within a Defined Sphere of Scientific or Technical Interest

etc. to consider requirements for data management and/or planning and development of data handling operations. Figure I-A-3 illustrates how planning and coordination efforts encompass and integrate the formal data efforts within a defined sphere of scientific or technological activity. It was found that the spheres of scientific or technological activity served could be described as discipline-research, mission-development, applications-pproduct, or general scientific and technical. Frequently, a given data effort serves more than one sphere of scientific and technical activity, just as a sphere of scientific and technical activity uses more than one data effort to satisfy its service needs.

Figures I-A-2 and I-A-3 do not indicate the flow of data among efforts. However, considerable data flow and interaction occur between the different types of efforts, as well as between these efforts and data generators and users. Figures I-A-4 through I-A-7 illustrate some of the more frequently occurring flows of data. In the aggregate, the efforts, as shown in Figure I-A-8, can be viewed as an integrated, formal data system. The individual efforts would be elements of the system, and they would interact in an attempt to achieve the common goal of optimal data communication among a specified set of data generators and users.

In fact, such highly integrated operations occur infrequently in current data handling operations. It was, therefore, necessary for the census to be directed principally to the description of data efforts, rather than total, integrated data handling systems. Any attempt to arbitrarily define a system by grouping sets of data efforts into system configurations would have been inconsistent with prevailing practices.

In addition to those data efforts which have been chartered to perform specific data handling operations and are formally designated by a name and/or budget item identification, etc., the census activity identified many agencies which perform data handling and service functions, but have not been formally designated as data collection networks, data centers, etc. Due to the organizational and budgetary structures of these operations, it is extremely difficult to develop census information concerning them. To totally

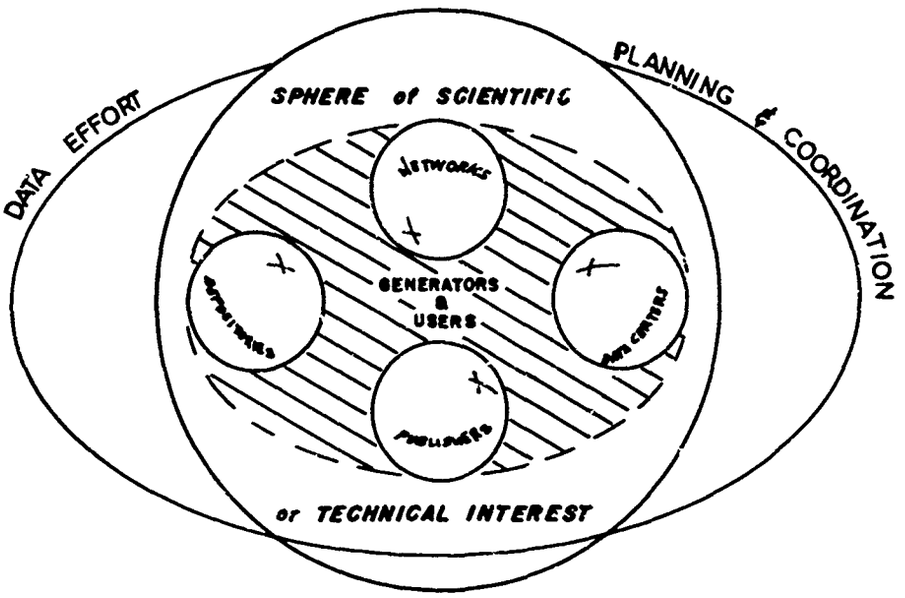


Figure I-A-3 Relationship of Planning and Coordination to Data Efforts in a Sphere of Scientific or Technical Interest

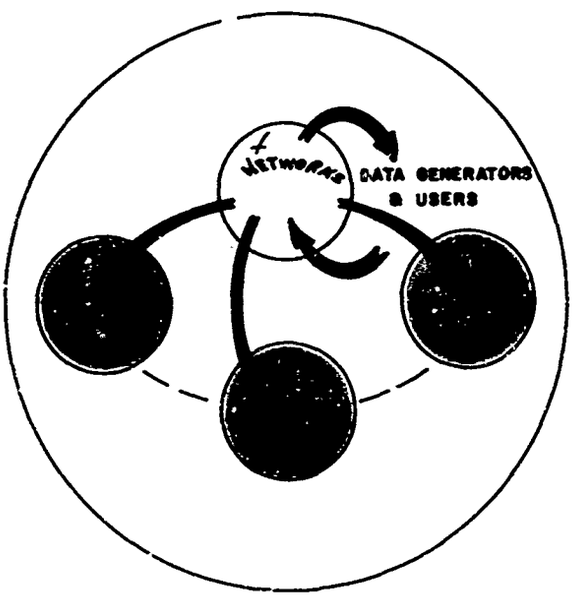


Figure I-A-4 Principal Data Flow Patterns relative to Data Collection Networks

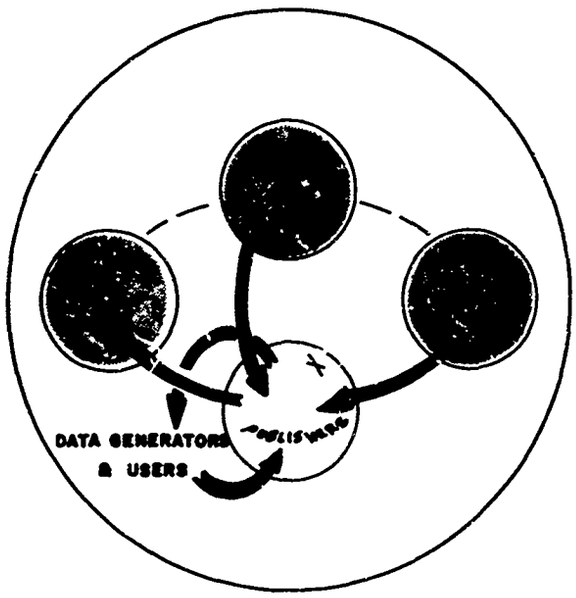


Figure I-A-5 Principal Data Flow Patterns Relative to Specialized Data Publishing Efforts

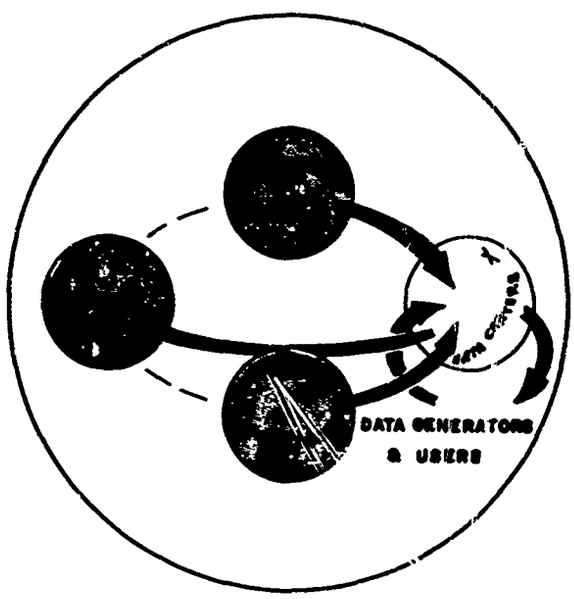


Figure I-A-6 Principal Data Flow Patterns Relative to Data Service Centers

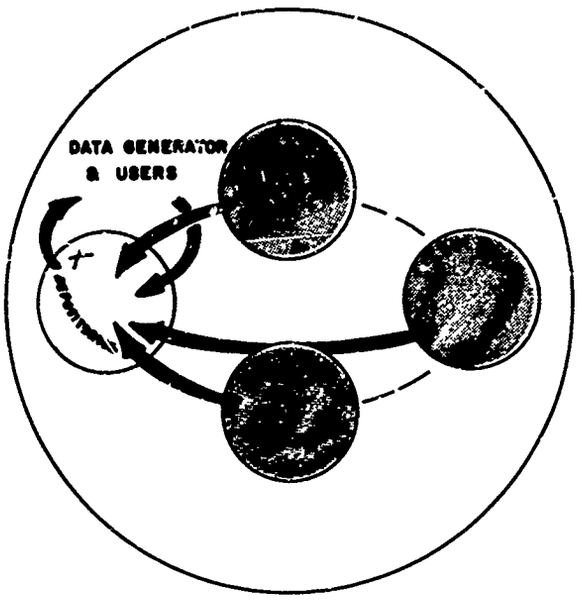


Figure I-A-7 Principal Data Flow Patterns Relative to Data-Document Depositories

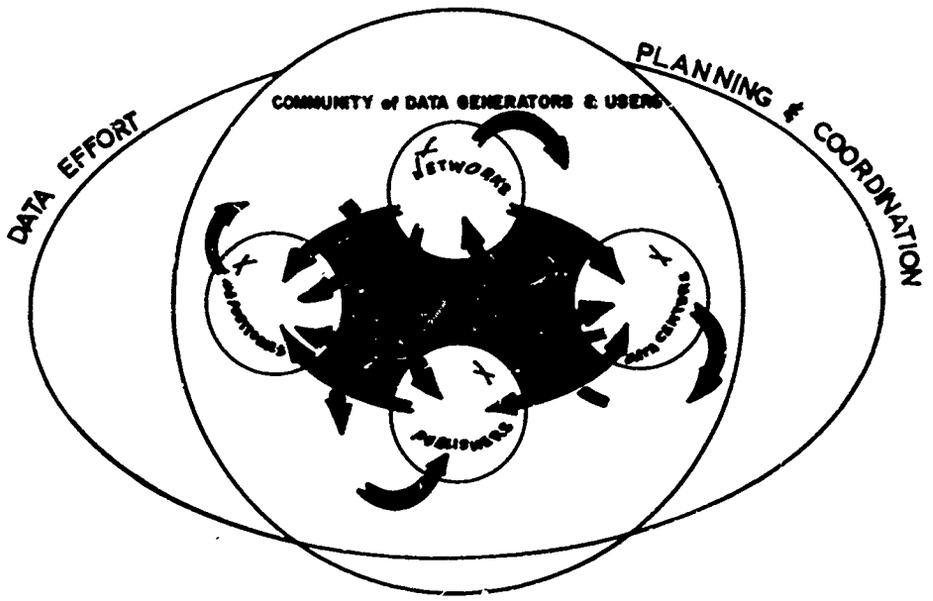


Figure I-A-8 Model of an Integrated Formal Scientific and Technical Data System Serving a Defined Sphere of Scientific and Technical Activity

omit these operations from the census effort, however, would have presented a biased and misleading picture of data handling operations. Consequently, the census was adapted to encompass examples of this type of data handling operation.

The preceding discussion of types of data efforts suggests a tidiness of data effort classification which is in fact difficult to find in real situations. A typical actual situation, the operation of the Army Map Service, serves to illustrate these difficulties. The Army Map Service coordinates and plans its operations in conjunction with the U. S. Geological Survey, Coast and Geodetic Survey, and other Government agencies. Once it has accepted and planned for a mapping project, the Army Map Service organizes or implements an existing data collection effort to assemble the required data. At this point, a formal program of data reduction, analysis, and formatting is conducted to generate appropriate maps. Such activities result in the publication of 70 to 80 million maps per year. The Army Map Service also archives over 150 million maps in four depositories and maintains currently a library of over 2 million maps. The difficulty of assigning such an activity to a single category of data effort is readily apparent. In general, however, the data effort classification scheme proved adaptable to the census application, and produced information groupings which are significant for considerations concerning the management of data handling operations.

B. Scope

The census scope covers only those data efforts which are formally structured and which function to facilitate the communication and utilization of scientific or technical data. Also included are some data efforts which, although not primarily scientific and technical, find applications in scientific and technical studies (e. g., the use of Census Bureau data in sociological studies). The scope is also limited to those data efforts which are currently operating in the public domain; that is, those which operate as a government or public agency or make their services available to the scientific and technical community.

The following types of data activities were excluded from the census scope:

- Abstracting, indexing and bibliographic services (e.g., Chemical Abstracts Service, Biological Abstracts)
- Document handling systems, i.e., those systems handling research reports and other conceptual documents (e.g., Defense Documentation Center, Clearinghouse for Federal Scientific and Technical Information)
- Information analysis centers covering conceptual information and producing state-of-the-art or bibliographic products (e.g., Human Engineering Information and Analysis Service)
- Conventional and special scientific and technical libraries (e.g., Library of Congress, National Library of Medicine)
- Project information systems (e.g., Science Information Exchange)
- Referral services (e.g., National Referral Center for Science and Technology)
- Educational information systems (e.g., Educational Research Information Center)
- Private data activities (i.e., those data activities which are conducted for the exclusive use of a given organization)

Activities 1 through 4 are closely related to the subject of the study; however, they are not central to the study objective and have been the subject of recent study by COSATI and other groups. Activities 5 through 7 are only indirectly related to the study objectives, and are currently being studied by the Office of Science and Technology and other responsible agencies. Activities 7 and 8 were specifically excluded from the census scope by the wording of the task assignment.

Data efforts within the census scope include the following:

- Data collection networks
- Specialized data publishing programs
- Data service centers
- Data-document depositories
- National-scope data systems
- Data programs development and coordination
- Non-designated (agency) data handling and service operations
- Small evolving data handling and service operations

The following scope statements were used to identify data efforts within the scope of the census and to classify each effort for purposes of assembling and reporting census information:

National Data Systems consist of a coordinated group of data efforts whose functions interact and work jointly toward a goal of providing data communication services to a specific, but national level, scientific or technological community. Such systems essentially encompass performance of all of the functions involved in the formal communication or transfer of data within a national community of data generators, handlers, and users. (An evolving example is the National Standard Reference Data System.)

Data Collection Networks are formally organized, usually cooperative, programs that are organized to link together a number of collection points or participants who perform scientific or technical measurements and contribute their data to a common acquisition program. (Examples include the National Air Surveillance Network and the Deep Space Network.)

Specialized Data Publishing Programs publish substantial volumes of documents with a high data content (e.g., handbooks and catalogs), or documents which are formatted specifically for data communication

purposes. These efforts may be either commercial, governmental, or non-profit. (Examples include Thomas Micro-Catalogs and U. S. A. Standards.)

Data Service Centers perform collection, reduction, storage, retrieval, evaluation, dissemination or other functions required to provide data to satisfy specific user needs. A major defining characteristic of a data service center is the performance of at least one function which involves manipulation of data, per se. (Examples include the National Oceanographic Data Center and the Joint Army-Navy-Air Force Thermochemical Tables (Center).)

Data-Document Depositories collect and archive documents or other artifacts of high data content. These efforts service users by retrieving and presenting data which is included in documents or artifacts, without manipulating the data contained in the document or artifact. (Examples include the Army Data Retrieval Engineering System (ADRES) and the Defense Logistics Service Center.)

Data Program Planning and Coordination efforts consist of groups, panels, etc. formally organized to plan and implement data management or data handling activities, or to monitor and evaluate on-going data activities or efforts. (Examples include the Committee on Data for Science and Technology (CODATA) of the International Council of Scientific Unions, the Council of Social Science Data Archives, the Engineers Joint Council Information Systems Committee, etc.)

Non-designated (Agency) Data Handling and Service Operations are efforts which have not yet been titled as formal data efforts. Such an effort frequently is administered as an element of a mission-oriented program rather than as a data service operation. (Examples include the Fishery Statistics Program of the U. S. Department of Interior, and the National Center for Urban and Industrial Health of the U. S. Public Health Service.)

Small Evolving Data Handling and Service Operations consist of those efforts which plan to operate as data service centers but

have not evolved beyond the provision of bibliographic, referral, or very limited query answering services. (Examples include the Reactor Physics Constants Center and the Data Center for Binary Oxides.)

The census, as reported, covers each of these types of efforts in a manner and to a level of detail which is consistent with the availability of information concerning the type of effort, and which is appropriate for the census purposes. A preliminary census of formal data efforts, containing (1) a brief, descriptive listing for each formal data effort and (2) tabulated characteristics of the data efforts in chart form, gives detailed information concerning the operating context, operating purposes, processing functions, operating statistics, services provided and communities served for the following types of data efforts:

- Data Collection Networks (designated as "A" efforts in the census and charts)
- Specialized Data Publishing Programs ("B" efforts)
- Data Service Centers ("C" efforts)
- Data-Document Depositories ("D" efforts)

In addition, the census includes descriptive listings for Data Development and Coordination Programs (designated as "E" data efforts) and for a number of representative Non-designated (Agency) Data Handling and Service Operations ("F" data efforts). It was not feasible to provide tabulated chart information on these latter two types of efforts.

Survey efforts did not reveal national-scope data efforts which were sufficiently integrated in terms of service goals or adequately coordinated in performance of their functions to qualify as a national scope data system. All of the elements of such a system exist within weather data activities, but the system has not been formally recognized and administered as a system. In the area of data activities related to reference data for pure substances, the National Standard Reference Data System has been formally

recognized and is administered as a system; however, all functional elements of the system are not yet operational. Therefore, it was not considered desirable to census these efforts as national-scope data systems; rather, component efforts are included in the appropriate sections of the census of data efforts (i.e., as collection networks, data service centers, etc.). A supplementary list of typical Small Evolving Data Handling and Service Operations (designated as "G" efforts) is provided.

C. Methodology Used to Develop the Census

Identification of a body of data efforts to be considered for the census began through a literature search among published and unpublished reports, directories of information and data activities, agency documents describing information activities, and other survey-type documents. Workshops conducted by the professional staff brought to light many data efforts not reported in the available literature. Inquiries about a known data effort brought others to the staff's attention. Eventually, more than 500 efforts, of possible pertinence to the scope of the census, were accumulated. The task, next, was to ascertain their relevance to the criteria set up for the census and to categorize them as to type of effort.

Information-gathering worksheets were devised, incorporating the elements of information needed to describe adequately the characteristics of the efforts. A somewhat different worksheet was devised for each type of effort. The tabulated charts accompanying the census show the categories of information requested on the worksheets. Available in-house information was recorded on the forms, and a packet, including a personal letter, summary description of the goals of the project, and the partially completed worksheet, was sent to each effort identified thus far. Corrections, additions to, and verification of the information inserted in the worksheet were requested.

Quick and comprehensive responses to well over fifty percent of the requests mailed were returned, allowing for preparation of the descriptive listing and the tabulation of materials for the charts.

Many worksheets were completed during visits by the staff to the data facilities themselves. The telephone became the most effective communication tool for acquiring the remainder of the needed information.

Problems arose, of course. Information supplied by data organizations did not always appear to match the demands of the worksheet. This could have meant that the activity was not a data effort as defined within the census, that the effort had been designated incorrectly and had been sent the wrong type of worksheet, or that the status of the effort did not permit a detailed description of its characteristics. For example, some candidate efforts were found to be information analysis centers, some were research-type document handling systems, and some were only in an embryonic stage or had been terminated. Many adjustments and deletions were necessitated during the course of the census effort as a sizeable number of the candidate activities proved to fall outside the census scope. Although data efforts which had terminated their activities were deleted, those not yet operational, or only partially operational but planning a full formalized operation in the near future, were included.

D. Summary of Census Content

A total of 515 efforts were initially identified as possibly meeting the criteria as formal data efforts of potential national significance. After an initial screening, 365 of the efforts identified were selected as candidates for inclusion in the census. Information obtained from the 365 organization queried showed that 245 of the efforts were relevant to the criteria established for the census. Nineteen of these efforts did not provide appropriate information for inclusion in the census. A total of 226 data efforts are included in the Preliminary Census of Formal Data Efforts.

The Census is organized to display groupings of functionally similar data efforts, rather than the distribution of data efforts among the various fields of science and technology. This grouping arrangement is consistent with the systems approach which concentrates on functions,

manner in which function is performed, and adequacy of the functional performance when measured against the system objectives. Table I-D-1 summarizes the distribution of data efforts according to the data activities and the scientific and technical communities served.

It should be noted that the census as summarized in Table I-D-1 does not constitute a complete census of all of the formal data efforts within the scope of the study. It is believed, however, that it does constitute a sampling adequate to reflect the characteristics of the current population of data efforts. Due to the objectives of the study and the amenity of the different types of data efforts to a census, extent of coverage is not consistent throughout the census, e.g., the percentage of specialized data publishing programs is less than the percentage of data service centers included. In general, data efforts related to archiving of data and data-documents are more completely covered than are data efforts related more directly to the transfer or dissemination of data. To the extent that it can be ascertained the census, in terms of coverage, is not biased as to type of data activity or field of science and technology.

DISTRIBUTION of DATA EFFORTS CENSUSED ACCORDING to TYPE of DATA ACTIVITY and COMMUNITIES SERVED FIGURE I-D-1

TYPE of DATA EFFORT	TOTAL NUMBER OF EFFORTS	TYPE of DATA ACTIVITY SERVED by the EFFORT: DISCIPLINE-RESEARCH DATA ACTIVITIES	MISSION-DEVELOPMENTAL DATA ACTIVITIES	APPLICATION-PRODUCT DATA ACTIVITIES	GENERAL-PURPOSE DATA ACTIVITIES	FIELDS of SCIENCE or TECHNOLOGY SERVED by the EFFORTS: AEROSPACE SCIENCES & SPACE TECHNOLOGY	AGRICULTURAL & FOOD TECHNOLOGY	ASTRONOMY	BEHAVIORAL & SOCIAL SCIENCES	BIOLOGICAL SCIENCES	CHEMISTRY & CHEMICAL ENGINEERING	ENVIRONMENTAL SCIENCES & RELATED TECHNOLOGY	ELECTRONICS & ELECTRICAL ENGINEERING	MEDICAL & HEALTH SCIENCES & ENGINEERING	MATERIALS ENGINEERING & TECHNOLOGIES	MECHANICAL ENGINEERING & MACHINE TECHNOLOGY	METHODS & EQUIPMENT	MILITARY SCIENCES & ORDNANCE	NUCLEAR SCIENCES & RELATED TECHNOLOGIES	OCEANOGRAPHY & MARINE TECHNOLOGIES	PHYSICS & GENERAL PHYSICAL SCIENCES	GENERAL
(A) LARGE COLLECTION NETWORKS	10	6	2	7	11	4	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
(B) SPECIALIZED DATA PUBLISHING PROGRAMS	36	7	12	27	25	6	2	1	0	2	4	3	4	0	4	10	0	4	0	3	0	4	5	5
(C) DATA SERVICE CENTERS	61	40	19	20	30	11	3	2	12	6	12	6	6	0	3	14	3	6	6	3	1	9	28	0
(D) DATA DOCUMENT REPOSITORIES	36	0	18	31	2	6	0	1	0	0	0	2	0	0	2	2	0	0	0	25	2	0	0	0
(E) DATA PROGRAMS DEVELOPMENT & COORDINATION	35	10	19	18	22	8	2	2	8	1	4	5	1	2	5	1	1	3	7	1	4	1	4	0
(F) NON-DEMANDED (Agency) DATA HANDLING & SERVICE OPERATIONS	18	0	4	5	6	0	0	0	0	0	1	2	0	4	1	2	0	0	1	1	1	0	0	0
(G) SMALL EVOLVING DATA HANDLING & SERVICE OPERATIONS	10	0	3	8	4	0	2	0	1	1	3	0	1	2	0	2	0	0	0	4	0	2	3	0
TOTAL	226	73	77	117	100	34	14	7	15	11	30	39	20	27	38	31	9	21	30	83	11	25	40	9

Figure I-D-1 Distribution of Data Efforts Censused According to Type of Data Activity and Communities Served

II. PRELIMINARY CENSUS OF FORMAL DATA EFFORTS

The census consists of the following seven sections:

A. Data Collection Networks and Programs

B. Specialized Data Publishing Programs

C. Data Service Centers

D. Data-Document Depositories

E. Data Programs Development and Coordination

F. Non-Designated (Agency) Data Handling and Service Operations

G. Small Evolving Data Handling and Service Operations

Each data effort has been assigned an alpha-numeric code, consisting of a letter for the type of effort along with a number which keys it within the section.

An alphabetically-arranged listing of all of the data efforts with their designated locator codes precedes the first section of the census. The section devoted to Data Collection Networks and Programs follows.

Data Collection Networks and Programs, section A, is divided into three major parts. Part 1 summarizes the characteristics of this type of effort. Part 2 is a directory of networks and programs, presenting descriptive listings for each effort. Part 3 tabulates the characteristics of data collection networks in chart form.

Sections B, C, and D follow the same format of descriptive listings preceded by a summary and followed by tabulations. Sections E, Data Programs Development and Coordination, and F, Non-Designated (Agency) Data Handling and Service Operations, do not include charts, as their characterization was not amenable to structured tabulation. The final section, Small Evolving Data Handling and Service Operations, contains only a list of typical efforts.

Should a reader be interested in identifying a data effort within a particular scientific or technological field, he will find a Listing of Data Efforts According to Field of Science or Technology at the end of the final section. As might be expected, a great many of the data efforts operate in more than one scientific or technological field. The Listing corresponds to the distribution of data efforts summarized in Table I-D-1.

ALPHABETICAL LISTING OF DATA EFFORTS

Accelerator Information Center.....C1
ADRES. See: Army Data Retrieval Engineering System.
Advances in Chemistry Series.....B1
Advisory Center on Toxicology.....C2
AEC Engineering Materials Document Depository.....D1
Aeronautical Chart and Information Center.....D39
Aeronautical Standards Group Publication Program.....B2
A.I.Ch.E. System on Estimating Physical Properties. See: American Institute of Chemical Engineers System on Estimating Physical Properties.
Air Force Global Weather Central.....C3
Air Force Machinability Data Center.....C4
Air Force Materials Information Centers Program.....E1
Air Force Motion Picture Depository.....D2
Air Force Still Photographic Depository.....D3
Air Quality and Emission Data Program.....E2
Alcoa Technical Handbooks.....B3
Alloy Data Center.....C5
The American Association of Petroleum Geologists Committee on Statistics of Drilling. See: Statistics of Drilling & Related Data for Oil & Gas Industry.
American Chemical Society Publication Program. See: Advances in Chemistry Series.
American Institute of Chemical Engineers (A.I.Ch.E.) System on Estimating Physical Properties.....E3
American Institute of Steel Construction Technical Publications.....B4
American Ordnance Association (AOA) Engineering Data Management Section.....E4
American Petroleum Institute (API) Research Project 44. See also: Thermodynamics Research Center.....C6
American Society for Metals Handbooks Program. See: Metals Handbook.
American Society of Heating, Refrigerating and Air Conditioning Engineers Data Publication Program. See: ASHRAE Guide and Data Book.
American Society of Mechanical Engineers (ASME) Technical Data Program.....B5
American Society for Testing and Materials (ASTM) Numerical Data Project.....E5
American Society for Testing and Materials (ASTM) Publication Program.....B6
Animal Morbidity and Mortality Data System.....E6
AOA Engineering Data Management Section. See: American Ordnance Association Engineering Data Management Section.
API Research Project 44. See: American Petroleum Institute Research Project 44.
Argonne Code Center.....D4
Army Data Retrieval Engineering System (ADRES).....D5
Army Map Service.....D6
Army Mobility Equipment Document Depository.....D7
Ascam Vendor Data File. See: Sweet's Industrial Information Systems.
ASHRAE Guide and Data Book.....B7
ASME Technical Data Program. See: American Society of Mechanical Engineers Technical Data Program.
ASTM Joint Committee on Atomic and Molecular Physical Data. See: Atomic and Molecular Physical Data Program.
ASTM Joint Committee on Powder Diffraction Standards. See: Powder Diffraction Standards Data Program.
ASTM Numerical Data Project. See: American Society for Testing and Materials Numerical Data Project.
ASTM Publication Program. See: American Society for Testing and Materials Publication Program.
Atlantic Undersea Test and Evaluation Center (AUTEC).....F1
Atomic Collision Cross Sections Data Center.....C7
Atomic and Molecular Physical Data Program.....C8
Atomic and Molecular Processes Information Center..C9
Atomic Transition Probabilities Data Center.....C10
AUTEC. See: Atlantic Undersea Test and Evaluation Center.
Automated Hospital Information System (AHIS).....C11

Biological Handbooks. See: Office of Biological Handbooks.
Bureau of Applied Social Science.....C12
Bureau of the Census.....C13
Bureau of Labor Statistics Information System.....C14

Cancer Chemotherapy Program Analysis Branch.....F2
Center for Diffusion in Gases.....C15
Central Bureau for Astronomical Telegrams.....A1
Charged-Particle Cross-Section Data Center.....C16
Chemical Information and Data System (CIDS).....E7
Chemical Thermodynamics Data Group.....C17
Chemical Thermodynamics Research Center. See: Thermodynamics Research Center and American Petroleum Institute (API) Research Project 44.
CIDS. See: Chemical Information and Data System.
CINDA. See: Computer Index Neutron Data.
"Circular 500". See: Chemical Thermodynamics Data Group.
Clinical Pathology Data Processing System.....G1
CODATA. See: Committee on Data for Science and Technology.
Color Data Bank. See: Eastman Plastics Division Color Data Bank.
Committee on Data for Science and Technology (CODATA).....E8
Committee on Scientific and Technical Information (COSATI).....E9
Committee on World-Wide Science Information System.....E10
Computer Index Neutron Data (CINDA).....C18
Computerized Data Storage and Retrieval System for Deployable Aero Decelerators.....C19
Computerized Mapping of Disease Project (MOD).....C20
Copper Development Association Technical Data Center.....C21
COSATI. See: Committee on Scientific and Technical Information.
The Council of Social Science Data Archives (CSSDA)..E11
Cryogenic Data Center, Cryogenic Data Compilation Unit.....C22

ALPHABETICAL LISTING OF DATA EFFORTS

Crystal Data Center C23
CSSDA. See: The Council of Social Science Data Archives.

DARE. See: Data Automation Retrieval Equipment.
DASA Information and Analysis Center (DASIAC)..... C24
DASIAC. See: DASA Information and Analysis Center.
Data Automation Retrieval Equipment (DARE)..... D8
Data Center for Binary Oxides..... G2
Data File of Wildlife Control Chemicals..... G3
DATA, Inc. (Derivation and Tabulation Associates)..... B8
Deep Space Network (DSN)..... A2
Defense Industrial Supply Center (DISC) Technical Document Depository..... D9
Defense Logistics Services Center (DLSC)..... D10
Defense Metals Information Center (DMIC) C25
Department of Agriculture Forest Products Lab Publications F3
Department of Agriculture Pesticide Control Data Center..... F4
Department of Defense Technical Data and Standardization Policy Committee..... E12
Department of Interior Division of Pesticides Regulation F5
Derivation and Tabulation Associates. See: DATA, Inc.
Diatomic Molecule Spectra and Energy Levels C26
Diffusion in Metals and Alloys Data Center..... G4
Directory of Technical Specifications..... B9
DISC. See: Defense Industrial Supply Center Technical Document Depository.
DLSC. See: Defense Logistics Services Center.
DMIC. See: Defense Metals Information Center.
Drug Information Association (DIA)..... E13
DSN. See: Deep Space Network.

Eastman Plastics Division Color Data Bank..... C27
Economic Growth Center at Yale University..... C28
Edgewood Arsenal Engineering Document Repository... D11
EJC Information Systems Committee. See: Engineers Joint Council Information Systems Committee.
Electronic Parts for Space Applications Data C29
Electronic Properties Information Center (EPIC)..... C30
EMPIS. See Engineering Materials and Processes Information Service
Engineering Data Systems (EDS) D12
Engineering, Drawings and Microfilm Section, Navy Publications and Printing Service..... D13
Engineering Materials and Processes Information Service (EMPIS)..... C31
Engineers Joint Council Information Systems Committee E14
Environmental Technical Applications Center..... C32
EPIC. See: Electronic Properties Information Center.

FARADA. See: Tri-Service and NASA Failure Rate Data Program or U.S. Naval Failure Rate Data Program.
Federal Catalog System. See: Defense Logistics Services Center (DLSC).
Federal Committee for Meteorological Services and Supporting Research..... E15
Federal Item Identification Guides (FIIG) Improvement Project..... E16
FIIG. See: Federal Item Identification Guides Improvement Project.
Fish and Wildlife Service Publication Program..... F6
Fishery Statistics and Data Report. See: Fish and Wildlife Service Publication Program.
Fleet Numerical Weather Facility (FNWF) C33
FNWF. See: Fleet Numerical Weather Facility
Food & Drug Administration Color and Cosmetics Data System..... F7
Food & Drug Administration Instrument Systems Research Branch..... F8
Forest Lab Products Publications. See: Department of Agriculture Forest Products Lab Publications.
Fort Monmouth Electronics Command Engineering Drawing Repository..... D14
Frankford Arsenal Engineering Drawing Repository... D15
Fused Salts Information Center..... C34

Gamma Ray Spectrum Catalogue..... C35
GARP. See: Global Atmospheric Research Program.
Geochemical Census Branch, U.S. Geological Survey..... C36
Geodex International, Inc. Data Publishing Program.. B10
Geological Survey Water-Supply Papers..... F9
Geomagnetic Data Center..... C37
Global Atmospheric Research Program (GARP)..... E17

Harry Diamond Laboratories (HDL) Engineering Document Depository..... D16
High Resolution NMR Spectra Catalogs B11
Home Economics Data Center..... G5
Human Factors Task Data Center..... C38
Hydrography and Oceanography Data Center..... C39

IDEP. See: Interagency Data Exchange Program.
IHB. See: International Hydrographic Bureau.
Interagency Data Exchange Program (IDEP) E18
International Data Library and Reference Service..... C40
International Development Data Bank..... C41
International Geophysical Year (IGY). See: World Data Center-A, International Geophysical Year.
International Hydrographic Bureau (IHB) E19
International Ice Patrol..... A3
International Nuclear Data Committee..... E20
International Years of the Quiet Sun (IQSY) E21
The Isotope Datadex..... B12
IQSY. See: International Years of the Quiet Sun.

JANAF. See: Joint Army-Navy-Air Force Thermochemical Tables.
Jeppesen and Company Publications..... B13
Joint Army-Navy-Air Force Thermochemical Tables (JANAF)..... C42

ALPHABETIC AL LISTING OF DATA EFFORTS

Latin American Data Bank C43

Marine Corps Central Technical Data Repository..... D17
Marine Sciences Council Data Management Program.... E22
The McLean Card Catalogue of American Foraminifera..... B14
Mechanical Properties Data Center..... C44
Memorial Radiation Center for Cancer and Allied Diseases..... C45
Metal Properties Council..... E23
Metals Handbook..... B15
Meteorological Rocket Network of the InterRange Instrumentation Group..... A4
Microelectronics Device Data Bank..... C46
Microwave Spectra G6
Minor Planets Data Center..... C47
Morton Collectanea..... C48
Museum Information Retrieval System C49

NAS-NRC. See: National Academy of Sciences-National Research Council Scientific Information Activities Program.
National Academy of Sciences-National Research Council Scientific Information Activities Program... E24
National Aerospace Standards..... B16
National Air Surveillance Networks (NASN) A5
National Center for Health Statistics..... C50
National Center for Radiological Health. See: Public Health Service National Center for Radiological Health.
National Center for Urban and Industrial Health. See: Public Health Service National Center for Urban and Industrial Health.
National Clearinghouse for Poison Control Centers..... C51
National Conference of Standards Laboratories (NCSL).. E25
National Data Bank for Air Quality Data..... C52
National Disease and Therapeutic Index..... C53
National Environmental Satellite System..... A6
The National Formulary and Handbook Publications..... B17
National Geodetic Data Center (NGDC). See: National Weather Records Center (NWRC) and National Geodetic Data Center.
National Index of Fungus Cultures..... C54
National Meteorological Center (NMC)..... C55
National Neutron Cross Section Center..... C56
National Oceanographic Data Center (NODC)..... C57
National Opinion Research Center (NORC)..... C58
National Science Foundation (NSF) Discipline-Based Information Program..... E26
National Security Industrial Association (NSIA) Information Advisory Committee..... E27
National Space Science Data Center (NSSDC)..... C59
National Standard Reference Data System (NSRDS). See: Office of Standard Reference Data (OSRD).
National Upper-Air Network.. ..... A7
National Water Data Program..... E28
National Weather Records Center (NWRC) and National Geodetic Data Center..... C60

NAVAIR Engineering Data Bank. See: Naval Air Systems Command Engineering Data Bank.
Naval Air Systems Command (NAVAIR) Engineering Data Bank..... D18
Naval Environmental Data Network..... A8
Naval Ordnance Central Technical Documents Office..... D19
Naval Ordnance Engineering Drawing Depository..... D20
Naval Ship Missile Systems Engineering Data-Document Repository..... D21
Naval Supply Depot..... D22
NCSL. See: National Conference of Standards Laboratories
NESC. See: National Environmental Satellite System.
New Drugs..... B18
NGDC. See: National Weather Records Center (NWRC) and National Geodetic Data Center.
Nimbus/ATS Data Utilization Center..... C61
NMC. See: National Meteorological Center.
NODC. See: National Oceanographic Data Center.
NORC. See: National Opinion Research Center.
NSIA Information Advisory Committee. See: National Security Industrial Association Information Advisory Committee.
NSSDC. See: National Space Science Data Center.
Nuclear Data Project..... C62
Nuclear Ordnance Commodity Data Support Center.... D23
Nutritional Data..... B19
NWRC. See: National Weather Records Center and National Geodetic Data Center (NGDC).

Office of Biological Handbooks B20
Office of Critical Tables (OCT)..... E29
Office of Hydrography and Oceanography. See: Hydrography and Oceanography Data Center.
Office of Standard Reference Data (OSRD)..... E30

PAIGH. See: Pan American Institute of Geography and History.
Pan American Institute of Geography and History (PAIGH) E31
Parts Reliability Information Center/Apollo Parts Information Center (PRINCE/APIC)..... C63
Pesticide Control Data Center. See: Department of Agriculture Pesticide Control Data Center.
Pesticide Registration Group..... G7
Pesticide Residue Data Processing..... G8
Picatinny Arsenal Engineering Data Micro-Reproduction System..... D24
Planetary Research Center..... D25
Powder Diffraction Standards Data Program..... C64
PRINCE/APIC. See: Parts Reliability Information Center/Apollo Parts Information Center.
Project TALENT Data Bank..... C65
Project VELA Seismographic Network..... A9
Public Health Service National Center for Radiological Health..... F10
Public Health Service National Center for Urban and Industrial Health..... F11

ALPHABETICAL LISTING OF DATA EFFORTS

Radiation Chemistry Data Center....C66
Reactor Physics Constants Center....G9
Reliability Analysis Central....C67
Rock Island Arsenal Engineering Drawing Repository....D26
Roper Public Opinion Research Center....C68
The Rubber Formulary....B21

Sadtler Research Laboratories Data Program....C69
SAE Data Publishing Program. See: Society of Automotive Engineers Data Publishing Program.
Satellite Tracking and Data Acquisition Network (STADAN)....A10
Scientific Information Systems Group....C70
Shock Wave Data Center....G10
Sigma Center. See: National Neutron Cross Section Center.
Smith, Kline and French Chemical Data System....C71
Society of Automotive Engineers (SAE) Data Publishing Program....B22
Solar Forecast Facility....C72
Space Detection and Tracking Center (SPADATS)....A11
SPADATS. See: Space Detection and Tracking Center.
Springfield Arsenal Engineering Drawing Repository. See: Rock Island Arsenal Engineering Drawing Repository.
STADAN. See: Satellite Tracking and Data Acquisition Network.
Statistics of Drilling & Related Data for Oil & Gas Industry....B23
STORET System....C73
Sweet's Catalogs. See. Sweet's Industrial Information Systems.
Sweet's Industrial Information Systems....B24
Systems Effectiveness Program, Military Construction Facilities....C74

Tabulation of Data on Receiving Tubes....B25
Thermodynamic Properties of Metals and Alloys Data Program....C75
Thermodynamics Research Center. See also. American Petroleum Institute (API) Research Project 44....C76
Thermophysical Properties Research Center (TPRC)....C77
Thomas Micro-Catalogs....B26
Tin Research Institute Data-Document Depository....D27
Toxicological Information Center....C78
TPRC. See: Thermophysical Properties Research Center.
TRANET Satellite Tracking Network....A12
Tri-Service and NASA Failure Rate Data (FARADA) Program....C79

United States of America Standards Institute....E32
United States Pharmacopeial Convention Publishing Program....B27
USA Standards....B28
USA Standards Institute. See. United States of America Standards Institute.

U.S. Air Force Aeronautical Chart and Information Center. See: Aeronautical Chart and Information Center.
U.S. Air Force Engineering Data Support Center....D28
U.S. Air Force Global Weather Central. See: Air Force Global Weather Central.
U.S. Air Force Human Factors Task Data Center. See: Human Factors Task Data Center.
U.S. Air Force Machinability Data Center. See: Air Force Machinability Data Center.
U.S. Air Force Materials Information Centers Program. See: Air Force Information Centers Program.
U.S. Air Force Motion Picture Depository. See: Air Force Motion Picture Depository.
U.S. Air Force Solar Forecast Facility. See: Solar Forecast Facility.
U.S. Air Force Still Photographic Depository. See: Air Force Still Photographic Depository.
U.S. Army Aviation Materiel Command Technical Data Repository....D29
U.S. Army Data Retrieval Engineering System. See: Army Data Retrieval Engineering System (ADRES).
U.S. Army Edgewood Arsenal Engineering Document Repository. See: Edgewood Arsenal Engineering Document Repository.
U.S. Army Fort Monmouth Electronics Command Engineering Drawing Repository. See: Fort Monmouth Electronics Command Engineering Drawing Repository.
U.S. Army Frankford Arsenal Engineering Drawing Repository. See: Frankford Arsenal Engineering Drawing Repository.
U.S. Army Map Service. See: Army Map Service.
U.S. Army Mobility Equipment Document Depository. See: Army Mobility Equipment Document Depository.
U.S. Army Natick Laboratory Support Office....D30
U.S. Army Picatinny Arsenal Engineering Data Micro-Reproduction System. See: Picatinny Arsenal Engineering Data Micro-Reproduction System.
U.S. Army Rock Island Arsenal Engineering Drawing Repository. See: Rock Island Arsenal Engineering Drawing Repository.
U.S. Army Springfield Arsenal Engineering Drawing Repository. See: Rock Island Arsenal Engineering Drawing Repository.
U.S. Army Tank Automotive Command Engineering Drawing Repository....D31
U.S. Army Watertown Arsenal Engineering Drawing Repository. See: Rock Island Arsenal Engineering Drawing Repository.
U.S. Army Watervliet Arsenal Engineering Record Section. See: Watervliet Arsenal Engineering Record Section.
U.S. Coast Guard International Ice Patrol. See: International Ice Patrol.
U.S. Marine Corps Central Technical Data Repository. See: Marine Corps Central Technical Data Repository.

ALPHABETICAL LISTING OF DATA EFFORTS

U.S. Naval Air Systems Command (NAVAIR) Engineering Data Bank. See: Naval Air Systems Command (NAVAIR) Engineering Data Bank.
U.S. Naval Ammunition Depot Library Engineering Data Branch.....D32
U.S. Naval Avionics Facility (NAFI) Automated Data Processing and Control System for Test Equipment.....C80
U.S. Naval Environmental Data Network. See: Naval Environmental Data Network.
U.S. Naval Facilities Plan Files Section.....D33
U.S. Naval Failure Rate Data Program (FARADA).....C81
U.S. Naval Mine Engineering Depository.....D34
U.S. Naval Ordnance Central Technical Documents Office. See. Naval Ordnance Central Technical Documents Office.
U.S. Naval Ordnance Engineering Drawing Depository. See: Naval Ordnance Engineering Drawing Depository.
U.S. Naval Ordnance Systems Command Documentation Management Branch.....E33
U.S. Naval Ordnance Systems Command Technical Manual Program.....B29
U.S. Naval Publication and Printing Service.....B30
U.S. Naval Ship Missile Systems Engineering Data-Document Repository. See. Naval Ship Missile Systems Engineering Data-Document Repository.
U.S. Naval Supply Depot. See: Naval Supply Depot.
U.S. Naval Training Device Center Drawing Control....D35
U.S. Naval Underwater Weapons Research and Engineering Station Documentation Support Department.....D36
U.S. Naval Weapons Center Document Depository.....D37
U.S. Navy Publications and Printing Service. See: Engineering, Drawings and Microfilm Section, Navy Publications and Printing Service.

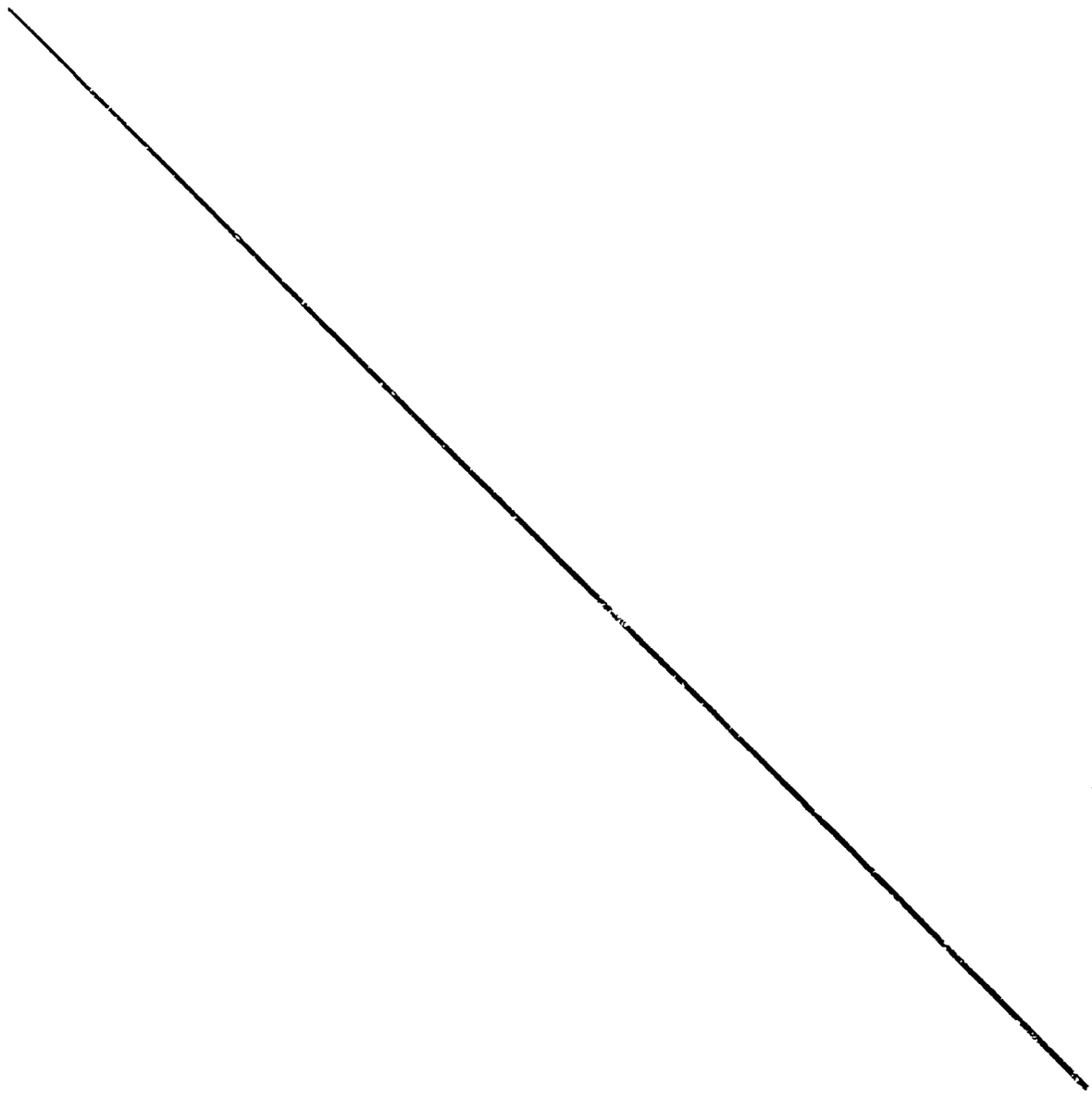
Veterans Administration Automated Management Information System for Department of Medicine and Surgery.....F12
Veterinary Medical Data Program.....C82
Visual Search Microfilm Files (V.S.M.F.).....B31
Volcanic Activity Network.....A13
V.S.M.F. See: Visual Search Microfilm Files.

Water-Supply Papers. See: Geological Survey Water Papers.
Watertown Arsenal Engineering Drawing Repository. See: Rock Island Arsenal Engineering Drawing Repository.
Watervliet Arsenal Engineering Record Section.....D38
World Data Center-A, International Geophysical Year (IGY).....E34
World Magnetic Survey (WMS).....A14
World Meteorological Organization. See: World Weather Watch of the World Meteorological Organization.
World Weather Watch (WWW) of the World Meteorological Organization (WMO).....E35
Worldwide Standardized Seismographic Network.....A15
WWW. See: World Weather Watch of the World Meteorological Organization.

X-Ray Attenuation Coefficient Information Center.....C83

Yale Economic Growth Center. See: Economic Growth Center at Yale University.
Yale University Observatory Publications.....B32

ALPHABETICAL LISTING OF DATA EFFORTS



A. Data Collection Networks and Programs

1. Summary

a. Operational Context and Coverage

Formal data collection networks are increasing in number as science and technology undertake support of complex, broad-scale missions which require concurrent collection of related data from widely dispersed locations. Most of the collection networks covered by the census serve the environmental sciences, including various aspects of meteorology, geoscience, oceanography, space science and astronomy. Several reasons account for the concentrations of networks in this area of science and technology. First, large volumes of data are required to analyze and predict the enviroment. Second, new tools such as automated recording devices, satellites, and computers have made possible collection and analysis of data on a time-scale consistent with use requirements in vital sectors of our economy, e.g., shipping and oil exploration. In addition to immediate use in operations, such as shipping, data collected by networks frequently has residual value for correlations and other study of trends and patterns. The volumes of data involved frequently make such uses difficult and make it almost imperative to use computers to handle the data.

In terms of the type of scientific or technical data activity served, six networks serve discipline-research oriented activities, two serve mission-development type activities, and eight serve applications oriented activities. In addition, eleven of the networks serve as general purpose data collection efforts.

Almost all of the networks collect data on an international scale and operate on a continuous basis; correspondingly, the volumes of operation are large.

Sponsorship or coordination by an agency of the Federal Government extends to ten of the fifteen networks. International organizations or educational institutions coordinate the operations of five networks. Nine of the fifteen networks are financed entirely by Federal funds,

while the remaining six are supported by Federal funds in combination with other institutional sources of financial support, including international organizations (5 networks), educational institutions (2 networks), and user fees (1 network).

Data Coverage - The data collected by the fifteen networks identified are the result of monitoring activities accomplished by both individuals and sophisticated sensing devices. Most frequently monitored are meteorological conditions and satellite operations. The kinds and number of testing and measuring operations performed by reporting networks are as follows:

Meteorological Observation via various environmental sensors	4
Satellite Tracking via radar, optical telescopes, radio transmitters and receivers, etc.	4
Collection and Analysis of Air Samples	1
Deep Space Environmental Monitoring	1
Command of On-Board Sapcecraft Operations	1
Oceanographic Observation (bathythermographs, etc.)	2
Astronomical Observation via telescope	1
Seismological Measurements	3
Geomagnetic Measurements	1

In addition to six networks which collect data on atmospheric and space phenomena, three networks collect data on earth movement and volcanic activity while two other networks collect data on the ocean's environment. Other data collected by the networks include such pertinent environmental characteristics as air pollutants, the magnetic field of the earth, the curvature of the earth's surface, and the environments of astronomical objects and phenomena.

The phenomena and environments covered by the data collection operations of these networks are as follows:

Atmosphere and Stratosphere (Weather)	3
Satellites, Spacecraft, and the Deep Space Environment	3
Air Pollution	1
Ocean(s)	1
Ocean and Atmosphere	1
Earthquake Activity	2
Volcanic Activity	1
Magnetic Field of the Earth	1
Satellite Orbits and Configuration of Earth's Surface	1
Stars, Planets, Comets, etc.	1

The degrees of refinement of data collected by the networks include raw, reduced and evaluated data. Of the fourteen networks reporting on their refinement of data, three networks reported raw data as the highest degree of refinement of data collected, one network reported reduced data as the highest degree of refinement and ten networks reported evaluated data as the highest degree of refinement. A total of twelve networks collect raw data, a total of four networks collect reduced data, and ten networks collect evaluated data.

b. Operational Characteristics

Scale of Operation - Almost all the networks included in the census perform international monitoring activities. The single exception is the National Air Surveillance Networks, a program which operates primarily on a national scale.

Data Collectors or Contributors - Fourteen of the fifteen networks cite the Federal Government as at least one of the institutions

contributing data to their programs, and seven of these cited the Federal Government as their sole collector. The other seven networks receive data from multiple institutional sources, including Federal Government (7), international organizations(5), educational institutions (4) and commercial or industrial organizations (2 networks).

Only one network, the Central Bureau of Astronomical Telegrams, receives no data from the Federal Government--all of its data are collected by members of an international organization.

Degree of Automation - Of the fourteen networks reporting degree of automation, ten are substantially or totally automated, two are limited in automation, and two have a negligible degree of automation.

Data Handling Processes Performed - The processes performed by the networks in collecting data include recording, reduction, analysis, reproduction, and dissemination. All networks record their data with the exception of the Central Bureau for Astronomical Telegrams--the recording in this case is performed by contributing astonomers and wired in to the Central Bureau. On the opposite end of the frequency continuum of processes performed is "reproduction", a function which is more often performed by another data effort in cooperation with a network.

A numerical summarization of processes performed is as follows:

Processing Function	Number of Networks
Recording	14
Reduction	11
Analysis	11
Dissemination	12
Reproduction	8

Forms of Data Collected - The networks included in the Census collect such data artifacts as charts, tables, data sheets, telemetry records, computer cards and tapes and "astrograms", among others. These artifacts are embodied in one of three reading forms: hardcopy (including looseleaf sheets), microform, and ADP-coded forms. Of the

fourteen networks reporting on forms of data handled, nine handle ADP-coded forms, six handle data in hardcopy, and four handle data in microform.

The specific artifacts handled are:

Artifact	Number of Networks
Computer Tapes	7
Punched-Cards	2
Telemetry Records	4
Charts	4
Data Sheets	2

c. Operational Statistics

Annual Budget - Thirteen of the fifteen networks included in the census have an annual operating budget in excess of $500,000. The two exceptions are the Central Bureau for Astronomical Telegrams, which has a budget of $10,000 to $50,000 annually and the International Ice Patrol, which operates on an annual budget of $250,000 to $500,000.

Volume of Operation - Eight of the sixteen networks included in the census reported their volume of operation in the form of the number of data-collecting stations within the network. The following list depicts the number of stations in each of the networks reporting.

Network	Number of Stations
Deep Space Network	7 (complex, tracking)
TRANET Satellite Tracking Network	13 (fixed)
Project VELA Seismographic Network	15 (seismographic, fixed)
Meteorological Rocket Network of the InterRange Instrumentation Group	20 (complex, fixed & mobile)
Satellite Tracking and Data Acquisition Network	25 (complex, fixed)

(Continued)

Network	Number of Stations
Naval Environmental Data Network	30 (fixed & mobile)
Worldwide Standardized Seismographic Network	116 (measuring, fixed)
National Upper-Air Network	150 (U.S., fixed) 500-600 (world wide)
National Air Surveillance Networks	
Continuous Air Monitoring Program	300 (fixed) 300 (state & local)
Pollution & Effects Network	10,000 (mobile & fixed)

Of the eight networks which reported rate of growth, five indicated an expanding volume of operation, three a constant volume and one a declining volume.

Future Outlook - Six of the networks report plans to expand their volume of operation, five plan a constant-level continuation of operations, whereas one plans to consolidate its operation and two are uncertain concerning continued operation and may be phased out.

In general, it appears that current trends toward cooperative team research and development, increased concern with pollution and other problems concerning our environment, increased availability of sophisticated monitoring and communication equipment, and a shift toward correlative and pattern recognition analysis methods will lead to establishment of additional formal data collection networks and programs. Development and operation of such networks are feasible, worthy of support, and undoubtedly will be supported. However, as this occurs an increasing concern can be expected regarding the means for handling and applying the data collected. For example, collection of data by satellite-borne research apparatus has already filled warehouses with the resultant telemetry records and data. The analysis, interpretation and summarization of this data and other similar collections is one of the major challenges facing future data management and handling systems. These data collection operations cost our society millions of dollars; therefore, decisions concerning what data shall be retained, what data destroyed, and what data management methods used to return the greatest benefit are worthy of careful consideration.

2. Directory of Data Collection Networks and Programs

A-1

Central Bureau for Astronomical Telegrams

Smithsonian Astrophysical Observatory
60 Garden Street
Cambridge, Massachusetts 02138

Purpose: The Bureau operates a telegram and circular dissemination program about such celestial news as the discovery of comets and novae.

Scope: The International Astronomical Union supports the activity with obervers' reports collected worldwide. Postcard circulars and telegrams are sent out to observatories in 34 countries, including Argentina, South Africa, Australia, Japan, USSR, and Peoples Republic of China.

Coverage: Comets, asteroids, novae, supernovae: Predicted ephemerides, observed positions, other astronomical observations.

Status: The Bureau was founded in 1919 in Brussels, Belgium and was transferred to the Smithsonian Astrophysical Observatory in 1965. About 700 subscribers receive around 50 circulars per year, and about 50 telegrams are sent out a year to over 100 observatories.

A-2

Deep Space Network (DSN)

Jet Propulsion Laboratory
4800 Oak Grove Drive
Pasadena, California 91103

Purpose: This NASA network is responsible for two-way communications with unmanned spacecraft used in deep space (lunar distances and beyond) exploration.

Scope: The DSN is a facility with three components, established by the NASA Office of Tracking and Data Acquisition, operated and maintained under contract to JPL. The Deep Space Instrumentation Facility (DSIF) consists of tracking stations located approximately 120 degrees around the world. The Space Flight Operations Facility (SFOF) is located at the JPL and is equipped with operations control consoles, status and operations displays, computers, and data processing systems. The Ground Communications Facility (GCF) consists of voice, high-speed data lines, and teletype lines connecting the DSIF to the SFOF.

Coverage: Unmanned satellites and the deep space environment: Locations or position of satellites, measurements of deep space phenomena and conditions.

Status: The DSN has gradually increased its capability and capacity since its inception in 1958. The Mariner IV space flight mission to Mars yielded 282,540,000 bits on 16 digital magnetic tapes, as an example of the magnitude of volume of data recorded by this network.

A-3

International Ice Patrol

U. S. Coast Guard
Governor's Island
New York, New York 10004

Purpose: The data-collecting activities of the Patrol support the mission of the Convention of Safety of Life at Sea (SOLAS) in the ice areas by: (1) guarding the area during the ice season and advising shipping of the limits and extent of the dangerous region; (2) furthering knowledge of ice conditions in the North Atlantic through research and observations; and (3) rendering assistance to lives and property within the limits of the capability of the Patrol.

Scope: International Ice Patrol aircraft, commercial and military ships, the Canadian Department of Transport, and the U. S. Navy report ice activity in The Grand Banks of Newfoundland and vicinity. Primary use is to all shipping traversing the ice areas. Cost is shared by member nations of SOLAS which include U. S., United Kingdom, Netherlands, Germany, France, Norway, Sweden, Belgium, Liberia, USSR, Italy, Canada, Denmark, Greece, Ireland, Poland, Spain, Finland, and Ghana.

Coverage: Observational data. Weather, climatology, ice.

Status: Patrol was established in 1913. There were 64 Patrol reconnaisance flights and three oceanographic cruises in 1967; 356 vessels reported observations. There were 34 ice information requests from ships in that year.

A-4

Meteorological Rocket Network of the InterRange Instrumentation Group

White Sands Proving Ground and Missile Range
White Sands, New Mexico 88002

Purpose: The network was initiated to encourage and expand routine synoptic meteorological rocket observation on a global scale.

Scope: Stations in the network are located in both Northern and Southern Hemispheres and on both sides of the globe. Soundings are published through the World Data Center:A, and contour wind maps, in reduced form, are stored at the National Weather Records Center.

Coverage: Sensor data: Wind, temperature measurements, ozone, pressure, density.

Status: The network has been in operation since October, 1959 and had grown to 20 stations by 1966. Approximately 9,000 soundings have been published.

A-5

National Air Surveillance Networks (NASN)

National Center for Air Pollution Control
U. S. Public Health Service
330 C Street, S. W.
Washington, D. C. 20201

Purpose: A Continuous Air Monitoring Program (CAMP), a Pollution and Effects Network (PEN), and a Special Studies Program provide for the collection of samples of pollutants and for the acquisition of air quality data. NASN translates research sampling techniques into practical field sampling methods and maintains an inventory of nationwide air monitoring activities.

Scope: Networks are made up of state and local monitoring stations. While the Federal government is providing a major portion of the operation support, it is planned to give more of this support to the state and local governments, with chief Federal support going to analysis activities.

Coverage: Air pollutants (suspended particulate matter such as solids, gases, radiation), both continuous and cyclic: Amounts of parts per million of sample.

Status: Network data-collection program began in 1953. Future plans include a buildup to 10,000 monitoring stations. It is estimated that 20 percent of the data necessary for effective analysis has been collected, with 80 percent remaining to be collected. By FY'69, it is anticipated that 20 percent of the necessary data will remain uncollected

A-6

National Environmental Satellite System

Environmental Science Services Administration
National Environmental Satellite Center (NESC)
Washington, D. C. 20233

Purpose: The facility operates the national environmental satellite system which provides daily worldwide sensing of environmental parameters. The processing of the data at NESC provides daily mosaics of worldwide cloud cover from original photography as well as digitized, rectified global mosaics presented on standard map projections and scales, monthly cloud atlases, and local cloud photography.

Scope: Data are collected from the Tiros Operations Satellite (TOS) system and the Automatic Picture Taking (APT) satellites to provide local cloud photography to those worldwide users equipped with suitable receivers. Principal users are the various United States meteorological services, with considerable support to foreign meteorological services, universities, and other research units.

Coverage: Infrared data, photographs: Cloud cover, heat budget.

Status: System became operational in 1958, with over 40 facsimile products transmitted daily to more than 100 users. Hundreds of hardcopy photo products and magnetic tapes for archiving are provided daily. In 1969, a solar proton monitor and a high resolution infrared scanner will be added for high resolution temperature data.

A-7

National Upper-Air Network

U. S. Department of Commerce
Environmental Science Services Administration
Office of Federal Coordinator for Meteorological
Services and Supporting Research
14th between E and Constitution Avenue, N. W.
Washington, D. C. 20234

Purpose: The network of radiosonde stations obtains information on existing weather conditions above the earth's surface and provides upper-air observations for general analysis and forecasting.

Scope: The network is composed of about 150 stations operated by the United States and 500 to 600 worldwide, operated by foreign countries. Data records are stored and published by the National Weather Records Center.

Coverage: Balloon, rocket-borne sensor, radiosonde data of environment above 100,000 feet: Wind, pressure, temperature, humidity, density of atmosphere, etc.

Status: The Federal Coordinator for Meteorological Services and Supporting Research has requested information from Federal agencies regarding their requirements for upper-air data, and a Federal plan for meeting these needs will be developed. Consideration is being given to bringing special purpose, upper-air facilities of NASA and DoD installations into the present basic network for better spacing of stations and elimination of overlapping activities.

A-8

Naval Environmental Data Network

U. S. Navy
c/o Fleet Numerical Weather Facility
Naval Postgraduate School
Monterey, California 93940

Purpose: The mission of the network is to provide the vehicle for distribution of operational numerical products to the Naval Establishment.

Scope: Fleet Weather Centrals are located in Rota, Spain; Norfolk, Virginia; Pearl Harbor, Hawaii; and Guam. Data are stored at the Fleet Numerical Weather Facility in Monterey, California.

Coverage: Environmental parameters: Oceanographic, meteorological analyses and forecasts.

Status: The network was established in 1963 and is now fully operational, with approximately two and a half million teletype words processed daily. There are 30 participating sites with an anticipated growth of 10 to 15 percent per year. Expansion is planned to include most Naval Weather Service Environmental detachments, as well as some Air Force, ESSA, and foreign stations.

A-9

Project VELA Seismographic Network

Lamont Geological Observatory
Columbia University
Palisades, New York 10964

Purpose: This data effort operates and maintains two worldwide collection networks; one, a tape-recording; the other, a photographic long-term recording network. Data are recorded and analyzed for detection and identification of seismic events.

Scope: A fifteen-station network is located in South America, Australia, Japan, Hong Kong, India, South Africa, Republic of Congo, and Sweden, with U. S. stations at College, Alaska; Honolulu, Hawaii; and Palisades, New York.

Coverage: Tape-recording and continuous analog photographically monitored body and surface waves: Underground nuclear explosions and earthquakes.

Status: The tape network has been in continuous operation since 1962, while the photo long-term network came into being with the International Geophysical Year in 1958. At present, the tape network collection has been discontinued; the photo network is scheduled to be discontinued in 1969 unless additional funds are made available.

A-10

Satellite Tracking and Data Acquisition Network (STADAN)

National Aeronautics and Space Administration
Goddard Space Flight Center
Greenbelt, Maryland 20771

Purpose: The network furnishes tracking, commanding, telemetry data-recording, and data-handling capabilities for the ground-operated instrumentation support of primarily unmanned scientific and applications spacecraft.

Scope: STADAN is a worldwide arrangement of multi-function ground instrumentation stations linked to a central operating control facility by a data/teletype and voice communications system, consisting of 14 remote fixed field stations. Operational control and management is exercised from GSFC.

Coverage: Telemetered spacecraft data: flight paths, spacecraft conditions, onboard experiments, etc.

Status: The network has steadily increased its telemetry links since its original nine stations were transferred to NASA at the latter's inception as an agency in 1958. New tracking techniques and satellite programs will call for additional stations in other parts of the world.

A-11

Space Detection and Tracking Center (SPADATS)

U. S. Air Force
Air Defense Command
Spacetrack Center
Ent AFB, Colorado 80912

Purpose: This data network's objectives are: (1) to keep a fix on every object, foreign and domestic, sent into space since Sputnik; (2) to report the decay of satellites and components as they re-enter the earth's atmosphere; (3) to predict trajectories; and (4) to provide special surveillance of satellites of particular military interest to the North American Air Defense Command (NORAD).

Scope: Data on satellites flow in constantly from sites in Alaska, England, Greenland, observatories in California and Massachusetts, and from numbers of systems, both civilian and military, around the United States.

Coverage: Optically and electronically sensed data: Number, size, path, life cycle, etc. of man-made objects in space.

Status: Network has been operational since 1961; 12,000 tracking observations on 1,280 objects are being received and processed daily. A new electro-optical sensor for detection of satellites at the 20,000-mile range is nearing operational status.

A-12

TRANET Satellite Tracking Network

Johns Hopkins University
Applied Physics Laboratory
8621 Georgia Avenue
Silver Spring, Maryland 20910

Purpose: The satellite tracking network of radio receiving stations and movable facilities acquires doppler-frequency shift data from the signals of suitably equipped near-earth satellites. These data are used both in dynamical geodesy and in determining the location of points on the surface of the earth.

Scope: The network includes stations worldwide and units in the United States which teletype data to a control center at APL/JHU. Processed data are archived at the Naval Weapons Laboratory, Dahlgren, Virginia; geodetic data are stored at the National Space Science Data Center at NASA's Goddard Space Flight Center. The system is operated for the Satellite Geophysics Project of the U. S. Naval Air Systems Command.

Coverage: Doppler shifts of satellites for refinement of orbital positions, calculations of orbital paths.

Status: Network was established in 1959 and has capability of monitoring approximately 10 satellites per day. There are 13 permanent and four movable stations sending data from around 10,000 or more satellite passes per month.

A-13

Volcanic Activity Network

Pan American Institute of Geography and History (PAIGH)
Ex- Arzobispado #29
Mexico, 18, D. F.

Purpose: The objectives of this data collection network are to obtain information promptly on any volcanic activity, to supply supplemental data to IGY's activities in upper and lower mantle research, and to predict earth shifts and tremors.

Scope: The government of 21 members of the Organization of American States (OAS) fund and participate in the program. Collectors of the data are the local populace who have been given standard reporting forms to record earth activity.

Coverage: Volcanic activity, earth tremors, etc.: Time, magnitude, duration, geographical position, etc.

Status: The program was initiated during the International Geophysical Year in 1959 and will become formally operational shortly after the OAS Committee on Geophysical Sciences becomes a full Commission (around June, 1969). Data will be reduced, analyzed, and stored at the Geophysical Institute of the University of Mexico and published in Spanish and English.

A-14

World Magnetic Survey (WMS)

Geophysics Research Board
National Academy of Sciences - National Research Council
2101 Constitution Avenue, N. W.
Washington, D. C. 20418

Purpose: This international data-collection network is mapping the earth's main magnetic field during a period of relative solar quiet when solar perturbations are infrequent and small, and is filling in gaps in previous coverage, particularly above certain parts of the ocean.

Scope: The work is carried out by geomagnetic stations, field surveys, oceanographic vessels, survey aircraft, and satellites. It is coordinated by a Board of the International Union of Geodesy and Geophysics, in association with other international unions. United States participation involves the Navy, Coast and Geodetic Survey, NASA, and the National Science Foundation.

Coverage: Mapping of earth's magnetic field during minimum solar activity, secular change in field.

Status: Activity was begun with the IQSY in 1964, and data are still being collected, with cutoff not finally fixed. It is expected that the program will be repeated at approximately 10-year intervals.

A-15

Worldwide Standardized Seismographic Network

Environmental Science Services Administration
Coast and Geodetic Survey
Seismology Division
Rockville, Maryland 20852

Purpose: This network of strong motion seismographs makes spectral analyses of large earthquake motion recorded at near distances with the objectives of increasing the knowledge of the internal constitution of the earth through the investigation of seismological phenomena, of developing engineering criteria and seismic probability factors, and of providing tsunami warnings to the public.

Scope: Standard Seismograph Stations are located worldwide. The master file is stored at the Seismological Data Center, Asheville, North Carolina, with microfilm copies sold at cost to the seismological community.

Coverage: Seismological data: Hypocenter locations, earthquake source mechanisms, physical parameters of seismic wave propagation, likelihood of occurrence, intensity, etc.

Status: Early in 1968, 116 stations will have been established since program's beginning in 1961. The Seismological Data Center was established in 1963. Program is fully operational; however, no funds were provided for FY 1968, and its future is in doubt.

3. Tabulation of Characteristics of Data Collection Networks and Programs

DATA COLLECTION NETWORKS

DIRECTORY CODE	TITLE or COMMON NAME	YEAR ESTABLISHED	COORDINATING INSTITUTION (TITLE & ADDRESS)	NETWORK DESCRIP							
				SOURCE (S) OF SUPPORT				DATA COLLECT CONTRIBUTIO			
				FEDERAL GOVERNMENT	EDUCATIONAL	INTERNATIONAL COOPERATION	USER FEES	FEDERAL GOVERNMENT	INDUSTRIAL or COMMERCIAL		
A-1	*Central Bureau for Astronomical Telegrams.	1919	Smithsonian Astrophysical Observatory (sponsored by the International Astrophysical Union).	x		x	x				
A-2	Deep Space Network (DSN).	1960	National Aeronautics & Space Administration. Jet Propulsion Laboratory.	x				x			
A-3	International Ice Patrol.	1913	U. S. Coast Guard International Ice Patrol Office Governor's Island, New York	x		x		x	x		
A-4	Meteorological Rocket Network of the InterRange Instrumentation Group.	1959	InterRange Instrumentation Group White Sands Proving Ground and Missile Range.	x				x			
A-5	National Air Surveillance Networks (NASN)	1953	National Center for Air Pollution Control U. S. Public Health Service 330 C Street, S.W. Washington, D. C. 20201	x				x	x		x
A-6	National Environmental Satellite System. (Network)	1958	Environmental Science Services Administration.	x				x			
A-7	National Upper-Air Network.		Environmental Science Services Administration Office of Federal Coordinator for Meteorological Services & Supporting Research..	x				x			
A-8	Naval Environmental Data Network.	1963	U.S. Navy Fleet Numerical Weather Facility Naval Postgraduate School.	x				x			
A-9	Project VELA Seismographic Network.	1958	Lamont Geological Observatory Columbia University.	x	x			x			x
A-10	Satellite Tracking and Data Acquisition Network (STADAN).	1955	National Aeronautics & Space Administration (Goddard Space Flight Center).	x				x			
A-11	Space Detection and Tracking Center (SPADATS).	1961	U.S. Air Defense Command Spacetrack Center Ent Air Force Base.	x				x			

*Budget approximately $10,000 to $50,000.

Science Communication
Washington, D. C. 200 07

DESCRIPTION				CHARACTERISTICS of DATA COLLECTED		
DATA COLLECTORS or CONTRIBUTORS				COVERAGE		
FEDERAL GOVERNMENT	INDUSTRIAL or COMMERCIAL	EDUCATIONAL	INTERNATIONAL COOPERATION	SUBSTANCES, MATERIALS or EQUIPMENTS	PROPERTIES or PERFORMANCE VALUES	SCIENTIFIC or TECHNICAL ACTIVITY GENERATING DATA
			x	Comets, novae, supernovae.	Predicted ephemerides, observed positions, orbit calculations, etc.	Observatory monitoring and personal observations.
x				Unmanned satellites and the deep space environment.	Positions of satellites, measurement of deep space phenomena and conditions.	Tracking of satellites; monitoring of deep space probes and satellite returns.
x	x		x	Ocean ice.	Distribution and drift of ice in the Grand Banks area, Labrador Sea, North Atlantic and Baffin Bay.	Aerial ice reconnaissance and oceanographic cruises.
x				Stratosphere.	Wind velocity, temperature, air density, pressure, and ozone.	Monitoring of sensors in ARCAS and Loki sounding rockets.
x	x	x		Air pollutants (suspended particulate matter such as solids, gases, radiation).	Amounts of parts per million of sample.	Continuous automatic air sampling and analysis.
x				Weather (world-wide cloud cover).	Cloud patterns, heat budget, and infrared data.	Continuous photography of clouds via satellites of the entire sunlit portion of the earth.
x				Environment above 100,000 feet altitude.	Wind, pressure, temperature, humidity, density of atmosphere, etc.	Monitoring of balloon, rocket-borne, and radiosonde sensors.
x				Ocean-atmosphere environment.	Oceanographic, meteorological, and ocean-atmosphere interaction analyses and forecasts.	Monitoring of DAWN Network; bathythermograph observations.
x		x		Earthquakes and underground nuclear explosions.	Measurement of surface waves.	Tape recording of seismic waves. Photographic recording of seismic phenomena.
x				Spacecraft.	Flight paths of spacecraft: conditions of spacecraft and on-board experiments.	Tracking of spacecraft; commanding of spacecraft operations.
x				Man-made objects in space.	Number, size, paths, and life cycles.	Radar and optical telescope monitoring.

B

DIRECTORY CODE	(continued) DATA COLLECTING OPERATIONS																DISPOSITION of DATA COLLECTED
	STATE of REFINEMENT			PROCESSES PERFORMED						FORM of DATA COLLECTED			DATA ARTIFACTS COLLECTED	EXTENT of AUTOMATION			
	RAW	REDUCED	EVALUATED	RECORDING	REDUCTION	ANALYSIS	REPRODUCTION	DISSEMINATION	OTHER	HARDCOPY	MICROFORMS	ADP CODED		SUBSTANTIAL	LIMITED	NONE	
A-1	x	x			x			x		x			"Astrograms".			x	Published in circulars and telegrams by the Central Bureau for Astronomical Telegrams.
A-2	x	x	x	x	x	x	x	x	Special publication.		x	x	Magnetic tapes, telemetry records.	x			Stored at Goddard Space Flight Center.
A-3	x		x	x	x	x	x	x					Charts and tables.			x	Charts and tables stored in Ice Patrol Office, Governor's Island, N.Y. Annual Report of Ice Patrol published by Government Printing Office.
A-4	x		x	x	x	x		x			x		Telemetry records.	x			Published by World Data Center; stored in reduced form at National Weather Records Center.
A-5	x	x	x	x	x	x	x	x	Processing.	x		x	Data Record Forms, punched cards, magnetic tape.	x			Stored and published by Public Health Service, Division of Air Pollution, Cincinnati, Ohio.
A-6	x		x	x		x	x	x				x	Magnetic tape, gridded photographs, cloud-cover maps.	x			Maps disseminated by the National Environmental Satellite Center.
A-7			x	x	x					x			Charts.		x		Stored and published by the National Weather Records Center.
A-8			x	x	x	x	x	x				x	Magnetic tapes, plotted charts.	x			Stored at Fleet Numerical Weather Facility.
A-9	x			x	x	x						x	Magnetic tapes, photographs.	x			Stored at Lamont Geological Observatory.
A-10	x			x	x	x		x	Processing, reformatting.	x	x	x	Computer tapes, telemetry records, charts.	x			National Aeronautics and Space Administration communications facilities.
A-11	x		x	x				x	Processing, categorizing.	x		x	Magnetic tape, computer punch cards, data sheets.	x			Published in Space Object Bulletin and Sensor Look Angle List - available through NASA's Goddard Space Flight Center.

	OPERATING STATISTICS		
of DATA ED	PRESENT VOLUME of OPERATION	RATE of GROWTH	FUTURE PLANS
ars and tele- l Bureau for ars.	50 circulars issued per year to 700 subscribers; 50 telegrams issued per year to over 100 observatories.	Anticipated user growth.	Continuation of operation as at present.
pace Flight	7 tracking stations.	Upgrading system to meet future demands - no new facilities planned.	Extended support of National Aeronautics & Space Administration space exploration projects and continued research and development
tored in Ice rnor's Island, of Ice Patrol ent Printing	64 reconnaissance flights in 1967; 3 oceanographic cruises in 1967.	Volume of operation remains constant.	Continuation for indefinite period of time.
Data Center; orm at National ter.	20 stations; 100 launchings per year per station.	20% per year.	Continuation at present rate.
by Public ision of Air ti, Ohio.	Approximately 300 reporting sites (1967); data coverage on approximately 350 cities.	Data coverage extended to 100 new cities (1963-1967).	Expansion to a 10,000-station network.
the National lite Center.	40 facsimile products transmitted daily to more than 100 users.	Not given.	Addition of a solar proton monitor and a high resolution infrared scanner to satellite equipment in 1969.
by the cords Center.	150 stations operated by U.S.; 500-600 stations worldwide.	Volume of operation remains constant.	Some consolidation of stations with those of other Federal agencies to provide better spacing of stations and eliminate overlapping activities.
rical Weather	Data collected: 2.5 million teletype words per day; number of sites: 30.	Data collected: 15% per year; No. of participants: 10% per year.	Expansion to include most Naval Weather Service Environmental Detachments, as well as some Air Force, ESSA, and foreign stations.
logical	15 seismological stations.	Operation is being phased out.	Tape recording of seismic waves discontinued. Photographic recording scheduled to be discontinued in 1969.
and Space nications	25 participating stations.	Not given.	Has reached a temporary plateau of development which is adequate for the present state of satellite programs.
bject Bulletin s List - NA's Goddard	12,000 tracking observations received and processed daily; 1,280 objects observed daily.	Not given.	A new electro-optical sensor for detection of satellites at the 20,000-mile range nearing operational status.

B

Science Communication
Washington, D. C. 200 07

DATA COLLECTION NETWORKS

DIRECTORY CODE	TITLE or COMMON NAME	YEAR ESTABLISHED	COORDINATING INSTITUTION (TITLE & ADDRESS)	NETWORK DESCRIPTI						
				SOURCE OF SUPPORT				DATA COLLECTO CONTRIBUTORS		
				FEDERAL GOVERNMENT	EDUCATIONAL	INTERNATIONAL COOPERATION	USER FEES	FEDERAL GOVERNMENT	INDUSTRIAL or COMMERCIAL	EDUCATIONAL
A-12	TRANET Satellite Tracking Network.	1959	Applied Physics Laboratory Johns Hopkins University.	x				x		x
A-13	Volcanic Activity Network.		Pan American Institute of Geography and History (PAIGH).	x		x		x		
A-14	World Magnetic Survey (WMS).	1964	International Union of Geodesy and Geophysics - International Quiet Sun Year (IQSY).	x		x		x		
A-15	Worldwide Standardized Seismographic Network	1961	Environmental Science Services Administration Coast and Geodetic Survey.	x	x	x		x		x

X	DESCRIPTION				CHARACTERISTICS of DATA COLLECTED		
	DATA COLLECTORS or CONTRIBUTORS				COVERAGE		
USER FEES	FEDERAL GOVERNMENT	INDUSTRIAL or COMMERCIAL	EDUCATIONAL	INTERNATIONAL COOPERATION	SUBSTANCES, MATERIALS or EQUIPMENTS	PROPERTIES or PERFORMANCE VALUES	SCIENTIFIC or TECHNICAL ACTIVITY GENERATING DATA
	x		x		Orbital positions of satellites; location of points on the earth's surface.	Doppler-frequency shift of transmitted signals.	Monitoring and analysis of signals from near-earth satellites.
	x			x	Volcanic activity, earth tremors, etc.	Time, magnitude, duration, geographical location.	Monitoring by local populace.
	x			x	Magnetic field of the earth during minimum solar activity	Mapping of magnetic field; secular change in field.	Monitoring of geomagnetic stations and satellites; field, air, and oceanographic reconnaissance.
	x		x	x	Large earthquake motion recorded at near distances.	Hypocenter locations, earthquake source mechanisms, physical parameters of seismic wave propagation, likelihood of occurrence, intensity.	Spectral analyses of large earthquake motion.

B

DIRECTORY CODE	DATA COLLECTING OPERATIONS (continued)																
	STATE of REFINEMENT			PROCESSES PERFORMED						FORMS of DATA COLLECTED			DATA ARTIFACTS COLLECTED	EXTENT of AUTOMATION			DISPOSITION of DATA COLLECTED
	RAW	REDUCED	EVALUATED	RECORDING	REDUCTION	ANALYSIS	REPRODUCTION	DISSEMINATION	OTHER	HARDCOPY	MICROFORMS	ADP CODED		SUBSTANTIAL	LIMITED	NONE	
A-12	x	x	x	x	x	x	x	x	Condensation, editing.			x	Magnetic tapes.	x			Processed data archived at Naval Weapons Laboratory, Dahlgren, Virginia; geodetic data stored at National Space Science Data Center at NASA's Goddard Space Flight Ctr.
A-13	x			x	x	x	x	x		x			Reporting data sheets.		x		Stored, reduced, evaluated at Geophysical Institute at University of Mexico.
A-14				x		x				Not given.			Not given.	Not given.			Not given.
A-15	x		x	x			x	x		x	x		Seismograms.	x			Stored at Seismological Data Center, Asheville, North Carolina.

A

DATA	OPERATING STATISTICS: PRESENT VOLUME of OPERATION	OPERATING STATISTICS: RATE of GROWTH	FUTURE PLANS
ed at Naval ahlgren, ta stored at e Data Center ce Flight Ctr.	13 permanent stations, 4 movable stations, 10 satellites monitored per day.	Not given.	Not given.
uated at at University	Planned activity.	Not given.	Publication of data in Spanish a l English.
	Not given.	Not given.	Possible repetitions of survey at ten-year intervals.
cal Data Center, olina.	116 stations.	Not given.	Continued operation uncertain due to Congressional action.

B

B. Specialized Data Publishing Programs

1. Summary

a. Operational Context

The volume of specialized data publishing activities currently conducted precludes comprehensive coverage in a preliminary census effort. However, such activities are currently important in facilitating dissemination and use of scientific and technical data. In addition, expenditures for specialized data publications are large. For example, the Department of Defense estimates its annual expenditure for technical manuals as 400 million dollars.* Unfortunately, many such specialized publishing programs are so dispersed in terms of place of performance and management responsibility that it is practically impossible to conduct a meaningful census. Another factor which makes a census of data publishing efforts difficult is the frequent integration or concurrent performance of specialized data publishing and other publishing. Examples of this include the Government Printing Office and large commercial publishers of books, journals, etc. The Government Printing Office produces over a billion copies of publications annually. In addition, the Federal Government operates over 300 field printing plants and purchases commercial publishing services. Certainly, to do a total census of specialized data publishing programs would require a large expenditure of time and money. Consequently, the information presented in this section is more representative than exhaustive in coverage of specialized data publishing programs.

In addition to specialized data publishing programs, massive volumes of data are published in test reports, specifications, drawings, product bulletins, and other documents produced by the individuals and organizations conducting research and development or applying technology.

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*Ignatius, Paul R., "Defense Data Management Program Objectives," Proceedings of DOD/NSIA Technical Information Symposium for Management, pp. 57-60. Symposium held at Statler Hilton Hotel, Los Angeles, California, 26-27 May 1965.

Such activities frequently cannot be identified with any formal data publication program. A census of such activities could not be easily compiled; however, descriptive write-ups in Part A of this volume do discuss the magnitude and functions of these activities in selected fields of science and technology. Also, specialized data publications are frequently produced by data service centers such as those covered in section C of this census.

Operating Motive - The 32 data publishing programs included represent a broad cross-section of specialized data publishing programs currently being conducted in industry, commerce, professional societies, and educational institutions. Almost half of the programs included in this census are sponsored by industrial or commercial organizations. The most frequently reported operating motive is non-profit external servicing. Seventeen publishers reported non-profit external servicing, while twelve publishers reported that they provide external servicing on a profit-making basis. Of the 30 publishers providing such information, only one publisher, the Naval Ordnance Systems Command, cited internal program support as its sole operating motive. These findings should be considered only in light of the above statements concerning the non-inclusion of publication programs functionally integrated with on-going scientific or technical activities.

Sponsorship and Financial Support - Twenty-eight data publishers gave information on their budget levels, and the distribution within the different budget ranges is fairly even. Six publishers operate on an annual budget of $10,000-$50,000; five operate on an annual budget of $50,000-$100,000; five operate on an annual budget of $100,000-$250,000; five operate on an annual budget of $250,000-$500,000; and seven operate on a budget in excess of $500,000 per year. Almost three-fourths of the publication programs (23 programs) are supported at least in part from sale of publications, and fourteen of these programs are entirely supported by publication sales proceeds.

The method of funding next in the order of frequency is internal budgeting, which accounts for partial support of three publishing programs and entire support of five publishing programs. Contract, grant, or underwriting constitutes partial support for four publishing programs and total support of two; and two publishers receive partial support from advertising revenues, while one publisher is entirely supported by advertising revenues.

Institutional sources of financial support for the programs in this section of the census include Federal Government, industry and commerce, educational institutions, professional societies, and non-profit institutions. Almost half of the publishing programs (15 programs) receive at least some financial support from industrial or commercial firms, while Federal Government funds and professional society funds each contribute support to nine publishing programs. Less frequently mentioned as sources of support are educational and non-profit institutions, which provide funding for a total of only four publishing programs.

b. Coverage

Almost half of the publishers (15) cited product development as at least one of the scientific or technological activities responsible for generating the data contained in the documents published, and twelve publishers cited laboratory research. Although over half of the publishers produce engineering documents, only seven publishers cited engineering design as responsible for the data content of their documents, and only five publishers cited standardization activities. Five publishers reported testing and evaluation as the activity responsible for generating the data published in their documents.

Other scientific and technological activities generating the data published by the programs are clinical tests (cited by three publishers), field surveys (cited by three publishers), oil and gas drilling (one publisher), and star photography (one publisher).

All publishing programs included in the census draw upon nationwide sources for the data included in their documents, and nearly half of the publishing programs (14 programs) claimed international sources of data. Over three-fourths of the publishers (25 programs) cited industry and commerce as the institutional source of their data, while nineteen publishers cited Government organizations, eighteen cited educational and non-profit institutions, and ten cited private investigators or authors.

Documents Published - Over half of the programs publish engineering data documents, and include in their data coverage such substances as electrical or electronic components and equipments (3 publishers), aerospace equipment and parts (3 publishers), mechanical structures

such as ground vehicles and heating equipment (3 publishers) soils and foundations (1 publisher), industrial materials (4 publishers), and general materials and equipment used in engineering (5 publishers). Data on chemical substances and compounds are published by four publishers, and data on food and drugs are published by four publishers. Other publishers produce data documents on biological substances, fossils, oil and gas drilling, stars and the aerospace systems (one publisher for each).

Well over half the publishing programs (17 publishers) designate the type of documents they publish as handbooks or reference books. Closely related to these documents are manuals (including instruction manuals, procedures, and methods), which are cited by ten publishers, and the data catalogs or directories which are cited by seven publishers. Four publishers produce vendor catalogs or supply lists. Data card files and data sheets are cited by five and three publishers, respectively.

Publishers specializing in the field of engineering data often designate their publications as specifications and standards, rather than designating the type of publication in the more generic terms of handbooks, manuals, or data sheets. Eleven publishers reported standards as their type of publication, and eight publishers reported specifications. Other types of documents cited by the publishers include maps, charts, surveys, and statistical reports.

c. Publication Operations

Publishing operations were tabulated under the following five headings: researching, drafting or authoring, editing, printing, and distribution. Almost all the publishers included in the census edit, print, and distribute their data documents (29 edit, 31 print, and 30 distribute the documents). A slightly smaller number are directly responsible for researching the material (18 programs) and drafting it (17 programs).

Several publishers reported additional operations which are more frequently associated with other types of data efforts; these operations include indexing, cataloging, processing, reformatting, extracting, coding, designing, analyzing, classifying, organizing, evaluating, and tabulating. These findings illustrate the difficulty of establishing mutually exclusive categories for real world data efforts.

Data Acquisition and Handling - Channels used for acquiring the data to be published were tabulated under three headings: interviews, available documentation, and specially prepared documentation. Channels of data acquisition most frequently mentioned were available documentation (22 publishers) and specially prepared documentation (25 publishers). Only eight publishers make use of interviews to acquire their data, and all of these publishers use interviews only on a limited scale.

Twenty-nine publishers provided information on the type of staffing they maintain in order to produce their data documents. These publishers most frequently reported that they maintain staff writers to produce at least a portion of the technical material published (16 publishers reported staff writers). Next in the order of frequency are unpaid voluntary authors, utilized by all of the publishers, and commissioned authors, utilized by six publishers. Other types of staffing reported included research editors, committees, and product manufacturers.

Hardcopy documents (including looseleaf sheets)are published by almost all (29) of the data publishers. Seven publishers produce data documents on microfilm, and seven publishers produce documents on microfiche. A total of five publishers produce punched data retrieval cards for publication. Only three publishers reported that they disseminate computer tapes. The distribution of levels of automation used in publishing programs is fairly even, with eleven programs reporting substantial automation, eleven reporting limited automation, and ten reporting a negligible degree of automation.

Most of the 23 publishers furnishing information on publication lag time gave this information in terms of the time elapsed from delivery of the manuscript to the publisher to the distribution of the document to its users. Of the nineteen publishers reporting lag time in these terms, thirteen claim a lag time of less than one year, and six report a lag time of one year or more. Seven of the thirteen claiming a lag time of less than one year report that they have reduced their lag time to three months or less.

Operating Statistics - Volume of operation was generally reported in heterogeneous terms not reducible to a common denominator. However, five publishers reported the volume of documents published to date, and

these figures range from 70 books (published to date in the Advances in Chemistry Series) to 157,000 documents (published to date by the U.S. Naval Publication and Printing Service).

Three publishers reported number of publication copies distributed per year. Typical figures include 20,000 copies of H.J. Heinz Co.'s Nutritional Data distributed per year, 30,000 copies of the ASHRAE Guide and Data Book distributed per year, and 2,000,000 copies of Alcoa technical handbooks distributed per year. Five publishers reported the number of copies of publications distributed to date, and these figures range from the 1,000 copies of a single edition of Yale Observatory's Star Catalogs, to 140,000 copies of a single edition of the Metals Handbook.

d. Communities Served

A rough categorization indicates that seven of these programs serve discipline-research, twelve serve mission-development, and twenty-seven serve applications or product oriented areas of data activity. In addition, 25 of the programs contribute to general purpose data collection activities.

Twenty of the 32 publishing programs claim using communities of international scale, while the other twelve publishers report that their using communities are of a nationwide character. All publishers claim members of industry and commerce, and almost all include Government organizations; while other institutions, such as educational institutions and professional society memberships, are less frequently cited by the publishers as users. Eleven publishers specify that their document users are active in the various fields of engineering, including civil, electronic, mechanical, aerospace, and general engineering fields; while eight publishers cite the closely related fields of product development and manufacturing for their using communities. Five publishers reported chemical processing, and three publishers reported materials processing as activities of those using the published documents. Military procurement and military logistics planning are cited by four publishers. Other activities for those using the published documents include oil and gas drilling, paleontology, nuclear research, medical therapy, astronomical observation, and aircraft control (each activity cited by only one publisher). Thirty-one publishers furnished information on the sales price of their data documents, and only four publishers reported that their documents are distributed free of cost. The other 27 publishers levy various prices on their publications.

e. Future Trends

Programs for the publication of specialized data documents are increasingly re-appraising their function and methods. This re-appraisal is being required by two trends: (a) Increasing availability of new tools for preparing and disseminating data-documents (e.g., computer controlled photo-composition and micro-forms, produced both manually and by computer.) (b) Increasing awareness of cost-benefit factors.

Re-appraisals within government include review of the DoD Technical Manual programs which have been conducted without major change over the past 30 years.* Within the commercial sector, the potential market in data publishing has been recognized by both commercial publishers and computer service operations. This recognition is producing mergers, acquisitions, and other steps to allow joint use of the resources and talents of publishers and computer service firms. Current moves in this area can be expected to result in the introduction of new data publishing services which quite likely will use computer processable and/or microform media.

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*Ignatius, Paul R., "Defense Data Management Program Objectives," Proceedings of DOD/NSIA Technical Information Symposium for Management, pp. 57-60. Symposium held at Statler Hilton Hotel, Los Angeles, California, 26-27 May 1965.

2. Directory of Specialized Data Publishing Programs

B-1

Advances in Chemistry Series

American Chemical Society
Special Issue Sales
1155 Sixteenth Street, N. W.
Washington, D. C. 20036

Type of Publication(s): Reference handbooks, manuals, etc. in hardcopy, cloth and paperbound.

Users Served: Chemical and chemical processing industry, research.

Coverage: Flavor chemistry, selective oxidation processes, mechanisms of inorganic reactions, fuel cell systems, mass spectral correlations, azeotropic data, critical solution temperatures, physical properties of chemical compounds, saline water conversion, agricultural applications of petroleum products, etc.

Status and Continuity: Nearly 70 books have been published in the Series since pre-1966, with several currently in press and being planned. Participants are contributing authors as proffered to the American Chemical Society.

B-2

Aeronautical Standards Group Publication Program

Departments of the Navy and Air Force
Aeronautical Standards Group
8719 Colesville Road
Silver Spring, Maryland 20910

Type of Publication(s): Military specifications, standards, handbooks: Hardcopy (offset, type set), from one-page to 50 or more pages.

Users Served: Nationwide aerospace industry, primarily aircraft manufacturers, and Department of Defense.

Coverage: Electrical and electronic components related to aerospace applications: Power plants, hardware, materials and processes, survival equipment, ground support equipment.

Continuity and Status: The present publication activity was chartered in 1949 with participation by the Departments of Army, Navy, Air Force, aerospace prime contractors and sub-contractors, and trade associations and technical societies such as AIA, SAE, etc. There is limited application to international agreements. Approximately 500 documents are published yearly. Future missions will be determined by assignments from sponsoring military services.

B-3

Alcoa Technical Handbooks

Aluminum Company of America
798 Alcoa Building
Pittsburgh, Pennsylvania 15219

Type of Publication(s): Series of handbooks: Hardcopy.

Users Served: All industries using aluminum in the manufacturing process.

Coverage: Aluminum materials and technology: Physical and mechanical properties, joining (welding, soldering, adhesive bonding, etc.) characteristics, production methods, tolerances.

Status and Continuity: The first handbook was published in 1909. In 1967, about 200,000 ten-volume sets were distributed.

B-4

American Institute of Steel Construction Technical Publications

American Institute of Steel Construction
101 Park Avenue
New York, New York 10017

Type of Publication(s): Manuals, textbooks, specifications, manual supplements, other technical publications: Hard-copy.

Users Served: All in fields relating to steel construction: architects, structural and civil engineers, heavy construction contractors, educational institutions, etc.

Coverage: Steel, steel structural supports, rivets, bolts, bolted joints, etc.: Design parameters, drafting procedures, detailing, structural strength, standard specifications, connections, dimensions, properties, etc.

Status and Continuity: The publication program dates back to the 1920's and the Manual of Steel Construction, now in its 6th edition and consisting of over 650 pages, has sold nearly 45,000 copies. More than 300 member companies of the Institute continuously contribute to the publication program.

B-5

American Society of Mechanical Engineers (ASME) Technical Data Program

American Society of Mechanical Engineers
345 East 47th Street
New York, New York 10017

Type of Publication(s): Instruction manuals, equipment catalogs, maintenance procedures, testing codes, etc.: Hardcopy.

Users Served: Structural and design engineers, all related fields.

Coverage: All mechanical structures and equipment: Design parameters, technical specifications, etc.

Status and Continuity: The Society's publishing program was established in 1881 and estimates it publishes around 2,000 pages per year. In publishing USASI standards, ASME coordinates with many other institutions.

B-6

American Society for Testing and Materials (ASTM)
Publication Program

American Society for Testing and Materials
1916 Race Street
Philadelphia, Pennsylvania 19103

Type of Publication(s): Specifications, standards, standard methods, reference books, data sheets: Hardcopy, marginally punched cards, microfiche, microfilm.

Users Served: Most elements of industry, including consumers of raw materials and semi-finished and finished products, producers of materials, industry research and testing activities, all types of engineering; also government organizations, schools, professional societies, trade associations, etc.

Coverage: Industrial materials: Physical, chemical, and optical properties, processing methods, etc.

Status and Continuity: The program was initiated in 1902 and produces continuously updated publications, as well as reference works revised at less frequent intervals. Currently, it has published more than 4,000 standards, 1,000 reference works, and 50,000 data sheets. Possible future data publication in fields of nuclear engineering, aerospace, and surgical implant materials is being studied.

B-7

ASHRAE Guide and Data Book

American Society of Heating, Refrigerating
and Air-Conditioning Engineers, Inc. (ASHRAE)
345 East 47th Street
New York, New York 10017

Type of Publication(s): Handbook, industry standards: Hardcopy.

Users Served: Heating, refrigerating, air-conditioning engineers and all related fields, including professional society members, educational institutions, engineering consultants and contractors.

Coverage: Components, systems, applications such as storage and processing of frozen foods, etc.: Heat-transfer phenomena.

Status and Continuity: Publication program began in 1922. An average of 30,000 copies of the handbook are distributed per year.

B-8

DATA, Inc. (Derivation and Tabulation Associates)

32 Lincoln Avenue
Orange, New Jersey 07050

Type of Publication(s): Data packages in various forms: Hardcopy, aperture cards, microfilm and tape tabulations, punchcards, punch tapes.

Users Served: Electrical, electronic engineers, particularly in the design engineering phases, in government, industry, professional societies, etc.

Coverage: Key electronic components, transistors, semiconductor diodes and rectifiers, microwave tubes, integrated circuits: Major electrical/mechanical parameters, including QPL and military specifications.

Status and Continuity: Publication program was established in 1956. The EDS-A005 Semiconductors and Integrated Circuits contains 50,000 pages coded on microfilm, with data on these components expected to change 40 to 50 percent every six to eight months. Continuous updating is maintained.

B-9

Directory of Technical Specifications

Technical Information Corporation
Post Office Box 514
Smithtown, New York 11787

Type of Publication(s): Comparative analysis directories in loose-leaf binders.

Users Served: Approximately 500 subscribers in electronics instrumentation for military, aerospace, research, industry.

Coverage: Electronic test instruments, laser equipment and components: Manufacturers, models, specifications, prices.

Status and Continuity: Program began in 1956 and is publishing periodically with constant up-dating. Specifications data on approximately 20,000 instruments are available.

B-10

Geodex International, Inc. Data Publishing Program

Geodex International, Inc.
Post Office Box 385
Glen llen, California 95442

Type of Publication(s): Punched card retrieval systems: Marginally-punched or "Peek-a-Boo" types.

Users Served: Civil engineers, consultants, researchers, in the fields of soil mechanics, foundation engineering, structural engineering and mechanics.

Coverage: Soils, foundations, structural materials, related civil engineering data: Properties, performance values, etc.

Status and Continuity: Publication program began in 1962, with two card systems produced: Soil Mechanics and Foundation Engineering containing currently about 8,000 to 9,000 three by five cards; and Structural Engineering and Mechanics, Structural Materials and Related Civil Engineering Fields containing about 11,000 to 12,000 Peek-a-Boo cards. Each year, approximately 1,500 cards are updated for each service.

B-11

High Resolution NMR Spectra Catalogs

Varian Associates
Instrument Division
Palo Alto, California 94303

Type of Publication(s): Catalogs: Loose-leaf sheets in spiral binding.

Users Served: Chemical industry and research.

Coverage: Nuclear magnetic resonance (NMR) spectra of chemical mixtures and compounds: Reproductions of instrument tracings with the abscissa as a dual scale in parts per million and cycles per second; semistructural formulas with tabulated values.

Status and Continuity: Volume I, with 368 spectra, was published in 1962; Volume II contains 332 spectra. The data in both documents are still considered to be current.

B-12

The Isotope Datadex

Scientific Equipment Company
Post Office Box 19086
Indianapolis, Indiana 46219

Type of Publication(s): Boxed, marginally-punched card index: McBee Keysort cards.

Users Served: Chemical and nuclear researchers involved in any way with isotopes.

Coverage: Commercially available isotopes and their progeny: Chemical name, atomic number, atomic weight, half-life, and complete alpha, beta, and gamma energies.

Status and Continuity: The index was first produced in 1960 and covers 265 isotopes. No additions are planned.

B-13

Jeppesen and Company Publications

8025 East 40th Avenue
Denver, Colorado 80207

Type of Publication(s): Maps, charts, manuals, educational courses, briefing booklets, flight forms: Hardcopy, microfiche, microfilm.

Users Served: Worldwide aircraft control personnel in government, military, commercial airlines, industry, and private individuals.

Coverage: Flight data: Navigation aides, routing, air traffic control, Federal regulations, communications, etc.

Status and Continuity: A continuous program has produced since 1934 such titles as: Aeronautical Charts and Maps, Airline and Airway Manual Service, Private Pilot Course, Instrument Pilot Course, Commercial Pilot Course, Airline Transport Rating Course, and briefing booklets in meteorology, medical aspects of the altitude flight, etc.

B-14

The McLean Card Catalogue of American Foraminifera

James D. McLean, Jr.
Post Office Box 916
Alexandria, Virginia

Type of Publication(s): Data cards.

Users Served: Paleontological, stratigraphic, and geological sciences in any phase where fossils, particularly Foraminifera, are used.

Coverage: Microscopic specimens: Photographic enlargements, descriptive physical and biological characteristics, ecological data.

Status and Continuity: Data collection began in 1947 with publication of card catalogue in 1956. Publisher is continuously adding to and updating the data groupings and now has produced cards on over 20,000 microfossils.

B-15

Metals Handbook

American Society for Metals
Metals Park, Ohio 44073

Type of Publication(s): Handbooks.

Users Served: Metals, metallurgy, and metal-working technologies in industry and government, worldwide.

Coverage: Metals, metal-working: Physical, mechanical, corrosion properties.

Status and Continuity: Society's handbook program has been functional since 1923 and is currently in its multi-volume 8th edition. A total of 140,000 copies of the three volumes are in use.

B-16

National Aerospace Standards

National Standards Association, Inc.
1321 Fourteenth Street, N. W.
Washington, D. C. 20005

Type of Publication(s): Standards: Hardcopy.

Users Served: Aerospace and missile industry.

Coverage: Parts used in manufacturing of aircraft, missiles, rockets: Dimensions, tolerances, sizes, shapes, identifications, finishes, materials, procurement codings and specifications involving performance and interchangeability.

Status and Continuity: Company was established in 1947. There are 3,264 pages in the current complete NAS set, with annual revision averaging 363 new and revised Standards. Users on automatic services number 1,770, with 755 miscellaneous users. Future plans include National Aerospace Standards service on microfilm.

B-17

The National Formulary and Handbook Publications

American Pharmaceutical Association
2215 Constitution Avenue, N. W.
Washington, D. C. 20037

Type of Publication(s): Handbooks, manuals: Hardcopy.

Users Served: The entire pharmacy community, including researchers, the practising pharmacists, Federal and local agencies, teachers in schools of pharmacy -- all worldwide.

Coverage: Drug standards, specifications, test procedures; drug nomenclature; requirements for identity, strength, quality, purity of drugs and drug dosage forms; drug formulas; non-prescription drugs; infant and children dosages; proprietary names of prescription drugs; suggested antidotes.

Status and Continuity: Criteria for establishing drug standards and specifications and for qualifying an article for admission to the N. F. are formulated by an elected Board from the American Pharmaceutical Association. The first National Formulary was issued in 1888, with the twelfth edition published in 1965; publication of the thirteenth edition is underway with future plans for more frequent issuance of supplements.

B-18

New Drugs

American Medical Association
535 North Dearborn Street
Chicago, Illinois 60610

Type of Publication(s): Handbook: Hardcopy, printed tape.

Users Served: Pharmaceutical industry, practising physicians.

Coverage: Single-entity drugs: Dosages, indication, contraindication, hazards, formulas, generic and trade names, usage, etc.

Status and Continuity: The annually-published handbook first appeared in 1965 as the successor to New and Non-official Remedies which originally appeared in 1905. The current volume contains about 590 pages, with new drug inputs increasing 20 percent per year.

B-19

Nutritional Data

H. J. Heinz Company
Post Office Box 57
Pittsburgh, Pennsylvania 15230

Type of Publication(s): Handbook: Spiral-bound hardcopy.

Users Served: Medical schools, medical associations, dietitians and institutional food service operators, university teachers of courses pertaining to nutrition.

Coverage: Foods and food products: Vitamins, element of chemicals, proteins and amino acids, metabolism and other actions, nutrition and malnutrition, tables of composition and nutritive value, etc.

Status and Continuity: The publication was first produced in 1934, with last revision in 1964; a further revision is planned for 1969. 20,000 copies of the current 140-page volume are distributed per year.

B-20

Office of Biological Handbooks

Federation of American Societies for Experimental Biology
9650 Rockville Pike
Bethesda, Maryland 20014

Type of Publication(s): Handbooks: Hardcopy.

Users Served: All fields related to biology, medicine, etc. in government, industry, education, hospitals.

Coverage: Various substances and materials affecting biological properties or performance: Tables of quantitative data on biological properties, performance values.

Status and Continuity: The publication program was established in 1948 under the auspices of the National Academy of Sciences-National Research Council, with the first handbook published in 1952. Currently, one handbook is published every two years. Sales for specialized volumes such as Environmental Biology, Growth, and Blood and Other Body Fluids are between 4,000 and 5,000 copies for each. Sales for the Biology Data Book, a general volume of broad scope and limited coverage, have currently reached 11,000. For the future, it is planned that one old handbook can be revised while a new one is being prepared during the same two-year period.

B-21

The Rubber Formulary

Materials Research and Development, Inc.
2811 Adeline Street
Oakland, California 94608

Type of Publication(s): Marginally-punched card file, instruction manual for usage.

Users Served: Rubber and plastics industries and suppliers of raw materials to these.

Coverage: Elastomer compounds: All published properties.

Status and Continuity: Program was established in 1948 and continues monthly publication. Approximately 1,000 cards are produced annually.

B-22

Society of Automotive Engineers (SAE) Data Publishing Program

Society of Automotive Engineers
485 Lexington Avenue
New York, New York 10017

Type of Publication(s): Handbooks, manuals, standards, specifications, data sheets: Hardcopy, loose-leaf, microfilm.

Users Served: Ground vehicle and aerospace industrial and related fields.

Coverage: Ground, aircraft, and aerospace vehicle parts, materials, equipment, propulsion: Design procedures, manufacturing techniques, interchangeability of parts, chemical composition, physical properties, etc.

Status and Continuity: Publication programs began in the 1930's. SAE Handbook and Thermodynamics Manual provide 500 standards and recommended practices maintained under auspices of SAE's Technical Board. SAE Aeronautical Standards and related documents number about 400 published per year with a total of 2,000 active documents being distributed currently.

B-23

Statistics of Drilling & Related Data for Oil & Gas Industry

The American Association of Petroleum Geologists
Committee on Statistics of Drilling
1444 South Boulder
Box 979
Tulsa, Oklahoma 74101

Type of Publication(s): Surveys, statistical reports, instruction manuals for reporting of data: Hardcopy, microfilm, computer printouts.

Users Served: Oil and gas industry; agencies, companies, or groups needing information on drilling activity of the industries.

Coverage: Drilling activity: Hole location, depth, formation at total depth, formation of producing interval, initial potential, number and type of completions, etc. for each boring.

Status and Continuity: The American Petroleum Institute and international oil scouts have continuously participated in the publication program which furnishes complete coverage of drilling activities in the United States on a periodic basis. Data on 40,000 borings annually are published with an additional 12,000 to 15,000 per year reported. Future worldwide coverage is planned as soon as feasible.

B-24

Sweet's Industrial Information Systems

F. W. Dodge Company
Division of McGraw-Hill, Inc.
330 West 42nd Street
New York, New York 10036

Type of Publication(s): Vendor catalog files, mil specs, mil standards, Qualified Products Lists, various indexes as part of systems: 16mm cartridge and roll microfilm.

Users Served: Research, design, development, test, logistics for industry, government, and education.

Coverage: Electronic, aerospace, original equipment, chemical processing, etc. product data: Property and performance values, specifications, standards, drawings, prices when available.

Status and Continuity: Service was initiated in 1964 and has been recently purchased from its former proprietor, Information Retrieval, Inc., div. of Ascam, Inc. The Sweet's Vendor File, Sweet's Military Specifications File, and Sweet's Military Standards File are updated every one to two months. Systems include data from over 8,000 vendor catalogs, 30,000 mil specs and all DoD standards. Growth has doubled each of the past three years.

B-25

Tabulation of Data on Receiving Tubes

National Bureau of Standards
Washington, D. C. 20234

Type of Publication(s): Handbook: Hardcopy.

Users Served: International electronics industry.

Coverage: Receiving tubes: Electrical, physical parameters.

Status and Continuity: The 137-page handbook has been compiled and is part of the publication program of the National Bureau of Standards. Approximately 2,000 copies have been distributed thus far, with no further plans for revision.

B-26

Thomas Micro-Catalogs

Thomas Publishing Company
Product Information Headquarters
461 Eighth Avenue
New York, New York 10001

Type of Publication(s): Multi-image microfilm cards (microfiche).

Users Served: Entire engineering community, worldwide.

Coverage: Directories, standard drawings, buyers' and trade product catalogs, etc.: Thomas Register, Qualified Products List Master Directory, AN-MS Standard Drawings, SAE Transactions, D. A. T. A. Transistor Information, Mil Specifications, Federal Supply Classifications, etc.

Status and Continuity: Since 1900, catalogs have grown from one 24-ounce volume to five volumes listing more than 80,000 manufacturers and weighing more than 50 pounds. As an example of volume of data contained in publication program, the Thomas Register card file has 10,000 over-size pages of product data and description on approximately 200 microfiche, each holding 20 pages.

B-27

United States Pharmacopeial Convention Publishing Program

United States Pharmacopeial Convention, Inc.
46 Park Avenue
New York, New York 10017

Type of Publication(s): Standards, handbooks: Hardcopy.

Users Served: All facets of the pharmaceutical industry, chemical suppliers to that industry, manufacturers of pharmaceuticals and chemicals, medical and dental professions, Federal, state, and local governments for regulatory purposes, colleges of pharmacy and medicine for teaching purposes.

Coverage: Preparations of single compounds in forms suitable for medicinal use: Standards for identity, potency, and purity.

Status and Continuity: The United States Pharmacopeia was first issued in 1820 with provision to publish a revision every 10 years. The 1940 Convention, a group of medical, pharmaceutical, and allied science specialists, authorized publication of revisions at five-year intervals. Supplements are published when required. Group also produces the annual cumulative list of U. S. Adopted Names (USAN) and the U. S. P. Reference Standards which has a distribution of 152 standards called for in the U. S. P. and National Formulary tests and assays.

B-28

USA Standards

United States of America Standards Institute
10 East 40th Street
New York, New York 10016

Type of Publication(s): Standards catalogs: Hardcopy, microfiche.

Users Served: All of technology.

Coverage: Building and construction materials, chemicals, electrical and electronic materials and equipment, petroleum products and lubricants, piping and process equipment, textiles, etc.; Strength considerations, safety requirements; chemical, physical, mechanical properties; test procedures, performance values, etc.

Status and Continuity: Publication program has been continuous for more than 50 years. Approximately 3,000 standards are being sold in varying quantities.

B-29

U. S. Naval Ordnance Systems Command Technical Manual Program

Naval Ordnance Systems Command
Munitions Building
20th and Constitution Avenue, N. W.
Washington, D. C. 20360

Type of Publication(s): Instruction manuals: Hardcopy.

Users Served: Primarily, U. S. Navy; certain foreign navies - for military logistics.

Coverage: Ordnance weapons systems, equipments, components, materials: Operation, maintenance, training support of hardware.

Status and Continuity: The first ordnance technical manual was published about 1850 with 43,880 volumes produced to date. Due to the proliferation and sophistication of ordnance hardware, the technical documentation program is expanding and growing in complexity. It is expected that considerable updating activity will be needed to parallel hardware changes.

B-30

U. S. Naval Publication and Printing Service

Washington Navy Yard
Building 157
Code 0724
Washington, D. C. 20390

Type of Publication(s): Manuals, catalogs, procedures, instruction manuals, equipment lists, specifications, standards, etc.: Primarily hardcopy, but available in microfilm and microfiche on demand.

Users Served: Extensive usage in military logistics planning, training, engineering, etc. by government and its contractors, the U. S. Congress, educational institutions, foreign governments, etc.

Coverage: All Naval hardware, equipment, and systems; their applications and human requirements to operate and maintain the items: Parameters relating to operation, maintenance, service, repair, training, etc.

Status and Continuity: Forty-eight individual sponsors participate in the Service which was instituted in 1941. Elements of the Naval Systems Commands, the Bureau of Medicine and Surgery, and the Bureau of Naval Personnel are responsible for the acquisition, qualification, and purification of data in the manuscripts. Currently, 157,000 specs, standards, manuals, etc. are housed in 38 field offices, including the Naval Supply Depot.

B-31

Visual Search Microfilm Files (V. S. M. F.)

Information Handling Services, Inc.
Denver Technological Center
Englewood, Colorado 80110

Type of Publication(s): Catalogs, handbooks, standards, specifications, lists, etc.: Microfilm.

Users Served: All manufacturers of defense, commercial, and industrial equipment.

Coverage: Parts, materials, services, equipment, etc.: Standards, specifications, components, processes and procedures, customer data, etc.

Status and Continuity: Publication program is currently serving approximately 500 major corporations, domestic and foreign. Over 1,000,000 pages constitute the files which are updated by revision and refilming in one to six-month periods; obsolete data are removed and are available for historical use.

B-32

Yale University Observatory Publications

Yale University
Post Office Box 2023
Yale Station
New Haven, Connecticut 06520

Type of Publication(s): Catalogs: Hardcopy.

Users Served: International astronomical community, private and governmental.

Coverage: Sky photography - star images on photographic plates: Side-reel hour angle, declinations, etc. on star positions, spectral classifications.

Status and Continuity: Publications began in 1920 with publication on an approximately annual basis. Each volume of about 225 pages is initially distributed to 450 observatories, with about 600 further copies produced for public purchase.

3. Tabulation of Characteristics of Specialized Data Publishing Programs

DATA PUBLISHING PROGRAMS

DIRECTORY CODE	TITLE of the PUBLICATION, PROGRAM, or SERIES	YEAR ESTABLISHED	NAME & ADDRESS of PUBLISHER	DOCUMENTS PUBLISHED	OPERA... ANNU... BUDG... $10-50,000	$50-100,000	$100-250,000
B-1	Advances in Chemistry Series	circa 1965	American Chemical Society Special Issue Sales 1155 Sixteenth Street, N. W. Washington, D. C. 20036	Reference handbooks, manuals (approximately 3 books published per year).	Not giv...		
B-2	Aeronautical Standards Group Publication Program	1949	Departments of the Navy and Air Force Aeronautical Standards Group 8719 Colesville Road Silver Spring, Maryland 20910	Military specifications, standards, handbooks.			
B-3	Alcoa Technical Handbooks	1909	Aluminum Company of America 798 Alcoa Building Pittsburgh, Pennsylvania 15219	Handbook series.			x
B-4	American Institute of Steel Construction Technical Publications	circa 1920	American Institute of Steel Construction 101 Park Avenue New York, New York 10017	Manuals, manual supplements, textbooks, specifications, other technical publications.	Not giv...		
B-5	American Society of Mechanical Engineers (ASME) Technical Data Program	1881	American Society of Mechanical Engineers 345 East 47th Street New York, New York 10017	Instruction manuals, equipment catalogs, maintenance procedures, testing codes, etc.		x	
B-6	American Society for Testing and Materials (ASTM) Publication Program	1902	American Society for Testing and Materials 1916 Race Street Philadelphia, Pa. 19103	Specifications, standards, standard methods, reference books, data sheets.			
B-7	ASHRAE Guide and Data Book	1922	American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE) 345 East 47th Street New York, New York 10017	Handbook, industry standards.			x
B-8	DATA, Inc. (Derivation and Tabulation Associates)	1956	DATA, Inc. 32 Lincoln Avenue Orange, New Jersey 07050	Data packages: military specifications, data sheets, etc.			x
B-9	Directory of Technical Specifications	1956	Technical Information Corporation Post Office Box 514 Smithtown, New York 11787	Comparative analysis directories in loose-leaf binders.		x	
B-10	Geodex International, Inc. Data Publishing Program	1962	Geodex International, Inc. Post Office Box 153 Mill Valley, California 94941	Punched card retrieval systems: marginal punch or optical coincidence.		x	
B-11	High Resolution NMR Spectra Catalogs	1962	Varian Associates Instrument Division Palo Alto, California 94303	Loose-leaf catalogs in spiral binding.	x		

Science Communication
Washington, D. C. 200 07

OPERATIONAL CONTEXT																				
	ANNUAL BUDGET					TYPE of SUPPORT (%)						INSTITUTIONAL SOURCE of SUPPORT(%)								
SHED	$10-$50,000	$50-100,000	$100-250,000	$250-500,000	OVER-$500,000	SALE of PUBL. CATIONS	ADVERTISING REVENUES	CONTRACT, GRANT, or UNDERWRITING	INTERNAL BUDGET	OTHER	FEDERAL GOVERNMENT	STATE or LOCAL GOVERNMENT	INDUSTRIAL or COMMERCIAL	EDUCATIONAL INSTITUTIONS	PROFESSIONAL SOCIETIES	NON-PROFIT INSTITUTIONS	OTHER ACTIVITIES or SERVICES of PUBLISHER	DIRECTORY CODE
uals ublished	Not given.					100%									100%		Not given.	
standards,				x						100% inter-egency as-sessments.	100%						Promotion of agreements between the military and industry on technical and procurement re-quirements.	
			x						100%				100%				Aluminum manufacturing and research.	
nts, s, other	Not given.					90%			10%						100%		Promotion of technical research and industry growth for the steel industry.	
ipment ocedures,		x				100%									100%		Not given.	
s, stand-ooks,					x	95%		5%			5%				75%	20%	Publication of journals; prepar-ation of data compilations and indexes; sponsorship of lectures, symposia, fellowships, and grants-in-aid.	
ards.			x			34%	33%		33%						100%		Publication of society journal and transactions.	
specifi-c.			x					100%			100%						Not given.	
ectories		x				100%							100%				Preparation of market surveys.	
ystems: l coinci-		x				100%							55%	45%			Maintenance of extensive data files covering coil engineering literature published in the past.	
piral	x					100%							100%				Chemical product development and laboratory research.	

B

PUBLISHERS PURPOSE & PROGRAM STATUS					SOURCES of DATA PUBLISHED	
PUBLISHER'S OPERATING MOTIVE or PURPOSE				PUBLICATION COVERAGE	SCIENTIFIC & TECHNICAL ACTIVITY GENERATING DATA	SCOPE of ACTIVITY GENERATING DATA
INTERNAL PROGRAM SUPPORT	NON-PROFIT EXTERNAL SERVICE	PROFIT MAKING EXTERNAL SERVICE	OTHER			
	x			Chemical compounds: flavor chemistry, selective oxidation processes, mechanisms of inorganic reactions, fuel cell systems, mass spectral correlations, azeotropic data, critical solution temperatures, etc.	Laboratory research, product development, etc.	National - members of American Chemical Society.
			x	Electrical and electronic components related to aerospace applications: power plants, hardware, materials and processes, survival equipment, ground support equipment.	Engineering design, product development, standardization activities.	National - military services, aerospace industries.
	x			Aluminum materials and technology: physical and mechanical properties, joining (welding, soldering, adhesive bonding, etc.) characteristics, production methods, tolerances.	Laboratory research, testing and evaluation.	National - Alcoa Research Laboratories and Alcoa Technical Center.
	x			Steel, steel structural supports, rivets, bolts, bolted joints, etc.: design parameters, drafting procedures, detailing, structural strength, standard specifications, connections, dimensions, etc.	Engineering design, product development, materials research and testing.	National.
	x			All mechanical structures and equipment: design parameters, technical specifications, etc.	Engineering design, research, product development.	National.
	x			Industrial materials: physical, chemical, and optical properties; processing methods, etc.	Standardization activities, testing, evaluation, product development, engineering design, etc.	National - different committee of American Society for Testin and Materials.
	x			Heating, refrigerating, and air-conditioning components and systems; related components and systems; applications.	Laboratory research, engineering design.	National - Society-sponsored research.
		x		Key electronic components, transistors, semiconductor diodes and rectifiers, microwave tubes, integrated circuits: major electrical/mechanical parameters, including QPL and military specifications.	Product development, standardization activities.	National - principally U.S. Army Missile Command and its prime contractors.
		x		Electronic test instruments, laser equipment, and components: specifications, manufacturers, models, prices.	Not given.	International.
		x		Soils, foundations, structural materials, related civil engineering data: properties, performance values, etc.	Not given.	International.
		x		Chemical mixtures and compounds: nuclear magnetic resonance (NMR) spectra, semi-structural formulas with tabulated values.	Laboratory research in spectral analysis.	National.

SOURCES of DATA PUBLISHED (continued)												PUBLISHING OPERATIONS PERFORMED						
STAFFING for DATA ACQUISITION					INSTITUTIONAL SOURCES of DATA PUBLISHED (%)				USE of CHANNELS for DATA ACQUISITION (%)			OPERATIONS PERFORMED						PUBLICATION LAG TIMES
COMMISSIONED AUTHORS	VOLUNTARY AUTHORS (paid)	VOLUNTARY AUTHORS (unpaid)	STAFF WRITERS	OTHER	GOVERNMENT AGENCIES or CONT	INDUSTRIAL and COMMERCIAL FIRMS	EDUCATIONAL & NON-PROFIT INST	PRIVATE INVESTIGATORS or AUTHORS	INTERVIEWS	AVAILABLE DOCUMENTATION	SPECIAL PREPARED DOCUMENTATION	RESEARCH	DRAFT or AUTHOR	EDIT	PRINT (reproduce)	DISTRIBUTE	OTHER	
		x			x	x	x	x		x	x			x	x	x		Not given.
			x		x	x			x	x	x		x	x	x		Resolution of conflicting requirements.	From data generation to delivery of document to user: 6 months to 3 years.
x						x				x	x	x	x		x	x		From data generation to delivery of document to user: 12 to 15 months.
		:	x		x	x	x			x	x	x	x	x		x		From delivery of manuscript to delivery of document to user: 15 months for Manual of Steel Construction.
		x			x	x	x	x			x			x	x	x		From delivery of manuscript to delivery of document to user: 4 months.
x		x	x	Editors and technical evaluators.	x	x	x	x		x	x	x	x	x	x	x	Evaluate.	Not given.
		x					x				x	x		x	x	x		From delivery of manuscript to delivery of document to user (ASHRAE Guide and Data Book): 12 months.
			x		x	x			x	x	x			x	x	x	Process, tubulate, derive.	From delivery of manuscript to delivery of document to user: 6-12 months (Contracts); 3 months (publications).
			x			x			x	x		x		x	x	x		From delivery of manuscript to delivery of document to user: 3 months.
x	x		x		x	x	x			x		x	x	x	x	x	Preparation of marginally punched cards.	From delivery of manuscript to delivery of document to user: minimum of 1 month.
			x			x					x	x	x	x	x	x		Not given.

DIRECTORY CODE	PUBLISHING OPERATIONS (cont.)								PUBLICATION USE			
	PUBLICATION MEDIA					EXTENT of AUTOMATION			USING COMMUNITIES			
	HANDCOPY	PUNCHED CARDS	MICROFICHE	MICROFILM	COMPUTER TAPE	SUBSTANTIAL	LIMITED	NONE	SCALE	SCIENTIFIC or TECHNICAL ACTIVITIES	INSTITUTIONS	OTHER S PRO SUBSC DOCUME
B-1	x		x				x		National.	Chemical processing.	Chemical industry, Government, professional societies, etc.	Not given
B-2	x							x	National.	Aircraft manufacturing.	Aerospace industry, Department of Defense.	Answer in provide u required.
B-3	x							x	International.	All manufacturing processes using aluminum.	All industries using aluminum, educational institutions, Government, professional societies, etc.	Answer inq sponsor t programs organizati
B-4	x							x	National.	Structural engineering, civil engineering, architecture.	Fabricating industry, heavy construction contractors, educational institutions.	Answer inq
B-5	x						x		National.	Structural and design engineering, and all related fields.	Industry, Government, educational institutions, etc.	Answer inq limited sc
B-6	x	x	x	x		x			International.	Materials processing, research, testing, and engineering.	Most elements of industry; Government, educational institutions, etc.	Answer inq
B-7	x						x		National.	Heating, refrigerating, and air-conditioning engineering.	Engineering consultants and contractors, professional societies, educational institutions.	Answer inq offer reso ASHRAE lib public.
B-8	x	x		x	x	x			International.	Electronic engineering.	Government, industry, professional societies, etc.	Answer inq provide co services.
B-9	x						x		International.	Military procurement, aerospace equipment manufacturing and research.	Aerospace industry, Government agencies.	Answer inq
B-10	x	x				x			International.	Civil engineering research, design, and construction.	Industry, Government, educational institutions.	Answer inq
B-11	x						x		International.	Chemical processing and research.	Chemical industry and chemical research organizations.	Not given.

A

	OTHER SERVICES PROVIDED SUBSCRIBERS or DOCUMENT USERS	COST to USER	OPERATING STATISTICS: CURRENT VOLUME	OPERATING STATISTICS: RATE of GROWTH	FUTURE PLANS
	Not given.	Price ranges from $2.00-$15.00 per volume.	Documents published: approximately 70 books since pre-1966.	Not given.	Publication of 9 new volumes in Series.
	Answer inquiries; provide updating as required.	As established by DoD for sale of Government documents.	Documents published: approximately 500 documents per year. Staff: 22 personnel.	Volume of operation remains constant.	Not given.
c.	Answer inquiries; sponsor training programs for some organizations.	None.	Copies distributed: approximately 200,000 ten-volume sets distributed in 1967.	Not given.	Publication of new handbooks as needed.
	Answer inquiries.	Manuals and textbooks: $4-$10; other publications free on request.	Copies distributed (Manual of Steel Construction): approximately 45,000 copies sold to date.	Not given.	Not given.
	Answer inquiries on a limited scale.	Average cost of single publication: approximately $12.	Pages printed: approximately 2,000 pages per year.	General rate of growth: 15% per year.	Not given.
	Answer inquiries.	Cost of publication.	Documents published: 4,000 standards, 1,000 reference works, 50,000 data sheets published to date.	Not given.	Continued growth.
n-	Answer inquiries; offer resources of ASHRAE library to the public.	$20 per copy to non-members; free to members.	Copies distributed: approximately 30,000 per year.	Not given.	Improvement of service to Society's members and general public.
c.	Answer inquiries; provide consultant services.	Costs of data packages vary.	Pages printed (EDS-A005 Semiconductors and Integrated Circuits): 50,000 pages to date.	Not given.	Not given.
	Answer inquiries.	$300 per year.	Number of subscribers: approximately 500.	Not given.	Not given.
	Answer inquiries;	$260-$370 for up-to-date data files; $70-$80 per year for updating service	Cards updated: approximately 1,500 cards updated for each service per year.	General rate of growth: 35% per year.	Continued growth.
-	Not given.	Volumes I and II: $20 per set.	Volume of data: Volume I - 368 spectra; Volume II - 332 spectra.	Volume of operation remains constant.	Not given.

B

DATA PUBLISHING PROGRAMS

DIRECTORY CODE	TITLE of the PUBLICATION, PROGRAM, or SERIES	YEAR ESTABLISHED	NAME & ADDRESS of PUBLISHER	DOCUMENTS PUBLISHED	OPER ANNU BUD $10-50,000	$50-100,000	$100-[illegible]
B-12	The Isotope Datadex	1960	Scientific Equipment Company Post Office Box 19086 Indianapolis, Indiana 46219	Boxed, marginally-punched card index of McBee Keysort Cards.	Not gi		
B-13	Jeppesen and Company Publications	1934	Jeppesen and Company 8025 East 40th Avenue Denver, Colorado 80207	Maps, charts, manuals, educational courses, briefing booklets, flight forms.	Not gi		
B-14	The McLean Card Catalogue of American Foraminifera	1947	James D. McLean, Jr. Post Office Box 916 Alexandria, Virginia	Data card catalogs.	x		
B-15	Metals Handbook	1923	American Society for Metals Metals Park, Ohio 44073	Handbooks.			
B-16	National Aerospace Standards	1947	National Standards Association, Inc. 1321 Fourteenth Street, N. W. Washington D. C. 20005	Standards.			
B-17	The National Formulary and Handbook Publications	1888	American Pharmaceutical Association 2215 Constitution Avenue, N. W. Washington, D. C. 20037	Handbooks, manuals.			x
B-18	New Drugs	1965	American Medical Association 535 North Dearborn Street Chicago, Illinois 60610	Handbooks.			
B-19	Nutritional Data	1934	H. J. Heinz Company Post Office Box 57 Pittsburgh, Pa. 15230	Spiral-bound handbook.	x		
B-20	Office of Biological Handbooks	1948	Federation of American Societies for Experimental Biology 9650 Rockville Pike Bethesda, Maryland 20014	Handbooks of quantitative, tabulated data.		x	
B-21	The Rubber Formulary	1948	Laterials Research and Development, Inc. 2811 Adeline Street Oakland, California 94608	Marginally-punched card file; instruction manual for usage of card file.	x		
B-22	Society of Automotive Engineers (SAE) Data Publishing Program	circa 1930	Society of Automotive Engineers 485 Lexington Avenue New York, New York 10017	Handbooks, manuals, standards, specifications, data sheets.			

OPERATIONAL CONTEXT																				
PUBLISHED	ANNUAL BUDGET					TYPE of SUPPORT (%)					INSTITUTIONAL SOURCE of SUPPORT(%)						OTHER ACTIVITIES or SERVICES of PUBLISHER	DIRECTORY CODE
	$10-50,000	$50-100,000	$100-250,000	$250-500,000	OVER-$500,000	SALE of PUBLICATIONS	ADVERTISING REVENUES	CONTRACT, GRANT, or UNDERWRITING	INTERNAL BUDGET	OTHER	FEDERAL GOVERNMENT	STATE or LOCAL GOVERNMENT	INDUSTRIAL or COMMERCIAL	EDUCATIONAL INSTITUTIONS	PROFESSIONAL SOCIETIES	NON-PROFIT INSTITUTIONS		
-punched card ysort Cards.	Not given.					100%							100%				Compilation and publication of The Isotope Index.	
uals, educa- riefing book- s.	Not given.					100%							100%				Sale of pilot accessories and supplies, such as computers, printers, flight cases, etc.	
s.	x					100%							100%				Laboratory research in paleontology.	
				x		100%									100%		Publication of periodicals and reference materials.	
				x		100%							100%				Not given.	
.			x			70%				30% - Sale of NF Standards.			100%				Publication of medical journals, participation in sponsoring Drug Standards Laboratory.	
				x					100%						100%		Publication of medical journals, health pamphlets, monographs.	
ook.	x								100%				100%				Publication of Facts About Food, free to public on request.	
itative, tabu-		x						100%			100%						Collection, analysis, compilation of quantitative data	
card file; for usage of	x					100%							100%				Contract research and development.	
standards, a sheets.				x		100%									100%		Publication of SAE Journal and technical papers.	

B

PUBLISHERS PURPOSE & PROGRAM STATUS					SOURCES of DATA PUBLISHED	
PUBLISHER'S OPERATING MOTIVE or PURPOSE				PUBLICATION COVERAGE	SCIENTIFIC & TECHNICAL ACTIVITY GENERATING DATA	SCOPE of ACTIVITY GENERATING DATA
INTERNAL PROGRAM SUPPORT	NON-PROFIT EXTERNAL SERVICE	PROFIT MAKING EXTERNAL SERVICE	OTHER			
		x		Commercially available isotopes and their progeny: chemical name, atomic number, atomic weight, half-life, and complete alpha, beta, and gamma energies.	Not given.	National.
		x		Free world airspace system: navigation aides, routing, air traffic control, Federal regulations, communications, etc.	Geodetic survey.	International.
		x		Microscopic specimens of fossils: photographic enlargements, descriptive physical and biological characteristics, ecological data.	Geological field survey, laboratory analysis.	International.
	x			Metals, metal-working: physical, mechanical, and corrosion properties.	Technical research in metal-working.	National.
		x		Parts used in manufacturing of aircraft, missiles, and rockets: dimensions, tolerances, sizes, shapes, identifications, finishes, materials, procurement codings, and specifications.	Standardization activities.	National - Aerospace Technical Council.
	x			Drugs: standards, specifications, test procedures, drug nomenclature, requirements for identity, strength, quality, purity, drug formulas, etc.	Laboratory research, clinical tests, product development.	International.
Not given.				Single-entity drugs: dosages, indication, contraindication, hazards, formulas, generic and trade names, usage, etc.	Laboratory research, product development.	National - pharmaceutical industry.
	x			Foods and food products: vitamins, element of chemicals, proteins and amino acids, metabolism and other actions, nutrition and malnutrition, tables of composition and nutritive value, etc.	Laboratory research in food analysis.	National - H. J. Heinz Co. and Government publications.
	x			Various substances and materials affecting biological properties or performance: tables of quantitative data on biological properties, performance values.	Laboratory research, clinical tests.	International.
		x		Elastomer compounds: all published properties.	Laboratory research, product development.	National.
	x			Ground, aircraft, and aerospace vehicle parts, materials, equipment, propulsion: design procedures, manufacturing techniques, interchangeability of parts, chemical composition, physical properties, etc.	Not given.	National.

SOURCES of DATA PUBLISHED (continued)												PUBLISHING OPERATIONS PERFORMED						
STAFFING for DATA ACQUISITION					INSTITUTIONAL SOURCES of DATA PUBLISHED (%)				USE of CHANNELS for DATA ACQUISITION (%)			OPERATIONS PERFORMED						PUBLICATION LAG TIMES
COMMISSIONED AUTHORS	VOLUNTARY AUTHORS (paid)	VOLUNTARY AUTHORS (unpaid)	STAFF WRITERS	OTHER	GOVERNMENT AGENCIES or CONT.	INDUSTRIAL and COMMERCIAL FIRMS	EDUCATIONAL & NON-PROFIT INST.	PRIVATE INVESTIGATORS or AUTHORS	INTERVIEWS	AVAILABLE DOCUMENTATION	SPECIAL /REPARED DOCUMENTATION	RESEARCH	DRAFT or AUTHOR	EDIT	PRINT (reproduce)	DISTRIBUTE	OTHER	
			x				x			x					x	x	Citalog, index, extract, reformat.	Not given.
				Research editors, compilers.	x	x			x	x	x	x		x	x	x	Design (compile/ composite)	Varies with requirements.
			x			x	x	x		x	x	x	x	x	x	x	Code, store.	From delivery of manuscript to delivery of document to user: 3 to 6 months.
			x	Ad hoc committees of American Society for Metals.	x	x	x	x	x	x	x	x	x	x	x	x		From delivery of manuscript to delivery of document to user: 2 to 5 years.
Not given.							x		Not given.						x	x		Not given.
		x	x		x	x	x	x		x	x	x	x	x	x	x		Varies with requirements.
			x			x					x	x		x	x	x		From delivery of manuscript to delivery of document to user: 12 months.
			x		x	x				x	x	x	x	x	x	x		From data generation to delivery of document to user: 6 months.
		x			x	x	x			x	x			x	x	x	Analyze, reformat, compose, index.	From delivery of manuscript to delivery of document to user: 1 to 2 years.
			x		x	x	x	x		x		x	x	x	x	x		From delivery of manuscript to delivery of document to user: 2 to 3 months.
		x	x		x	x	x	x			x		x	x	x			From delivery of manuscript to delivery of document to user: 1 to 2 months.

DIRECTORY CODE	PUBLISHING OPERATIONS (cont.)								PUBLICATION USE			
	PUBLICATION MEDIA					EXTENT of AUTOMATION			USING COMMUNITIES			
	HARDCOPY	PUNCHED CARD	MICROFICHE	MICROFILM	COMPUTER TAPE	SUBSTANTIAL	LIMITED	NONE	SCALE	SCIENTIFIC or TECHNICAL ACTIVITIES	INSTITUTIONS	OTHER SE PROVI SUBSCR OF DOCUMENT
B-12		x						x	National.	Chemical and nuclear research.	Industry, Government, education, etc.	Publication Isotope Ind
B-13	x		x	x			x		International.	Aircraft control.	Government, military, and commercial organizations.	Not given.
B-14	x						x		International.	Paleontological and geological survey and laboratory research.	Industry, Government, education, etc.	Answer inqu offer resou laboratory doctoral re
B-15	x							x	International.	Metalworking and metallurgical research.	Industry, Government, education, professional societies.	None.
B-16	x						x		National.	Aerospace manufacturing.	Aerospace and missile industry.	Not given.
B-17	x							x	International.	Drug manufacturing, pharmaceutical research, etc.	Federal, state, and local government agencies, industry, education, etc.	Answer inqui provide supp without char
B-18	x				x	x			National.	Medical activities.	Physicians in all fields.	Publication graphs in AM nal.
B-19	x							x	International.	Not given.	Educational institutions, medical associations, dietitians and institutional food service operators.	Answer inqui
B-20	x							x	International.	Not given.	Government, industry, educational institutions, hospitals and medical centers.	Not given.
B-21		x					x		National.	Elastomer compounding, elastomer research studies.	Industry, Government laboratories, research and consulting organizations.	Provide blank for recordin nal records.
B-22	x		x			x			International.	Ground vehicle and aerospace design and manufacturing.	Ground vehicle and aerospace industry.	Answer inquir a limited sca

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	OTHER SERVICES PROVIDED SUBSCRIBERS or DOCUMENT USERS	COST to USER	OPERATING STATISTICS: CURRENT VOLUME	OPERATING STATISTICS: RATE of GROWTH	FUTURE PLANS
	Publication of The Isotope Index.	$42 per deck of Keysort cards.	Volume of data: coverage on 265 isotopes.	Not given.	Not given.
	Not given.	Not given.	Not given.	Not given.	Not given.
	Answer inquiries; offer resources of laboratory to post-doctoral researchers.	Volumes I-XVIII: $944.90 per set.	Volume of data: coverage on over 20,000 microfossils.	Not given.	Not given.
	None.	Volume 1: $40; Volume 2: $25; Volume 3: $35.	Copies distributed: 140,000 copies of 8th edition distributed to date.	Not given.	Not given.
	Not given.	$95 for complete set (includes yearly revision service).	Pages printed: 3,264 pages in complete NAS set; annual revision averages 362 new and revised standards.	Not given.	Publication of NAS standards on microfilm.
	Answer inquiries; provide supplements without charge.	$10 per copy of National Formulary.	Pages printed: 618 pages per last issue of National Formulary.	20% anticipated growth in data coverage with next issue of NF.	Publication of 13th edition of National Formulary.
	Publication of monographs in AMA Journal.	$3.50 per copy.	Pages printed: 590 pages in current edition.	Data coverage: 20% increase in new drug input per year.	Not given.
	Answer inquiries.	None.	Copies distributed: 20,000 per year.	Volume of operation has remained constant over past 10 years.	Revision of publication in 1969; possible initiation of charge for copies of new edition.
	Not given.	Prices of individual handbooks vary.	Copies of specialized volumes distributed: approximately 4,500 for each volume (1957-1967).	Increase in copies of specialized volumes sold (1957-1967): 1,000.	Simultaneous revision of one old handbook and preparation of one new handbook during a two year period.
	Provide blank cards for recording internal records.	$150 per year.	Documents published: approximately 1,000 cards per year.	Volume of operation remains constant.	Not given.
	Answer inquiries on a limited scale.	Prices of individual publications vary.	Not given.	Not given.	Not given.

B

DATA PUBLISHING PROGRAMS

DIRECTORY CODE	TITLE of the PUBLICATION, PROGRAM, or SERIES	YEAR ESTABLISHED	NAME & ADDRESS of PUBLISHER	DOCUMENTS PUBLISHED	OPERAT ANNUAL BUDGE $10-50,000	$50-100,000	$100-250,000
B-23	Statistics of Drilling & Related Data for Oil & Gas Industry	--	The American Association of Petroleum Geologists 1444 South Boulder Tulsa, Oklahoma 74101	Surveys, statistical reports, instruction manuals for reporting of data.		x	
B-24	Sweet's Industrial Information Systems	1964	F. W. Dodge Company Division of McGraw-Hill, Inc. 330 West 42nd Street New York, New York 10036	Vendor catalog files, military specifications, military standards, Qualified Products Lists, various indexes.			
B-25	Tabulation of Data on Receiving Tubes	--	National Bureau of Standards Office of Standard Reference Data Washington, D. C. 20234	Handbook of tabulated data.	x		
B-26	Thomas Micro-Catalogs	1900	Thomas Publishing Company Product Information Headquarters 461 Eighth Avenue New York, New York 10001	Directories, standard drawings, buyers' and trade product catalogs, handbooks, and data files.			
B-27	United States Pharmacopeial Convention Publishing Program	1820	United States Pharmacopeial Convention, Inc. 46 Park Avenue New York, New York 10017	Standards, handbooks.			x
B-28	USA Standards	circa 1918	United States of America Standards Institute 10 East 40th Street New York, New York 10016	Catalogs of standards.			
B-29	U. S. Naval Ordnance Systems Command Technical Manual Program	1850	Naval Ordnance Systems Command Munitions Building 20th and Constitution Ave., N.W. Washington, D. C. 20360	Instruction manuals.			
B-30	U. S. Naval Publication and Printing Service	1941	Washington Navy Yard Building 157 Code 0724 Washington, D. C. 20390	Manuals, catalogs, procedures, instruction manuals, equipment lists specifications, standards, etc.			
B-31	Visual Search Microfilm Files (V. S. M. F.)	--	Information Handling Services, Inc. Denver Technological Center Englewood, Colorado 80110	Catalogs, handbooks, standards, specifications, supply lists, etc.			
B-32	Yale University Observatory Publications	1920	Yale University Post Office Box 2023 Yale Station New Haven, Conn. 06520	Star catalogs.	x		

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OPERATIONAL CONTEXT																			
	ANNUAL BUDGET					TYPE of SUPPORT (%)					INSTITUTIONAL OUTLET SUPPORT(%)								
SHED	$10-50,000	$50-100,000	$100-250,000	$250-500,000	OVER-$500,000	SALE of PUBLICATIONS	ADVERTISING REVENUES	CONTRACT, GRANT, or UNDERWRITING	INTERNAL BUDGET	OTHER	FEDERAL GOVERNMENT	STATE or LOCAL GOVERNMENT	INDUSTRIAL or COMMERCIAL	EDUCATIONAL INSTITUTIONS	PROFESSIONAL SOCIETIES	NON-PROFIT INSTITUTIONS	OTHER ACTIVITIES or SERVICES of PUBLISHER	DIRECTORY CODE
orts, reporting		x				5%		95%							100%		Publication of AAPG Bulletin; sponsorship of subscription series of lectures on oil technology.	
litary ... List.,					x		100%						100%				Publication of Dodge Reports.	
ta.	x								100%		100%						Not given.	
avings, t catalogs, s.					x	85%	15%						100%				Publication of SAE Transactions.	
		x				100%							100%				Not given.	
					x	40%		10%	50%							100%	Coordination of national and international standardization activities.	
					x				100%		100%						Provision of ordnance support to the Fleet.	
ures, n-ent lists , etc.					x	0.5%				99.5% Congressional appropriation.	100%						Publication of specifications and standards as a service to industry.	
dards, ats, etc.					x	100%							100%				None.	
	x					50%		50%			50%			50%			Astronomical observation.	

B

PUBLISHERS PURPOSE & PROGRAM STATUS						SOURCES of DATA PUBLISHED	
PUBLISHER'S OPERATING MOTIVE or PURPOSE							
INTERNAL PROGRAMS SUPPORT	NON-PROFIT EXTERNAL SERVICE	PROFIT MAKING EXTERNAL SERVICE	OTHER	PUBLICATION COVERAGE	SCIENTIFIC & TECHNICAL ACTIVITY GENERATING DATA	SCOPE of ACTIVITY GENERATING DATA
	x			Drilling activity: hole location, depth, formation at total depth, formation of producing interval, initial potential, number and type of completions, etc.	Oil and gas drilling, field survey.	International.
		x		Electronic, aerospace, original equipment, chemical processing, product data: property and performance values, specifications, standards, drawings, prices, etc.	Product development and marketing.	National.
	x			Receiving tubes: electrical and physical parameters.	Product development.	International.
		x		Engineering equipment, materials, etc.: standards, specifications, QPL's, Federal supply classifications, etc.	Engineering design, product development.	National.
	x			Preparations of single compounds in forms suitable for medicinal use: standards for identity, potency, and purity.	Laboratory research, clinical tests, product development, physician usage.	National.
	x			Building and construction materials, chemicals, electrical and electronic materials and equipment, petroleum products and lubricants, piping and process equipment, textiles, etc.	Standardization activities.	International.
x				Ordnance weapons systems, equipments, components, materials: operation, maintenance, training support of hardware.	Engineering design, product development.	National - U. S. Navy.
x	x			All Naval hardware, equipment, and systems, their applications, and human requirements to operate and maintain the items: parameters relating to operation, maintenance, service, repair, training, etc.	Laboratory research, product development, product evaluation, etc.	International.
		x		Parts, materials, services, equipment, etc.: standards, specifications, components, processes and procedures, etc.	Not given.	International.
	x			Stars: star images on photographic plates, side-reel hour angle, declinations, spectral classifications.	Star photography.	International.

SOURCES of DATA PUBLISHED (continued)													PUBLISHING OPERATIONS PERFORMED						
STAFFING for DATA ACQUISITION					INSTITUTIONAL SOURCES of DATA PUBLISHED (%)				USE of CHANNELS for DATA ACQUISITION (%)			OPERATIONS PERFORMED						PUBLICATION LAG TIMES
COMMISSIONED AUTHORS	VOLUNTARY AUTHORS (paid)	VOLUNTARY AUTHORS (unpaid)	STAFF WRITERS	OTHER	GOVERNMENT AGENCIES or CONT.	INDUSTRIAL and COMMERCIAL FIRMS	EDUCATIONAL & NON-PROFIT INST.	PRIVATE INVESTIGATORS or AUTHORS	INTERVIEWS	AVAILABLE DOCUMENTATION	SPECIAL PREPARED DOCUMENTATION	RESEARCH	DRAFT or AUTHOR	EDIT	PRINT (reproduce)	DISTRIBUTE	OTHER	
		x		AAPG Committee.			x	x			x		x	x	x	x	Classify, process.	From delivery of manuscript to delivery of document to user (for Annual Summary): 5 months.
				Companies advertising industrial services.		x				x	x			x	x	x	Organize, index.	From delivery of manuscript to delivery of document to user: maximum of 12 months.
x						x				x		x	x	x	x	x		From delivery of manuscript to delivery of document to user: 4 months.
Not given.					x	x	x			x				x	x	x		From delivery of manuscript to delivery of document to user: 1 to 6 months.
		x		Editors.	x	x	x	x	x		x	x	x	x	x	x		Not given.
				Committees of experts.	Not given.						x		x	x	x	x		Varies from several months to several years.
x			x	Contract specialists.	x				x	x	x	x	x	x	x	x		From data generation to delivery of document to user (for changes in in-use manuals): 1 month.
x				Ancillary input from hardware and equipment manufacturers.	x	x				x	x			x	x	x		From delivery of manuscript to delivery of document to user: 1 month.
Not given.					x	x			x	x	x	x		x	x	x	Index, microfilm.	From delivery of manuscript to delivery of document to user: 1 month.
		x					x				x				x	x	Reduce data.	From delivery of manuscript to delivery of document to user: 4 to 6 months.

DIRECTORY CODE	PUBLISHING OPERATIONS (cont.)								PUBLICATION USE			
	PUBLICATION MEDIA					EXTENT of AUTOMATION			USING COMMUNITIES			
	HARDCOPY	PUNCHED CARDS	MICROFICHE	MICROFILM	COMPUTER TAPE	SUBSTANTIAL	LIMITED	NONE	SCALE	SCIENTIFIC or TECHNICAL ACTIVITIES	INSTITUTIONS	OTHER PR SUBS DOCUM
B-23	x			x	x	x			National.	Oil and gas drilling; economic resource analysis.	Oil and gas industry, Government agencies, professional societies.	Answer i
B-24	x			x			x		National.	Engineering research, design, development; product testing; military logistics planning.	Industry, government, education.	Inquiry services future.
B-25	x					x			International.	Electrical engineering.	Electronics industry.	Answer i
B-26	x		x			x			International.	Engineering design and procurement.	Industry, Government, etc.	Not give
B-27	x							x	International.	Pharmaceutical manufacturing, chemical manufacturing.	Federal, state, and local governments, industry, and educational institutions.	Provide to Unite Pharmaco
B-28	x		x					x	National.	All technological activities.	Industry, Government, etc.	Answer i
B-29	x						x		International.	Military logistics planning.	Primarily U. S. Navy and its contractors; certain foreign navies.	Answer i establis manual p procedure
B-30	x		x	x		x			International.	Military logistics planning, military training, engineering design, etc.	U. S. Navy, Government agencies, Government contractors, educational institutions, foreign governments, etc.	Answer i
B-31				x		x			International.	Not given.	All manufacturers of defense, commercial, and industrial equipment.	None.
B-32	x					x			International.	Astronomical observation.	Private and Government observatories.	Answer in a limited

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	OTHER SERVICES PROVIDED SUBSCRIBERS or DOCUMENT USERS	COST to USER	OPERATING STATISTICS: CURRENT VOLUME	OPERATING STATISTICS: RATE of GROWTH	FUTURE PLANS
	Answer inquiries.	Program package for 1965 and 1966 data: $1,000.	Volume of data: coverage on 40,000 borings annually.	Depends on rate of boring activity in U. S.	Expansion to worldwide coverage as soon as feasible.
	Inquiry and other services planned for future.	None (advertiser bears cost of publication).	Volume of data: data from over 8,000 vendor catalogs, 30,000 mil specs, and all DoD standards.	Data coverage: coverage on certain sectors of electronics doubles annually.	Production of new media for dissemination of vendor data.
	Answer inquiries.	$1.25 per copy.	Copies distributed: 2,000 copies to date.	Volume of operation remains constant.	Probably no need for future revision.
	Not given.	$350 for basic system with register.	Not given.	Not given.	Not given.
	Provide supplements to United States Pharmacopeia.	$12.50 per copy of United States Pharmacopeia, including supplements.	Copies distributed (United States Pharmacopeia, 17th edition): 60,000 copies (May 1965 to Sept. 1967).	5-10% increase in amount of text for each edition of United States Pharmacopeia.	Not given.
	Answer inquiries.	Prices of different standards vary.	Documents published: approximately 3,000 standards.	General rate of growth: 10% per year.	Not given.
	Answer inquiries; establish technical manual policy and procedures.	None.	Documents published: 43,880 volumes to date.	Not given.	Search for new, better, and less expensive means of providing technical documentation.
	Answer inquiries.	Specs and Standards sold to industry at yearly subscription rate of $4.50.	Documents published: 157,000 documents to date.	Not given.	Refinement of various activities to facilitate more economic ways of perfecting the publication cycle.
	None.	Prices of different file systems vary.	Volume of data: over 1,000,000 microfilmed pages of vendor data contained in files.	Not given.	Not given.
	Answer inquiries on a limited scale.	$5 average price per volume.	Copies distributed: approximately 1,000 copies of each edition.	Volume of operation remains constant.	Not given.
					B

C. Data Service Centers

1. Summary

a. Operational Context

Structuring, analyzing, evaluating, and formatting of data for use is a central function of all science and technology. Each working scientist and technologist is involved in this activity. In addition, the individual scientist or technologist increasingly employs a centralized or institutionalized service center to assist in the accumulation, evaluation and organization of data. In some instances, this service center exists as a centralized file for a project, program, office or firm.

The number of such local data service operations is so extensive that they could not be censused in this study. Another type of data service center which has rapidly become essential to scientific and technical work, as currently conducted, is the computing or automatic data processing center. Automatic data processing centers, per se, are not included in this part of the census. A survey of commercial data processing center operations is presented in Part B of this volume.

The type of data service centers included in the census is the center which accumulates, organizes, stores, retrieves, and disseminates scientific or technical data. A defining characteristic of these data service centers is that they perform functions involving the handling or massaging of data, per se, rather than documents, and that the massaging or handling includes some scientific or technical interaction with the data. This interaction frequently includes evaluation of data so that some of the centers are called technical information analysis centers. However, the census data does not include technical information analysis centers which analyze primarily conceptual information or produce only bibliographies and other documents with little data content.

In terms of emphasis, the census concentrates on those data service operations which involve a storage and retrieval function.

Operating Motives - Of the 83 data service centers selected for inclusion in the census, 49 are operated and housed in Federal Government agencies and Government laboratories. Sixteen data service centers are located at universities, and seven are housed and operated by non-profit institutions, usually research organizations. Commercial or industrial organizations house and operate eleven data service centers. Only thirteen of the 83 data service centers reported that they operate solely for the purpose of internal staff support. The remaining 70 centers provide external servicing, and the vast majority of these 70 centers operate on a non-profit basis. Only three centers provide external servicing on a profit-making basis.

Only one data service center, the Memorial Radiation Center for Cancer and Allied Diseases, operates on a regional level, servicing hospitals in the New York metropolitan area. The rest of the centers operate on a nationwide basis, and 47 of these centers extend either their service or their coverage to an international level.

Financial Support - Although only 49 data service centers are directly operated by the Federal Government, 60 centers are entirely supported by Federal funds, and an additional 12 centers receive partial support from the Federal Government. Industrial and commercial organizations are responsible for the entire financial support of only five data service centers, and fund in part four other centers. Universities are the sole source of financial support to five centers. A total of four data service centers receive partial support from state and local governments. A few centers mentioned other sources of financial support, including foundations, professional society memberships, trade association memberships, user fees, and private donations.

Sixty-six data service centers gave information on their budget levels, and over one-third (23 centers) operate on an annual budget in excess of $5000,000. Seven centers operate on an annual budget of $250-$500,000; twelve centers operate on an annual budget of $100-$250,000; 14 centers operate on a budget of $50-$100,000; nine centers operate on an annual budget of $10-$50,000; and only one center operates on an annual budget of less than $10,000.

b. Coverage

Subject Coverage - A total of 30 data service centers process data on physio-chemical systems, including such substances as chemical compounds, atomic particles, and industrial materials, among others. Twelve centers deal with data on environmental substances and phenomena such as weather conditions, water and air pollutants, the ocean-atmosphere environment, the aerospace environment, and the magnetic field of the earth. Human behavior and social phenomena account for the data coverage of twelve centers. An additional ten centers process data on equipment, parts, and components of an electrical, electronic, mechanical, hydraulic, pneumatic, or aerodynamic nature, while two centers specialize in data on research and test equipment and testing methods. Seven centers process data on health, disease, and therapy; six centers handle data on structural material; 4 centers specialize in data on botanical and biological specimens; and two centers process data on astronomical objects and phenomena.

Scientific and Technological Activities Generating the Data - Seventy-five data service centers provided information on the scientific or technological activities generating the data they process, and almost half of the number reporting (36 centers) gave laboratory research (most often in the fields of chemistry and nuclear physics) as the activity responsible for generating the data. Twelve centers reported environmental monitoring, and eleven centers reported demographic surveys. Less frequently mentioned were the activities of reliability testing (reported by seven centers), engineering design and systems analysis (six centers), clinical tests (two centers), astronomical observation (two centers), procurement and maintenance (two centers), and satellite experimentation and product development (each mentioned by one center).

Unpublished Sources of Data - Fifty-one data service centers provided specific information on the unpublished sources used to obtain the data they process. Almost half (21 centers) named such sources as unpublished technical reports, preprints, conference proceedings, technical correspondence, and internal records; while almost one-third (16 centers) reported laboratory and test reports as unpublished sources of data. Eight centers use analog records from monitoring

stations, field survey groups, and observatories, while seven centers use unpublished demographic surveys, questionnaires, and interviews to derive at least some of their data. Other unpublished sources mentioned by the center include theses, patient records, and design drawings, among others. Only three centers reported that they do not use unpublished documents in deriving their data.

Published Sources - Thirty-two data service centers provided specific information on their published sources of data, and approximately two-thirds (22 centers) state that they make use of published scientific and technical reports to derive their data. Eleven centers utilize journals and periodicals; six make use of abstracts; and four make use of handbooks, manuals, and directories. Military specifications and published surveys were each mentioned by one center. A total of six centers reported that they do not make use of any type of published document to derive their data.

In addition to the 32 centers giving specific information on the types of publications used as sources of data, 20 other centers indicated that they do use published sources, but gave no specific breakdown on the types of publications. The total number of data service centers reporting published sources was 52.

Institutional Sources of Data - Of the 73 centers reporting their institutional sources of data, 65 specified that at least some of the data they process was generated by the Federal Government and its contractors. Forty-four centers reported industrial and commercial firms as responsible for producing the data which the centers process, and 39 reported educational and non-profit institutions as sources of data. Other institutions mentioned include state governments, foreign governments, international organizations, and foreign research facilities.

Degree of Refinement of Input Data - Many of the data service centers reported more than one degree of refinement for their input data. A total of 31 centers states that they put at least

some raw data into their systems, while 20 centers reported having reduced data, and 45 reported evaluated data. However, only 14 centers reported raw data as the highest degree of data refinement, and only 9 centers reported reduced data as the highest degree of refinement.

c. Data Processing Operations

Form of Input Data - Seventy-six data service centers provided information on the form of their input data, and almost two-thirds (49 centers) utilize ADP-coded cards and/or tapes. A total of 43 centers reported hardcopy documents as the form of input in their systems, and 20 centers mentioned microform documents. A few centers mentioned other forms of input data, including analog readout signals and photographs.

Operations Performed - Seventy-eight data service centers furnished information on the kinds of data processing operations they perform. These included reducing, cataloging, indexing, extracting, integrating, computing, storing, evaluating, reformatting, reproducing, and disseminating. The following is a list of operations in order of descending frequency of occurrence:

Operation	No. of Centers Reporting
Disseminating	67
Storing	61
Evaluating	60
Reproducing	54
Indexing	53
Reformatting	50
Extracting	49
Computing	47
Cataloging	41
Reducing	39
Integrating	38

A number of centers mentioned additional operations, including compiling, collecting, retrieving, correlating, analyzing, searching, abstracting, updating, decoding, editing, and summarizing.

Artifacts Produced - The data service centers included in this section of the census produce a broad variety of data artifacts. The artifact most frequently mentioned was a data compilation--33 centers reported producing compilations. Artifacts reported, in descending order of frequency, are as follows:

Data-Artifact	No. of Centers Reporting
Data compilations	33
Tables and tabulations	19
Charts	10
Computer printouts	9
Data sheets	9
Catalogs	7
Indexes	7
Graphs	7
Maps	6
Computer tapes and cards	6
Reports	6
Reviews	6
Listings	5
Summaries	5
Bibliographies	4
Monographs	3
Drawings	3
Data extracts	2

Data Artifact	No. of Centers Reporting
Handbooks	2
Correlations	2
Microfilm records	2
User guides and thesauri	2
Photographs and slides	2
Circulars and technical memos	2

Other artifacts mentioned by centers include motion picture film, sound recordings, manuals, standards, directories, codebooks, color samples, and teletype messages.

Extent of Automation - Fifty-seven of the 80 centers reporting the extent of automation stated that they were substantially automated in their operations. Only 17 centers reported a limited degree of automation; while six centers reported that they were entirely without automation.

d. Using Community

All of the 81 centers providing information on the scale of their using communities reported that they extend service to users on a nationwide scale. Thirty claim using communities which extend beyond this to an international level.

Institutions Served - Seventy-one data service centers provided specific information on the kinds of institutions served. Sixty-three mentioned that they provide service to Federal Government activities; 50 reported industrial and commercial organizations among their users; 34 specified educational institutions as part of their using communities; and twelve mentioned non-profit research organizations. Other types of institutions served by the centers include foreign governments, international organizations, trade associations, professional societies, and medical institutions.

Scientific and Technological Activities of Using Communities - Approximately 35 of the data service centers provide data support to engineering development and applications activities, including the fields of chemical engineering, nuclear engineering, mechanical engineering, civil engineering, and materials engineering. Around 10 centers also provide support to the activities of product development and manufacturing, and approximately five centers provide data support for the maintenance, repair, and operation of equipment and machines. Two centers mention military logistics planning and military operations as fields supported by the data they process.

Approximately 25 centers provide data support for basic research in physio-chemistry; 12 centers support basic research in biological and medical research; and 10 centers provide support to medical practice and public health activities. In addition, twenty-five centers provide support both to basic research in the social and behavioral sciences and to the applications of social and behavioral science research, such as economic and political forecasting, urban planning and vocational rehabilitation.

Approximately 12 data centers--those handling environmental science data--provide support to a wide variety of activities determined by the environmental variables covered and the forecasting made possible by the monitoring of the environmental variables. Those activities supported by environmental data include agriculture, civil construction, oil drilling, aviation, navigation, military strategy and tactics, and others. Centers dealing in environmental data also support basic research in a variety of fields, including marine chemistry and biology, theoretical geodesy, geochemical laboratory research, and others.

Services Provided - Seventy-seven of the data service centers provided information on the broad spectrum of different types of services provided to users. Sixty-one centers reported that they answer inquiries; 56 centers publish different types of documents; and twenty-four centers announce their data documents. Ten centers specified that they provide consultant services. Other services provided include furnishing copies of data, providing special tabulations and compilations, making literature searches, preparing standards and procedures, lending data documents, supplying computer tapes, providing on-line automated services, and originating research ideas.

Thirty-two of the 70 data service centers providing information on their form of service reported that they extend both customized and standardized service to their users, while 19 centers provide only customized service, and 19 centers again provide only standardized service.

User Qualifications and Restrictions - Sixty-four data service centers provided information on the type of restrictions, if any, which would limit the availability of their data to users. Thirty-six reported that there are no user qualifications or restrictions, while 14 stated that their users must have the approval of the government agency sponsoring the center, and six centers stated that some of their data were under security restrictions. Other restrictions mentioned by the centers include the confidentiality of personal data (such as a person's income or a patient's identity), proprietary restrictions on data, and the stipulation that the user indicate a valid study requirement.

Costs to Users - Forty-nine centers provided information on the costs, if any, of the services they provide. Twenty-four of these 49 centers stated that their services are provided at no direct cost to the user, while 25 centers mentioned fees of one type or another for various services, including sales prices of publications issued by the centers, reproduction fees, and fees for special tabulations and compilations.

e. Operating Statistics

The volume of operation reported by the centers was usually in heterogeneous terms not reducible to a common denominator. However, 31 centers provided information on the size of their staffs, and these figures range from one part-time employee (at the Fused Salts Information Center) to 500 full-time people (at the National Center for Health Statistics). Ten of the 31 centers have staffs of ten persons or less, and four of the centers in this category utilize part-time employees in their staffs. Eight centers reported staffs of 11-20 personnel, and three of the centers in this category utilize part-time employees. Four centers reported staffs of 21 to 30 persons, with two of the centers in this category reporting part-time employees. The

remaining nine centers reporting staffing have staffs of the following sizes: 31 people (some of which are part-time), 104 personnel (two centers have staffs this size), 124 personnal, 310 personnel, 358 personnel, and 500 personnel.

Ten centers reported volume of operation in terms of the number of ADP cards contained in their systems. These figures range from 90,000 punched cards of high-volume data (at the National Data Bank for Air Quality Data) to 490,000,000 computer cards (at the National Weather Records Center and National Geodetic Data Center). Five of the ten centers reporting the number of ADP cards in their systems fall within the category of 1-12,000,000 computer cards, and four centers fall within the category of 90,000-370,000 computer cards.

Nineteen centers, dealing in data generated by laboratory research, metals processing, equipment testing, etc. reported their volume of operation in terms of the number of discrete items (chemical compounds, metals, alloys, pieces of equipment, equipment parts, test methods, and the like) contained in their data coverage. These figures range from the 700 spectra evaluated by ASTM's Atomic and Molecular Physical Data Program to the 500,000 organic compounds covered by the Smith, Kline, and French Chemical Data System. Only one center reporting volume of operation in these terms extends its data coverage to less than 1,000 discrete items. Three centers have a data coverage of 1,000 to 5,000 items; seven centers have data coverage of 10,000 to 50,000 items; five centers process data on 50,000 to 100,000 items; and two centers process data on over 100,000 discrete items.

Trends - Fifty-one data service centers gave information on their plans for the future. The most frequent plans for the future were concerned with automation (mentioned by 14 centers) and enlargement of the data file (mentioned by 13 centers). Other plans include cooperation with other organizations (5 centers), production, distribution, or publication of new data artifacts (4 centers), continuous updating of the files (4 centers), increase in user servicing (3 centers), initiation of operations (3 planned activities), increase in microfilming capabilities (2 centers), organizational revision (1 center), increase in staff (1 center), and initiation of a user fee (1 center).

Science Communication
Washington, D. C. 200 07
COSATI Data Activities Study
Final Report - F44620-67-C-0022 30 April 1968

A review of the census of data service centers and discussion with leading data specialists lead to the following impressions. Data service centers can be expected to continue to grow in number and sophistication of operations. It is anticipated that future data service centers will not only serve as an archival center but will become increasingly used as a communication channel between workers. Current experimental set-ups at M. I. T. and other locations are testing remote access configurations where several workers have simultaneous access to a common data bank. Such a system is soon to be implemented in the area of toxicology research; in this instance, the data bank will be created by direct input by individual researchers. The added utility of central data services or data banks which will result from automated remote access is difficult to predict; but it undoubtedly will be substantial.

Although much work will be required to transform the current embryonic data centers into full-fledged data utilities, the required equipments are essentially available and a start, as evidenced by the centers covered by this survey, has been made toward the data utilities of the future. Much progress toward the same concept has been accomplished in the conventional automatic data processing centers. The future will include a merger of the functions of the data service center and the automated data processing center into a new, more useful utility for providing data service to science and technology. Initially, this service will be provided to relatively small, closely related groups of scientists or technologists. Subsequently, the scope of users served will be expanded and the operations of individual utilities will be coordinated and interconnected.

2. Directory of Data Service Centers

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C-1

Accelerator Information Center

Oak Ridge National Laboratory
Post Office Box X
Oak Ridge, Tennessee 37830

Purpose: Functions of this activity are to collect, analyze, and publish data on accelerators and frequency modulation cyclotrons.

Scope: International research in nuclear or high-energy physics and accelerator design contitutes the source material for Center's publications. Users worldwide are designers of accelerators.

Coverage: Cyclotrons and other high-energy accelerators: Design parameters.

Status: The program has been operational since 1958, with distribution of approximately 650 copies of the three volumes published to date. Publication of two further volumes is contemplated by 1969

C-2

Advisory Center on Toxicology

Machinists Building
1300 Connecticut Avenue, N. W.
Washington, D. C. 20036

Purpose: This center, under the auspices of the National Academy of Sciences-National Research Council, operates to provide expert assistance to government agencies in dealing with scientific and technical problems involving toxicology.

Scope: The Center serves DoD agencies, AEC, NASA, and the Air Pollution Division of HEW; data are acquired from government reports and the open literature.

Coverage: Chemical compounds, biological environment, military health, public health, occupational medicine, human and veterinary toxicology, biomedical data.

Status: Center began operation in 1957 and has operated at a stable level for the last few years, with coverage of 50,000 to 60,000 compounds. Consideration is currently being given to coordination of the Center's operations with other developing activities such as the Toxicology Information Program of the National Library of Medicine.

C-3

Air Force Global Weather Central

U. S. Air Force Military Airlift Command
2nd Weather Squadron
Offutt Air Force Base, Nebraska 68113

Purpose: This primary Air Force Weather Central acquires a data base to be used to provide tailored weather support to Department of Defense operations.

Scope: Data are collected in a worldwide highspeed Automated Weather Network (AWN), by meteorological satellite readouts from the National Environmental Satellite Center, from aircraft weather reports of military and civil aircraft, and classified data from various sources. Center supports activities of the Joint Chiefs of Staff, U. S. Air Force major Air Commands, and Air Weather Service units.

Coverage: Meteorological, aerospace, solar data: Surface and upper-air weather characteristics, raw satellite readouts, etc.

Status: A total of 68 persons was assigned to the center in 1957. It currently employs a staff of 358, and its computer system processes 21 million characters of input daily with almost 2,000 specialized products for worldwide usage each 24 hours. The system will vastly expand in capability with the installation of four third-generation computers by early 1969.

C-4

Air Force Machinability Data Center

Metcut Research Associates, Inc.
3980 Rosslyn Drive
Cincinnati, Ohio 45209

Purpose: The Center provides machining data on all types of materials and for all material removal operations, including conventional machining and alternate removal processes.

Scope: The facility is one of the Air Force Materials Information Centers. Machining data are available to the aerospace industries, Department of Defense and other government agencies, technical institutions, and non-military industries which assist the defense effort.

Coverage: Specific materials with definite chemical, physical, or mechanical properties: Turning, milling, drilling, tapping, grinding, electromechanical machining processes; removal parameters such as speeds, feeds, depths of cut, tool material, cutting fluids, other significant variables.

Status: Data center has been operational since October, 1964. It has processed over 13 thousand documents and has served about 3,700 users. The number of users is growing at an approximate rate of 100 per month.

C-5

Alloy Data Center

National Bureau of Standards
Alloy Physics Section
Metallurgy Division
Washington, D. C. 20234

Purpose: This center compiles critically evaluated data on physical properties of metals and alloys for use of researchers, primarily in product development.

Scope: The center is a component of the National Standard Reference Data System as part of the Solid State Panel.

Coverage: Physical properties of metals, alloys (primary binary); soon to include Knight shift values, other parameters of NMR, emission and soft x-ray spectra.

Status: Center began in 1966 and has, at present, indexed approximately 4,500 items on computer tape.

C-6

American Petroleum Institute (API) Research Project 44

Texas A&M University
Thermodynamics Research Center
Post Office Box 3395
College Station, Texas 77840

Purpose: The program of this data activity is to correlate, evaluate, compile, and publish thermodynamic data of interest to the petroleum industry.

Scope: Data are collected from cooperating laboratories in the United States, Canada, England, and Japan, and from open literature; they are evaluated and disseminated for use by basic scientists and applied technologists worldwide.

Coverage: Hydrocarbon, nitrogen/sulfur compounds: Physical, chemical, thermodynamic property values; infrared, ultraviolet, mass Raman, nuclear magnetic resonanace spectroscopic data.

Status: The Project was established in 1942 at the National Bureau of Standards and moved in 1961 to its present location. The Project is under the same directorship as the Thermodynamics Research Center, but its data complements that of the Center and is under separate sponsorship, currently, of the API.

C-7

Atomic Collision Cross Sections Data Center

National Bureau of Standards
University of Colorado
Joint Institute for Laboratory Astrophysics
Boulder, Colorado 80302

Purpose: Objectives of the Center are to prepare and publish compilations and critical reviews of data on collisions between electrons, photons, ions, atoms, and molecules of astrophysical interest.

Scope: Data are extracted from published works of international coverage and are available to any interested physicists or astrophysicists. The activity is an element in the National Standard Reference Data System.

Coverage: Low energy atomic collision physics: Atomic collision cross sections, absorption coefficients, mobilities and diffusion coefficients for electrons.

Status: Center has been in continuous operation since 1960 and has processed approximately 3,000 journal and non-standard articles. It is currently serving about 600 users.

C-8

Atomic and Molecular Physical Data Program

American Society for Testing and Materials
1916 Race Street
Philadelphia, Pennsylvania 19103

Purpose: This data effort is concerned with the organization and publication of atomic and molecular data in suitable forms to serve as reference for pure compounds and mixtures. It plans to collaborate with existing projects and may sponsor new projects for the improvement of and development of data for such purposes.

Scope: Current work concerns standard infrared reference data to be used by laboratories utilizing infrared spectroscopy for compound analysis and identification. Data will be incorporated in the National Standard Reference Data System. Participating in the efforts are the Coblentz Society, Canadian Association for Applied Spectroscopy, Society for Applied Spectroscopy, Manufacturing Chemists' Association, American Petroleum Institute, and ASTM.

Coverage: Infrared absorption spectra of organic compounds: Spectral absorption bands, chemical structure, melting point, boiling point, molecular formula.

Status: Program was established in 1964 and currently has approximately 700 spectra to be published. Future plans are to continue publishing the spectra while endeavoring to improve the class of spectra to Class II which carries more demanding specification conformance.

C-9

Atomic and Molecular Processes Information Center

Oak Ridge National Laboratory
Post Office Box Y
Oak Ridge, Tennessee 37831

Purpose: The Center collects, stores, evaluates, publishes, and disseminates atomic and molecular processes information to help fulfill the need for critically evaluated numerical data in this field and for use in development and design work in the applications of atomic energy.

Scope: This activity is one of several specialized data efforts of the Atomic Energy Commission and is monitored by the Office of National Standard Reference Data. Data are collected from all published sources and are made available to government agencies, research and educational institutions, and to industry.

Coverage: Data on all molecules of five atoms and under: Collision processes for heavy particle-heavy particle interactions, processes involving action of an electric or magnetic field or transitions in atomic or molecular systems, particle penetration in macroscopic matter.

Status: Center has been operational since 1963. Future plans call for the development of monographs with evaluated data at the rate of two per year.

C-10

Atomic Transition Probabilities Data Center

National Bureau of Standards
Washington, D. C. 20234

Purpose: This center collects and catalogs all relevant literature on atomic transition probabilities, critically evaluates the data, and compiles them in tables.

Scope: Source literature is worldwide and users are those engaged in work in plasma physics, astrophysics, and various areas of applied physics in industry, government, universities, basic research laboratories, and observatories.

Coverage: Radiative transition probabilities of atoms and atomic ions in the gas phase: Intensities of spectral lines.

Status: Center has continued operations at a stable level since its initiation in June, 1960. It is currently critically evaluating about 1,000 numerical data annually, with an expected increase of new sources and data of about 15 to 20 percent per year.

C-11

Automated Hospital Information System (AHIS)

Veterans Administration Hospital
50 Irving Street, N. W.
Washington, D. C. 20422

Purpose: The ultimate objective of this planned multi-hospital automated data center will be to support ongoing hospital operations relating to direct patient care.

Scope: The system plans to operate on a national scale but is a local pilot system at present.

Coverage: Data from hospital patient care records.

Status: Center, still in research and development stage, was established at this site in 1965. A limited operation capability is planned for mid-1968.

C-12

Bureau of Applied Social Research

Columbia University
605 West 115th Street
New York, New York 10025

Purpose: The data activities of this research organization involve collecting data from sample surveys about politics, education, economic behavior, social mobility, and other sociological characteristics and providing such data to interested researchers for secondary analysis.

Scope: Data are generated by nationwide surveys of public and special groups, of organizations, and by content analysis of publications, all conducted by Bureau's own research staff. The Bureau is a member of the Council of Social Science Data Archives.

Coverage: Health and welfare, occupations and professions, mass communications, politics, education, organizations, etc.: Quantitative data.

Status: The Bureau began operations in 1937 and now has approximately 150 studies available for exchange.

C-13

Bureau of the Census

U. S. Department of Commerce
Suitland, Maryland 20233

Purpose: Historically one of the earliest data centers, the Bureau provides government, the public, and cooperating groups with statistical data and related services in the demographic and economic fields.

Scope: Data are gathered from primary and secondary sources for geographic entities ranging from the national to the city-block level. Release of the data is limited to those areas for which summaries can be shown without disclosing the activities or characteristics of the individual respondent. Economic data are published for the United States, the states, counties, large cities, and major retail centers; certain demographic data are published at the city-block level.

Coverage: Census and survey data; Statistics on population, housing, construction, agriculture, manufacturing, mineral industries, business, transportation, governments, foreign trade, and shipping.

Status: Bureau was established in 1902 with billions of data records now in its files. Preliminary planning is underway for the 1970 census with greatly expanded and far more detailed coding techniques to provide broadened areas for future study and forecasting.

C-14

Bureau of Labor Statistics Information System

U. S. Department of Labor
Washington, D. C. 20212

Purpose: The system stores, retrieves, and reduces large-scale files of employment and unemployment data comprising the Bureau of Labor Statistics data bank for economic and statistical analysis.

Scope: Data on national, state, and area industries, as well as unemployment statistics by demographic characteristics, are maintained and used primarily by the Federal Government.

Coverage: Payroll data, hours and earnings, labor turnover data, employment figures: Age, race, sex, education, etc.

Status: System was established in 1965 and currently processes monthly reports from approximately 140,000 establishments and from 35,000 household interviews.

C-15

Center for Diffusion in Gases

University of Maryland
Department of Chemical Engineering
Institute of Molecular Physics
College Park, Maryland 20742

Purpose: This data center is in the process of compiling and initially evaluating diffusivity and viscosity data on gas, liquid, solid, and turbulent flow systems.

Scope: The project is an interdisciplinary effort under the sponsorship of NASA, with a staff drawn from the physics, chemistry, and engineering departments. Close liaison is maintained with the Thermophysical Properties Center at Purdue University to complement its compilations of transport data.

Coverage: Physio-chemical systems: Diffusion coefficients, molecular beam scattering data thermal conductivity measurements, etc.

Status: A preliminary evaluation, begun in 1965, of almost all flow systems suitable for Standard Reference Data has been completed.

C-16

Charged-Particle Cross-Section Data Center

Oak Ridge National Laboratory
Post Office Box X
Oak Ridge, Tennessee 37830

Purpose: The center compiles and prepares for publication existing data of nuclear cross sections for charged-particle-induced reactions in a compact, integrated, and ordered form for nuclear physicists.

Scope: Data are gathered from the open literature of all countries and are available in collated forms to industry and research activities as well as to Atomic Energy Commission scientists.

Coverage: Cross section data: All energies including angular distributions and excitation functions, angular dependence of polarization produced in elastic scattering.

Status: Center was originally established at Los Alamos in 1955, was discontinued in 1960, and started again at Oak Ridge in 1962. Currently, approximately 1.5×10^5 data points or nuclear cross sections are stored on magnetic tape.

C-17

Chemical Thermodynamics Data Group

National Bureau of Standards
Washington, D. C. 20234

Purpose: This component of the National Standard Reference Data System is compiling and evaluating data which are basic input for any study of the energetics of chemical transformations.

Scope: Data are located in pertinent articles through search of abstract and selected research journals, with direct input also from National Bureau of Standards experimental programs, other laboratories, and private communications. A broad technological community is served by the activity.

Coverage: "Best" selected values of chemical thermodynamic properties of inorganic substances and organic compounds containing not more than two carbon atoms: Enthalpy and Gibbs free energy of formation, entropy, heat capacity, phase-change, etc.

Status: The activity began in 1925 with preparation of tables of heats of formation for the International Critical Tables. These were revised from 1931 to 1935. In 1940, the maintenance of the files was taken over as a formal full-time activity with the preparation of the NBS Circular 500 beginning in 1947. The Circular was published in 1952 and reissued in 1961. The development of large-scale machine-based correlation programs has been started.

C-18

Computer Index Neutron Data (CINDA)

Atomic Energy Commission
Division of Technical Information Extension
Post Office Box 62
Oak Ridge, Tennessee 37830

Purpose: The major activity of this data center is the collection of data and the provision to any user in its supporting countries of rapid and up-to-date information on neutron cross sections.

Scope: The work is a joint effort by the United States and European nuclear data centers. Data are generated from all available literature and directly from laboratories producing such data.

Coverage: Neutron cross sections and related quantities: Reactions induced in specific elements and isotopes by energies up to 20 meV, photoneutron and photo fission reactions, etc.

Status: Master file was first available in 1964 for use in the United States; distribution became available to European centers in 1965. Printouts of master computer files are produced every 12 to 18 months with 11,000 new items from international sources added to tapes in the past year.

C-19

Computerized Data Storage and Retrieval System for Deployable Aero Decelerators

U. S. Air Force
Flight Dynamics Laboratory
Recovery and Crew Stations Branch
Wright-Patterson Air Force Base, Ohio 45433

Purpose: This planned data center is developing a system for the computerized storage of aerodynamic decelerator design, operational, and performance data and for the retrieval of performance trends as a function of selected design or operational parameters.

Scope: Data will contain the results of governmental and manufacturers' test reports, nationwide. Users will be the missile design community, with particular emphasis on aircraft deceleration design.

Coverage: Parachutes, paragliders, re-entry bodies, lifting bodies, etc.: Drag, thermodynamics, re-entry trajectories, aerodynamics, ballistics, etc.

Status: System has been set up with the results of 30 to 40 thousand tests, each containing 800 to 900 data items, constituting the data file. Estimated volume average is expected to be 200 to 300 retrievals per day. The system has been accepted and is currently awaiting funding.

C-20

Computerized Mapping of Disease Project (MOD)

Universities Associated for Research and
Education in Pathology, Inc.
9650 Rockville Pike
Bethesda, Maryland 20014

Purpose: The ultimate objective of this program is to develop research techniques for correlation of data on diseases with a variety of other factors in order to give new insight into cause/effect relationships and to suggest new methods of disease control. The immediate objective is to provide data in the form of disease distribution maps and atlases, showing prevalence, incidence, and severity of specific infectious diseases throughout the world along with the distribution of actual and potential causally related factors.

Scope: Cooperating bodies, affording worldwide coverage by computerized methods, are the UAREP and the Armed Forces Institute of Pathology.

Coverage: Disease data correlated with environmental, sociological, and physical data: Population density, races, ethnic groups, altitude, character of the soil, insect vectors, animal reservoirs of disease, etc.

Status: First year of the three-year program produced broad outlines of the computerized system, a general data-analyses vocabulary, a detailed factor catalog, a preliminary data collection, a large file of disease and related data, and prototype disease-distribution maps.

C-21

Copper Development Association Technical Data Center

Battelle Memorial Institute
505 King Avenue
Columbus, Ohio 43201

Purpose: Center provides engineers who select and apply materials with complete and up-to-date technical data on the properties and application of copper, brass, and bronze. It also provides member companies with instant access to world information on the technology of copper and copper alloys.

Scope: The primary emphasis for data collection is on current published and unpublished material from world-wide sources. Technical service is provided at no charge to users in industry. The copper and brass industries support the center's operation through member company sponsorship.

Coverage: Copper, copper alloys, iron and steel with copper as an alloying element, copper chemicals, materials which compete with copper applications: Metal working processes, mechanical properties, engineering and test data, etc.

Status: Center began operating in May, 1965 and currently has deep-indexed data on 3,500 items.

C-22

Cryogenic Data Center, Cryogenic Data Compilation Unit

National Bureau of Standards
Boulder Laboratories
Boulder, Colorado 80301

Purpose: This unit of the data center is engaged in the critical evaluation and compilation of data on the properties (thermodynamic, transport, and other thermophysical properties) for the principal fluids (and common mixtures of these fluids) used at low temperatures.

Scope: Published and report literature from all national and international sources is monitored by the Unit which operates as part of the National Standard Reference Data System, under sponsorship also of NASA.

Coverage: Helium, hydrogen, neon, nitrogen, oxygen, air, carbon monoxide, fluorine, argon, methane, xenon, krypton: Pressure-volume-temperature relationships; vapor pressure, latent heat, saturation densities; isothermal compressibility, volume expansivity; entropy, enthalpy, internal energy; specific heat: velocity of sound. Also, properties of metallic elements, selected alloys, and element dielectrics; transport properties of fluids.

Status: Program is operational; over 36,000 accessions of cryogenic literature have been entered into Center's system with approximately 15,000 of these on properties of materials processed for machine searching. Ultimately it is expected that data will be compiled for the mechanical properties of structural materials.

C-23

Crystal Data Center

National Bureau of Standards
Institute for Materials Research
Washington, D. C. 20234

Purpose: Center collects and maintains data and information on crystalline materials with the major responsibility of revising and updating the publication of Crystal Data Determinative Tables.

Scope: This international effort is supported by the Office of National Standard Reference Data and will be for the use of crystallographers, mineralogists, chemists, and physicists.

Coverage: Crystallographic data: Axial lengths and angles of the unit cell, space groups, number of molecules or formula weights per cell, both the measured densities and those calculated from x-ray data, habits, cleavages, twinnings, colors, refractive indices, melting points.

Status: The program was begun in 1942. The Tables are nearing completion and will appear as an NBS publication within the National Standard Reference Data series. The approximately 30,000 entries will be current to January 1, 1967. A data retrieval system for specific questioning of the files is planned for the future.

C-24

DASA Information and Analysis Center (DASIAC)

TEMPO
General Electric Company
816 State Street
Santa Barbara, California 93101

Purpose: Objectives of the Center are to act as the primary data resource for nuclear weapon and nuclear weapon testing effects compatible with Defense Atomic Support Agency (DASA) requirements and to provide technical support to all Department of Defense nuclear weapon effects research and test programs.

Scope: Data are collected from large-scale field tests, simulation experiments and from all available published and unpublished reports and literature, nationwide. Services are available to all elements of DoD, other authorized Federal agencies, and contractors in accordance with DoD security procedures.

Coverage: Nuclear weapon output: Radiations, heavy particles produced as a result of fission/fusion processes. Weapon phenomena: Shock, fireball, atmospheric ionization, electromagnetic pulse phenomena produced by environment/nuclear weapon interactions. System effects: Nuclear weapon effects on complete military systems, subsystems, components, and materials, as well as effects on non-military installations. Research and instrumentation data.

Status: Center has been operational since 1961. Data file includes approximately 4,500 tapes, 4,500 recordings, 700 film reels, and 3,500 documents.

C-25

Defense Metals Information Center (DMIC)

Battelle Memorial Institute
505 King Avenue
Columbus, Ohio 43201

Purpose: The Center collects, processes, and disseminates technical information and data on structural metals and other closely related materials used in aircraft, missiles, and other military systems.

Scope: Most of the data are obtained from worldwide open literature, with some provided by industry. Users are primarily the aircraft-missile-spacecraft manufacturing industries, with emphasis on material application in the design phase.

Coverage: Aluminum, titanium, beryllium, magnesium, tungsten, molybdenum, columbium, tantalum, rhenium, stainless steels, superalloys, coatings, etc.: Properties, fabrication, applications.

Status: Center began operations in 1956 and currently processes 125 to 150 inquiries per month. Further automation is planned for the near future.

C-26

Diatomic Molecule Spectra and Energy Levels

National Bureau of Standards
Office of Standard Reference Data
Washington, D. C. 20234

Purpose: This activity aims to establish a single source of data by compiling tables and evaluating data on bandheads, spectral frequencies, molecular energy levels and parameters, and dissociation energies for publication in the National Standard Reference Data System Series.

Scope: Journal and abstract searches from all available open literature are performed by three physicists at the National Bureau of Standards.

Coverage: Optical spectroscopic data and constants for diatomic molecules: All pertinent regions of the electromagnetic spectrum, molecular parameters derived from spectroscopic measurements.

Status: Program was begun in July, 1966 and is in the initial phase of critical evaluation of selected molecules. One monograph, "The Band Spectrum of Carbon Monoxide", has been published.

C-27

Eastman Plastics Division Color Data Bank

Eastman Chemical Products, Inc.
Subsidiary of Eastman Kodak Company
Plastics Division
Kingsport, Tennessee 37662

Purpose: The data bank provides color matching and color reproduction services for Eastman Chemical's customers.

Scope: This is a multi-industry consumer-oriented effort on an international scale. Users are industries such as automotive and food packaging, and governmental agencies.

Coverage: Color standards for plastics: Transmission or reflectance curves, specified wave lengths, etc.

Status: Data Bank was started in 1932 and now contains 60,000 color standards; approximately 400 inquiries are processed per month.

C-28

Economic Growth Center at Yale University

Box 1987, Yale Station
New Haven, Connecticut 06520

Purpose: The Center assembles basic economic data for national economies in such form as to facilitate comparative analysis and engages in empirical and theoretical analysis relating to economic development and growth.

Scope: The Center endeavors to achieve a complete intake of significant economic and statistical data source material from countries with over two million in population, of which there are now over 100. Users include students and scholars from various educational institutions as well as development research centers from all over the world.

Coverage: Government, economic growth, monetary conditions: Gross national and personal income accounts; government and personal expenditure accounts, gross domestic saving accounts, external transactions accounts; data on population, labor, trade.

Status: The Center has been operating since 1961 when it was established as an activity of the Yale Department of Economics. Total number of serial publications of varying frequencies now received is more than 2,500 with expected optimum of 3,000. At least partial coverage has been achieved for over 100 countries. The Center plans computerization of data, card catalog, and other library procedures, and microfilming of older material for inactive storage.

C-29

Electronic Parts for Space Applications Data

Jet Propulsion Laboratory
California Institute of Technology
Pasadena, California 91103

Purpose: The objective of this data center is to establish a list of heat sterilizable electronic and electromechanical parts for deep space missions.

Scope: Data are acquired from environmental monitoring of deep space missions and are at present used by JPL, NASA Centers, and associated contractors.

Coverage: Electronic component parts: Effects upon the reliability of the part from subjection to heat sterilization testing.

Status: The technological effort, which this center supports, began in 1963 and is presently 75 percent complete. Future operations depend on space missions selected during the 1970's.

C-30

Electronic Properties Information Center (EPIC)

Hughes Aircraft Company
Centinela and Teale Streets
Culver City, California 90230

Purpose: The mission of this data center is to collect, evaluate, and analyze the scientific and technical literature on the electrical and electronic properties of materials and to compile and publish experimental data from that literature.

Scope: The Center is supported by the Air Force and primarily serves the aerospace industry.

Coverage: Electronic properties of semiconductors, insulators, ferroelectrics, dielectrics, ferrites, ferromagnetics, electroluminescent materials, thermionic emitters, and superconductors: Direct measurement of electrical properties, non-electric measurements (energy state), physical properties of crystal structure, etc.

Status: Center was established in 1961; it has more than 27,000 data sources indexed to date and answers approximately 1,000 inquiries per year. Further automation and expansion of scope of operation are planned.

C-31

Engineering Materials and Processes Information Service (EMPIS)

General Electric Company
Engineering Services
One River Road
Schenectady, New York 12305

Purpose: The services of this data activity provide an integrated, systematized, and codified body of resource data dealing with the characteristics, behavior, identification, and availability of raw and semi-finished materials and standard parts used broadly in many manufactured products.

Scope: Data were originally maintained for company usage all over the world but are now also marketed commercially to materials users.

Coverage: Nonmetallic, metallic, and chemical materials. Machine parts, test methods, finishes, specifications, machinability ratings, relative costs, design hints, tolerances.

Status: Effort represents 30 years of collecting data; information is reproduced in hard copy or on 16-mm reel microfilm and includes data on approximately 10,000 raw materials, 500 machine parts, and 1,000 alternative finishes and test methods. Service has been marketed to a small number of customers.

C-32

Environmental Technical Applications Center

Headquarters, U. S. Air Force
Building 159, Navy Yard Annex
Washington, D. C. 20333

Purpose: Center collects, stores, retrieves, processes, and provides data on aerospace environmental factors as they affect military weapons, facilities, operations, plans, and military problems.

Scope: The Center is organized as a unit of the 6th Weather Wing whose parent organization is the Air Weather Service, a technical service of the Military Airlift Command. Its Data Processing Division, located in Asheville, North Carolina, collects and processes all meteorological observations needed to meet Air Force, Army, and DoD requirements as well as providing unclassified weather records and data to the National Weather Records Center of the Environmental Science Services Administration.

Coverage: Geophysical, meteorological, astrophysical data: Environmental monitoring, weather observations, etc.

Status: Center started operations in 1964 and currently has a staff of 310 persons located in the two elements of the system.

C-33

Fleet Numerical Weather Facility (FNWF)

U. S. Naval Postgraduate School
Monterey, California 93940

Purpose: The mission of this data center is to provide operational numerical environmental products to the Naval Establishment and to develop and test new computer techniques in both oceanography and meteorology.

Scope: FNWF is the master computer center and controller of the Naval Environmental Data Network (NEDN). It receives data from the Air Force Digital Automated Weather Network It works closely with the U. S. Bureau of Commercial Fisherises (BCF) and the U. S. Bureau of Mines and furnishes operational environmental data for Fleet support

Coverage: Oceanographic analyses and forecasts: Sea surface temperature, subsurface thermal structure, sea state, ocean currents and fronts, temperature and sound velocity versus depth profiles, etc. Meteorological analyses and forecasts. Surface pressure, upper atmospheric height and temperature, atmospheric wind, vertical motion, radiological fallout, clear air turbulence, tropical storm steering, etc.

Status: Facility began in 1958 as the Navy Numerical Weather Problems Group at Suitland, Maryland, and relocated to Monterey in July, 1959. Input data have currently reached 3.8 million with output data at almost 5 million teletype words per day.

C-34

Fused Salts Information Center

Sandia Corporation
Technical Libraries
Post Office Box 5800
Albuquerque, New Mexico 87115

Purpose: The center collects, evaluates, and reduces to tabular form the physical properties of fused-salt systems.

Scope: Data are collected from all sources of government and industrial report literature and are available to the Atomic Energy Commission and its contractors with AEC clearance.

Coverage: Eutectic composition of fused salt systems: Melting points, free energies, EMF's, vapor pressures, electrical conductivities, etc.

Status: Center is operational and updates data compilations annually. Its files, from which data are tabulated, contain approximately 2,500 documents.

C-35

Gamma Ray Spectrum Catalogue

National Reactor Testing Station (NRTS)
Post Office Box 1845
Idaho Falls, Idaho 83401

Purpose: This AEC-sponsored activity provides, in tabular form, data on the gamma ray spectra of radioactive nuclides produced by reactor or particle-accelerator induced reactions for use in applications of the techniques of gamma ray spectrometry to a broad community of scientific disciplines.

Scope: All data are original with NRTS with review of current literature, both national and international, for selection of best available values for gamma ray energies and intensities.

Coverage: Gamma ray spectra of radioactive nuclides, NaI detectors, gamma ray energies, intensities: Graphical presentations obtained with NaI scintillation spectrometers and lithium-ion drifted germanium gamma ray spectrometers.

Status: Publication of data began in 1964, with distribution of first edition of 4,000 and second edition of 5,000 copies to date. Present plans for publication of third volume of NaI(Tl) gamma ray spectra in 1967 and first volume of spectra obtained with Ge(Li) spectrometers are scheduled for 1968.

C-36

Geochemical Census Branch, U. S. Geological Survey

Federal Center
Denver, Colorado 80225

Purpose: This data activity operates to make full use of analytical data on geological materials and to facilitate communication of data within the U. S. Geological Survey.

Scope: The center operates entirely on data generated by the laboratories of the U. S. Geological Survey. Analyzed are samples from all sections of the United States and from many foreign countries. At present, the data are available only to members of the Survey -- or rarely, to other government agencies on special request.

Coverage: Rocks, minerals, soils: Spectrographic, chemical, physical properties.

Status: The Branch was established in 1961 and is now working on methods of transferring portions of the data files from card storage to magnetic tape storage on the Survey's computer. The files currently contain data on 45,000 samples with more than 800,000 determinations entered.

C-37

Geomagnetic Data Center

Environmental Science Services Administration
Environmental Data Service
Rockville, Maryland 20852

Purpose: The center collects, catalogues, archives, and disseminates geomagnetic data from observatories throughout the world.

Scope: Ninety percent of all data are received from observatories operated by foreign governments and educational institutions. The data are made available to research workers in government, universities, and industry.

Coverage: Geomagnetic and related geophysical phenomena: Copies of analog records (magnetograms).

Status: Center was established in July, 1957 and is expected to continue indefinitely. Approximately 1,000 observatory-years of data are in the archives at the present time. Proposals have been submitted to put all data into machine-readable form, which would double or triple the operations.

C-38

Human Factors Task Data Center

Behavioral Sciences Laboratory
Aerospace Medical Research Laboratories
Air Force Systems Command
Wright-Patterson Air Force Base, Ohio 45433

Purpose: The planning for this data center recognizes the importance of insuring an early human factors input into the design of aerospace systems. The data system was originally conceived to lend a realistic context to research and to assist in the identification of problem areas for research in this area.

Scope: The environment is that of government/contractor with data generated by prime and subcontractors integrated in support of systems within the Air Force and NASA.

Coverage: Human factors, task analysis, human/hardware interface, etc.: Qualitative, quantitative data.

Status: Development of the center began in 1963, with Air Force-wide utility as its ultimate goal. The operation is presently being field tested and will use third generation computer equipment.

C-39

Hydrography and Oceanography Data Center

Environmental Science Services Administration
Coast and Geodetic Survey
Office of Hydrography and Oceanography
Washington Science Center #1
Rockville, Maryland 20235

Purpose: The mission of the center is to provide charts and related information for safe marine navigation, and to provide, process, compile, and disseminate basic data for engineering and scientific purposes as well as for other commercial and industrial needs.

Scope: Office operates own data acquisition facilities (fleet of survey vessels, tide network, hydrographic field parties) International operations exist as required for the accomplishment of center's mission It serves all sectors of the marine economy plus the bulk of the marine-oriented institutions

Coverage: Marine data in analog, tabular, graphic, narrative form. Tides, currents, depths, other navigational data

Status: The services of the center were established by an Act of Congress in 1807 when the Coast Survey was created. The Office now operates as the major marine-oriented organization within the Coast and Geodetic Survey, now part of ESSA. Approximately two million nautical charts are produced per year.

C-40

International Data Library and Reference Service

University of California
Survey Research Center
2220 Piedmont Avenue
Berkeley, California 94720

Purpose: Originally a campus facility to serve local scholars, the data activity now undertakes to facilitate international scholarly use of existing social science materials for secondary and comparative analysis and student training.

Scope: Data are primarily from studies conducted in Asia, Latin American, and Africa, although materials from European and North American studies are also available.

Coverage: Sample survey, poll, census, demographic data: Statistics on individuals and their attitudes.

Status: Current study results are complete and archived. Data on some developing countries need supplementing which will be achieved as funding permits.

C-41

International Development Data Bank

Michigan State University
426 South Kedzie Hall
East Lansing, Michigan 48823

Purpose: Center collects data for social science studies of development and modernization in less developed countries for international research and institution-building activities.

Scope: Locales of data are primarily in countries of Latin America, Africa, and Asia, especially India.

Coverage: Social science and economic sample survey, panel study, field experiment data: Geographic and individual modernization statistics.

Status: Eighty studies representing 20 countries have been completed since establishment of data bank in 1965. Future plans call for full operation of the center and closer institutional relationships with collaborative research groups in India, Pakistan, Philippines, Thailand, Peru, Brazil, Colombia, Nigeria, and Kenya.

C-42

Joint Army-Navy-Air Force Thermochemical Tables (JANAF)

Dow Chemical Company
Building 574, Post Office Box 31
Midland, Michigan 48640

Purpose: This data effort serves as the authority for thermochemical data for use in rocket propellant performance calculations and other scientific applications.

Scope: Data are used by applied technologists who compute performance of rocket fuels. Classified data are available on a need-to-know basis; unclassified data are made available on a worldwide basis to the many scientists involved in refinement and application of thermochemical data.

Coverage: Thermochemical and related fundamental properties of rocket propellant ingredients and combustion product species: Heat capacity, entropy, Gibbs free energy, heat formation, etc.

Status: Files have been in existence since 1960 and are being updated continually. Data are now available in ADP processable form with coverage of about 10,000 chemical substances. Dissemination of data in microcards is planned.

C-43

Latin American Data Bank

University of Florida
Department of Political Science
107 Peabody Hall
Gainesville, Florida 32601

Purpose: This activity is an interdisciplinary social science data archive concerned with maintaining in machine readable form aggregate social, economic, and political data from Latin America. It is interested in acquiring data that are not available or not given for the lowest administrative divisions of a country in published reports.

Scope: The Data Bank initiated its acquisition phase with Costa Rican materials and has expanded its holdings to include all of Central America and Colombia.

Coverage: Population, housing, agricultural, industrial censuses; election returns.

Status: Center was established in January, 1966 and plans to explore the feasibility of developing a data acquisition and diffusion network among North American universities with Latin American studies programs.

C-44

Mechanical Properties Data Center

Belfour Stulen, Inc.
13919 West Bay Shore Drive
Traverse City Michigan 49684

Purpose: The Center prepares and distributes evaluated mechanical properties test (strength) data of materials used in aerospace applications.

Scope: Data are collected from laboratory research and from published and unpublished documents. Content are derived and presented in the form of data sheets, graphs, plots, tables, etc. for the use of government agencies and others engaged in defense research and development, production and quality control, and design engineering.

Coverage: Structural materials and alloys, metals and plastics, reinforced plastics: Mechanical properties, such as creep, fatigue, tensile strength; test procedures and results, processing, other environmental variables.

Status: Center has been operational since 1961. It contains over 2 million data points, with additions currently being made at the rate of about 100,000 data points per month.

C-45

Memorial Radiation Center for Cancer and Allied Diseases

Memorial Sloan Kettering Cancer Center
New York, New York 10021

Purpose: The present function of this developing data effort is to act as a communication and computation center for data on external and internal radiation treatment to hospitals in the New York metropolitan area.

Scope: Smaller hospitals are linked to the center by teletype. Data are received off-line on tape, entered into the large central computer, and finished treatment plan is transmitted to the collaborating hospital.

Coverage: External and internal radiation treatment: External field parameters, internal source parameters, patient's density distribution.

Status: At present, there are three collaborating hospitals in New York and San Francisco, with plans to extend service on a more general nationwide basis. The center has over 4,000 external radiation treatment plans and in the period from April to October, 1967, supplied 250 computations for external users.

C-46

Microelectronics Device Data Bank

National Aeronautics and Space Administration
Electronics Research Center
Electronics Components Research
575 Technology Square
Cambridge, Massachusetts 02139

Purpose: The planned data center will provide engineers in the aerospace technology field with a readily accessible body of technical data to assist in the optimization of device selection and use.

Scope: NASA, its centers, and its contractors will be the users of the proposed data bank.

Coverage: Microelectronic devices: Electrical and configuration characteristics, user generated performance and application information.

Status: The system is not currently operational nor has a decision been made to implement the concept of the data bank set forth in contractor studies. Consideration is being given to the optimum form and timing of an operational data bank in the light of the latest technical data activity in NASA and the Department of Defense. A decision concerning an operational system will be contingent upon these considerations.

C-47

Minor Planets Data Center

University of Cincinnati Observatory
Observatory Place
Cincinnati, Ohio 45208

Purpose: The Center stores, publishes, and distributes data on minor planets for automatic interpolation of the solar coordinates

Scope: Through the sponsorship of the International Astronomical Union, data are collected and disseminated on an international scale.

Coverage: Minor planets observations: Results of orbit improvements with residuals, ephemerides of unnumbered planets.

Status: Center has been completely operational since 1947 and has approximately 125,000 punched cards in its index of minor planets, each representing one observation.

C-48

Morton Collectanea

University of Miami
Post Office Box 8204
Coral Gables, Florida 33124

Purpose: The data activities of this center include acquiring, classifying, maintaining, and disseminating data on economic plants.

Scope: Plant data are extracted from all available literature in the United States and from such foreign sources as India, Philippines, New Zealand, Mexico, Central and South America, the West Indies, and most recently, South Vietnam. Data are of interest to a wide variety of users in the fields of economic botany, phytochemistry, medicine, pharmacology in military and governmental agencies, educational institutions, qualified research groups, Poison Control Centers, etc.

Coverage: Plants— little-known, tropical, sub-tropical, poison, special interest, regional, etc.: Food values, structures, classifications, by-products, etc.

Status: Data effort was established in New York in 1933, and moved to Miami in 1949. Approximately 200,000 specie classifications have been entered in the data file, with new entries at the rate of 6,000 per year in the last three years. In addition, there is a photographic slide file of 5,000 transparencies.

C-49

Museum Information Retrieval System

Smithsonian Institution
Museum of Natural History
9th at Constitution Avenue, N. W.
Washington, D. C. 20560

Purpose: This pilot data program proposes to act as a repository of factual material about specimens in the Museum and to make information about them immediately available for scientific study.

Scope: It is envisioned that the program will broaden into a national and ultimately international network system of museum data centers.

Coverage: Biological specimens such as insects, mammals, birds, fishes, invertebrate marine animals, fossils, botanical specimens, rocks, minerals meteorites, etc.: Locations, names, environments, etc.

Status: Pilot program began in July, 1967. Current operating level is now about one-sixth of planned operation, with data on 500 to 1,000 specimens being entered per week and expectation of capability to enter more than three million per year. It is planned to begin distribution of magnetic tapes to other museums in the United States and Great Britain during 1968.

C-50

National Center for Health Statistics

U. S. Public Health Service
Department of Health, Education and Welfare
South Building
330 C Street, S. W.
Washington, D. C. 20201

Purpose: The Center provides statistical information to the entire health community including administrators, planners, and researchers.

Scope: Coverage is primarily national but is international in a few cases. Emphasis is on people, and, to a lesser degree, on health facilities.

Coverage: Health and demographic characteristics of people; numbers and physical characteristics of institutions.

Status: Center was established in 1961 and is currently a bureau of the Public Health Service. A staff of 500 processes data on approximately 4,159,000 people and on 34,700 institutions, with 3,500 requests served. Future plans involve primarily new programs to provide information on family growth, to train state and local employees in support of its program, and to supply small area health and demographic data.

C-51

National Clearinghouse for Poison Control Centers

U. S. Public Health Service
7915 Eastern Avenue
Silver Spring, Maryland 20910

Purpose: The mission of this data effort is to reduce morbidity and mortality from accidental poisoning by obtaining, evaluating, and making available data which will provide the most reliable sources on formulation, toxicity, symptomatology, and treatment of poisoning.

Scope: There are approximately 566 Poison Control Centers located throughout the United States. Data are used by private indivduals for immediate treatment of poisoning, as well as by medical schools, pharmacy schools, and State health services.

Coverage: Toxicology of household products, medicines: Manufacturer, formulation, name of compound, ingredients, symptoms, toxicity, treatment.

Status: Center has been in operation since 1957. The activity is receiving about 160,000 inquiries per year at the Center level, 700 at the Clearinghouse which backstops the Centers. An increase of 10 to 20 thousand calls per year is expected.

C-52

National Data Bank for Air Quality Data

National Center for Air Pollution Control (NCAPC)
U. S. Public Health Service
5710 Wooster
Cincinnati, Ohio 45227

Purpose: This effort develops and maintains systems for the storage and retrieval of pertinent data from internal and external sources in order to provide data necessary for the evaluation of air pollution trends, causative interrelationships and effects on humans, other biological systems, and on materials.

Scope: Data are collected by national, state, and local monitoring networks and from research and abatement programs, with plans for eventual international coverage. All areas of environmental concern are involved in usage of the data, including urban planners, specific industries, the medical profession, etc.

Coverage: Ambient, other air quality data; effects data from utilization of materials and biological systems; concentrations of potential toxicants and symptomatic responses to them; emissions and control methods data; physical and socio-economic data.

Status: Effort was initiated in 1962 and became fully operational in 1967. Bank contains approximately 90,000 punched cards of high-volume data and 20 to 30 magnetic tapes of emission data.

C-53

National Disease and Therapeutic Index

Lea Associates
Ambler, Pennsylvania 19002

Purpose: This computerized, industrial data center makes available epidemiological data, useful in forecasting medical requirements, to the pharmaceutical and allied industries.

Scope: Organization generates its own data through cooperation with physician panels and gives customized service to government and private hospitals, research organizations, and to the drug industry.

Coverage: Incidence, control, and treatment of diseases.

Status: Center was established in 1956 with a consistent growth of about 10 percent per year.

C-54

National Index of Fungus Cultures

U. S. Army Mycology Laboratory
Pioneering Research Division
Natick Labs
Natick, Massachusetts 01762

Purpose: The data activity acts as a locating device for specific living fungus cultures having specific histories, biological characteristics, unique products, or uses.

Scope: Data are supplied by cooperating laboratories on a national scale and are available to users in medical, agricultural, pharmacological, and plant pathological research.

Coverage: Living organisms: Strain, genetic variables, physiological variance including attached and produced chemical substances.

Status: Data activity has been operational since establishment in 1960. A card file of 13,000 items provides data to 10 to 20 institutional or individual users per year.

C-55

National Meteorological Center (NMC)

Environmental Science Services Administration
Federal Office Building #4
Suitland, Maryland 20023

Purpose: The Center collects data from worldwide networks that supply weather data on a continuous time schedule, processes these data using both manual and computer techniques into meteorological analyses describing the current state of the atmosphere from the surface to about 100,000 feet, and produces weather predictions describing the atmosphere's expected future state for periods of up to one month in advance.

Scope: Observed weather conditions on all continents, on islands, on ships at sea, and from aircraft in flight across remote areas are wired to the Center. Various products from the processing stages are distributed to field forecasters in national and international meteorological offices.

Coverage: Observed weather data: Height, temperature, wind, moisture, etc.

Status: Center has been operational since 1958. Over 50 circuits bring data to NMC and same circuits carry forecasts all over the globe. 452 charts were originated for facsimile in 1967.

C-56

National Neutron Cross Section Center

Brookhaven National Laboratory
Building T-197
Upton, Long Island, New York 11973

Purpose: Objectives of this data center are to collect and disseminate experimental neutron cross section data, to maintain an evaluated nuclear data file, to develop techniques for evaluation of neutron cross section data, and to prepare and publish experimental and evaluated data.

Scope: Data are collected from all available national and international sources and are available to atomic energy scientists whose interests are primarily in reactor physics and engineering.

Coverage: Neutron cross sections, all nuclides and natural occuring mixtures of isotopes: Thermal cross sections, resonance parameters, cross section variation with energy, angular distributions.

Status: Center has been operational since 1951 and currently has a file of over one million data points. Future plans include continued publication as well as updating of storage and retrieval systems for rapid access to both experimental and evaluated data.

C-57

National Oceanographic Data Center (NODC)

Navy Yard Annex
Second and M Streets, S. E.
Building 160, Third Floor
Washington, D. C. 20390

Purpose: The data center functions as a service activity for the Nation's oceanographic community with respect to marine environmental data and subject matter information by acquiring, compiling, and preserving oceanographic data for ready retrieval. Recovery of data, as single observations, summarized data or other custom manipulation of the data, is supplied according to specifications.

Scope: Center is an interagency organization of the Federal government, governed by an Advisory Board and administered by the U. S. Naval Oceanographic Office. Data are acquired from domestic and foreign sources; all oceans, as well as seas and estuaries, are included.

Coverage: Sea water chemistry, marine biology, marine geology, some marine geophysics: Physical properties such as temperature, salinity, sound velocity, currents.

Status: The Center was established in January, 1961. Future plans call for the establishment of a National Marine Data Base available for direct inquiry on a near real-time basis and for automated quality control of these data.

C-58

National Opinion Research Center (NORC)

University of Chicago
6030 South Ellis Avenue
Chicago, Illinois 60637

Purpose: The data activities of the Center measure and ascertain the opinions or attitudes of the public by taking polls, interviewing, communicating with, examining, or cross-examining the people concerning subjects or matters of any nature.

Scope: NORC is allied with the Council of Social Science Data Archives. Surveys have been conducted in the United States and the data are available for professional and scholarly use.

Coverage: Survey data, panel studies: Health and welfare, occupations and professions, mass communications, economics and business, politics, education, community problems, intergroup relations, methodology and theory.

Status: Five hundred studies and a file of one million data cards comprise the Center's holdings since its beginning in 1941. Future plans call for card-to-tape storage of all source decks and important indexes, preparation of inverted files for selected past studies and for most current studies, preparation of Study Profile Journals, archiving activities, and development of a multiple access device for retrieval of studies.

C-59

National Space Science Data Center (NSSDC)

National Aeronautics and Space Administration
Goddard Space Flight Center
Building 26
Greenbelt, Maryland 20771

Purpose: The center serves to further the widest practicable use of reduced data obtained from space science investigations and to provide investigators with a service-oriented repository for such data.

Scope: Reduced data are collected worldwide from space experimenters and are available to national and international users in the space sciences or allied fields.

Coverage: Data received from scientific experimenters aboard satellites: Sounding-rocket probes, high altitude aeronautical and balloon investigations; correlative data from ground-based observatories and stations; corollary information on satellites, launch vehicles, orbits, etc for independent use of data.

Status: Center was officially established in 1964. The operation has moved into a new building at Goddard Space Flight Center and currently has on file 175,000 data sheets, 500 reels of computer tapes, 8,000 reels of microfilm, as well as large numbers of slides, photos, roll film, etc.

C-60

National Weather Records Center (NWRC) and National Geodetic Data Center (NGDC)

Environmental Science Services Administration
Federal Building
Asheville, North Carolina 28801

Purpose: The primary functions of these data centers are: to archive, quality control, summarize, publish, and distribute meteorological, geodetic, and seismological data; to build an international data base through data acquisition; to make climatological, geodetic control, and seismographic data available in suitable forms for use in research and in making decisions involving strategy, time, and money.

Scope: Data are collected internationally by Federal agencies, principally by the Weather Bureau, Air Force, and Navy, and by the Coast and Geodetic Survey. Information is obtainable customized or through subscription to regular publications.

Coverage: Weather records: Surface and upper air, seismograms, geodetic control data, etc.

Status: NWRC has been operational since 1951, the NGDC since 1966. Archives contain 490 million punched card inputs, increasing at the rate of 25 million per year. Centers produce more than 400,000 copies of weather records per year.

C-61

Nimbus/ATS Data Utilization Center

National Aeronautics and Space Administration
Goddard Space Flight Center
Greenbelt, Maryland 20771

Purpose: This center processes, reproduces, distributes, and reformats for final archiving the satellite photographic meteorological data received from the varied sensory systems flown on Nimbus and Applications Technology Satellites. It also prepares and distributes appropriate data user guides and catalogs, including pictures and listings of data availability.

Scope: Data are received from all parts of the world, and Center is responsive to valid requests for research data from the world meteorological and geophysical community until data are archived and available from the appropriate archival source.

Coverage: R&D meteorological satellite data in both photographic and analog digital tape format, automatic picture transmissions system data, direct readout infrared radiometer data as received and recorded from both orbiting and synchronous satellites; photographic data processed in black and white and in color.

Status: Center was established in 1964 as a continuing activity, with workload and output fluctuating as operational status of each spacecraft changes. Data has been or is being processed from five spacecraft with nine sensors. Support function is planned for all future R&D satellites.

C-62

Nuclear Data Project

Oak Ridge National Laboratory
Post Office Box X
Oak Ridge, Tennessee

Purpose: The Project's data activities involve collecting, evaluating, systematizing, and publishing experimental results in the low-energy nuclear field.

Scope: The U. S. Atomic Energy Commission supports the project. All available worldwide source literature is scanned by the staff for useful references.

Coverage: Level properties: Energies, widths, spins, magnetic and quadrupole moments.

Status: Project began in 1948 at the National Bureau of Standards and was transferred in 1953 to National Academy of Sciences. Since 1964, it has been in its present location at Oak Ridge under the AEC's sponsorship. Data compilations are now issued in a section of Nuclear Data published by Academic Press. Plans are for a computerized index for retrieval of specific data.

C-63

Parts Reliability Information Center/Apollo Parts Information Center (PRINCE/APIC)

National Aeronautics and Space Administration
Marshall Space Flight Center
R-Qual-OC
Huntsville, Alabama 35812

Purpose: This center provides parts and materials information to engineers involved in developing aerospace hardware.

Scope: Data are collected from testing laboratories, vendors, reliability and quality organizations, report literature, and other data centers for use by NASA Centers, contractors, or government agencies on a limited basis.

Coverage: Parts, materials: Test, characteristic, failure analysis, criticality, substitutability, reliability data; Quality Parts Lists (QPL's). Preferred Parts Lists (PPL's).

Status: Center has been operational for two years; its files contain data on around 100, 000 parts, and its users have increased about 500 percent in the past year. NASA is considering offering the Center's services to other aerospace programs.

C-64

Powder Diffraction Standards Data Program

American Society for Testing and Materials
1916 Race Street
Philadelphia, Pennsylvania 19103

Purpose: This is a joint committee effort which collects, reformats, edits, compiles, distributes, and maintains a file of powder diffraction data to serve as reference for the identification of crystalline substances from their diffraction patterns; committee also sponsors suitable projects for the improvement and development of data for such purposes.

Scope: Through the Joint Committee, including the American Crystallographic Association, (British) Institute of Physics, the National Association of Corrosion Engineers, and the ASTM, data patterns are sent in from all over the world. Users are worldwide, particularly applied technologists in the metals industry.

Coverage: Inorganic and organic chemical substances identified by atomic arrangement: State or combination of chemical elements or phases present; powder pattern lines with intensities, value constants, space group, melting and boiling points. color, hardness, luster, etc.

Status: The Committee was conceived in 1937, and program was established by 1941. Data are being continuously collected, updated, and purged, and a searchable file is in preparation. More than 13,500 substances are included in compilations to date.

C-65

Project TALENT Data Bank

American Institutes for Research
Post Office Box 1113
Palo Alto, California 94302

Purpose: The Data Bank provides researchers with data collected in conjunction with Project TALENT, on American high school students concerning their abilities, skills, occupational aspirations, interest, family background, plus their post-high school education and job experience.

Scope: A longitudinal study involves a probability sample of five percent of the 1960 high school students in the United States. The 400,000 students completed a two-day test battery and are being contacted by follow-up questionnaires for a 20-year period.

Coverage: Performance scores, aptitude test, attitude surveys, career plans, retest data, follow-up data.

Status: Bank was established in 1965; requests from 60 users have been completed in a two-year period. It is expected that user requests will double in the second two-year period.

C-66

Radiation Chemistry Data Center

University of Notre Dame
Radiation Laboratory
South Bend, Indiana 46556

Purpose: The center was established for the purpose of bringing together all information on radiation chemistry and providing a means of making selected and evaluated data readily available to scientists throughout the world.

Scope: This is a specialized data center under the chemical kinetics program of the National Standard Reference Data System and is supported jointly by the Division of Technical Information of the Atomic Energy Commission and the National Bureau of Standards.

Coverage: Irradiated chemical systems: State, temperature, pressure, pH, concentration, source, radiation, energy, dose and dose rate, intermediates and products, elementary processes, chemical and physical properties.

Status: Center has been operational since 1965. Currently only unevaluated data are stored but plans are for evaluation to be made in the future.

C-67

Reliability Analysis Central

Air Force Reliability Center
Rome Air Development Center
Griffiss Air Force Base
Rome, New York 13440

Purpose: This planned data center will act as a centralized clearing house which will collect, store, reduce, organize, correlate, and analyze all available parts and device reliability information and experience to serve as a ready source of current cumulative reliability knowledge for users.

Scope: A field team of government personnel is concentrating on collection of existing reliability data from all potential sources. The more significant aspects of the center's operation will be concerned with generation of data which involve decision making and mathematical operations upon elements of the data base.

Coverage: Item identification, performance parameters, physical characteristics, reliability characteristics.

Status: The center is currently under development and is scheduled to become operational in June, 1968. Test operation is planned on semiconductor transistors, then to be expanded to cover semiconductor integrated circuits, mechanical and electromechanical parts and discrete electronic parts.

C-68

Roper Public Opinion Research Center

Williams College
Williamstown, Massachusetts 01267

Purpose: Center was established as a general purpose social science data archive to serve universities, industry, governments, other organizations, and individual scholars.

Scope: The Roper Center holdings include raw data from 26 American suppliers and 81 other organizations located in 44 countries abroad.

Coverage: Survey, poll data: Politics, economics, health and welfare, occupations, community problems, etc.

Status: Center has been in operation since 1946 and maintains a file of over 12 million IBM cards, representing data from more than 7,000 studies. A planned computing system will keep the most heavily used studies and their machine-readable codebooks permanently on line for efficient retrieval that will supply users with tapes or analysis decks in the forms they need.

C-69

Sadtler Research Laboratories Data Program

Sadtler Research Laboratories, Inc.
3316 Spring Garden Street
Philadelphia, Pennsylvania 19104

Purpose: This industrial data effort measures the characteristics of the organic and inorganic molecule, interprets the IR, UV, NMR spectra of unknowns, assigns structure by means of standard spectra, prepares correlation tables, publishes data, and makes search tapes available for rental.

Scope: Spectra have been generated in own laboratories and are in use internationally in all areas of government and industry involved in chemistry, pharmacy, electronics, petroleum, food, etc.

Coverage: Inorganic, organic, and agricultural chemicals; fats, waxes, and derivatives; fibers, intermediates, lubricants, monomers and polymers, natural resins, perfumes and flavors, petroleum chemicals; pigments, dyes, and stains; plasticizers, polyols: Infrared, ultra-violet, NMR, thermochemical, smelling points, boiling points, other physical values.

Status: The Infrared Prism series was established in 1947; other groups were established in intervening years. More than 90,000 spectra have been covered by various publications, and the firm anticipates publication of mass spectral data in the near future.

C-70

Scientific Information Systems Group

University of California
Lawrence Radiation Laboratory
Post Office Box 808
Livermore, California 94550

Purpose: The group collects, collates, evaluates, interprets, and publishes the results of experimental and evaluated neutron cross-section data required for weapons, weapon effects, and reactor calculations.

Scope: Literature and data include all pertaining to neutron physics in French, Italian, German, English, and standard translations of Russian. Users are primarily U. S. government agencies and their contractors.

Coverage: Differential and integral cross sections for all neutron-induced reactions for neutron energies below 100 meV for all isotopes: Experimental values, semi-empirical curves, threshold energies.

Status: Center has been operational since 1957 and currently maintains a file of 5,000 documents.

C-71

Smith, Kline and French Chemical Data System

Smith Kline and French Laboratories
Science Information Research and Development Division
1500 Spring Garden Street
Philadelphia, Pennsylvania 19101

Purpose: The data activity of this industrial pharmaceutical firm generically retrieves chemical structures and correlates them with biological data for medical research usage.

Scope: Data are collected from all available journal and report literature and from internal research in the company's laboratories. Data on known compounds are available on request; there are proprietary restrictions on biological data except when completed for outside research organizations.

Coverage: Organic compounds, natural products: Biological activities.

Status: The data system was begun in 1954 and has data in its files on over 500,000 compounds and from 300,000 biology reports.

C-72

Solar Forecast Facility

U. S. Air Force
Headquarters 4th Weather Wing
Military Airlift Command (MAC)
Ent Air Force Base, Colorado 80912

Purpose: The mission of this data center is to observe, report, analyze, and predict the solar activity and disturbances of the aerospace environment which affect military operations.

Scope: The Facility includes a Solar Forecast Center and a worldwide Solar Observing and Forecasting Network (SOFNET), with observatories in New Mexico, California, Massachusetts, California, Hawaii, Philippines, Puerto Rico, and Greece.

Coverage: Sunspot, calcium plage, solar prominence report data; coronal emission indices, major solar flare data, radio data, radio maps of the sun, sudden ionospheric disturbances, geomagnetic indices, satellite and space vehicle data, etc.

Status: A test program of forecasting was begun in the Air Weather Service Headquarters in 1962. After two years, AWS transferred the test program to the 4th Weather Wing; in April 1965, the Facility was organized as a detachment and separate unit of the Wing. Continuous surveillance of the sun is maintained; real-time data analyzed are less than six hours old.

C-73

STORET System

U. S. Department of Interior
Federal Water Pollution Control Administration
Washington, D. C. 20242

Purpose: The System supports the FWPCA in its water pollution control responsibilities by providing the capability to handle water resources data.

Scope: Data are both regional and national in coverage and include Canada and Mexico as sources. Data are collected from 10,000 water quality stations in system.

Coverage: Water quality data, uses, standards, facilities, etc.: More than 450 properties, including inorganic elements and ions, organic pollutants, natural and artificial radioisotopes.

Status: Center became operational in 1964 and is currently converting to the Department's IBM 360/65 computer which will provide future expansion capacity to the System.

C-74

Systems Effectiveness Program, Military Construction Facilities

Office of the Chief of Engineers
Advanced Technology Branch, ENGMC-ED
Washington, D. C. 20315

Purpose: The planned activity will provide for rapid storage and access, processing, and analysis of operating and maintenance data for military construction facilities.

Scope: Currently, the activity is primarily concerned with direct support of NIKE-X power development but plans are in progress to broaden scope in 1969 to include additional types of facilities and associated equipment and systems.

Coverage: Diesel engines, gas turbines, generators, switch gear, transformers, etc.: Performance values, availability, maintainability, reliability.

Status: Project was initiated in 1963 and is operational as a data collection and analysis activity for NIKE-X power development at the present. This activity will be moved to the Army's Construction Engineering Research Laboratory, planned for establishment at the University of Illinois in 1969.

C-75

Thermodynamic Properties of Metals and Alloys Data Program

University of California
Lawrence Radiation Laboratory
Hearst Mining Building
Berkeley, California 94720

Purpose: The data effort of this group extracts, evaluates, and prepares compilations of thermodynamic data on metals and alloys for use by metallurgical engineers, metal physicists, designers, and others engaged in work with such materials.

Scope: Data are gathered from worldwide published and unpublished sources and are available to qualified laboratories, government agencies and their contractors, research and educational groups, and to industry.

Coverage: All substances that conduct electricity electronically, particularly metals and alloys: Thermodynamic properties, phase equilibria, etc.

Status: Program was begun in 1955 under the sponsorship of the Atomic Energy Commission and has indexed more than 12,000 data sources to date, covering the period since 1848. Increasing emphasis is being given to data on alloys.

C-76

Thermodynamics Research Center

Texas A&M University
Department of Chemistry
Post Office Box 3395
College Station, Texas 77840

Purpose: Through extensive literature searches, experimentation, and theoretical research, the center selects and correlates data related to physical, thermodynamic, and spectral properties of organic compounds.

Scope: Data sheets and selected spectra are available to all members of the free world scientific community. Center is sponsored by the Office of Standard Reference Data of the National Bureau of Standards.

Coverage: Organic compounds other than hydrocarbons: Boiling point, freezing point, density, other thermodynamic functions.

Status: Center began in 1955 as a Manufacturing Chemists Association Research Project. Support by the Office of Standard Reference Data was assumed in 1964.

C-77

Thermophysical Properties Research Center (TPRC)

Purdue University
2595 Yeager Road
West Lafayette, Indiana 47906

Purpose: The center provides reference data based on integrated programs of critical evaluation of existing data, theoretical studies, and experimental determination on thermophysical properties of all matter. It supplements available experimental data by semi-empirical and theoretical methods.

Scope: The Center is sponsored and supported by the National Bureau of Standards and by the Air Force as one of its Materials Information Centers. Scope of coverage is worldwide.

Coverage: All classes of materials and substances: Coefficient of expansion, viscosity, thermal conductivity, thermal diffusivity, diffusion coefficient (mass), specific heat, thermal radiative properties, Prandtl number.

Status: Center was established in 1957 and has issued over 5,000 data sheets. It updates a three-volume data book twice a year.

C-78

Toxicological Information Center

U. S. Army
Industry Liaison Office
Research Laboratories
Edgewood Arsenal, Maryland 21010

Purpose: This data effort collects and exchanges chemical, physical, toxicological, and therapeutic information on chemical compounds.

Scope: Data are collected from classified and unclassified government reports, international open literature, and from in-house technical meetings; data are used for internal research but are available on a need-to-know security basis to other government agencies and to industry.

Coverage: Biological effectiveness of chemical compounds, ancillary data.

Status: Center began operation in 1956 and maintains data files on about 17,000 compounds with data on an additional 1,000 compounds annually.

C-79

Tri-Service and NASA Failure Rate Data (FARADA) Program

Officer-in-Charge (Code E-6)
Naval Fleet Missile Systems Analysis
and Evaluation Group
Corona, California 91720

Purpose: The objective of the data program is to provide reliability, design, and maintainability engineers with up-to-date failure rate information on parts/components for application in the design phase of ground, mobile, shipboard, aircraft, etc. military and space systems.

Scope: The military services and NASA are the funding sponsors of the program, with Coordination Centers in Washington, D. C., Corona, California, and Rome, New York. Users are approximately 300 contractor organizations and U. S. Government activities.

Coverage: Electrical, electronic, mechanical, hydraulic, pneumatic, and pyrotechnic parts/components: Stress analysis, environmental and application factors, performance degradation, failure modes.

Status: The initial data handbook was distributed in June, 1962. Currently, there are five volumes, with a data bank containing over 40,000 line entries of tabulated failure rate data.

C-80

U. S. Naval Avionics Facility (NAFI) Automated Data Processing and Control System for Test Equipment

U. S. Naval Avionics Facility
Indianapolis, Indiana

Purpose: Objectives of this automated data center are to maintain an updated inventory of avionics test equipment, to provide data for preparation of test equipment budgets, to recall equipments for periodic calibration service, to record reporting of calibration, repair, maintenance, etc. of equipment service actions, and, in general, to obtain decision-making information quickly and economically.

Scope: Data collected are on commercial test instruments purchased from private manufacturers, special purpose test equipments fabricated at NAFI, and measurement standards used by other Navy Calibration Laboratories. The present operation of the system pertains primarily to the servicing of NAFI commercial test instruments, with other types in process of development.

Coverage: Test equipments: Instrument name, manufacturer, model number, purchase date, cost, test procedures, calibration cycles, etc.

Status: After its initiation in 1956, system became automated in 1964 and currently contains data on approximately 10,000 pieces of test equipment.

C-81

U. S. Naval Failure Rate Data Program (FARADA)

U. S. Naval Supply Depot
Maintenance Support Office
Mechanicsburg, Pennsylvania 17055

Purpose: This data activity is designing and developing a data accumulation processing and analysis system for the Navy Maintenance and Material Management Program (3-M) and to provide maintenance and material data and analytical services to the Chief of Naval Material.

Scope: The center is planned to serve the entire U. S. Navy and its contractors.

Coverage: Component failure rate data: Type of malfunction (in code), parts required to repair malfunction (if any), man-hours required to repair for ships, aircraft.

Status: Center was established in August, 1964 and is currently about halfway into planned program. Future phases of program call for complete documentation of all maintenance actions performed in the Navy.

C-82

Veterinary Medical Data Program

National Institutes of Health
National Cancer Institute
9000 Rockville Pike
Bethesda, Maryland 20014

Purpose: This center maintains a data bank from epidemiologic investigations of cancer in animals in order to take full advantage of available comparative disease models which may speed the identification of factors responsible for cancer in man.

Scope: At present, eight U. S. schools of veterinary medicine and one Canadian school are participating. Main users are participants themselves, requesting special information from their own bank.

Coverage: Data pertaining to naturally occurring diseases of domestic animals.

Status: About 60, 000 medical case abstracts have been added to data files since the program began operations in 1964. It will be continued, adding six to eight new schools over the next several years.

C-83

X-Ray Attenuation Coefficient Information Center

National Bureau of Standards
Office of Standard Reference Data
Washington, D. C. 20234

Purpose: The Center evaluates and disseminates data on photon cross-sections and attenuation coefficients.

Scope: Work of the center is correlated with the Photonuclear Data Center of NBS and collaborates with research group at Lawrence Radiation Laboratory. It is a consultant to the Radiation Dosimetry Task Group of the International Commission on Radiological Units and Measurements.

Coverage: Attenuation coefficients for high energy photon (x-ray, gamma ray) interaction with matter: Compton and Rayleigh scattering, atomic photo-effect, electron-positron pair production.

Status: The center has been an activity of NBS since 1952, with OSRD support since 1963. Its data card file contains over 1,200 cards with 6,000 references in its subject index.

3. Tabulation of Characteristics of Data Service Centers

DATA CENTERS

DIRECTORY CODE	TITLE or COMMON NAME	YEAR ESTABLISHED	HOUSING or SPONSORING INSTITUTION & ADDRESS	OPERAT ANNUAL BUDGET $ 10-30,000	$ 30-100,000	$ 100-250,000	$ 250-500,000	OVER $ 500,000	FEDERAL GOVERNMENT
C-1	Accelerator Information Center	1958	Oak Ridge National Laboratory Post Office Box X Oak Ridge, Tennessee 37830	x					100
C-2	Advisory Center on Toxicology	1957	Machinists Building 1300 Connecticut Avenue, N. W. Washington, D. C. 20036 (sponsored by National Academy of Sciences-National Research Council)		x				100
C-3	Air Force Global Weather Central	1957	U.S. Air Force Military Airlift Command 2nd Weather Squadron Offutt Air Force Base, Nebraska 68113					x	100
C-4	Air Force Machinability Data Center	1964	Metcut Research Associates, Inc. 3980 Rosslyn Drive Cincinnati, Ohio 45209			x			100
C-5	Alloy Data Center	1966	National Bureau of Standards Alloy Physics Section Metallurgy Division Washington, D. C. 20234		x				100
C-6	American Petroleum Institute (API) Research Project 44	1942	Texas A&M University Thermodynamics Research Center Post Office Box 3395 College Station, Texas 77840	Not given.					
C-7	Atomic Collision Cross Sections Data Center	1960	National Bureau of Standards University of Colorado Joint Institute for Laboratory Astrophysics Boulder, Colorado 80302		x				100
C-8	Atomic and Molecular Physical Data Program	1964	American Society for Testing and Materials 1916 Race Street Philadelphia, Pennsylvania 19103	Not given.					100

OPERATIONAL SUPPORT												OPERATING PURPOSE & STATUS	
ANNUAL BUDGET					SOURCE of SUPPORT (%)					SCOPE			COVERAGE
$10-50,000	$50-100,000	$100-250,000	$250-500,000	OVER $500,000	FEDERAL GOVERNMENT	STATE & LOCAL GOVERNMENT	INDUSTRIAL or COMMERCIAL	EDUCATIONAL INSTITUTIONS	OTHER (IDENTIFY)	REGIONAL	NATIONAL	INTERNATIONAL	SUBSTANCES, MATERIALS or EQUIPMENTS	PROPERTIES or PERFORMANCE VALUES
x					100%							x	Cyclotrons and other high-energy accelerators.	Design parameters.
	x				100%						x		Human and veterinary toxicology.	Chemical compounds, biological environment, military health, public health, occupational medicine, and other biomedical data.
				x	100%							x	Meteorological, aerospace, and solar data.	Surface and upper-air weather characteristics, raw satellite readouts, etc.
		x			100%						x		Specific materials with definite chemical, physical, or mechanical properties.	Turning, milling, drilling, tapping, grinding; removal parameters such as speeds, feeds, depths of cut, tool material, cutting fluids, and other significant variables.
	x				100%						x		Metals and alloys (primary binary).	Physical properties (planned coverage extends to Knight shift values, other parameters of NMR, and emission and soft x-ray spectra).
Not given.								x	Non-profit institutions.			x	Hydrocarbon and nitrogen/sulfur compounds.	Physical, chemical, and thermodynamic property values; infrared, ultraviolet, mass Raman, and nuclear magnetic resonance spectroscopic data.
	x				100%							x	Low energy atomic collision physics.	Atomic collision cross sections, absorbtion coefficients, mobilities and diffusion coefficients for electrons.
Not given.					100%						x		Organic compounds.	Infrared absorbtion spectra--spectral absorbtion bands, chemical structure, melting point, boiling point, and molecular formula.

B

DIRECTORY CODE	OPERATING STATUS (continued)								SOURCES of DATA		
	OPERATING MOTIVE				CONTINUITY of OPERATION				SCIENTIFIC & TECHNICAL ACTIVITIES GENERATING DATA	UNPUBLISHED SOURCES	PUBLISHED SOURCES
	INTERNAL STAFF SUPPORT	NON-PROFIT EXTERNAL SERVICING	PROFIT-MAKING EXTERNAL SERVICING	OTHER	AD HOC	PERIODIC	CONTINUOUS	OPERATIONAL	PLANNED			
C-1		x					x	x		High-energy accelerator design.	Not given.	Not given.
C-2		x					x	x		Laboratory research, environmental monitoring, chemical tests.	Inquiries to industry, privileged communications.	Government reports, open literature.
C-3	x	x					x	x		Upper-air environmental monitoring.	Meteorological satellite readouts, aircraft weather reports, and classified data from various sources.	None.
C-4		x					x	x		Laboratory research.	Manufacturers' data, pamphlets, tables, reports, technical announcements.	Current journals, abstracts, etc.
C-5		x					x	x		Laboratory research.	Preprints.	Handbooks, conference reports, textbooks, bibliographies.
C-6		x					x	x		Laboratory research.	Selected personal communications.	All available published sources.
C-7		x					x	x		Not given.	Not given.	All available published sources.
C-8		x					x	x		Laboratory research.	Private collections of reference spectra	None.

SOURCES of DATA (con't.)				INPUT DATA		DATA PROCESSING											
INSTITUTIONAL SOURCES of DATA						OPERATIONS PERFORMED											
GOVERNMENT & CONTRACTORS	INDUSTRIAL & COMMERCIAL	EDUCATIONAL & NON-PROFIT	OTHER	STATE of REFINEMENT	FORMS of DATA	REDUCE	CATALOG	INDEX	EXTRACT	INTEGRATE	COMPUTE	STORE	EVALUATE	REFORMAT	REPRODUCE	DISSEMINATE	OTHER
x	x	x		Not given.	Hardcopy				x	x			x		x	x	
x	x			Reduced, evaluated.	Not given.			x	x			x	x	x		x	Abstract, retrieve.
x				Raw.	Analog readout signals, ADP coded.	x	x	x	x	x	x	x	x	x	x	x	Decode.
x	x	x		Reduced, evaluated.	Hardcopy, microform, ADP coded.	x	x	x	x	x	x	x	x	x	x	x	Collect.
x	x	x		Evaluated.	Hardcopy.				x				x				Compile, annotate.
x	x	x		Evaluated.	Hardcopy.						x		x		x	x	Compile, revise, update.
x				Evaluated.	Hardcopy, microform.		x	x	x			x	x	x	x	x	
x	x			Not given.	Hardcopy.			x	x	x		x	x	x	x	x	

INPUT DATA (cont.) DIRECTORY CODE	EXTENT OF AUTOMATION: SUBSTANTIAL	LIMITED	NONE	USER SERVICING — USING COMMUNITIES: SCALE	SCIENTIFIC or TECHNOLOGICAL ACTIVITIES	INSTITUTIONS	USER QUALIFICATIONS & RESTRICTIONS
C-1			x	International.	Nuclear and high-energy physics.	Federal Government agencies, foreign governments, educational institutions, industry and commerce.	None.
C-2			x	National.	Military health, public sanitation and health, space medicine.	Government agencies (DOD, AEC, NASA, and HEW).	Approval of DOD, AEC, NASA, or HEW; 5% of data are classified.
C-3	x			International.	Weather support.	Government agencies (DOD).	Approval of DOD; some data are classified.
C-4	x			National.	Machine maintenance, operation; material removal operations.	Government agencies, aerospace industries, non-military industries which assist the defense effort, technical institutions.	None.
C-5		x		National.	Research in metal alloys.	Government agencies, industry, educational institutions, etc.	None.
C-6		x		International.	Basic research in physics and chemistry; applied petroleum technology.	All institutions.	None.
C-7	x			International.	Not given.	Not given.	None.
C-8		x		International.	Infrared spectroscopy.	Industrial, governmental, and academic laboratories.	None.

USER SERVICING (continued)								OPERATING STATISTICS
	SERVICES PROVIDED				FORM OF SERVICE			
COST TO USER	ANSWER INQUIRIES	PUBLISH DOCUMENTS	ANNOUNCE DATA DOCUMENTS	OTHER	CUSTOMIZED	STANDARDIZED	ARTIFACTS PRODUCED	CURRENT VOLUME
None.	x	x			x	x	Catalogs and tabulations on accelerators and frequency-modulation cyclotrons.	Publication distribution: 650 catalogs distributed to date.
None.	x				x		Not given.	Volume of data in files: 175,000 cards representing 50,000-60,000 chemical compounds. Staff: 12 personnel.
None.	x	x		Provide tailored data.	x	x	Analyses, forecasts, processed listings.	Input: 21,000,000 characters per day. Artifacts produced: 2,000 specialized products per day.
Not given.	x	x	x		x	x	Data compilations, charts, drawings, reports.	Volume of data in files: 13,300 documents. Staff: 9 full-time, 16 part-time. Users served: 3,700.
Not given.	x	x			x		Compilations of physical properties of metals and alloys.	Volume of data in files: 4,000-4,500 items
$.30 per data sheet.		x				x	Looseleaf data sheets and binders.	Users served: 1,000 subscribers (1967).
None.		x				x	Data compilations, critical reviews, bibliographies.	Volume of data processed: data from 3,000 journals and non-standard articles. Staff: 4 full-time, 3 part-time. Users served: approximately 600.
$.15-$.20 per spectrum.		x				x	Standard infrared spectral data sheets.	Volume of data processed: 8,600 spectra evaluated to date.

OPERATING STATISTICS (con't.)	
RATE of GROWTH	FUTURE PLANS
Not given.	Not given.
Volume of operation remains constant.	Possible coordination with activities of other toxicological information programs.
Estimated additions to staff: 343 new personnel.	Installation of 4 third-generation computers in early 1969.
Additions to data files: 4,200 documents per year.	Not given.
Not given.	Expansion of coverage to include Knight shift values, emission spectra, and soft x-ray spectra.
Not given.	Continuous up-dating of data file.
Not given.	Not given.
Volume of operation remains constant.	Improvement of class of spectra to Class II, which carries more demanding specification conformance.

DATA CENTERS

CONTINUED ON NEXT PAGE.

DATA CENTERS

DIRECTORY CODE	TITLE or COMMON NAME	YEAR ESTABLISHED	HOUSING or SPONSORING INSTITUTION & ADDRESS	OPE ANNUAL BUDGET $10 50,000	$50 100,000	$100 250,000	$250 500,000	OVER $500,000
C-9	Atomic and Molecular Processes Information Center	1963	Oak Ridge National Laboratory Post Office Box Y Oak Ridge, Tennessee 37831			x		
C-10	Atomic Transition Probabilities Data Center	1960	National Bureau of Standards Washington, D. C. 20234		x			
C-11	Automated Hospital Information System (AHIS)	1965	Veterans Administration Hospital 50 Irving Street, N. W. Washington, D. C. 20422					x
C-12	Bureau of Applied Social Research	1937	Columbia University 605 West 115th Street New York, New York 10025	x				
C-13	Bureau of the Census	1902	U.S. Department of Commerce Suitland, Maryland 20233					x
C-14	Bureau of Labor Statistics Information System	1965	U.S. Department of Labor Washington, D. C. 20212	Not given.				
C-15	Center for Diffusion in Gases	1965	University of Maryland Department of Chemical Engineering Institute of Molecular Physics College Park, Maryland 20742		x			
C-16	Charged-Particle Cross-Section Data Center	1962	Oak Ridge National Laboratory Post Office Box X Oak Ridge, Tennessee 37830		x			

A

OPERATIONAL SUPPORT											OPERATING PURPOSE & STATUS				
ANNUAL BUDGET					SOURCE of SUPPORT (%)						SCOPE				COVERAGE
$10-30,000	$30-100,000	$100-250,000	$250-500,000	OVER $500,000	FEDERAL GOVERNMENT	STATE & LOCAL GOVERNMENT	INDUSTRIAL or COMMERCIAL	EDUCATIONAL INSTITUTIONS	OTHER (IDENTIFY)	Regional	National	International		SUBSTANCES, MATERIALS or EQUIPMENTS	PROPERTIES or PERFORMANCE VALUES
		x			100%						x			All molecules composed of five atoms or less.	Collision processes for heavy particle-heavy particle interactions, processes involving action of an electronic or magnetic field or transitions in atomic or molecular systems, article penetration, etc.
	x				100%							x		Atoms and atomic ions in the gas phase.	Radiative transition probabilities, spectral line intensities.
				x	100%					x	x			Data from hospital patient care records.	Not given.
x					70%	5%	3%	5%	17% - Foundations.		x	x		Health and welfare, occupations and professions, mass communications, politics, education, organizations, etc.	Quantitative data.
				x	100%					x	x	x		Census and survey data on population, housing, construction, agriculture, manufacturing, mineral industries, business, transportation, governments, foreign trade, and shipping.	Statistical data.
Not given.					100%					x	x			Industry and labor force statistics.	Statistical data.
	x				90%	10%					x			Physio-chemical systems.	Diffusion coefficients, molecular beam scattering data, thermal conductivity measurements, etc.
	x				100%							x		Charged-particle cross sections.	All energies, including angular distributions and excitation functions, angular dependence of polarization produced in elastic scattering.

B

DIRECTORY CODE	OPERATING STATUS (continued)										SOURCES of DATA		
	OPERATING MOTIVE				CONTINUITY of OPERATION						SCIENTIFIC & TECHNICAL ACTIVITIES GENERATING DATA	UNPUBLISHED SOURCES	PUBLISHED SOURCES
	INTERNAL STAFF SUPPORT	NON-PROFIT EXTERNAL SERVICING	PROFIT-MAKING EXTERNAL SERVICING	OTHER	AD HOC	PERIODIC	CONTINUOUS	OPERATIONAL	PLANNED				
C-9	x	x					x	x			Nuclear research.	None.	All published sources.
C-10	x	x					x	x			Laboratory research.	Not given.	Journal articles theses, technical reports.
C-11	x								x		Systems analysis, statistical analysis, simulation.	Data logs, notebooks, computer printouts, notes, internal reports.	Limited medical literature.
C-12	x	x					x	x			Surveys, content analysis of publications.	Reports generated by the research staff of the Bureau.	Published surveys conducted by the Bureau.
C-13		x					x	x			Surveys, census.	Not given.	Not given.
C-14	x	x					x	x			Surveys.	Industrial reports.	Not given.
C-15	x	x			x			x			Laboratory research.	Not given.	Not given.
C-16	x	x					x	x			Nuclear research.	Preprints.	Open literature, including AEC reports, NSA abstracts, Physics and Chemistry Abstracts.

SOURCES of DATA (con't.)				INPUT DATA		DATA PROCESSING											
INSTITUTIONAL SOURCES of DATA						OPERATIONS PERFORMED											
GOVERNMENT & CONTRACTORS	INDUSTRIAL & COMMERCIAL	EDUCATIONAL & NON-PROFIT	OTHER	STATE of REFINEMENT	FORMS of DATA	REDUCE	CATALOG	IND...	EXTRACT	INTEGRATE	COMPUTE	STORE	EVALUATE	REFORMAT	REPRODUCE	DISSEMINATE	OTHER
x				Not given.	Hardcopy, microform.				x			x	x			x	Collect.
x	x	x		Raw, reduced, evaluated.	Hardcopy.	x	x	x	x		x	x	x	x	x	x	
x	x	x		Raw, reduced, evaluated.	ADP coded.		x	x	x	x	x	x	x	x			Teleprocessing.
Not given.				Not given.	ADP coded.			x			x	x				x	
x	x	x	Foreign governments and institutions.	Raw, reduced.	Hardcopy, microforms, ADP coded.	x	x	x	x	x	x	x	x	x	x	x	Collect, edit.
	x			Raw, evaluated.	Hardcopy, ADP coded.	x				x	x	x	x	x	x	x	
x		x		Evaluated.	Hardcopy.	x	x	x	x		x	x	x	x	x	x	
x	x			Evaluated.	ADP coded.		x	x			x	x	x	x	x	x	

INPUT DATA (cont'd)				USER SERVICING			
	EXTENT OF AUTOMATION			USING COMMUNITIES			
DIRECTORY CODE	SUBSTANTIAL	LIMITED	NONE	SCALE	SCIENTIFIC or TECHNOLOGICAL ACTIVITIES	INSTITUTIONS	USER QUALIFICATIONS & RESTRICTIONS
C-9	x			International.	Basic research and applied technology.	Government agencies, industry, non-profit and educational institutions.	None.
C-10		x		International.	Plasma physics, astro-physics, applied physics research.	Government agencies, industry, educational institutions, basic research laboratories, observatories.	None.
C-11	x			National (planned).	Hospital operations relating to direct patient care.	Veterans' Administration hospitals and clinics.	Confidential medical communications.
C-12	x			National.	Applied social science research and related disciplines.	Not given.	None.
C-13	x			National.	Demographic and economic forecasting.	Government agencies, Congress, industry, professional associations, etc.	Some information is confidential.
C-14	x			National.	Not given.	Government, industry, educational institutions.	None.
C-15		x		National.	Physio-chemical analysis.	Government, industry, educational institutions.	None.
C-16	x			Primarily staff of Oak Ridge National Laboratory.	Nuclear physics.	Atomic Energy Commission, industry, and research organizations.	None.

USER SERVICING (continued)								OPERATING STATISTICS
	SERVICES PROVIDED				FORM OF SERVICE			
COST TO USER	ANSWER INQUIRIES	PUBLISH DOCUMENTS	ANNOUNCE DATA DOCUMENTS		CUSTOMIZED	STANDARDIZED	ARTIFACTS PRODUCED	CURRENT VOLUME
None.	x	x	x	Make literature searches	x	x	Graphs, bibliographies in tabular form.	Staff: 16 part-time scientists.
Nominal fee for bibliographies and tabulations.	x	x	x		x	x	Critical data compilations in tabular form, bibliographies.	Artifacts produced: approximately 200 data sheets per year. Inquiries received: 100-200 per year.
Not established.				On-line automation.	x	x	Computer printouts (summaries, schedules, etc.)	(Not operational.)
Not given.			x	Furnish copies of data.		x	Not given.	Volume of data in files: 150 studies.
At cost.	x	x	x	Provide consultant services, furnish special tabulations.	x	x	Data compilations, drawings, maps, etc.	Volume of data in files: billions of data records, over 125,000 reels of computer tape.
Not given.	x	x			x	x	Data compilations, computer printouts, duplicate tapes.	Volume of data in files: monthly reports from 140,000 establishments; reports from 35,000 household interviews.
Not yet established.	x	x				x	Data compilations, charts.	Not given.
None.	x	x	x	Conduct literature searches.	Not given.		Data compilations, state-of-the-art reviews.	Volume of data in files: 1.5×10^5 data points. Staff: 1 full-time, 3 half-time.

DATA CENTERS

DIRECTORY CODE	TITLE or COMMON NAME	YEAR ESTABLISHED	HOUSING or SPONSORING INSTITUTION & ADDRESS	OPERA ANNUAL BUDGET $10 50,000	$50-100,000	$100 250,000	$250 500,000	OVER $500,000	FEDERAL
C-17	Chemical Thermodynamics Data Group	1925	National Bureau of Standards Washington, D. C. 20234			x			10
C-18	Computer Index Neutron Data (CINDA)	1964	Atomic Energy Commission Division of Technical Information Extension Post Office Box 62 Oak Ridge, Tennessee 37830	x					10
C-19	Computerized Data Storage and Retrieval System for Deployable Aero Decelerators	1967	U. S. Air Force Flight Dynamics Laboratory Recovery and Crew Stations Branch Wright-Patterson Air Force Base, Ohio 45433	x					10
C-20	Computerized Mapping of Disease Project. (MOD)	--	Universities Associated for Research and Education in Pathology, Inc. 9650 Rockville Pike Bethesda, Maryland 20014	Not given.					10
C-21	Copper Development Association Technical Data Center	1965	Battelle Memorial Institute 505 King Avenue Columbus, Ohio 43201					x	
C-22	Cryogenic Data Center, Cryogenic Data Compilation Unit	1958	National Bureau of Standards Boulder Laboratories Boulder, Colorado 80301			x			10
C-23	Crystal Data Center	1942	National Bureau of Standards Institute for Materials Research Washington, D. C. 20234	Not given.					10
C-24	DASA Information and Analysis Center (DASIAC)	1961	TEMPO General Electric Company 816 State Street Santa Barbara, California 93101 (sponsored by the Defense Atomic Support Agency)					x	10

OPERATIONAL SUPPORT											OPERATING PURPOSE & STATUS				
ANNUAL BUDGET					SOURCE of SUPPORT (%)						SCOPE				COVERAGE
$10 30,000	$30-100,000	$100 250,000	$250 300 000	OVER $300,000	FEDERAL GOVERNMENT	STATE & LOCAL GOVERNMENT	INDUSTRIAL or COMMERCIAL	EDUCATIONAL INSTITUTIONS	OTHER (IDENTIFY)	Regional	National	International		SUBSTANCES, MATERIALS or EQUIPMENTS	PROPERTIES or PERFORMANCE VALUES
		x			100%						x	x		Inorganic substances and organic compounds containing not more than two carbon atoms.	"Best" selected values of chemical thermodynamic properties -- Enthalpy and Gibbs free energy of formation, entropy, heat capacity, phase-change, etc.
x					100%							x		Neutron cross sections and related quantities.	Reactions induced in specific elements and isotopes by energies up to 20 meV, photoneutron and photo fission reactions, etc.
x					100%						x			Parachutes, paragliders, re-entry bodies, lifting bodies, etc.	Drag, thermodynamics, re-entry trajectories, aerodynamics, ballistics, etc.
Not given.					100%							x		Disease data correlated with environmental, sociological, and physical data.	Population density, races, ethnic groups, altitude, character of the soil, insect vectors, animal reservoirs of disease, etc.
				x			100%				x			Copper, copper alloys, iron and steel with copper as an alloying element, copper chemicals, materials which compete with copper.	Metal working processes, mechanical properties, engineering and test data, etc.
		x			100%							x		Helium, hydrogen, neon, nitrogen, oxygen, air, carbon monoxide, fluorine, argon, methane, xenon, krypton.	Pressure-volume-temperature relationships; properties of metallic elements, selected alloys, and element dielectrics; transport properties of fluids.
Not given.					100%							x		Crystalline materials.	Axial lengths and angles of the unit cell, space groups, number of molecules or formula weights per cell, both the measured densities and those calculated from x-ray data, habits, cleavages, etc.
				x	100%						x	x		Nuclear weapons.	Nuclear weapon output (radiations, etc.), weapon phenomena, system effects, and research and instrumentation data.

OPERATING STATISTICS (con't.)	
RATE of GROWTH	FUTURE PLANS
Not given.	Development of monographs with evaluated data at rate of 2 per year.
Rate of increase in data file: 15-20% per year. Rate of increase in inquiries: 30% per year.	Continuation of operations at present level.
Not given.	Limited operational capability planned for mid-1968.
Not given.	Not given.
Rate of increase in data files: 10% per year. Rate of increase in users served: 15% per year.	Increase in quantity and quality of data.
Not given.	Not given.
Not given.	Not given.
Additions to data files: 1,000 abstracts per year	Not given.

DATA CENTERS

CONTINUED ON NEXT PAGE.

DIRECTORY CODE	OPERATING STATUS (continued)										SOURCES of DATA		
	OPERATING MOTIVE				CONTINUITY of OPERATION						SCIENTIFIC & TECHNICAL ACTIVITIES GENERATING DATA	UNPUBLISHED SOURCES	PUBLISHED SOURCES
	INTERNAL STAFF SUPPORT	NON-PROFIT EXTERNAL SERVICING	PROFIT-MAKING EXTERNAL SERVICING	OTHER	AD HOC	PERIODIC	CONTINUOUS	OPERATIONAL	PLANNED				
C-17		x					x	x			Laboratory research.	Research reports.	All available published sources.
C-18		x					x	x			Nuclear research.	Conference preprints, private communications.	Current literature (journals, technical reports, etc.).
C-19	x	x							x		Aerodynamic decelerator design and testing.	Government and manufacturers' test reports.	Government and manufacturers' test reports.
C-20		x			x			x			Survey and statistical correlation.	Not given.	Not given.
C-21		x					x	x			Not given.	All available unpublished sources.	All available published sources.
C-22	x	x					x	x			Not given.	Available data, original calculations.	[illegible]hnical lite[illegible]e, NBS re[illegible]tracts.
C-23		x					x	x			Materials research.	Not given.	All available published sources.
C-24	x						x	x			Field tests, simulation experiments.	Laboratory memos, data logs.	Government reports.

SOURCES of DATA (con't.)				INPUT DATA		DATA PROCESSING											
INSTITUTIONAL SOURCES of DATA						OPERATIONS PERFORMED											
GOVERNMENT & CONTRACTORS	INDUSTRIAL & COMMERCIAL	EDUCATIONAL & NON-PROFIT	OTHER	STATE of REFINEMENT	FORMS of DATA	REDUCE	CATALOG	INDEX	EXTRACT	INTEGRATE	COMPUTE	STORE	EVALUATE	REFORMAT	REPRODUCE	DISSEMINATE	OTHER
x				Evaluated.	Hardcopy, microform.			x	x			x	x	x	x	x	Compile, correlate, retrieve.
x	x	x	European nuclear research laboratories.	Raw, reduced, evaluated.	ADP coded.		x			x	x	x		x	x	x	Abstract.
x				Not given.	ADP coded.	Not given.											
x	x	x		Not given.	ADP coded.	Not given.											
x	x	x		Evaluated.	ADP coded.	x	x	x	x	x	x	x	x	x	x	x	
Not given.				Evaluated.	Hardcopy, microfor .		x	x	x			x	x	x	x	x	Compile, correlate, retrieve.
Not given.				Evaluated.	ADP coded.		x	x	x	x	x	x	x	x		x	Collect.
x	x	x		Raw, reduced.	Hardcopy, ADP coded.		x	x		x		x	x		x	x	Retrieve.

INPUT DATA (cont'd)	EXTENT OF AUTOMATION			USER SERVICING USING COMMUNITIES			
DIRECTORY CODE	SUBSTANTIAL	LIMITED	NONE	SCALE	SCIENTIFIC or TECHNOLOGICAL ACTIVITIES	INSTITUTIONS	USER QUALIFICATIONS & RESTRICTIONS
C-17		x		National.	Laboratory research in the energetics of chemical transformation.	Not given.	Not given.
C-18	x			International.	Neutron measurement, neutron cross-section evaluation, reactor design operations.	Government laboratories, university laboratories, private industry laboratories.	None.
C-19	x			National.	Aerodynamic decelerator design.	Government and contractors.	Not given.
C-20	x			National.	Epidemiological disease control, socio-economic analysis.	Public health institutions, military institutions, etc.	Not given.
C-21	x			National.	Materials engineering.	All institutions.	None.
C-22	x			National.	Basic research, design and feasibility studies, gas manufacturing.	Government, industry (especially aerospace and defense contractors).	None.
C-23	x			National.	Research in crystallography, mineralogy, chemistry, and physics.	Not given.	Not given
C-24	x			National.	Analysis of affects of nuclear weapons.	Government agencies (AEC, NASA, NBS, DoD) and contractors.	Approval of DoD.

USER SERVICING (continued)

COST TO USER	SERVICES PROVIDED: ANSWER INQUIRIES	SERVICES PROVIDED: PUBLISH BIBLIOGRAPHIES	SERVICES PROVIDED: ANNOUNCE DATA DOCUMENTS	SERVICES PROVIDED:	FORM OF SERVICE: CUSTOMIZED	FORM OF SERVICE: STANDARDIZED	ARTIFACTS PRODUCED	OPERATING STATISTICS: CURRENT VOLUME
Not given.	x	x			x	x	Tables, reference sheets, data extracts.	Volume of data in files: data on 4,500 chemical compounds and 40,000 chemical substances. Artifacts produced: 1,268 data sheets.
None.	x	x	x		x	x	Printouts of master computer file (every 12-18 months), quarterly supplements to master file printouts, bibliographies.	Volume of data processed: 11,000 new items (1967). Staff: 6 personnel, plus consultants.
Not given.	Not given.				Not given.		Computer printouts of time-dependent parameters.	Volume of data in files: data on 30,000-40,000 test results. Estimated retrievals: 200-300 per day.
Not given.	Not given.				Not given.		Disease-distribution maps, data compilations.	Not given.
Not given.	x	x	x		x	x	Applications data sheets.	Volume of data in files: data on 3,500 items.
$.10-$.25 for charts and publications.	x	x	x		x	x	Data sheets, graphs, catalogs.	Volume of data in files: 40,000 documents. Staff: 12 full-time, 4 part-time.
Not given.		x				x	Crystal Data Determinative Tables (published by NBS as a part of the National Standard Reference Data Series).	Volume of data in files: 30,000 entries. Staff: 2 professional part-time, 2 clerical part-time.
Not given.	x	x	x	Provide consultant services, sponsor workshops, provide experimental data.	x	x	Tapes, films, recordings, charts, graphs, quick-look reports, rapid response summaries.	Volume of data in files: 4,500 tapes, 4,500 recordings, 700 film reels, 3,500 documents (1965). Staff: 9 personnel.

DATA CENTERS

DIRECTORY CODE	TITLE or COMMON NAME	YEAR ESTABLISHED	HOUSING or SPONSORING INSTITUTION & ADDRESS	OPERA ANNUAL BUDGET $10-50,000	$50-100,000	$100-250,000	$250-500,000	OVER $500,000	FEDERAL
C-25	Defense Metals Information Center (DMIC)	1956	Battelle Memorial Institute 505 King Avenue Columbus, Ohio 43201					x	
C-26	Diatomic Molecule Spectra and Energy Levels	1966	National Bureau of Standards Office of Standard Reference Data Washington, D. C. 20234	Not given.					1(
C-27	Eastman Plastics Division Color Data Bank	1932	Eastman Chemical Products, Inc. Subsidiary of Eastman Kodak Company Plastics Division Kingsport, Tennessee 37662	Not given.					
C-28	Economic Growth Center at Yale University	1961	Box 1987, Yale Station New Haven, Connecticut 06520				x		3(
C-29	Electronic Parts for Space Applications Data	1963	Jet Propulsion Laboratory California Institute of Technology Pasadena, California 91103				x		1(
C-30	Electronic Properties Information Center (EPIC)	1961	Hughes Aircraft Company Centinela and Teale Streets Culver City, California 90230 (sponsored by U.S. Air Force)				x		100
C-31	Engineering Materials and Processes Information Service (EMPIS)	circa 1938	General Electric Company Engineering Services One River Road Schenectady, New York 12305					x	
C-32	Environmental Technical Applications Center	1964	Headquarters, U. S. Air Force Building 159, Navy Yard Annex Washington, D. C. 20333					x	1(

A

OPERATIONAL SUPPORT											OPERATING PURPOSE & STATUS				
ANNUAL BUDGET					SOURCE of SUPPORT (%)						SCOPE			COVERAGE	
$10-50,000	$50-100,000	$100-250,000	$250-500,000	OVER $500,000	FEDERAL GOVERNMENT	STATE & LOCAL GOVERNMENT	INDUSTRIAL or COMMERCIAL	EDUCATIONAL INSTITUTIONS	OTHER (IDENTIFY)	Regional	National	International	SUBSTANCES, MATERIALS or EQUIPMENTS	PROPERTIES or PERFORMANCE VALUES
				x	95%				5% - Professional societies and trade associations.		x	x	Aluminum, titanium, beryllium, magnesium, tungsten, molybdenum, columbium, tantalum, rhenium, stainless steels, superalloys, coatings, etc.	Fabrication and applications.
Not given.					100%						x		Diatomic molecule spectra and energy levels.	Optical spectroscopic data and constants - all pertinent regions of the electro-magnetic spectrum, molecular parameters derived from spectroscopic measurements.
Not given.							100%					x	Color standards for plastics.	Transmission or reflectance curves, specified wave lengths, etc.
			x		30%				70% - Ford Foundation.			x	Government, economic growth, monetary conditions.	Gross national and personal income accounts, government and personal expenditure accounts, gross domestic saving accounts, external transactions accounts; data on population, labor, and trade.
			x		100%						x		Electronic component parts.	Effects upon the reliability of the part from subjection to heat sterilization testing.
			x		100%							x	Semiconductors, insulators, ferroelectrics, dielectrics, ferrites, ferromagnetics, electroluminescent materials, thermionic emitters, and superconductors.	Direct measurement of electrical properties, non-electric measurements (energy state), physical properties of crystal structure, etc.
				x			5%		95% - User charges.		x		Nonmetallic, metallic, and chemical materials.	Test methods, finishes, specifications, machinability ratings, relative costs design hints, tolerances.
				x	100%						x	x	Aerospace environment as it affects military weapons, facilities, operations, plans, and military problems.	Geophysical, meteorological, and astrophysical data.

B

OPERATING STATISTICS (con't.)	
RATE of GROWTH	FUTURE PLANS
Additions to data files: 2,200-2,500 new source items per year.	Revival of broad data coverage; expansion of coverage to include selected groups of organic compounds with more than 2 carbon atoms.
Not given.	Possible initiation of user fee to help cover cost of services.
Not given.	Implementation of system is awaiting funding.
Not given.	Completion of project within next two years.
Not given.	Expansion in volume of users served.
Additions to data files: 8,000 documents per year.	Complete documentation of all maintenance actions in Navy.
Additions to data files: 5,000 entries per year.	Establishment of a retrieval system for specific questioning of files.
Not given.	Not given.

DATA CENTERS

CONTINUED ON NEXT PAGE

DIRECTORY CODE	OPERATING STATUS (continued)									SOURCES of DATA		
	OPERATING MOTIVE				CONTINUITY of OPERATION					SCIENTIFIC & TECHNICAL ACTIVITIES GENERATING DATA	UNPUBLISHED SOURCES	PUBLISHED SOURCES
	INTERNAL STAFF SUPPORT	NON-PROFIT EXTERNAL SERVICING	PROFIT-MAKING EXTERNAL SERVICING	OTHER	AD HOC	PERIODIC	CONTINUOUS	OPERATIONAL	PLANNED			
C-25		x					x	x		Metal processing.	Not given.	Worldwide open literature.
C-26		x					x	x		Laboratory research (optical spectroscopy).	Not given.	Journals, abstracts.
C-27		x					x	x		Laboratory spectra analysis.	Laboratory reports.	Not given.
C-28		x					x	x		Not given.	None.	All available published sources.
C-29	x	x			x			x		Environmental monitoring.	Not given.	Jet Propulsion Laboratory reports.
C-30		x					x	x		Not given.	Not given.	All available published sources.
C-31	x		x				x	x		Laboratory research, materials testing.	Not given.	Not given.
C-32	x						x	x		Aerospace environmental monitoring.	Weather reports.	All available published sources.

SOURCES of DATA (con't.)				INPUT DATA		DATA PROCESSING											
INSTITUTIONAL SOURCES of DATA						OPERATIONS PERFORMED											
GOVERNMENT & CONTRACTORS	INDUSTRIAL & COMMERCIAL	EDUCATIONAL & NON-PROFIT	OTHER	STATE of REFINEMENT	FORMS of DATA	REDUCE	CATALOG	INDEX	EXTRACT	INTEGRATE	COMPUTE	STORE	EVALUATE	REFORMAT	REPRODUCE	DISSEMINATE	OTHER
x	x	x		Reduced, evaluated.	Hardcopy, microform, ADP coded.	x	x	x	x	x	x	x	x	x	x	x	
x	x	x		Evaluated.	Hardcopy.				x	x			x	x	x	x	Compile.
	x			Evaluated.	ADP coded.	x	x	x		x	x	x	x	x	x	x	
x	x	x		Evaluated.	Hardcopy.			x									
x				Raw, evaluated.	Hardcopy, ADP coded.	x					x	x	x	x	x	x	
x	x	x		Evaluated.	Hardcopy, ADP coded.		x	x	x	x	x	x	x	x	x	x	Compile, analyze, search.
	x			Not given.	Hardcopy.		x	x	x						x	x	
x				Raw, reduced.	Hardcopy, microform, ADP coded.	x	x	x			x	x		x			Summarize.

INPUT DATA (cont.)	EXTENT OF AUTOMATION			USER SERVICING			
				USING COMMUNITIES			
DIRECTORY CODE	SUBSTANTIAL	LIMITED	NONE	SCALE	SCIENTIFIC or TECHNOLOGICAL ACTIVITIES	INSTITUTIONS	USER QUALIFICATIONS & RESTRICTIONS
C-25		x		National.	Aircraft, missile, and spacecraft manufacture.	Primarily the aerospace industry; also, Government agencies, professional societies, and trade associations.	None.
C-26	Not given.			Not given.	Not given.	U. S. Government agencies and their contractors, research and educational institutions, and industry.	None.
C-27	x			International.	Plastics processing.	Industry (automotive, food packaging, etc.), Government.	None.
C-28			x	International.	Economic research.	Educational institutions, research organizations.	None.
C-29		x		National.	Aerospace design and manufacture.	Government agencies, Government laboratories, and associated contractors.	None.
C-30	x			International.	Electronics design and manufacture.	Aerospace industry.	Not given.
C-31	x			National.	Materials manufacture, engineering design.	Materials industry.	Not given.
C-32	x			National.	Military planning, environmental research, etc.	U.S. Armed Forces, Government agencies.	Approval of Department of Defense.

USER SERVICING (continued)

COST TO USER	SERVICES PROVIDED				FORM OF SERVICE		ARTIFACTS PRODUCED	OPERATING STATISTICS
	ANSWER INQUIRIES	PUBLISH DOCUMENTS	ANNOUNCE DATA DOCUMENTS		CUSTOMIZED	STANDARDIZED		CURRENT VOLUME
None.	x	x	x		x	x	Data compilations, technical memos to industry, DMIC's Reviews of Recent Developments, and technical reports.	Volume of inquiries: 125-150 per month.
Not given.	x	x			Not given.		Compilations, tables.	Staff: 3 physicists, 1 clerk.
None.	x				x		Color samples.	Volume of data in files: 60,000 color standards. Volume of inquiries: 400 per month. Staff: 20 technicians, 40 operators.
Reproduction fee.	Not given.				x		Xeroxed worksheets, appendixes in monograph volumes.	Volume of data in files: data on over 100 countries.
None.	x					x	Computer printouts, interim and final reports.	Not given.
Not given.		x	x	Provide consultant services.		x	Data sheets, monographs, summaries, compilations, graphs, tables, etc.	Volume of data in files: over 27,000 data sources indexed to date. Volume of inquiries: 1,000 per year. Staff: 6 professional, 7 support.
$25,000 per year for EMPIS Guide.		x				x	Looseleaf guide to engineering materials and processes, updated annually.	Artifacts produced: EMPIS Guide - 70 volumes, 17,000 pages, 3,000-4,500 pages updated annually. Volume of data: Guide contains data on 10,000 raw materials, 500 machine parts, and 1,000 alternatives and test methods.
None.	x				x		Not given.	Staff: 310 personnel.

OPERATING STATISTICS (cont.)	
RATE of GROWTH	FUTURE PLANS
Not given.	Continuation of improving service through automation.
Not given.	Preparation of computer-printout bibliographies; publication of monographs in National Standard Reference Data System Series; distribution of bibliographic tab cards.
Estimated additions to data files: 2,000 color standards per year.	Not given.
Not given.	Computerization of data, microfilming of older material.
Not given.	Future plans dependent on space missions of the 1970's.
Additions to data files: 4,300 documents per year (1965).	Establishment of ADP file; conversion to single master file system.
Not given.	Microfilming and computerization of all data.
Not given.	Not given.

DATA CENTERS

CONTINUED ON NEXT PAGE

DATA CENTERS

DIRECTORY CODE	TITLE or COMMON NAME	YEAR ESTABLISHED	HOUSING or SPONSORING INSTITUTION & ADDRESS	OPERATIO: ANNUAL BUDGET $10-30,000	$30-100,000	$100-250,000	$250-500,000	OVER $500,000	SOU: FEDERAL GOVERNMENT	STATE & LOCAL
C-33	Fleet Numerical Weather Facility (FNWF)	1958	U. S. Naval Postgraduate School Monterey, California 93940					x	100%	
C-34	Fused Salts Information Center	---	Sandia Corporation Technical Libraries Post Office Box 5800 Albuquerque, New Mexico 87115 (sponsored by Atomic Energy Commission)	x					100%	
C-35	Gamma Ray Spectrum Catalogue	1954	National Reactor Testing Station (NRTS) Post Office Box 1845 Idaho Falls, Idaho 83401 (sponsored by Atomic Energy Commission)		x				100%	
C-36	Geochemical Census Branch, U. S. Geological Survey	1961	U. S. Geological Survey Federal Center Denver, Colorado 80225		x				100%	
C-37	Geomagnetic Data Center	1957	Environmental Science Services Administration Environmental Data Service Rockville, Maryland 20852		x				100%	
C-38	Human Factors Task Data Center	1963	Behavioral Sciences Laboratory Aerospace Medical Research Laboratories Air Force Systems Command Wright-Patterson Air Force Base, Ohio 45433				x		100%	
C-39	Hydrography and Oceanography Data Center	1807	Environmental Science Services Administration Coast and Geodetic Survey Office of Hydrography and Oceanography Washington Science Center #1 Rockville, Maryland 20235					x	100%	
C-40	International Data Library and Reference Service	1961	University of California Survey Research Center 2220 Piedmont Avenue Berkeley, California 94720	Not given.					90%	

OPERATIONAL SUPPORT												OPERATING PURPOSE & STATUS				
ANNUAL BUDGET					SOURCE of SUPPORT (%)					SCOPE				COVERAGE	
$10-30,000	$30-100,000	$100-250,000	$250-300,000	OVER $300,000	FEDERAL GOVERNMENT	STATE & LOCAL GOVERNMENT	INDUSTRIAL or COMMERCIAL	EDUCATIONAL INSTITUTIONS	OTHER (IDENTIFY)	Regional	National	International		SUBSTANCES, MATERIALS or EQUIPMENTS	PROPERTIES or PERFORMANCE VALUES
				x	100%							x		Ocean-atmosphere environment and interaction.	Oceanographic and meteorological analyses and forecasts.
x					100%						x			Eutectic composition of fused salt systems.	Melting points, free energies, EMF's, vapor pressures, electrical conductivities, etc.
	x				100%							x		Gamma-ray spectra of radioactive nuclides.	Energies and intensities of gamma rays emitted in decay of radioactive nuclides - graphical representations obtained with NaI scintillation spectrometers and lithium-ion drifted germanium gamma-ray spectrometers.
	x				100%					x	x	x		Rocks, minerals, soils.	Spectrographic, chemical, and physical properties.
ration	x				100%							x		Geomagnetic and related geophysical phenomena.	Magnetographic data (analog records).
5433			x		100%						x			Human factors, task analysis, human/hardware interface, etc.	Qualitative and quantitative data.
ra-				x	100%							x		Tides, currents, depths, and other navigational data.	Not given.
	Not given.				90%			5%	5% - User charges.			x		Statistics on individuals and their attitudes.	Sample survey, poll, census, demographic data.

B

DIRECTORY CODE	OPERATING STATUS (continued)										SOURCES of DATA		
	OPERATING MOTIVE				CONTINUITY of OPERATION						SCIENTIFIC & TECHNICAL ACTIVITIES GENERATING DATA	UNPUBLISHED SOURCES	PUBLISHED SOURCES
	INTERNAL STAFF SUPPORT	NON-PROFIT EXTERNAL SERVICING	PROFIT-MAKING EXTERNAL SERVICING	OTHER	AD HOC	PERIODIC	CONTINUOUS	OPERATIONAL	PLANNED				
C-33		x					x	x			Monitoring of the ocean-atmosphere environment.	Not given.	Not given.
C-34	x						x	x			Laboratory research.	Not given.	All available published sources.
C-35	x	x					x	x			Research performed at National Reactor Testing Station.	Test reports.	All available current literature.
C-36	x						x	x			Geochemical analysis.	Laboratory reports.	Not given.
C-37		x					x	x			Not given.	Magnetometric records.	Observatory reports, yearbooks, etc.
C-38		x					x		x		Systems design, with special emphasis on the human component.	Reports from human factor specialists, continuously updated.	Manuals, directives, military specifications, reports, etc.
C-39		x					x	x			Monitoring of the ocean environment - tide networks, survey vessels, hydrographic field parties.	Analog records.	Government reports.
C-40		x					x	x			Public opinion surveys.	Not given.	Not given.

SOURCES of DATA (con't.)				INPUT DATA		DATA PROCESSING											
INSTITUTIONAL SOURCES of DATA						OPERATIONS PERFORMED											
GOVERNMENT & CONTRACTORS	INDUSTRIAL & COMMERCIAL	EDUCATIONAL & NON - PROFIT	OTHER	STATE of REFINEMENT	FORMS of DATA	REDUCE	CATALOG	INDEX	EXTRACT	INTEGRATE	COMPUTE	STORE	EVALUATE	REFORMAT	REPRODUCE	DISSEMINATE	OTHER
x				Raw, reduced, evaluated.	ADP coded.	x	x	x	x	x	x	x	x	x	x	x	Collect, analyze, display.
Not given.				Raw.	Hardcopy.	x	x	x	x		x	x	x	x	x	x	Update.
x		x		Not given.	Not given.	x	x	x	x	x	x	x	x	x	x	x	
x				Raw.	ADP coded.	x	x	x	x								Code, analyze, search, retrieve.
x		x		Raw.	Microform.		x		x			x			x	x	
x				Reduced, evaluated.	Microform, ADP coded.	x	x	x	x	x	x	x	x	x	x	x	
x		x		Raw, reduced.	ADP coded.	x	x	x	x	x	x	x	x	x	x	x	
Not given.				Raw.	ADP coded.						x			x		x	

INPUT DATA (cont.) DIRECTORY CODE	EXTENT OF AUTOMATION: SUBSTANTIAL	LIMITED	NONE	USER SERVICING — USING COMMUNITIES: SCALE	SCIENTIFIC or TECHNOLOGICAL ACTIVITIES	INSTITUTIONS	USER QUALIFICATIONS & RESTRICTIONS
C-33	x			International.	Atmospheric and oceanographic analysis, forecasting, ship routing, offshore drilling, marine biology, etc.	Government, industry.	Not given.
C-34	x			National.	Laboratory research in fused-salt systems.	Atomic Energy Commission, Sandia Corporation.	Approval of Atomic Energy Commission.
C-35		x		International.	Theoretical and applied nuclear physics, nuclear engineering, biological and environmental research.	Government and industrial laboratories, educational institutions.	None.
C-36		x		National.	Areal mapping, analysis of mining districts.	U. S. Geological Survey.	At present, available only to U. S. Geological Survey.
C-37		x		International.	Geophysical research.	Government agencies, educational and research institutions.	None.
C-38	x			National.	Human factors systems analysis.	Department of Defense (especially Air Force), National Aeronautics and Space Administration.	Not given.
C-39		x		National.	Marine navigation, ship design, oceanographic research.	All sectors of the marine economy.	None.
C-40	x			International.	Political analysis, mass media analysis, etc.	Educational institutions	Some data are under various restrictions in accordance with the data generators.

USER SERVICING (continued)								OPERATING STATISTICS
	SERVICES PROVIDED				FORM OF SERVICE			
COST TO USER	ANSWER INQUIRIES	PUBLISH DOCUMENTS	ANNOUNCE DATA DOCUMENTS		CUSTOMIZED	STANDARDIZED	ARTIFACTS PRODUCED	CURRENT VOLUME
Not given.	x			Forecast.	x	x	Data compilations, drawings, charts, maps.	Input: 3,800,000 teletype words per day. Output: 4,900,000 teletype words per day. Staff: 104 personnel.
None.		x	x		Not given.		Tables, indexes.	Volume of data in files: 2,500 documents. Staff: 1 part-time.
Cost of catalog.	x	x	x	Provide consultant services, provide data compilations on request.	x	x	Spectra catalogs in hardcopy, state-of-the-art reviews, data compilations.	Publication distribution: Gamma Ray Spectrum Catalogue (2nd edition) - 5,000 copies distributed to date.
Not given.	x				x		Computer printouts.	Volume of data in files: data on 45,000 geological samples.
Reproduction fee.	x			Furnish copies of raw and reduced data.	Not given.		Copies of raw and reduced data.	Volume of data in files: approximately 1,000 observatory-years of data. Volume of inquiries: 8 per week. Staff: 4 personnel.
None at present.	x					x	Vocabulary control, thesaurus for user of system, indexing system.	Not given (planned activity).
Reproduction fee, special compilation fee.	x	x	x	Conduct special surveys at cost to user.	x	x	Nautical charts, bathymetric maps, tide and current prediction tables, current charts, data compilations of various parameters.	Artifacts produced: 2,000,000 nautical charts per year.
Not given.	x			Provide consultant services.	Not given.		Data compilations.	Volume of data in files: over 500 studies, 150 documents, 2,000,000 computer cards. Staff: 3-5 personnel.

OPERATING STATISTICS (con't.)	
RATE of GROWTH	FUTURE PLANS
Rate of increase in data processed: 15% per year. Rate of increase in users served: 10% per year.	Not given.
Not given.	Not given.
Rate of increase in volume of inquiries, special services, etc.: 100% per year.	Publication in 1968 of first volume of spectra obtained with Ge(Li) spectrometer.
Additions to data files: approximately 4,000 computer cards per month.	Possible transformation of portion of data files to computer tape storage.
Rate of increase in volume of inquiries: 20% per year.	Possible transformation of all data to machine-readable form, which would double or triple operations.
Not given.	Not given.
Rate of increase in sales of documents: approximately 5% per year.	Not given.
Additions to data files: 50 studies per year.	Augmentation of Far-East survey data with closed societies data.

DATA CENTERS

CONTINUED ON NEXT PAGE.

DATA CENTERS

DIRECTORY CODE	TITLE or COMMON NAME	YEAR ESTABLISHED	HOUSING or SPONSORING INSTITUTION & ADDRESS	OPERATIONAL ANNUAL BUDGET $10-30,000	$30-100,000	$100-250,000	$250-500,000	OVER $500,000	SOURCE FEDERAL GOVERNMENT	STA & LOCAL GOVERNMENT	INDUSTRIAL or
C-41	International Development Data Bank	1965	Michigan State University 426 South Kedzie Hall East Lansing, Michigan 48823	Not given.					Not given.		
C-42	Joint Army-Navy-Air Force Thermochemical Tables (JANAF)	1960	Dow Chemical Company Building 574, Post Office Box 31 Midland, Michigan 48640			x			100%		
C-43	Latin American Data Bank	1966	University of Florida Department of Political Science 107 Peabody Hall Gainesville, Florida 32601	Not given.							
C-44	Mechanical Properties Data Center	1961	Belfour Stulen, Inc. 13919 West Bay Shore Drive Traverse City, Michigan 49684 (sponsored by U. S. Air Force)			x			100%		
C-45	Memorial Radiation Center for Cancer and Allied Diseases	1967	Memorial Sloan Kettering Cancer Center New York, New York 10021		x				10%		
C-46	Microelectronics Device Data Bank	---	National Aeronautics and Space Administration Electronics Research Center Electronics Components Research 575 Technology Square Cambridge, Massachusetts 02139					x	100%		
C-47	Minor Planets Data Center	1947	University of Cincinnati Observatory Observatory Place Cincinnati, Ohio 45208	x							
C-48	Morton Collectance	1933	University of Miami Post Office Box 8204 Coral Gables, Florida 33124	x					66.6%		

A

RATIONAL SUPPORT					OPERATING PURPOSE & STATUS					
SOURCE of SUPPORT (%)					SCOPE				COVERAGE	
FEDERAL GOVERNMENT	STATE & LOCAL GOVERNMENT	INDUSTRIAL or COMMERCIAL	EDUCATIONAL INSTITUTIONS	OTHER (IDENTIFY)	Regional	National	International		SUBSTANCES, MATERIALS or EQUIPMENTS	PROPERTIES or PERFORMANCE VALUES
Not given.							x		Social science and economic sample survey, panel study, and field experiment data.	Geographic and individual modernization statistics.
100%							x		Rocket propellant ingredients and combustion product species.	Thermochemical and related fundamental properties - heat capacity, entropy, Gibbs free energy, heat formation, etc.
			100%				x		Population, housing, agriculture, industry, and political elections of Latin America.	Census statistics - social, economic, and political data.
100%						x			Structural materials and alloys, metals and plastics, reinforced plastics.	Mechanical properties (creep, fatigue, tensile strength), test procedures and results, processing, other environmental variables.
10%				90% - User charges.	x				External and internal radiation treatment for cancer and allied diseases.	External field parameters, internal source parameters, patient's density distribution.
100%						x			Microelectronic devices.	Electrical and configuration characteristics, user-generated performance and application information.
			100%				x		Minor planets.	Results of orbit improvements with residuals, ephemerides of unnumbered planets.
66.6%			33.3%				x		Plants - little-known, tropical, sub-tropical, poisonous, special interest, regional, etc.	Food values, structures, classifications, by-products, etc.

B

DIRECTORY CODE	OPERATING STATUS (continued)										SOURCES of DATA		
	OPERATING MOTIVE				CONTINUITY of OPERATION						SCIENTIFIC & TECHNICAL ACTIVITIES GENERATING DATA	UNPUBLISHED SOURCES	PUBLISHED SOURCES
	INTERNAL STAFF SUPPORT	NON-PROFIT EXTERNAL SERVICING	PROFIT-MAKING EXTERNAL SERVICING	OTHER	AD HOC	PERIODIC	CONTINUOUS	OPERATIONAL	PLANNED				
C-41	x								x		Survey, field experimentation.	Panel studies.	Not given.
C-42		x					x	x			Laboratory research.	Tape indexes, reports.	All available published sources.
C-43		x					x	x			Survey, census, polls.	Statistics.	Not given.
C-44	x	x									Laboratory testing.	Project and administrative data.	Reports, journals, etc.
C-45	x	x					x	x			Experimental and theoretical laboratory research, radiography, implant localization, etc.	Preprints.	Journals, reports.
C-46	x	x					x		x		Engineering design, testing, and product evaluation.	Applications, control drawings, purchase specifications, test reports, etc.	Not given.
C-47	x						x	x			Astronomical observation.	Not given.	Not given.
C-48	x	x					x	x			Botanical research - field survey and laboratory research.	Not given.	Books, abstract journals, periodicals, Government reports, industrial literature, poison-plant case histories, etc.

SOURCES of DATA (con't.)				INPUT DATA		DATA PROCESSING											
INSTITUTIONAL SOURCES of DATA						OPERATIONS PERFORMED											
GOVERNMENT & CONTRACTORS	INDUSTRIAL & COMMERCIAL	EDUCATIONAL & NON-PROFIT	OTHER	STATE of REFINEMENT	FORMS of DATA	REDUCE	CATALOG	INDEX	EXTRACT	INTEGRATE	COMPUTE	STORE	EVALUATE	REFORMAT	REPRODUCE	DISSEMINATE	OTHER
x		x	Foreign institutions	Not given.	Not given.			x				x					Edit out non-applicable data.
x	x	x		Evaluated.	Hardcopy, ADP coded.			x	x			x	x	x		x	
x		x		Raw.	Not given.		x	x	x	x	x	x	x	x	x	x	
x		x		Evaluated.	ADP coded.			x	x			x	x		x	x	
x		x		Reduced.	ADP coded.						x						
x				Evaluated.	Hardcopy.	x	x	x	x	x	x	x	x	?	x	x	
Not given.				Not given.	ADP coded.	x					x	x		x	x	x	
x	x	x		Evaluated.	Hardcopy.		x	x		x		x	x		x	x	

INPUT DATA (cont'd)				USER SERVICING			
DIRECTORY CODE	EXTENT OF AUTOMATION			USING COMMUNITIES			
	SUBSTANTIAL	LIMITED	NONE	SCALE	SCIENTIFIC or TECHNOLOGICAL ACTIVITIES	INSTITUTIONS	USER QUALIFICATIONS & RESTRICTIONS
C-41	x			Not given.	Not given.	Educational and research institutions.	Not given.
C-42	x			International.	Analysis of rocket propellant performance.	Government and contractors.	Approval of DoD; some data are classified.
C-43	x			International (planned).	Not given.	Not given.	Not given.
C-44	x			National.	Materials research, production, quality control, and design engineering.	Government agencies, defense and aerospace industries.	Some data are classified.
C-45	x			National.	Cancer therapy.	Hospitals.	Not given.
C-46	x			National.	Aerospace electronics systems development.	National Aeronautics and Space Administration and its contractors.	Approval of NASA or DoD.
C-47	x			International.	Not given.	Not given.	Not given.
C-48			x	International.	Basic research and applied technology in economic botany, organic chemistry, pharmacology, medicine, etc.	Government laboratories, educational institutions, etc.	None.

USER SERVICING (continued)								OPERATING STATISTICS
	SERVICES PROVIDED				FOR A SERVICE			
COST TO USER	ANSWER INQUIRIES	PUBLISH DOCUMENTS	ANNOUNCE DATA DOCUMENTS		CUSTOMIZED	STANDARDIZED	ARTIFACTS PRODUCED	CURRENT VOLUME
Not given.	Not given.				Not given.		Data compilations and tabulations.	Volume of data in files: data on 80 studies representing 20 countries.
Not given.		x				x	Thermochemical tables, data extracts.	Volume of data in files: 950 data sheets, 26,000 data sources indexed, 10,000 substances covered.
Fees for non-university users.	x				x		Sub-sets, codebooks.	Volume of data in files: 2 Latin American countries covered at present.
Not given.				Provide consultant services.		x	Data sheets, graphs, plots, tables.	Volume of data in files: data on 1,800 items, 370,000 computer cards. Staff: 13 personnel.
$20 per case, plus telephone charges.	x			Provide treatment plans.	x		Computer printouts and plots of dose distribution and prescription.	Volume of data in files: 4,042 external radiation treatment plans.
Not established.	x	x	x		x	x	Data bank directory, full-text microfilm files.	Not given (planned activity).
Not given.		x				x	Circulars, indexes.	Volume of data in files: 125,000 punched index cards.
$10 for a limited search and assembly of material.	x	x	x	Provide data compilations on request.	x		Data compilations, charts, slides, and photographs.	Volume of data in files: over 200,000 items, 5,000 slides.

OPERATING STATISTICS (con't.)	
RATE of GROWTH	FUTURE PLANS
Not given.	Collaboration with research institutes in Orient, Africa, South America.
Not given.	Continuous updating of files.
Not given.	Not given.
Additions to data files: 12,000-14,000 computer cards per month.	Expansion of coverage of statistics.
Not given.	Continued collaboration with cooperating institutions, perhaps internationally.
Not given.	Pilot demonstration has been completed; operational mode is under consideration.
Not given.	Not given.
Additions to data files: 6,000 entries per year.	Not given.

DATA CENTERS

CONTINUED ON NEXT PAGE.

DATA CENTERS

Science Communication
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DIRECTORY CODE	TITLE or COMMON NAME	YEAR ESTABLISHED	HOUSING or SPONSORING INSTITUTION & ADDRESS	OPE ANNUAL BUDGET $10-50,000	$50-100,000	$100-250,000	$250-500,000	OVER $500,000	
C-49	Museum Information Retrieval System	1967	Smithsonian Institution Museum of Natural History 9th at Constitution Avenue, N. W. Washington, D. C. 20560					x	
C-50	National Center for Health Statistics	1961	U.S. Public Health Service Department of Health, Education and Welfare South Building 330 C Street, S. W. Washington, D. C. 20201					x	
C-51	National Clearinghouse for Poison Control Centers	1957	U. S. Public Health Service 7915 Eastern Avenue Silver Spring, Maryland 20[illegible]	Not given.					
C-52	National Data Bank for Air Quality Data	1962	National Center for Air Pollution Control (NCAPC) U. S. Public Health Service 5710 Wooster Cincinnati, Ohio 45227			x			
C-53	National Disease and Therapeutic Index	1956	Lea Associates Ambler, Pennsylvania 19002	Not given.					
C-54	National Index of Fungus Cultures	1960	U. S. Army Mycology Laboratory Engineering Research Division Natick Labs Natick, Massachusetts 01762	Less than $10,000.					1
C-55	National Meteorological Center (NMC)	1958	Environmental Science Services Administration Federal Office Building #4 Suitland, Maryland ^ 20023					x	1
C-56	National Neutron Cross Section Center	1951	Brookhaven National Laboratory Building T-197 Upton, Long Island, New York 11973					x	1

A

ERATIONAL SUPPORT						OPERATING PURPOSE & STATUS						
SOURCE of SUPPORT (%)						SCOPE					COVERAGE	
OVER $500,000	FEDERAL GOVERNMENT	STATE & LOCAL GOVERNMENT	INDUSTRIAL or COMMERCIAL	EDUCATIONAL INSTITUTIONS	OTHER (IDENTIFY)	Regional	National	International			SUBSTANCES, MATERIALS or EQUIPMENTS	PROPERTIES or PERFORMANCE VALUES
M	100%						x	x			Biological specimens (insects, mammals, birds, fishes, fossils, etc.); botanical specimens, rocks, minerals, meteorites, etc.	Locations, names, environments, etc.
x	100%						x				Health of the U.S. population; health facilities.	Health and demographic characteristics of people; numbers and physical characteristics of institutions.
	100%						x				Toxicology of household products, medicines.	Manufacturer, formulation, name of compound, ingredients, symptoms, toxicity, treatment.
	95%	5%				x	x				Air pollution.	Ambient, other air quality data; effects on biological systems; concentrations of potential toxicants and symptomatic responses to them; emissions and control methods data; physical and socio-economic data.
			100%				x				Diseases.	Incidence, control, and treatment.
	100%						x				Living organisms.	Strain, genetic variables, physiological variance including attached and produced chemical substances.
K	100%						x	x			Observed weather conditions.	Height, temperature, wind, moisture, etc.
	100%							x			Neutron cross sections - all nuclides and natural occuring mixtures of isotopes.	Thermal cross sections, resonance parameters, cross section variation with energy, angular distributions.

B

DIRECTORY CODE	OPERATING STATUS (continued)									SOURCES of DATA		
	OPERATING MOTIVE				CONTINUITY of OPERATION					SCIENTIFIC & TECHNICAL ACTIVITIES GENERATING DATA	UNPUBLISHED SOURCES	PUBLISHED SOURCES
	INTERNAL STAFF SUPPORT	NON-PROFIT EXTERNAL SERVICING	PROFIT-MAKING EXTERNAL SERVICING	OTHER	AD HOC	PERIODIC	CONTINUOUS	OPERATIONAL	PLANNED			
C-49		x					x		x	Not given.	All available unpublished sources.	Not given.
C-50		x					x	x		Survey, laboratory analysis.	Survey and field statistics.	Not given.
C-51		x					x	x		Not given.	Not given.	Not given.
C-52		x					x	x		Environmental monitoring by national, state, and local networks; analysis of air filter samples.	Analog records.	Not given.
C-53			x				x	x		Physician panels.	Not given.	Not given.
C-54	x	x					x	x		Laboratory research in mycology and microbiology.	Laboratory reports.	None.
C-55		x					x	x		Environmental monitoring - surface and upper-air observations, facsimile analyses and prognoses.	Not given.	Not given.
C-56	x	x					x	x		Nuclear research.	All available unpublished sources.	All available published sources.

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SOURCES of DATA (con't.)				INPUT DATA		DATA PROCESSING											
INSTITUTIONAL SOURCES of DATA						OPERATIONS PERFORMED											
GOVERNMENT & CONTRACTORS	INDUSTRIAL & COMMERCIAL	EDUCATIONAL & NON-PROFIT	OTHER	STATE of REFINEMENT	FORMS of DATA	REDUCE	CATALOG	INDEX	EXTRACT	INTEGRATE	COMPUTE	STORE	EVALUATE	REFORMAT	REPRODUCE	DISSEMINATE	OTHER
x	x	x		Raw, evaluated.	ADP coded.	x	x	x	x	x	x	x	x	x	x	x	Correlate, tabulate.
x			State governments and the general public (through surveys).	Raw.	ADP coded, microform.	x		x	x	x	x	x	x	x	x	x	Transcribe, decode.
x				Not given.	Not given.	Not given.											
x	x			Raw, reduced, evaluated.	ADP coded.	x	x	x	x	x	x	x	x	x	x	x	Prepare computer programs.
	x			Reduced, evaluated.	Hardcopy, ADP coded.	x		x	x		x	x	x		x	x	
x	x	x		Raw.	Hardcopy.			x	x			x		x		x	Retrieve.
x				Reduced, evaluated.	Hardcopy, ADP coded.	x	x	x	x	x	x	x		x	x	x	
Not given.				Not given.	ADP coded.	x	x	x	x	x	x	x	x	x	x	x	

INPUT DATA (cont'd)	EXTENT OF AUTOMATION			USER SERVICING			
				USING COMMUNITIES			
DIRECTORY CODE	SUBSTANTIAL	LIMITED	NONE	SCALE	SCIENTIFIC or TECHNOLOGICAL ACTIVITIES	INSTITUTIONS	USER QUALIFICATIONS & RESTRICTIONS
C-49	x			National.	Biological research.	Government, industry, education.	None.
C-50	x			National.	Health planning and research.	Government, industry, education.	Identity of source of data is confidential.
C-51		x		National.	Medicine.	Medical schools, pharmacy schools, and State health services.	Proprietary - data issued only upon acute poisoning report.
C-52		x		National.	Public health, urban planning, industrial waste disposal, etc.	Federal, state, and local government, specific industries.	None.
C-53	x			National.	Medical requirement forecasting.	Government agencies, pharmaceutical industry, hospitals.	Not given.
C-54	x			National.	Pure and applied mycology - medicine, agriculture, pharmacology, plant pathology.	Not given.	Professional need to know.
C-55	x			International.	Field forecasting.	Meteorological offices worldwide, Government, industry, and international meteorological organizations.	Not given.
C-56	x			National.	Neutron physics research, reactor design, weapons design, theoretical research in nuclear structure.	Atomic Energy Commission, Government laboratories, research and educational institutions, etc.	None to AEC contractors.

USER SERVICING (continued)

COST TO USER	SERVICES PROVIDED: ANSWER INQUIRIES	SERVICES PROVIDED: PUBLISH DOCUMENTS	SERVICES PROVIDED: ANNOUNCE DATA DOCUMENTS	SERVICES PROVIDED	FORM OF SERVICE: CUSTOMIZED	FORM OF SERVICE: STANDARDIZED	ARTIFACTS PRODUCED	OPERATING STATISTICS: CURRENT VOLUME
None.	x			Distribute documentation to other museums.	x		Computer printouts.	Input: 500-1,000 specimens per week.
Special information supplied at cost.	x	x			x	x	Tabulations.	Volume of data in files: data on approximately 4,159,000 people.
Not given.	Not given.				Not given		Not given.	Not given.
None.	x	x	x		x	x	Data compilations, charts, interpretive reports, monographs.	Volume of data in files: 90,000 punched cards of high-volume data, 20-30 magnetic tapes of emission data.
Varies with service provided.	x	x	x		x		Data compilations.	Staff: 5 administrators, 17 consultants.
None.	x				x		Listings of fungus cultures and their properties.	Volume of data in files: 13,000 items on card file.
Not given.		x		Disseminate weather data to world-wide forecasters.		x	Charts, teletype messages.	Artifacts produced: 452 master charts (1967).
Not given.	x	x		Furnish tapes.	Not given		Data compilations, tabular listings, handbooks with supplements, magnetic tapes.	Volume of data in files: over 1,000,000 data points. Staff: 21 full-time, 1 part-time.

OPERATING STATISTICS (cont'd.)	
RATE of GROWTH	FUTURE PLANS
Estimated additions to data files: 3,000,000 specimens per year.	Dissemination of copies of tapes to other museums with aim toward a national and ultimately international network.
General rate of growth: 10% per year.	Expansion of coverage to include data on family growth and small-area health; initiation of training programs for state and local employees.
Not given.	Not given.
Not given.	Not given.
General rate of growth: 10% per year.	Not given.
Additions to data files: 2,000 cards per year.	Not given.
Not given.	Not given.
Not given.	Continuous updating of files; some form of continued publication.

DATA CENTERS

CONTINUED ON NEXT PAGE

DATA CENTERS

Science Communication
Washington, D. C. 200 07

DIRECTORY CODE	TITLE or COMMON NAME	YEAR ESTABLISHED	HOUSING or SPONSORING INSTITUTION & ADDRESS	OPE ANNUAL BUDGET $10-50,000	$50-100,000	$100-250,000	$250-500,000	OVER $500,000
C-57	National Oceanographic Data Center (NODC)	1961	Navy Yard Annex Second and M Streets, S. E. Building 160, Third Floor Washington, D. C. 20390			x		
C-58	National Opinion Research Center (NORC)	1941	University of Chicago 6030 South Ellis Avenue Chicago, Illinois 60637					x
C-59	National Space Science Data Center (NSSDC)	1964	National Aeronautics and Space Administration Goddard Space Flight Center Building 26 Greenbelt, Maryland 20771					x
C-60	National Weather Records Center (NWRC) and National Geodetic Data Center (NGDC)	1951 1966	Environmental Science Services Administration Federal Building Asheville, North Carolina 28801					x
C-61	Nimbus/AtS Data Utilization Center	1964	National Aeronautics and Space Administration Goddard Space Flight Center Greenbelt, Maryland 20771					x
C-62	Nuclear Data Project	1948	Oak Ridge National Laboratory Post Office Box X Oak Ridge, Tennessee			x		
C-63	Parts Reliability Information Center/ Apollo Parts Information Center (PRINCE/APIC)	1966	National Aeronautics and Space Administration Marshall Space Flight Center R-Qual-OC Huntsville, Alabama 35812					x
C-64	Powder Diffraction Standards Data Program	1941	American Society for Testing and Materials 1916 Race Street Philadelphia, Pennsylvania 19103				x	

A

ERATIONAL SUPPORT						OPERATING PURPOSE & STATUS				
SOURCE of SUPPORT (%)						OPE			COVERAGE	
OVER $500,000	FEDERAL GOVERNMENT	STATE & LOCAL GOVERNMENT	INDUSTRIAL or COMMERCIAL	EDUCATIONAL INSTITUTIONS	OTHER (IDENTIFY)	Regional	National	International	SUBSTANCES, MATERIALS or EQUIPMENTS	PROPERTIES or PERFORMANCE VALUES
	100%							x	Sea water chemistry, marine biology, marine geology, marine geophysics.	Physical properties, such as temperature, salinity, sound velocity, currents.
x	21%	3%	2%	33%	22% private foundations 19% non-profit institutions		x		Health and welfare, occupations and professions, mass communications, economics and business, politics, education, community problems, intergroup relations.	Survey data, panel studies, methodology and theory.
x	100%							x	Space science investigations.	Data received from scientific experimenters aboard satellites; sounding-rocket probes, high altitude aeronautical and balloon investigations; correlative data, etc.
x	100%							x	Meteorological, geodetic, and seismological data.	Weather records, seismograms, geodetic control data, etc.
x	100%							x	R&D meteorological satellite data.	Photographic meteorological data received from the varied sensory systems flown on Nimbus and Applications Technology Satellites.
	100%							x	Nuclear structure.	Level properties: energies, widths, spins, magnetic and quadrupole moments.
x	100%						x		Parts and materials for aerospace hardware.	Test results, characteristics, failure analyses, criticality, substitutability, reliability.
	Not given.							x	Inorganic and organic chemical substances identified by atomic arrangement.	State or combination of chemical elements or phases present; powder pattern lines with intensities, value constants, space group, melting and boiling points, color, hardness, luster, etc.

B

DIRECTORY CODE	OPERATING STATUS (continued)										SOURCES of DATA		
	OPERATING MOTIVE				CONTINUITY of OPERATION						SCIENTIFIC & TECHNICAL ACTIVITIES GENERATING DATA	UNPUBLISHED SOURCES	PUBLISHED SOURCES
	INTERNAL STAFF SUPPORT	NON-PROFIT EXTERNAL SERVICING	PROFIT-MAKING EXTERNAL SERVICING	OTHER	AD HOC	PERIODIC	CONTINUOUS	OPERATIONAL	PLANNED				
C-57		x					x	x			Oceanographic survey.	Data logs, bathythermograms, samples	Not given.
C-58		x			x			x			Survey of public opinion.	Not given.	Not given.
C-59		x					x	x			Satellite experimentation, rocket probes, etc.	Preprints.	All available published sources.
C-60	x	x					x	x			Rocketsonde probes, environmental monitoring, etc.	Tabulations, analyses.	Climatological publications.
C-61	x						x	x			Spacecraft sounding experimentation.	Data logs, control forms.	Not given.
C-62	x	x					x	x			Nuclear research.	Not given.	Not given.
C-63	x						x	x			Reliability and quality testing.	Not given.	Test and research reports.
C-64		x					x	x			Laboratory research in powder diffraction analysis.	Not given.	Not given.

SOURCES of DATA (con't.)				INPUT DATA		DATA PROCESSING											
INSTITUTIONAL SOURCES of DATA						OPERATIONS PERFORMED											
GOVERNMENT & CONTRACTORS	INDUSTRIAL & COMMERCIAL	EDUCATIONAL & NON - PROFIT	OTHER	STATE of REFINEMENT	FORMS of DATA	REDUCE	CATALOG	INDEX	EXTRACT	INTERRATE	COMPUTE	STORE	EVALUATE	REFORMAT	REPRODUCE	DISSEMINATE	OTHER
x		x		Raw, evaluated.	Microform, ADP coded.	x		x			x	x	x	x		x	Compile, tabulate, summarize, retrieve.
Not given.				Evaluated.	ADP coded.	x					x	x	x		x	x	
x	x	x		Reduced, evaluated.	Hardcopy, microform, ADP coded, photographic.		x	x				x		x	x	x	Retrieve, analyze.
x				Raw, reduced.	Microform, ADP coded.	x					x	x	x	x	x	x	
x				Raw, reduced.	Hardcopy, ADP coded, photographic.	Not given.											
x	x			Not given.	Hardcopy.				x	x			x		x	x	
x	x	x		Evaluated.	Hardcopy, microform.		x	x	x			x		x	x	x	
	x	x		Not given.	Hardcopy, ADP coded.	x				x	x		x		x	x	

INPUT DATA (cont.) DIRECTORY CODE	EXTENT OF AUTOMATION: SUBSTANTIAL	LIMITED	NONE	USER SERVICING — USING COMMUNITIES: SCALE	SCIENTIFIC or TECHNOLOGICAL ACTIVITIES	INSTITUTIONS	USER QUALIFICATIONS & RESTRICTIONS
C-57	x			International.	Research in sea water chemistry, marine biology, marine geology, and marine geophysics.	Government, industry, education, etc.	Some data are proprietary.
C-58	x			National.	Public opinion research.	Universities.	For scholarly research only.
C-59	x			International.	Space science research.	Not given.	None, except for ground-based data available to NASA only.
C-60	x			International.	Agriculture, aviation, construction, navigation, public health, space exploration, etc.	Government, industry, education, etc.	None.
C-61	x			International.	Basic research and applied technology in meteorology, oceanography, hydrology, geology, geography, etc.	Government, industry, education, etc.	Indication of valid study requirement.
C-62		x		International.	Nuclear research.	Not given.	User must be engaged in active experimental or theoretical research work.
C-63	x			National.	Aerospace engineering.	Government, industry.	NASA and its contractors, other Government agencies.
C-64	x			International.	Chemical research, materials engineering, etc.	Industry (especially metals industry), government, education, etc.	None.

USER SERVICING (continued)								OPERATING STATISTICS
	SERVICES PROVIDED				FORM OF SERVICE			
COST TO USER	ANSWER INQUIRIES	PUBLISH DOCUMENTS	ANNOUNCE DATA DOCUMENTS		CUSTOMIZED	STANDARDIZED	ARTIFACTS PRODUCED	CURRENT VOLUME
Not given.	x	x	x	Provide consultant services.		x	Summaries, tabulations, catalogs, manuals, atlases.	Volume of data in files: 3,000,000 ocean current measurements, 600,000 bathythermograms; 2,000,000 computer cards. Staff: 124 full-time, 3 part-time (1966).
Not given.	x			Supply tapes and tabulations.	x		Cards, tapes, tabulations.	Volume of data in files: 1,000,000 data cards, 500 studies.
Varies with service provided.	x	x	x	Convert data on request.	x	x	Data compilations, catalogs, etc.	Volume of data in files: 175,000 documents, 500 reels of computer tape, 8,000 reels of microfilm, 30,000 slides and photographs, 360,000 feet of motion picture film.
Fees for special tabulations.	x	x		Furnish records and tapes.	x	x	Charts, reports, summaries, microfilm records.	Volume of data in files: 62,000,000 manuscripts, 450,000,000 computer cards. Artifacts produced: 419,000 copies of weather records per year.
None, except cost of high volume of tape.	x	x	x		x	x	Pictorial catalogs, user guides, displays, listings, photographs.	Staff (for Nimbus III)- 21 personnel.
Not given.	x	x			x	x	Nuclear data sheets.	Staff: 8 nuclear physicists, 4 support personnel.
None.	x	x			x		Not given.	Volume of data in files: data on 100,000 parts. Volume of inquiries: over 500 inquiries per month. Staff: 50 personnel.
Prices of different publications vary.		x				x	Powder diffraction standards, indexes.	Volume of data in files: data on over 13,500 substances.

OPERATING STATISTICS (con't.)	
RATE of GROWTH	FUTURE PLANS
Not given.	Initiation of automatic quality control.
Not given.	Transferral of data storage from computer cards to computer tape; establishment of inverted files, archiving, etc.
Additions to data files: 100,000 data sheets and volumes per year; 10,000 reels of microfilm per year.	Expansion of staff to approximately 75 or 80 persons.
Rate of increase in volume of inquiries: 20% per year.	Not given.
Not given.	Support of all future meteorological research and development satellites; data coverage in 1968 on 2 additional spacecraft with 8 additional sensors.
Not given.	Establishment of a computerized index for retrieval of specific data.
Rate of increase in users served: 500% (1966-67).	Extension of service to other aerospace programs.
Additions to data files: data on 1,200 substances per year.	Establishment of subscriber searching service via computer tape.

DATA CENTERS

CONTINUED ON NEXT PAGE

DATA CENTERS

DIRECTORY CODE	TITLE or COMMON NAME	YEAR ESTABLISHED	HOUSING or SPONSORING INSTITUTION & ADDRESS	OPERAT ANNUAL BUDGET $ 10-50,000	$ 50-100,000	$100-250,000	$ 250-300,000	OVER $ 500,000	FEDERAL GOVERNMENT
C-65	Project TALENT Data Bank	1965	American Institutes for Research Post Office Box 1113 Palo Alto, California 94302		x				x
C-66	Radiation Chemistry Data Center	1965	University of Notre Dame Radiation Laboratory South Bend, Indiana 46556		x				100%
C-67	Reliability Analysis Central	1968	Air Force Reliability Center Rome Air Development Center Griffiss Air Force Base Rome, New York 13440	Not given.					100%
C-68	Roper Public Opinion Research Center	1946	Williams College Williamstown, Massachusetts 01267			x			20%
C-69	Sadtler Research Laboratories Data Program	1947	Sadtler Research Laboratories, Inc. 3316 Spring Garden Street Philadelphia, Pennsylvania 19104				x		
C-70	Scientific Information Systems Group	1957	University of California Lawrence Radiation Laboratory Post Office Box 808 Livermore, California 94550			x			100%
C-71	Smith, Kline and French Chemical Data System	1954	Smith, Kline and French Laboratories Science Information Research and Development Division 1500 Spring Garden Street Philadelphia, Pennsylvania 19101					x	
C-72	Solar Forecast Facility	1962	U. S. Air Force Headquarters, 4th Weather Wing Military Airlift Command (MAC) Ent Air Force Base, Colorado 80912	Not given.					100%

OPERATIONAL SUPPORT									OPERATING PURPOSE & STATUS					
ANNUAL BUDGET				SOURCE of SUPPORT (%)					SCOPE				COVERAGE	
$ 30-100,000	$ 100-250,000	$ 250-500,000	OVER $ 500,000	FEDERAL GOVERNMENT	STATE & LOCAL GOVERNMENT	INDUSTRIAL or COMMERCIAL	EDUCATIONAL INSTITUTIONS	OTHER (IDENTIFY)	Regional	National	International		SUBSTANCES, MATERIALS or EQUIPMENTS	PROPERTIES or PERFORMANCE VALUES
x				x				User charges.		x			American high school students - abilities, skills, occupational aspirations, interests, family background, post-high school education, and job experience.	Performance scores on aptitude tests, attitude surveys, career plans, retest data, follow-up data.
x				100%							x		Irradiated chemical systems.	State, temperature, pressure, pH, concentration, source, radiation, energy, dose and dose rate, intermediates and products, elementary processes, chemical and physical properties.
Not given.				100%						x			Semiconductor transistors, semiconductor integrated circuits, mechanical and electromechanical parts and discrete electronic parts.	Item identification, performance parameters, physical characteristics, reliability characteristics.
	x			20%				70% - User charges. 10% - private donations.		x	x		Public opinion polls and surveys.	Politics, economics, health and welfare, occupations, community problems, etc.
		x				100%				x			Inorganic and organic compounds, and commercial materials.	Mass spectral thermochemical properties, infrared absorption, ultra violet absorption, nuclear magnetic resonance absorption, gas chromatographs, molecular formula, molecular weight, etc.
	x			100%							x		All isotopes - neutron-induced reactions for neutron energies below 100 meV.	Differential and integral cross sections - experimental values, semi-empirical curves, threshold energies.
			x			100%				x			Organic compounds, natural products, biological activities.	Not given.
Not given.				100%							x		Sunspots, calcium plage, solar prominence.	Coronal emission indexes, major solar flare data, radio data, radio maps of the sun, sudden ionospheric disturbances, geomagnetic indexes, satellite and space vehicle data, etc.

DIRECTORY CODE	OPERATING STATUS (continued)									SOURCES of DATA		
	OPERATING MOTIVE				CONTINUITY of OPERATION					SCIENTIFIC & TECHNICAL ACTIVITIES GENERATING DATA	UNPUBLISHED SOURCES	PUBLISHED SOURCES
	INTERNAL STAFF SUPPORT	NON-PROFIT EXTERNAL SERVICING	PROFIT-MAKING EXTERNAL SERVICING	OTHER	AD HO	PERIODIC	CONTINUOUS	OPERATIONAL	PLANNED			
C-65		x			x			x		Longitudinal survey.	Test scores, completed questionnaires.	All available published sources.
C-66		x					x	x		Laboratory research.	Conference proceedings, laboratory reports.	Journals, abstracts
C-67	x						x		x	Reliability testing.	Not given.	Not given.
C-68	x	x					x	x		Public opinion survey.	Surveys.	None.
C-69			x				x	x		Laboratory research - spectral analysis (performed by Sadtler Research Laboratories)	Laboratory reports.	Not given.
C-70		x					x	x		Nuclear research.	Technical correspondence, private communications.	Journals, periodicals, reports.
C-71	x	x					x	x		Laboratory research.	Laboratory notebooks, data logs, memos, annual reports.	Journals, research reports.
C-72	x						x	x		Solar monitoring by means of the Solar Observing and Forecasting Network (SOFNET).	Sunspot reports, calcium plage reports, coronal emission indices, radio maps of sun, etc.	Not given.

SOURCES of DATA (con't.)				INPUT DATA		DATA PROCESSING											
INSTITUTIONAL SOURCES of DATA						OPERATIONS PERFORMED											
GOVERNMENT & CONTRACTORS	INDUSTRIAL & COMMERCIAL	EDUCATIONAL & NON-PROFIT	OTHER	STATE of REFINEMENT	FORMS of DATA	REDUCE	CATALOG	INDEX	EXTRACT	INTEGRATE	COMPUTE	STORE	EVALUATE	REFORMAT	REPRODUCE	DISSEMINATE	OTHER
x	x	x		Raw.	ADP coded.	x			x	x	x	x	x	x	x		
x	x	x		Raw.	Hardcopy.		x	x	x			x				x	Compile, summarize.
x	x			Raw.	Hardcopy, microform.	x						x	x			x	Collect, analyze, correlate.
x	x	x		Raw, evaluated.	ADP coded.	x		x		x	x	x	x	x	x	x	
	x			Evaluated.	Hardcopy, microform, ADP coded.	x	x	x		x	x	x		x	x	x	
x	x			Evaluated.	ADP coded.				x	x			x	x			
	x	x		Raw.	Hardcopy, ADP coded.	x	x	x	x	x	x	x	x	x	x	x	Correlate, search generically.
x				Raw, evaluated.	Hardcopy, ADP coded.	x				x	x	x				x	

USER SERVICING (continued)

OPERATING STATISTICS

COST TO USER	SERVICES PROVIDED: ANSWER INQUIRIES	SERVICES PROVIDED: PUBLISH DOCUMENTS	SERVICES PROVIDED: ANNOUNCE DATA DOCUMENTS	SERVICES PROVIDED	FORM OF SERVICE: CUSTOMIZED	FORM OF SERVICE: STANDARDIZED	ARTIFACTS PRODUCED	CURRENT VOLUME
At cost of computer and personnel time.		x			x		Computer printouts, BCD tapes, brochures.	Volume of inquiries: approximately 30 per year.
None.	x		x		x		Data compilations, critical reviews, summaries.	Staff: 5 full-time, 11 part-time.
Not given.	x	x			x	x	Not given.	Not given.
None.	x			Lend card decks and data documents.	x		Cards, tapes.	Volume of data in files: 12,000,000 computer cards, 7,000 studies.
Price varies with service.	x	x			x	x	Data compilations, charts, spectra catalogs, indexes.	Volume of data in files: 90,000 spectra.
None for cooperating physicists; at cost to others.	x	x		Provide consultant services.	Not given		Data compilations, tabulations, correlations, reviews.	Volume of data in files: 5,000 documents. Staff: 11 full-time.
User bears part of information budget charges.	x	x		Originate research ideas.	x	x	Lists of compounds, correlations of chemical structures and biological activities, indexes.	Volume of data in files: data on over 500,000 compounds.
Not given.	x	x		Forecast.	x	x	Data compilations, charts, maps, indexes.	Not given.

INPUT DATA (cont.)

DIRECTORY CODE	EXTENT OF AUTOMATION: SUBSTANTIAL	LIMITED	NONE	USER SERVICING — USING COMMUNITIES: SCALE	SCIENTIFIC or TECHNOLOGICAL ACTIVITIES	INSTITUTIONS	USER QUALIFICATIONS & RESTRICTIONS
C-65	x			National.	Behavioral and social science research.	Government, industry, education, etc.	Some data are confidential.
C-66			x	National.	Chemical research and related scientific research.	Government, industry, education, etc.	None.
C-67	x			National.	Equipment maintenance, systems reliability testing.	Government.	Not given.
C-68	x			National.	Social and political science research.	Government, industry, education, etc.	None.
C-69	x			International.	Basic research and applied technology in chemistry, pharmacology, electronics, etc.	Government, industry, education.	None.
C-70	x			National	Weapons research, applied and theoretical research in medicine and biology.	Government, industry, education.	Some data are classified.
C-71	x			International.	Medical research.	Government, industry, education.	Proprietary restrictions on biological data completed for outside research organizations.
C-72	x			National.	Military logistics, planning, and strategy.	U. S. Armed Forces, Government agencies.	Not given.

OPERATING STATISTICS (con't.)	
RATE of GROWTH	FUTURE PLANS
Estimated rate of increase in volume of inquiries: 100% in the next two-year period.	Continuation of follow-up survey until 1980.
Not given.	Expansion of coverage to include data published in foreign languages; initiation of reference service.
Not given.	Expansion of coverage to include semiconductor transistors, integrated circuits, mechanical and electromechanical parts, and discrete electronic parts.
Not given.	Initiation of on-line permanent retrieval of most heavily used studies; establishment of telecommunications links between center and members of association.
Not given.	Publication of mass spectral data.
Not given.	Not given.
General rate of growth: 10% per year.	Possible installation of on-line capability for system.
Not given.	Not given.

DATA CENTERS

CONTINUED ON NEXT PAGE

DATA CENTERS

DIRECTORY CODE	TITLE or COMMON NAME	YEAR ESTABLISHED	HOUSING or SPONSORING INSTITUTION & ADDRESS	OP ANNUAL BUDGET $10-50,000	$50-100,000	$100-250,000	$250
C-73	STORET System	1964	U. S. Department of Interior Federal Water Pollution Control Administration Washington, D. C. 20242	Not given.			
C-74	Systems Effectiveness Program, Military Construction Facilities	1963	Office of the Chief of Engineers Advanced Technology Branch, ENGMC-ED Washington, D. C. 20315			x	
C-75	Thermodynamic Properties of Metals and Alloys Data Program	1955	University of California Lawrence Radiation Laboratory Hearst Mining Building Berkeley, California 94720		x		
C-76	Thermodynamics Research Center	1955	Texas A&M University Department of Chemistry Post Office Box 3395 College Station, Texas 77840	Not given.			
C-77	Thermophysical Properties Research Center (TPRC)	1957	Purdue University 2595 Yeager Road West Lafayette, Indiana 47906				x
C-78	Toxicological Information Center	1956	U. S. Army Industry Liaison Office Research Laboratories Edgewood Arsenal, Maryland 21010		x		
C-79	Tri-Service and NASA Failure Rate Data (FARADA) Program	1962	Officer-in-Charge (Code E-6) Naval Fleet Missile Systems Analysis and Evaluation Group Corona, California 91720	Not given.			
C-80	U. S. Naval Avionics Facility (NAFI) Automated Data Processing and Control System for Test Equipment	1956	U. S. Naval Avionics Facility Indianapolis, Indiana			x	

A

NATIONAL SUPPORT					OPERATING PURPOSE & STATUS					
SOURCE of SUPPORT (%)					SCOPE				COVERAGE	
FEDERAL GOVERNMENT	STATE & LOCAL GOVERNMENT	INDUSTRIAL or COMMERCIAL	EDUCATIONAL INSTITUTIONS	OTHER (IDENTIFY)	Regional	National	International		SUBSTANCES, MATERIALS or EQUIPMENTS	PROPERTIES or PERFORMANCE VALUES
100%						x			Water - quality, uses, standards, facilities, etc.	More than 450 properties, including inorganic elements and ions, organic pollutants, natural and artificial radioisotopes.
100%						x			Diesel engines, gas turbines, generators, switch gear, transformers, etc.	Performance values, availability, maintainability, reliability.
90%		10%					x		All substances that conduct electricity electronically, particularly metals and alloys.	Thermodynamic properties, phase equilibria, etc.
100%							x		Organic compounds other than hydrocarbons.	Boiling point, freezing point, density, other thermodynamic functions.
100%							x		All classes of materials and substances.	Coefficient of expansion, viscosity, thermal conductivity, thermal diffusivity, diffusion coefficient (mass), specific heat, thermal radiative properties, Prandtl number.
100%							x		Chemical compounds.	Chemical, physical, toxicological, and therapeutic information.
100%						x			Electrical, electronic, mechanical, hydraulic, pneumatic, and pyrotechnic parts/components.	Stress analysis, environmental and application factors, performance degradation, failure modes.
100%						x			Test equipments.	Instrument name, manufacturer, model number, purchase date, cost, test procedures, calibration cycles, etc.

B

DIRECTORY CODE	OPERATING STATUS (continued)										SOURCES of DATA		
	OPERATING MOTIVE				CONTINUITY of OPERATION						SCIENTIFIC & TECHNICAL ACTIVITIES GENERATING DATA	UNPUBLISHED SOURCES	PUBLISHED SOURCES
	INTERNAL STAFF SUPPORT	NON-PROFIT EXTERNAL SERVICING	PROFIT-MAKING EXTERNAL SERVICING	OTHER	AD HOC	PERIODIC	CONTINUOUS	OPERATIONAL	PLANNED				
C-73	x	x					x	x			Monitoring of national waterways, survey of water facilities.	Past and current reports of Federal Water Pollution Control system.	Reports outside of system.
C-74	x						x	x			Engineering design.	Operating and maintenance records of military construction facilities.	Not given.
C-75	x	x					x	x			Laboratory research.	All available unpublished sources.	All available published sources.
C-76		x					x	x			Experimental and theoretical research in thermodynamics.	All related unpublished sources.	All related published sources.
C-77	x	x					x	x			Laboratory research.	Laboratory reports (both U. S. and foreign), theses.	All available published sources.
C-78	x	x					x	x			Laboratory research.	Technical reports, data sheets.	Texts, journal articles, reviews.
C-79		x					x	x			Reliability testing, stress analysis, etc.	Not given.	Not given.
C-80		x					x	x			Procurement and maintenance of avionics test equipment.	Data logs.	Published reports.

SOURCES of DATA (con't.)				INPUT DATA		DATA PROCESSING											
INSTITUTIONAL SOURCES of DATA						OPERATIONS PERFORMED											
GOVERNMENT & CONTRACTORS	INDUSTRIAL & COMMERCIAL	EDUCATIONAL & NON-PROFIT	OTHER	STATE of REFINEMENT	FORMS of DATA	REDUCE	CATALOG	INDEX	EXTRACT	INTEGRATE	COMPUTE	STORE	EVALUATE	REFORMAT	REPRODUCE	DISSEMINATE	OTHER
x	x			Raw.	ADP coded.		x	x				x	x			x	
x				Reduced.	Microform, ADP coded.	x							x			x	
x	x	x		Evaluated.	Not given.	Not given.											
Not given.				Not given.	Not given.	x			x				x	x	x	x	
x	x	x		Evaluated.	Hardcopy, microform.						x	x	x			x	Compile, correlate, search.
x	x			Evaluated.	Hardcopy.			x	x	x		x	x			x	
Not given.				Evaluated.	Hardcopy, ADP coded.								x			x	Collect, compile, analyze.
x	x			Evaluated.	Hardcopy, ADP coded.	x	x	x	x	x	x	x	x	x	x		

INPUT DATA (cont.)				USER SERVICING			
DIRECTORY CODE	EXTENT OF AUTOMATION			USING COMMUNITIES			
	SUBSTANTIAL	LIMITED	NONE	SCALE	SCIENTIFIC or TECHNOLOGICAL ACTIVITIES	INSTITUTIONS	USER QUALIFICATIONS & RESTRICTIONS
C-73	x			National.	Water pollution control.	State and Federal government, educational institutions.	None.
C-74		x		National.	Military construction.	Department of Defense, private industry.	Not given.
C-75	Not given.			National.	Laboratory research, engineering design.	Government agencies and their contractors, qualified laboratories, research and educational institutions, industry.	Not given.
C-76	Not given.			International.	Organic chemistry research and related activities.	Not given.	None.
C-77	x			International.	Not given.	Industry, government, education.	Not given.
C-78			x	National.	Not given.	Department of Defense, other Government agencies, industry.	Approval of Department of Defense; some data are classified.
C-79	x			National.	Design, development, and production of military and space-equipment hardware; reliability and maintainability engineering.	U. S. Armed Forces, Government agencies, educational institutions.	Not given.
C-80	x			National.	Instrument maintnenance and calibration, acceptance testing of avionics equipment.	U. S. Naval calibration laboratories.	Approval of Department of Defense.

USER SERVICING (continued)								OPERATING STATISTICS
	SERVICES PROVIDED				FORM OF SERVICE			
COST TO USER	ANSWER INQUIRIES	PUBLISH DOCUMENTS	ANNOUNCE DATA DOCUMENTS		CUSTOMIZED	STANDARDIZED	ARTIFACTS PRODUCED	CURRENT VOLUME
Not given.	x				x	x	Data compilations, statistics, stream loadings.	Volume of data in files: 5-7,000,000 values.
Not given.	Not given.				Not given.		Not given.	Not given.
None.	x	x				x	Data compilations, multilith sheets.	Volume of data in files: data from 12,000 sources.
Cost of services varies.	x	x			Not given.		Data sheets, selected spectra, looseleaf and bound volumes, numerical data supplements.	Staff: 16 full-time, 15 part-time.
Search fee.	x	x		Prepare reviews and correlations; provide consultant services.	x	x	Data compilations, tables, graphs.	Artifacts produced: 5,000 data sheets to date.
Not given.	x	x			x	x	Data compilations.	Volume of data in files: data on 17,000 compounds. Staff: 5 personnel.
Not given.		x				x	Handbooks.	Volume of data in files: 42,000 line entries of tabulated data.
None.	x			Prepare standards and procedures.	x		Data compilations.	Volume of data in files: data on 10,000 pieces of test equipment.

OPERATING STATISTICS (con't.)	
RATE of GROWTH	FUTURE PLANS
Not given.	Conversion to IBM 360 computer effective 1968.
Additions to data files: 10,000 feet of microfilm per year (raw data).	Activity will be moved to Army's Construction Engineering Research Lab at University of Illinois in 1969.
Additions to data files: 15-25 new properties per year.	Expansion of data coverage on alloys.
Not given.	Not given.
Rate of increase in artifacts produced: 45% (1965-1966).	Continuous updating of files.
Additions to data files: 1,000 compounds per year.	Not given.
Additions to data files: 8,000 line entries per year.	Not given.
Not given.	Not given.

DATA CENTERS

CONTINUED ON NEXT PAGE

DATA CENTERS

DIRECTORY CODE	TITLE or COMMON NAME	YEAR ESTABLISHED	HOUSING or SPONSORING INSTITUTION & ADDRESS	OP ANNUAL BUDGET $10-50,000	$50-100,000	$100-250,000	$250-500,000
C-81	U. S. Naval Failure Rate Data Program (FARADA)	1963	U. S. Naval Supply Depot Maintenance Support Office Mechanicsburg, Pennsylvania 17055				
C-82	Veterinary Medical Data Program	1964	National Institutes of Health National Cancer Institute 9000 Rockville Pike Bethesda, Maryland 20014	x			
C-83	X-Ray Attenuation Coefficient Information Center	1952	National Bureau of Standards Office of Standard Reference Data Washington, D. C. 20234	x			

OPERATIONAL SUPPORT											OPERATING PURPOSE & STATUS				
ANNUAL BUDGET					SOUNCE of SUPPORT (%)						SCOPE			COVERAGE	
$10-30,000	$30-100,000	$100-230,000	$230-500,000	OVER $500,000	FEDERAL GOVERNMENT	STATE & LOCAL GOVERNMENT	INDUSTRIAL or COMMERCIAL	EDUCATIONAL INSTITUTIONS	OTHER (IDENTIFY)	Regional	National	International	SUBSTANCES, MATERIALS or EQUIPMENTS	PROPERTIES or PERFORMANCE VALUES
				x	100%						x		Component failure rate data.	Type of malfunction (in code), parts required to repair malfunction (if any), man-hours required to repair.
x					100%						x		Naturally occurring diseases of domestic animals.	Epidemiologic investigations.
x					100%						x		High energy photon (x-ray, gamma ray) interaction with matter.	Attenuation coefficients - Compton and Rayleigh scattering, atomic photo-effect, electron-position pair production.

B

DIRECTORY COLL	OPERATING STATUS (continued)									SOURCES of DATA		
	OPERATING MOTIVE				CONTINUITY of OPERATION					SCIENTIFIC & TECHNICAL ACTIVITIES GENERATING DATA	UNPUBLISHED SOURCES	PUBLISHED SOURCES
	INTERNAL STAFF SUPPORT	NON-PROFIT EXTERNAL SERVICING	PROFIT-MAKING EXTERNAL SERVICING	OTHER	AD HOC	PERIODIC	CONTINUOUS	OPERATIONAL	PLANNED			
C-81		x					x		x	Component testing, support, and maintenance.	None.	None.
C-82	x						x	x		Veterinary colleges.	Patient and history records.	None.
C-83		x					x	x		Laboratory research.	Laboratory reports, interviews, informal correspondence.	Not given.

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SOURCES of DATA (con't.)				INPUT DATA		DATA PROCESSING											
INSTITUTIONAL SOURCES of DATA						OPERATIONS PERFORMED											
GOVERNMENT & CONTRACTORS	INDUSTRIAL & COMMERCIAL	EDUCATIONAL & NON-PROFIT	OTHER	STATE of REFINEMENT	FORMS of DATA	REDUCE	CATALOG	INDEX	EXTRACT	INTEGRATE	COMPUTE	STORE	EVALUATE	REFORMAT	REPRODUCE	DISSEMINATE	OTHER
x				Raw.	Microform, ADP coded.	x	x	x	x	x	x	x	x	x	x	x	
		x		Reduced.	ADP coded.		x	x			x	x				x	Collect, retrieve.
x	x	x		Evaluated.	Hardcopy.				x					x			Search.

INPUT DATA (cont'd)	EXTENT OF AUTOMATION			USER SERVICING USING COMMUNITIES			
DIRECTORY CODE	SUBSTANTIAL	LIMITED	NONE	SCALE	SCIENTIFIC or TECHNOLOGICAL ACTIVITIES	INSTITUTIONS	USER QUALIFICATIONS & RESTRICTIONS
C-81	x			National.	Aircraft and ship construction and maintenance.	Department of Defense and contractors.	Approval of Department of Defense.
C-82	x			National.	Comparative medical and veterinary research.	Government, education.	None.
C-83		x		National.	Radiation shielding design, medical and x-ray research, metallurgical research, etc.	Government agencies, medical institutions, industry, non-profit institutions.	None.

USER SERVICING (continued)								OPERATING STATISTICS
	SERVICES PROVIDED				FORM OF SERVICE			
COST TO USER	ANSWER INQUIRIES	PUBLISH DOCUMENTS	ANNOUNCE DATA DOCUMENTS		CUSTOMIZED	STANDARDIZED	ARTIFACTS PRODUCED	CURRENT VOLUME
None.	x	x			x	x	Data compilations.	Volume of data in files: approximately 3,500,000 cards. Users served: 1,900. Staff: 104 personnel.
None.	x	x				x	Data compilations.	Input: 60,000 medical case abstracts per year.
None.	x	x	x		x		Data card file, tabulations.	Volume of data in files: 1,200 cards; 6,000 references Volume of inquiries: 450-500 per year.

OPERATING STATISTICS (con't.)	
RATE of GROWTH	FUTURE PLANS
Rate of increase in data files: 100% (1966-1967)	Expansion of coverage to point of complete documentation of all maintenance actions in Navy.
Estimated increase in data file and users served: growth to a stabilization point at 150% of current levels.	Addition of 6-8 new schools of veterinary medicine to program.
Rate of increase in data files: 10% per year.	Not given.

D. Data-Document Depositories

1. Summary

a. Context and Scope of the Census

Many recent studies of document handling systems and related activities, such as abstracting and indexing, frequently have concentrated on systems which process journal articles and research reports. To a large extent, recent studies have not specifically considered the extensive efforts currently being expended on handling of documents with high data content, i.e., equipment catalogs, manuals, drawings, maps, product bulletins, standards, specifications, etc. Where a study of such efforts has been conducted, it has usually been limited to design of a specific center or to a study of data archiving within a mission area such as defense operations, or a specific segment of a mission area such as the Army Materiel Command activities. This census covers 39 data-document depositories and deals extensively with engineering document depositories sponsored by the Federal Government.

Many other collections of data-documents are known to exist -- e.g., the Library of Congress and Columbia University have collections of equipment catalogs. However, frequently such collections are not separated from the general holdings of a library or other general-purpose document handling center. Such operations, where funding, staffing, administration, etc. of data-document archiving and user servicing are integral to the overall operation of a library or broad purpose document handling system, could not be accommodated within this census effort.

Operating Purpose - All of the 39 depositories included in the Census operate on a non-profit basis. Of these 39 depositories, 30 provide external servicing, and 9 operate solely for internal staff support.

Of the depositories surveyed, 31 serve applications-product oriented data activities, and 18 serve mission-development activities. Two serve general purpose data collection activities. None of the depositories serves discipline-research oriented activities. Data-documents for such activities are normally archived in conventional libraries and documentation centers.

Thirty-seven of the 39 data-document depositories included in the Census are sponsored by the Federal Government, and the majority of these are run by elements of the Department of Defense. Government agencies sponsoring these 37 depositories include the Army, Navy, Air Force, Marine Corps, Defense Supply Agency, and Atomic Energy Commission. The two depositories not sponsored by the Federal Government are run by non-profit institutions.

Financial Support - Thirty-seven depositories furnished information on their budget levels, and over half of these depositories operate on an annual budget of $250,000 or more. Fifteen depositories have an annual budget in excess of $500,000; five have a budget of $250,000-$500,000; and ten operate on an annual budget of $100,000-$250,000. Seven depositories operate on a budget of $100,000 or less per year.

The Federal Government is the sole source of financial support for 36 of the 39 depositories. Two other depositories are partially supported by Federal funds and receive additional support from user fees and endowment funds, respectively.

Only one depository included in the Census does not receive financial support from the Federal Government -- the Tin Research Institute, Inc., a non-profit organization, is entirely self-supporting.

b. Coverage

Data-Documents Collected - Well over two-thirds of the depositories collect engineering documents, including engineering drawings (collected by 28 depositories), specifications (16 depositories), standards (nine depositories), engineering parts lists (four depositories), Qualified Products Lists (four depositories), and engineering change orders (three depositories). Eleven depositories collect manuals, handbooks, and related documents such as operating procedures, ordnance pamphlets, and manufacturing process reports. Nine depositories collect procurement and supply documents such as catalogs, purchase descriptions, procurement and logistics documents, supply lists, and packaging data.

Over half the depositories reported documents which did not fall into the above categories. Included among these documents are photo-

graphs, slides, motion picture film, maps, charts, computer programs, ADP code packages, government regulations, and technical reports.

Thirty-four depositories gave information on whether the documents they collect are published documents or unpublished documents. Twenty-seven of these depositories collect unpublished data documents, the majority of which are engineering drawings, followed by unpublished technical reports, test results, and other types of back-up or historical data. Thirty-one depositories collect published documents, the majority of which are specifications, standards, catalogs, manuals, and handbooks. Over two-thirds of the 34 depositories collect both published and unpublished documents, while seven depositories report only published documents in their collections, and three depositories report only unpublished documents.

Documents collected by the 39 depositories are generally embodied in the following forms: Hardcopy (including looseleaf sheets and full-size drawings), microforms (including microfilm, microfiche, and microfilm aperture cards), and ADP-coded documents (including computer tapes and cards). Thirty-one of the 39 depositories reported documents in hardcopy form; 30 depositories include microform documents in their holdings; and 16 depositories collect computer tapes and cards. Four depositories collect documents in other forms, including photographs, negatives, transparencies, motion picture film, sound tracks, and video tapes.

Sources of the Data-Documents - The documents collected by the depositories are generated by the following sources: Federal Government, industry and commerce, and educational or non-profit institutions. Only three depositories -- the Tin Research Institute, Inc., the Army Map Service, and the Defense Logistics Services Center -- report documents containing data generated by foreign governments and institutions.

Thirty-eight of the 39 depositories contain data-documents generated by the Federal Government, and 25 of these document collections consist entirely of Government-generated documents. Twelve depositories report that they contain documents generated by industry and commerce, and four contain documents generated by educational and non-profit institutions.

The scientific and technological activities of engineering design and product development generate the majority of data-documents collected by the depositories included in the census. Twenty-three depositories specifically mention engineering design as the activity generating their data documents, and 22 depositories mention product development. Laboratory research, and testing and evaluation are less frequently mentioned -- Thirteen depositories mention laboratory research as an activity generating their data documents, and eight depositories mention testing and evaluation.

Other scientific and technological activities generating the data documents collected by the depositories include celestial observations, geographic and geodetic survey, and test equipment calibrations. Five depositories specifically mention procurement and maintenance -- an activity which is not directly scientific or technological -- as responsible for generating the data contained in their data documents.

Data Coverage - Documents collected by the 39 depositories contain data primarily on military equipment and supplies. The most frequently mentioned subjects were weapons, ammunition and related equipment such as fire control systems. Thirteen depositories collect at least some documents containing data on these items. Data documents on missiles, rockets, and related equipment are collected by nine of the depositories, and four depositories collect documents on nuclear reactors, atomic devices, and related equipment. Three depositories collect documents on aircraft. Other documents collected by the depositories contain data on electronic components, chemical warfare equipment, training devices, architectural structures, automotive vehicles, mobile military equipment, and miscellaneous items supplied to the Department of Defense.

The two depositories not sponsored by the Federal Government collect documents on tin and its applications, and astronomical objects and phenomena.

The data content of the documents collected by the depositories reflects the following properties: Design parameters, specifications, and standards (24 depositories); maintenance and procurement characteristics (17 depositories); physical, geophysical, astro-

nomical, chemical, electrical, or nuclear properties (nine depositories), performance characteristics (seven depositories), and operating procedures (six depositories).

Data-documents collected by the depositories can be classified into three ascending degrees of refinement: Draft, working copy, and final copy. Of the 37 depositories reporting such information, three gave working copy as the highest degree of refinement for the documents in their collections, and 34 reported final copy as the highest degree of refinement.

Only eight depositories collect draft copies; 18 depositories, however, do collect working copies, although only three report working copy as the highest degree of refinement for their documents.

c. Operations

Depository operations can be tabulated according to the following eight processes: Storage, dissemination, indexing, cataloging, reproduction, reformatting, evaluation, and abstracting. Almost all the depositories (37 of the 39) are directly responsible for storing the documents they process, while 38 of the 39 depositories either catalog or index their documents. Over three-fourths of the depositories reproduce and disseminate the documents.

The following list shows the frequency of operations performed by the 39 depositories:

Operation	Number of Depositories Performing Operation
Storage	37
Dissemination	32
Indexing	31
Reproduction	31
Reformatting	26
Cataloging	22
Evaluation	22
Abstracting	8

Thirty-four depositories report some degree of automation in their operations; 20 are substantial in automation, and 14 have reached a limited degree of automation Only five depositories included in the census have a negligible degree of automation.

d. Using Communities

Information on the characteristics of document-depository users can be tabulated under three broad headings: Scale of using community, scientific or technological activities of using communities, and institutions comprising the using communities.

All depositories included in the census have using communities which are national in scope. Many of these user communities are also international -- for example, a number of DoD depositories extend service to foreign governments as a part of the U. S. military assistance programs.

Almost two-thirds of the depositories report that at least a part of their using communities is active in the field of procurement, maintenance, and military logistics planning. Twenty-five depositories report this activity for their users, while only 15 cite engineering design as an activity of their using community, and 10 cite product development. Other activities less frequently mentioned include laboratory research, military training, military tactics and strategy, air navigation, planetary research, and standardization activities.

Thirty-eight depositories gave information on types of institutions using depository services, and all of these depositories include U. S. Government organizations in their using communities. Twenty-seven depositories specifically mention industry and commerce, most often specifying commercial organizations working under contract to the Government. Fifteen depositories cite international organizations, including foreign governments participating in U S. military assistance programs. Few depositories specifically mention non-profit institutions or educational institutions as a part of their using community.

Services Provided to Users - The following list shows the number of depositories performing specified services:

Provide copies of data documents	35 depositories
Perform data document searches	25 depositories
Announce data documents	19 depositories
Publish abstracts	3 depositories

Several depositories mention other services, such as answering inquiries, compiling documents (or film clips and film briefings), providing indexes to standards, and providing visual display equipment for documents in microform.

Thirty-four depositories furnished information on their form of service. Fifteen of these 34 depositories provide both customized and standardized service; 13 provide only standardized service; and six depositories provide only customized service.

User Qualifications and Restrictions - Thirty-seven depositories gave information concerning user qualifications and restrictions, and only six of these depositories state that there are no restrictions placed on their users. The other 31 depositories levy restrictions such as security clearance and approval of a DoD contracting officer for those using the depository. Twenty of the 32 depositories provide service at no direct cost to the user, while 12 depositories charge a fee for at least some of the services they provide.

e. Volume of Operation

Most depositories furnished information on their volume of operation in terms not reducible to a common denominator. However, eight depositories offered information on the number of engineering drawings in their collections, and these figures range from about 15,000 drawings in one collection to over 1,000,000 drawings contained in one collection.

Thirteen depositories reported number of documents processed per year, and of these 13 depositories, seven process over 1,000,000 documents annually, usually in the form of microfilm aperture cards or frames of microfilm.

f. Future Trends

Well over half of the 27 depositories reporting their plans for the future cite automation and expansion in microfilm and microfiche capabilities as future operations under consideration or in the course of implementation. Eleven depositories plan to initiate or expand automation of operations, and five depositories specifically mention expansion in the field of microfilm or microfiche. Other plans cited for the future include enlargement of the data file, general expansion of operations and service, and organizational revisions.

As indicated by the above plans, new technology (micro-media, computers, etc.) can be expected to substantially alter the character of data-document depository operations. As these new technologies are introduced, hardcopy will be supplanted as the principal form of data artifact and the distinction between data-document depositories and data service centers will diminish. As data become increasingly archived in machine-processable form, their utility will increase for application in computer-aided design, etc.

2. Directory of Data-Document Depositories

D-1

AEC Engineering Materials Document Depository

Atomic Energy Commission
Division of Technical Information Extension
Post Office Box 62
Oak Ridge, Tennessee 37830

Purpose: This activity acts as a data-document depository for AEC drawings, specifications, and photographs of equipment. It abstracts, indexes, and disseminates such materials through a published Engineering Materials List.

Scope: All fields of engineering are covered with emphasis on nuclear engineering and manufacturing materials, nationwide. Drawings are announced in Nuclear Science Abstracts and are purchasable from the Clearinghouse for Federal Scientific and Technical Information.

Coverage: Research and power reactor facilities, chemical processing plants, radiation instruments, laboratory equipment developed in the nuclear sciences: Fabrication, drawings of instruments, equipment, components, including bills of materials, etc.

Status: Depository was initiated in 1956 and is currently announcing over 21,000 items per year through the List.

D-39

Aeronautical Chart and Information Center

U. S. Air Force
Headquarters Aeronautical Chart and Information Center
Secord and Arsenal
St. Louis, Missouri 63118

Purpose: The depository collects, indexes, stores, reproduces, and disseminates aeronautical charts and information for the Air Force.

Scope: The documents are generated through product development activities and flight information publications and are primarily for the use of the Department of Defense, particularly, the Air Force for its navigational needs.

Coverage: Aeronautical navigation data: Maps, charts, air field information, etc.

Status: This is a permanent activity which was initiated in 1942. Because of the national security implications, a great number of the documents are classified; the unclassified documents are for sale through the U. S. Coast and Geodetic Survey.

D-2

Air Force Motion Picture Depository

U. S. Air Force
1350th Motion Picture Squadron
Wright-Patterson Air Force Base, Ohio 45433

Purpose: The mission of the depository is to manage records and archives relating to all motion picture photography and related sound tracks made by or for the U. S. Air Force, including centralization, evaluation, description, storage, preservation, and servicing of film and sound tracks.

Scope: Film and related sound tracks are received from Air Force research and development centers and laboratories, principally components of the Air Force Systems Command and research contractors. Documents concern all military, administrative, scientific, and technical areas of the Air Force activities. Major usage is furnished to the U. S. Air Force, with some approved usage to universities, hospitals, and motion picture and television producers.

Coverage: Documentary motion picture film and related sound recordings: Historical development, current operations, scientific research and development; also informational, training, or incentive films.

Status: The depository was established in October, 1947; holdings currently amount to 101 million feet of film, with approximately 14,000 services performed annually.

D-3

Air Force Still Photographic Depository

U. S. Air Force
Detachment 5, Headquarters AAVS (MAC)
1221 South Fern Street
Arlington, Virginia 22202

Purpose: This effort operates and maintains a data-document depository of historical, documentary, and news photography to support the operational needs and requirements of the Depository and to provide custom photographic services to Department of Defense, Office of the Secretary of the Air Force, and to the Air Staff.

Scope: Documents are received from U. S. Air Force organizations worldwide. Photography is provided to Air Force organizations throughout the world to fulfill official requirements on a request basis. Other customers are representatives of the public information media and the general public, both domestic and foreign.

Coverage: Still photographs(visual print files, black and white negatives, color transparencies, ektacolor negatives of varying subjects and sizes, 16 mm through 8x10"): Aircraft and related components, equipment, armament, rockets and guided missiles, historical-documentary photography.

Status: Depository was established in 1919, with approximately 550,000 still photo negatives and prints currently in its holdings. An average of 1,500 new receipts are entered monthly.

D-4

Argonne Code Center

Argonne National Laboratory
9700 South Cass Avenue
Argonne, Illinois 60439

Purpose: This center maintains, reproduces, and distributes computer programs and code package material.

Scope: Sponsor is the Atomic Energy Commission, Division of Reactor Development and Technology. Codes and programs, which are collected from the European Nuclear Energy Agency Computer Programme Library, are distributed by the American Nuclear Society.

Coverage: Code packages, digital-computer programs: Reactor-design, nuclear-physics, reactor-engineering studies.

Status: Center was established in 1960 and is currently working on a complete revision of the library of approximately 2,000 total programs.

D-5

Army Data Retrieval Engineering System (ADRES)

Headquarters
U. S. Army Missile Command (MICOM)
Engineering Document Division
Redstone Arsenal, Alabama 35809

Purpose: The purpose of ADRES is to provide MICOM, its contractors, and other Government agencies with a standard system for rapid access to current drawings on missile components, arranged in sequence so that items having like functions and characteristics can be retrieved and displayed side by side for comparison and selection of parts.

Scope: The input to the system draws upon commercial standards, specifications, and drawings and is for the use of all research, development, and production contractors of MICOM and to other government activities.

Coverage: Missiles, missile components, components with potential missile system application: Design parameters, purchase specifications, etc.

Status: System has been in operation since 1963, with a current file of 200,000 items and a user volume of approximately 90 contractors and government activities.

D-c

Army Map Service

U. S. Army Corps of Engineers
6500 Brooks Lane
Washington, D. C. 20315

Purpose: The Service collects, produces, stores, and disseminates maps of all types and related products for the use of the Department of Defense and for the general public.

Scope: Maps are developed from geographic and geodetic surveys, air and satellite photography, unpublished and published maps, sketches, etc. worldwide. Under agreements with 57 nations, maps are used by operations, intelligence, strategy, and tactics planning and logistics in foreign governments as well as by the U. S. Armed Forces. A small number of maps are classified and not available to the general public.

Coverage: Maps: Names, positions, terrain, physical characteristics of highways, bridges, etc.

Status: The activity has been known as the Army Map Service since 1942. The depot currently stores over 150,000,000 maps and distributes approximately 65,000,000 per year. Its continuously up-dated library collection consists of 2,600,000 items.

D-7

Army Mobility Equipment Document Depository

U. S. Army
Mobility Equipment Research and Development Center
U. S. Army Engineers Research and Development Labs
SMOFB-K1
Fort Belvoir, Virginia 22060

Purpose: The depository maintains a microreproduction and distribution system for technical data (engineering drawings and associated lists, quality assurance documentation, specifications, standards, standard parts, commercial item catalogs, and industrial handbooks) used in technical data packages for procurement, maintenance, item description, and engineering purposes. Storage, retrieval, reproduction, and distribution are the main missions.

Scope: Engineering laboratory research and development nationwide is the document resource for the depository. Users are Army and Defense Supply Agency procurement offices and item management offices throughout the U. S.

Coverage: Construction, electrical power generating, camouflage, mine warfare, barrier and intrusion detection, water purification, industrial engines, etc.: Technical requirements, manufacturing specifications, acceptance criteria, performance and operational characteristics.

Status: Facility was established in 1965 as a semi-automatic system with future automation currently under study. It handles approximately 150,000 documents per year.

D-8

Data Automation Retrieval Equipment (DARE)

U. S. Army Missile Command (MICOM)
Engineering Documentation Division
Procurement and Production Directorate
Redstone Arsenal, Alabama 35809

Purpose: This totally automated engineering documentation storage and retrieval system was designed to support the procurement of repair parts for MICOM managed missile systems by significantly reducing the administrative lead time.

Scope: Department of Defense and contractors, nationwide and overseas, supply and use documents.

Coverage: Missile system components and equipment; Engineering drawings, specifications, etc.

Status: The DARE system has been in a production status since July, 1967. It has the expected capacity of storing up to 1.7 million documents with automatic retrieval and copying of 5,000 per day.

D-9

Defense Industrial Supply Center (DISC) Technical Docume Depository

Defense Industrial Supply Center
700 Robbins Avenue
Philadelphia, Pennsylvania 19111

Purpose: The depository collects and disseminates trade and manufacturers' catalogs, standards, specification exceptions, purchase descriptions and details, and military department and commercial drawings for managerial personnel and technicians involved in the design and operation of all types of equipment.

Scope: Data-documents are collected nationwide from all available industrial and governmental facilities. Service is provided to requestors throughout the Department of Defense and its contractors.

Coverage: Bearings, screws, bolts, nuts, washers, nails, packing and gasket materials, miscellaneous hardware: Data, drawings, etc.

Status: Activity is operational and in the process of further mechanization. It has processed over 700,000 items.

D-19

Defense Logistics Services Center (DLSC)

50 North Washington
Battle Creek, Michigan 49017

Purpose: The Center acts as a supply information system maintained to reduce the cost of defense and government in general through conservation of materiel resources by providing services that help its customers improve supply management.

Scope: The Federal Catalog, now a function of DLSC, serves as coordination for improvement in item supply management operations. Customers are in the military services, Federal and civil agencies, NATO, and in industry.

Coverage: All supplied items: Availability, physical characteristics, manufacturers, stock codes, control data, costs, etc.

Status: The Federal Catalog Program, containing more than four million items, was begun in 1952 at the direction of Congress and was installed in the Defense Supply Agency in 1958. The DLSC was created in 1962 and is now completing a full automation of the cataloging system.

D-11

Edgewood Arsenal Engineering Document Repository

U. S. Army
SMUEA-EIS-ED
Edgewood Arsenal, Maryland 21010

Purpose: The repository supplies reproduction and distribution services for drawings, specifications, and related end items throughout the Army and to industry involved in ordnance development, procurement, production, logistics, training, and planning.

Scope: Documents are furnished through DoD distribution channels to all elements of DoD and industry throughout the world and to foreign countries participating in Mutual Development and Standardization Programs.

Coverage: Decontamination and impregnating equipment, safety and rescue equipment, hazard detecting instruments and apparatus, warhead sections for guided missiles and rockets containing military chemical agents: Engineering drawings, specifications, purchase descriptions, catalogs, technical manuals, training manuals.

Status: Depository was started at time of Arsenal's establishment in 1920. Files currently contain about 970,000 microfilm aperture cards, as well as over 200,000 drawings, prints, etc.

D-12

Engineering Data Systems (EDS)

Department of the Army
Headquarters
United States Army Missile Command (MICOM)
Redstone Arsenal, Alabama 35809

Purpose: These depository systems provide a method of collecting, storing, and distributing engineering data, with the capability to retrieve stored data by characteristics or numbers and to display the data for visual use or provide hardcopy when needed.

Scope: Systems are being used in all three of the major directorates at MICOM, i. e., Procurement and Production, Supply and Maintenance, and Research and Development, as well as at Army Munitions Command, Picatinny Arsenal. EDS-0009 system is in operation at three major contractor plants: Raytheon Company, Sperry Utah Company, and Martin-Marietta.

Coverage: Missile System hardware and parts: Configuration, test, maintainability, reliability, packaging requirements, quality control, etc.

Status: Files currently contain data on approximately 8,100 military and commercial semiconductor devices, 3,300 commercial computer logic circuits, 31,000 items in Federal supply, 33,000 MICOM common parts, and hundreds of other standards, specifications, etc.

D-13

Engineering, Drawings and Microfilm Section, Navy Publications and Printing Service

Code 0724
Building 157-3
Washington Navy Yard
Washington, D. C. 20390

Purpose: Objectives of the depository are to research, plan, coordinate, procure, reproduce, and distribute engineering drawing documentation as support to the Naval System Commands and other naval activities ashore and afloat through a centralized data control system.

Scope: Sources for documents are engineering design and product development laboratory research and technical data studies, nationwide. Usage is primarily by System Commands and other departmental agencies, contractors, naval shipyards, follow-yards, the Fleet, repair facilities, foreign governments and the general public -- all with established need-to-know and officially documented security clearance on classified documents.

Coverage: Hull structure, propulsion, electric plant, communications and control, auxiliary and armament equipment and systems, etc.: Design and engineering, construction, model ship profiles, standard and type drawing indexes, etc.

Status: Drawings program began prior to 1939 with Bureau of Ships (now Naval Ship Systems Command) formed in 1944. Section was transferred to present location in 1966 and now contains over 8 million drawings.

D-14

Fort Monmouth Electronics Command Engineering Drawing Repository

U. S. Army Electronics Command
Technical Data, Cataloging, and Standardization Directorate
AMSEL-TD
Fort Monmouth, New Jersey 07703

Purpose: The repository provides engineering documents and associated data for use in procurement and production of communications electronics items procured by the Command.

Scope: The input is national, primarily from research and development contractors, production contractors, laboratory research, engineering design, and standardization activities. Sets of aperture cards of engineering drawings are automatically distributed to continental and overseas depots, as well as to other services, for procurement, production, and maintenance operations.

Coverage: Type and style of electronic components (e. g., specific type of transistor, specific value of capacitor), specific material for structural members: Performance parameters, test methods to determine performance.

Status: The facility was established pre-1947; it contains four complete sets of 900, 000 microfilm aperture cards, four complete sets of 900, 000 commercial microfilm aperture cards, and 30, 000 hardcopy documents.

D-15

Frankford Arsenal Engineering Drawing Repository

U. S. Army Frankford Arsenal
SMUFA-N1100
Birde and Tacony Streets
Philadelphia, Pennsylvania 19137

Purpose: The repository retains, maintains and provides, as required, engineering and procurement drawings and related documents on ordnance mission materiel.

Scope: Laboratory research, engineering design, and product development, nationwide, supply the documents to the facility. Users are primarily DoD and contractors, with some usage by overseas military assistance programs.

Coverage: Fire control equipment for infantry/artillery, army aircraft and tank gunnery, small arms ammo, propellant actuated devices, cartridge actuated devices: Mechanical and optical design drawings and specifications.

Status: Repository is producing approximately 4,000,000 aperture cards per year, with an increase of 20 percent annually anticipated. Expansion of microfilming activites and initiation of computer compilations of lists of data for procurement are planned for the near future.

D-16

Harry Diamond Laboratories (HDL) Engineering Document Depository

AMXDO-EDB, Section 712
Washington, D. C. 20438

Purpose: The data activity of this facility concerns the acquiring and maintaining of specifications, test equipment manuals, maintenance manuals, manufacturing process reports, and EDP records needed for procurement, surveillance, and maintenance of ordnance items developed by the Laboratories.

Scope: Documents collected are from national and international sources and are for the use of HDL, government agencies, and the electronics ordnance industry with limitations to the industrial specialty involved, need-to-know, and proper clearance on most items.

Coverage: Electronic and proximity fuzes (conventional and guided missile), electro-mechanical and electro-chemical fuzes and fuze components, test equipment for electronic and proximity fuzes: Electrical, mechanical, environmental, ballistic, explosive, human factors.

Status: The permanent organization has been operational since 1956. Active files contain approximately 35,000 drawings, 200 specifications, and 150 manuals. Main directions of growth are toward automation and contractor support rather than internal enlargement.

D-17

Marine Corps Central Technical Data Repository

Commanding General
Marine Corps Supply Activity
Code 874
1100 South Broad Street
Philadelphia, Pennsylvania 19146

Purpose: This facility is establishing a Marine Corps technical data repository of engineering drawings with a requirement for a system of acquisition control, storage, reproduction, and distribution of these drawings for use by the Marine Corps, and interchange with other DoD activities in the logistic support of Marine Corps managed items.

Scope: Data are international in coverage and are used in government activities involving military logistics planning including procurement, maintenance, cataloging, identification, and provisioning. Some data are proprietary to commercial contractors.

Coverage: Small arms, guns, armored vehicles, wheeled vehicles, communications equipment, calibration and test equipment, ground and air support equipment, personnel support equipment: Basic drawings, engineering change orders, final drawings in microforms.

Status: Repository began operating in 1967. New data input averages 3,250 items per week with around 2,500 requests for drawings per week. Future plans call for participation in all related DoD programs of microform data.

D-18

Naval Air Systems Command (NAVAIR) Engineering Data Bank

Naval Air Technical Services Facility
700 Robbins Avenue
Philadelphia, Pennsylvania 19111

Purpose: The depository collects, processes, and distributes copies of NAVAIR engineering data for aircraft and missile logistics.

Scope: Data-documents are the result of engineering design and product development on an international scale and are available on a need-to-know basis to DoD and its contractors and to the NATO countries, Canada, Great Britain, Australia, France, and Israel.

Coverage: Airframes, target drones, gliders, target pilotes, aircraft power plants, engine accessory equipments, propellors, airborne equipments, communication and navigation equipment, non-airborne equipment: Maintenance and reprocurement requirements, structural strength.

Status: Depository was established in 1961 and currently has semi-automatic operation, processing 2,500 data-documents daily with an annual distribution of about six million documents. A planned completely-automated system will give rapid access to data on all active aircraft and related equipment in the Navy.

D-19

Naval Ordnance Central Technical Documents Office

U. S. Naval Ordnance Station
Louisville, Kentucky 40214

Purpose: This engineering drawing depository acts as a distribution source for documentation for the Naval Ordnance Systems Command.

Scope: Documents originate in engineering design and product development activities. The depository serves international users in ordnance manufacturing and military logistics planning.

Coverage: Ordnance equipment, gun mounts and turrets, rocket launchers, depth charge projectors, launching devices, pyrotechnic equipment, ammunition handling equipment, non-combat guns, fire control, mines, fuzes, etc.: Drawings, associated lists, standards, specifications.

Status: Facility was established as a security vault in 1943 and as the Central Technical Documents Office in 1958. It contains eight million microfilm copy cards, one million hardcopy documents, and ten million offset documents.

D-20

Naval Ordnance Engineering Drawing Depository

U. S. Naval Ordnance Lab (NOL)
White Oak
Silver Spring, Maryland 20910

Purpose: The depository stores drawings on ordnance assemblies and details for use in research and development of naval ordnance materiel.

Scope: Drawings are produced by NOL or its contractors and provided, under security classifications, to other military ordnance areas, including NATO, SEATO, and other international organizations.

Coverage: Ordnance assemblies: Fuzes, missiles, materiel.

Status: The depository has been in active operation since 1918. Currently, the file holds approximately 100,000 drawings, with an increase of 2,000 authenticated documents per year.

D-21

Naval Ship Missile Systems Engineering Data-Document Repository

U. S. Naval Ship Missile Systems Engineering Station
Port Hueneme, California 93041

Purpose: The facility maintains a depository which indexes, catalogs, and makes readily available drawings, specifications, standards, configuration data, training data, etc. on surface missile systems for use by ships, field activities, and contractors.

Scope: Nationwide input originates in research, engineering, design, product development, and production and support actions. Users are primarily the U. S. Navy and military assistance program ships when same systems are installed. Data are distributed on a need-to-know basis to users with the required security clearance.

Coverage: Surface missile systems (Terrier, Tartar, Talos, Point Defense), rocket engines, warheads, launchers, fire control and weapon direction equipment, test equipment, special support equipment, tooling: Manufacture, configuration control, test, quality assurance.

Status: The repository was established in 1963 with a library of approximately 200,000 original drawings, 1,750,000 35mm film aperture cards, 80,000 specifications. It is providing more than 200,000 documents per month to its users.

D-22

Naval Supply Depot

5801 Tabor Avenue
Philadelphia, Pennsylvania 19120

Purpose: The data-document depository of this facility procures, receives, stores, indexes, and distributes specifications, standards, and qualified products lists of the military services to all requesting military activities, other government agencies, foreign governments, and industrial and commercial concerns.

Scope: Data are national in coverage but are limited to mission interests of the Department of Defense. Users are involved in military procurement and logistics operations, worldwide.

Coverage: All items of equipment developed or produced by DoD: Design, performance, operational characteristics.

Status: Depository has been operational since July, 1962. 60,000 documents and 13,000 requests are processed per day. Several efforts to automate operations are underway.

D-23

Nuclear Ordnance Commodity Data Support Center

Atomic Energy Commission
SAWRR
Kelly Air Force Base, Texas 78241

Purpose: Drawings and specifications are maintained at this depository for purposes of maintenance, supply, and reprocurement of nuclear commodities and ordnance items.

Scope: Documents are of worldwide Air Force origin and are available under security regulations to the logistics communities of military and governmental agencies and their contractors.

Coverage: Test equipment, containers, etc.: Physical performance characteristics.

Status: The depository became operational in 1962. Currently, the file contains 150,000 documents.

D-24

Picatinny Arsenal Engineering Data Micro-Reproduction System

Commanding Officer
Engineering Services Division
Micro Data Branch
SMUPA-TD2
Dover, New Jersey 07801

Purpose: The data-document repository system provides input surveillance, storage, processing, reproduction, and distribution services for specific types of engineering data; it also provides and maintains all controls and engineering records of same and furnishes all data to a computerized data bank.

Scope: Input is regional and national; using scale is international in the field of military development, production, and logistics, both in industry and in government. All users must have need-to-know and proper security clearance.

Coverage: Conventional, selected atomic ordnance and ammunition, explosives(warheads, land mines, atomic ordnance devices): Drawings, engineering parts lists, associated lists, specifications, purchase descriptions, engineering orders, condition reports, technical data package listings, descriptions of manufacture.

Status: The Arsenal converted to 35-mm aperture cards in 1959. As an indication of the volume of the operation, nearly two million documents were processed from January to October, 1967.

D-25

Planetary Research Center

Lowell Observatory
Flagstaff, Arizona 86001

Purpose: The Center acts as a data-document depository by collecting as many planetary photographs, including those of new observations, as possible, cataloging them, and making them available to researchers.

Scope: Planet photographs are obtained from observatories in the United States and worldwide. Copies are made for a similar center at Meudon, France.

Coverage: Photographic, photoelectric, polarimetric planetary observations: Individual phtographs, maps, composite photos.

Status: Center was recommended in 1961 by the International Astronomical Union and was established in 1963 with the aid of a NASA grant. Approximately 15,000 photographs are now available at Lowell, with an increase of at least 1,000 new observations or new acquisitions per year.

D-26

Rock Island Arsenal Engineering Drawing Repository

U. S. Army Rock Island Arsenal
SWERI-RDS-9260
Rock Island, Illinois 61201

Purpose: The repository furnishes product engineering drawings, lists, and engineering orders to government facilities and contractors with ordnance development interests.

Scope: Documents originate in laboratory research and development in the fields of engineering design and product development and are in use in military installations and military assistance programs worldwide.

Coverage: Towed field and anti-aircraft artillery, common tools and equipment for testing, maintenance and repair of Army materiel, small arms and training targets: Purchase descriptions, engineering orders related to new releases and revision, engineering drawings.

Status: Repository was established prior to World War I; the files of the Watertown and Springfield arsenals have been incorporated within the last four years, with approximately 100,000 documents now processed per year.

D-27

Tin Research Institute Data-Document Depository

Tin Research Institute, Inc.
483 West Sixth Avenue
Columbus, Ohio 43201

Purpose: A function of this trade association is to act as a data-document depository for manuals, trade catalogs, etc. for the promotion of the use of tin and tin-containing materials.

Scope: Data-documents are gathered from laboratory research and from branches of the research institute worldwide, with users in all industries and institutions involved in tin engineering or research.

Coverage: Tin metal, tin coatings, tin alloys, tin chemicals: Physical and mechanical properties, methods of use, applications.

Status: The Tin Research Institute was established in London, England in 1932 and in Columbus in 1948, with a present document distribution of 6,000 and a mailing list of about 12,000.

D-28

U. S. Air Force Engineering Data Support Center

Headquarters, Air Force Logistics Command
Code SGLD
Wright-Patterson Air Force Base, Ohio 45433

Purpose: The center acts as the point of storage, stocking, and issuance of all engineering drawings of weapons systems relating to Air Force missions, not including nuclear ordnance.

Scope: Input to the store is nationally collected from Department of Defense contractors. Users are the armed services and international military assistance programs.

Coverage: Aerial weapons systems, radar systems, etc.; Maintenance, procurement characteristics.

Status: The repository was established in 1958, with a processing volume of 9,500,000 frames of microfilm in 1967. Future plans are for computerization of its indexing system.

D-29

U. S. Army Aviation Materiel Command Technical Data Repository

U. S. Army Aviation Materiel Command
AMSAV-AD
Post Office Box 209, Main Office
St. Louis, Missouri 63116

Purpose: Data-documents are maintained and distributed by the repository for the use of those engaged in aircraft manufacturing, logistics, repair, overhaul, and procurement. The unit operates approved Department of the Army microfilm projects and provides reference and research services.

Scope: Documents are collected worldwide in reference to the development, evaluation, and production of aircraft systems and related equipment and are available to governmental agencies and industry.

Coverage: Army aircraft, aeronautics, air delivery, amphibious and related equipment: Drawings, specifications, standards, manuals, etc.

Status: The repository has been in operation since 1963. One and a half to two million microfilm copy cards are produced per year; 250,000 hardcopy documents are processed per year with an average of 5,000 new documents per month.

D-30

U. S. Army Natick Laboratory Support Office

U. S. Army Natick Labs
Design and Drafting Office
AMXRES-ELD
Natick, Massachusetts 01762

Purpose: This drawing depository provides support for supply and procurement activities carried on for the foot soldier.

Scope: Nationwide input is from laboratory research and field evaluations in engineering design, product development, etc. Users are procurement and supply agencies of the Department of Defense in all services.

Coverage: Textiles, clothing, body armor, footwear, containers, materials handling equipment, food service equipment, field support equipment, tentage, air delivery equipment, petroleum and oil handling and dispensing equipment: Design parameters.

Status: Depository was established in 1939, with approximately 15,000 drawings currently in the files. One to two hundred requests are serviced per month.

D-31

U. S. Army Tank Automotive Command Engineering Drawing Repository

U. S. Army Tank Automotive Center
Technical Data and Standardization Directorate
AM STA-T
Building 200A
Warren, Michigan 48090

Purpose: The repository serves to support procurement and engineering functions of the Command for military logistics planning of vehicle design.

Scope: Documents originate in laboratory research, engineering design, and product development activities. Users are the U. S. military services.

Coverage: Tank-automotive vehicles, wheeled and tracked: Engineering drawings.

Scope: Depository was established in 1956 and is currently processing about 2,000,000 drawings per year. Now a manual system, an automated system is planned for the near future.

D-32

U. S. Naval Ammunition Depot Library Engineering Data Branch

U. S. Naval Ammunition Depot
Code ADL2
Crane, Indiana 47522

Purpose: The engineering document depository provides support to weapons engineering activities by storing, reproducing, and disseminating drawings, ordnance specifications, and ordnance operating procedures.

Scope: Services are available to the armed forces and Department of Defense contractors, plus military assistance program nations.

Coverage: Conventional ammunition, synchros, pyrotechnics, resolvers and precision components, gun mounts: Engineering design parameters, maintenance and procurement characteristics.

Status: Repository was established in 1967 and currently stores 150,000 to 200,000 documents. It anticipates a growth of 100,000 new accessions per year, with plans for future expansion in microfilming capabilities.

D-33

U. S. Naval Facilities Plan Files Section

Naval Facilities Engineering Command
Naval Depot, Yard and Docks Annex
Code 0412
Washington, D. C. 20390

Purpose: The facility acts as an architectural engineering drawing repository for use in designing naval installations.

Scope: Files contain contract drawings for construction in 14 field divisions as well as standard drawings for standard facilities and definitive drawings for buildings.

Coverage: Naval shore establishment structures; civil, structural, mechanical engineering components which span or traverse land and sea; material handling systems for amphibious operations: Design parameters, etc.

Status: Nearly one and a half million drawings (Contract drawings cover the past 100 years with standard drawings for the past 25 years) comprise the collection; there are currently about 10,000 primary users. Future plans are for maintaining tri-service standard drawings.

D-34

U. S. Naval Mine Engineering Depository

U. S. Naval Mine Engineering Facility
Naval Weapons Station
Yorktown, Virginia 23491

Purpose: The depository acts as the design support agency for inservice underwater mine and depth charge weapons systems.

Scope: Data-documents are collected from inservice design activities, fleet service mine testing, development engineering, test equipment calibration, and worldwide surveillance. Users are engaged in military logistics planning; a security clearance with need-to-know is required.

Coverage: Mine and depth charges: Drawings, technical manuals; design, procurement, logistical, maintenance data.

Status: Facility was established in 1956 and has processed 71,000 documents, with growth anticipated of 5,000 to 6,000 per year.

D-35

U. S. Naval Training Device Center Drawing Control

Code 3332
Orlando, Florida 32813

Purpose: This data-document repository receives, files, and makes available engineering drawings and photographs for all naval training devices used in the armed services for procurement and field maintenance.

Scope: Users are primarily Department of Defense and its contractors, with availability to NATO countries -- all on a need-to-know basis.

Coverage: Training devices: Aerospace, surface, and undersea warfare, anti-submarine warfare, missiles, weapons, simulation systems.

Status: Depository was set up from 1948 to 1950 and is processing 50,000 to 75,000 data-documents per year, with expectation of rapid growth in the next few years. Future plans are for further expansion in the use of microfilm.

D-36

U. S. Naval Underwater Weapons Research and Engineering Station Documentation Support Department

Code DO
Newport, Rhode Island 02840

Purpose: The facility stores and makes available drawings, operating and ordnance procedures, and related historical data to support in-service engineering procurement, production, and maintenance for underwater weapons, fire-control systems, and associated equipment.

Scope: Service is supplied to all U. S. Navy ship and shore activities involved in underwater weapon systems, to government agencies, and to contractors of the Department of Defense, as well as internationally to NATO and military assistance programs.

Coverage: Torpedoes, torpedo launchers, torpedo tubes, underwater missiles, underwater fire control systems, etc.: Design parameters, physical properties (structural strength, electronic capacity, etc.), maintenance and procurement characteristics, operating procedures.

Status: The depository was established in 1948 and is presently complete for coverage of all active underwater weapons, with approximately 97,500 drawings and 5,000 technical publications. Future plans call for extension to total coverage on all active fire-control systems, torpedo tubes, and torpedo launchers within five to ten years.

D-37

U. S. Naval Weapons Center Document Depository

Information Handling Branch
Code 5553
China Lake, California 93555

Purpose: The objective of this document depository system is to provide an information data bank, containing the Center's weapon project developmental and engineering source information, by collecting and making available drawings, specifications, charts, printed pictures, slides, and other detail documents.

Scope: Documents are generated by six station technical departments and are forwarded to this group for processing. Users are restricted to DoD activities and approved government contractors currently working on Naval Weapons Center research and design development.

Coverage: Design and development of aircraft launched missiles, rockets, assemblies, component parts: Properties or performance values for materials; parts for fit, form, function, evaluation.

Status: The depository was organizationally established in August, 1966; it is currently 60 percent operational with future plans to include design disclosure documentation information (specification, standardization, drawings, etc.). It is estimated that over 500 current, and potentially 1,500, users draw upon the depository. About 100,000 16mm images are added annually to system.

D-38

Watervliet Arsenal Engineering Records Section.

Laboratory Support Office
Code SWEWV-RDA
Watervliet, New York 12189

Purpose: This engineering data-document depository collects, micro-reproduces, and disseminates all types of technical data on weapons systems for use in engineering design and military logistics planning.

Scope: Service is provided nationally to the Department of Defense and its contractors and internationally to NATO and SEATO nations through military assistance programs.

Coverage: All types of weapons systems, from 20mm up: Parts lists, drawings, inspection equipment lists, gauge drawings, supply quality assistance provisions, packaging data sheets, tool drawings.

Status:: Section was established in 1960 and is planning computerized parts lists with ultimate completely computerized system. It is presently microfilming 21,000 pages and producing 36,000 aperture cards per month.

DATA DOCUMENT DEPOSITORIES

DIRECTORY CODE	TITLE or COMMON NAME	YEAR ESTABLISHED	HOUSING INSTITUTION & ADDRESS	ANNUAL BUDGET $10-50,000	$50-100,000	$100-250,000	$250-500,000	OVER $500,000	
D-1	AEC Engineering Materials Document Depository	1956	U.S. Atomic Energy Commission Division of Technical Information Extension P.O. Box 62 Oak Ridge, Tennessee 37830	Not given.					1(
D-2	Air Force Motion Picture Depository	1947	U.S. Air Force 1350th Motion Picture Squadron Wrig...-Patterson Air Force Base, Ohio 45433					x	1(
D-3	Air Force Still Photographic Depository	1919	U.S. Air Force Detachment 5, Headquarters AAVS (MAC) 1221 South Fern Street Arlington, Virginia 22202			x			10
D-4	Argonne Code Center	1960	Argonne National Laboratory 9700 South Cass Avenue Argonne, Illinois		x				10
D-5	Army Data Retrieval Engineering System (ADRES)	1963	Headquarters U.S. Army Missile Command (MICOM) Engineering Document Division Redstone Arsenal, Alabama 35809			x			10(
D-6	Army Map Service	1942	U.S. Army Corps of Engineers 6500 Brooks Lane Washington, D.C. 20315					x	10(
D-7	Army Mobility Equipment Document Depository	1965	U.S. Army Mobility Equipment Research and Development Center U.S. Army Engineers Research and Development Labs (SMOFB-K1) Fort Belvoir, Virginia 22060				x		10(
D-8	Data Automation Retrieval Equipment (DARE)	1967	U.S. Army Missile Command (MICOM) Engineering Documentation Division Procurement and Production Directorate Redstone Arsenal, Alabama 35809				x		100
D-9	Defense Industrial Supply Center (DISC) Technical Document Depository		Defense Industrial Supply Center 700 Robbins Avenue Philadelphia, Pennsylvania 19111	Not given.					100
D-10	Defense Logistics Services Center (DLSC)	1961	Defense Logistics Services Center (DLSC) 50 North Washington Battle Creek, Michigan 49017					x	x
D-11	Edgewood Arsenal Engineering Document Repository	1920	U.S. Army Edgewood Arsenal SMUEA-EIS-ED Edgewood Arsenal, Maryland 21010					x	100

A

Science Communication
Washington, D. C. 200 07

OPERATIONAL SUPPORT														OPERATING PURPOSE and STATUS	
ANNUAL BUDGET					SOURCE of SUPPORT (%)									SCOPE	COVERAGE
$10-50,000	$50-100,000	$100-250,000	$250-500,000	OVER $500,000	FEDERAL GOVERNMENT	STATE & LOCAL GOVERNMENT	INDUSTRIAL or COMMERCIAL	EDUCATIONAL INSTITUTIONS	PROFESSIONAL SOCIETIES	NON-PROFIT INSTITUTIONS	USER CHARGES	OTHER (IDENTIFY)			DOCUMENTS COLLECTED
Not given.					100%									National (all fields of engineering, especially nuclear engineering).	AEC drawings, specifications, and photographs of equipment.
				x	100%									National (primarily U.S. Air Force).	Motion picture film, sound recordings, video tapes, and kinescopes.
		x			100%									International.	Air Force still photographs: visual print files, black and white negatives, color transparencies, and ekta-color negatives.
	x				100%									International.	Code packages and digital computer programs.
		x			100%									National (primarily for use of all research, development, and production contractors of MICOM).	Engineering drawings, commercial standards, specifications, purchase descriptions, Selected Qualified Products lists, packaging data sheets.
				x	100%									International.	Maps.
			x		100%									National.	Engineering drawings, standards, specifications, quality assurance documentation, commercial item catalogs, and industrial handbooks.
			x		100%									National.	Engineering drawings and specifications.
Not given.					100%									National.	Military department and commercial drawings, standards, specification exceptions, purchase descriptions, trade and manufacturers' catalogs.
				x	x						x	Proceeds from sale of surplus defense products.		International	Identification lists of supply items.
				x	100%									International (through Department of Defense channels to worldwide users).	Engineering drawings, specifications, purchase descriptions, catalogs, technical manuals, and training manuals

B

3. Tabulation of Characteristics of Data-Document Depositories

OPERATING STATUS (continued)

DIRECTORY CODE	COVERAGE (continued) DATA CONTENT of DOCUMENTS: SUBSTANCE, MATERIALS or EQUIPMENTS	PROPERTIES or PERFORMANCE VALUES	OPERATING MOTIVE: INTERNAL STAFF SUPPORT	NON-PROFIT EXTERNAL SERV.	PROFIT-MAKING EXTERNAL SERV.	OTHER	CONTINUITY of OPERATION: AD HOC	PERIODIC	CONTINUOUS
D-1	Research and power facilities for reactors, chemical processing plants, and radiation instruments; nuclear science laboratory equipment.	Design parameters, specifications, and maintenance and procurement data.		x					x
D-2	Documentary motion picture film and related sound recordings.	Historical development, current operations, scientific research and development, and informational, training, or incentive films.	x	x					x
D-3	Aircraft and related components, armament, rockets and guided missiles, and historical-documentary photography.	Not given.	x	x					x
D-4	Nuclear reactors.	Studies on reactor design, reactor engineering, and nuclear physics.	x	x					x
D-5	Missiles, missile components, or components with potential missile system applications.	Government-recognized standards, missile specifications, missile purchase descriptions, etc.	x						x
D-6	Maps.	Topographic, geodetic, and political characteristics.		x					x
D-7	Construction, electric power generation, camoflage, mine warfare, water purification, barrier and intrusion detection, etc.	Technical requirements, manufacturing specifications, acceptance criteria, and performance characteristics.		x					x
D-8	Missile system components and equipment.	Design parameters, maintenance and procurement characteristics.	x						x
D-9	Bearings, screws, bolts, nuts, washers, nails, packing and gasket materials, and other miscellaneous hardware.	Standards, specifications, etc.	x	x					x
D-10	All items supplied to the Department of Defense.	Availability, physical characteristics, assigned Federal stock number, manufacturers' stock number, costs, etc.	x	x					x
D-11	Decontamination and impregnating equipment, safety and rescue equipment, hazard detecting instruments, etc.	Design parameters.	x	x					x

SOURCES of DATA-DOCUMENTS						
INSTITUTIONAL SOURCES (%)				SCIENTIFIC & TECHNICAL ACTIVITIES GENERATING DATA-DOCUMENTS	UNPUBLISHED DATA - DOCUMENTS	PUBLISHED DATA-DOCUMENTS
GOVERNMENT & CONTRACTORS	INDUSTRIAL & COMMERCIAL	EDUCATIONAL & NON-PROFIT	OTHER			
100%				Nuclear engineering.	None.	Drawings, specifications, and photographs.
100%				Filming of Air Force operations and activities.	Unedited camera footage of military operations, scientific tests and operations, and edited technical reports for Department of Defense.	Edited productions for public release (disseminated by Air Force Film Library).
100%				Not given.	Not given.	Not given.
100%				Nuclear engineering.	Nuclear reactor studies.	Nuclear reactor studies.
100%				Design engineering.	Engineering drawings, commercial standards, packaging data sheets.	Commercial standards, specifications.
90%			10% - foreign governments, private individuals.	Geographic and geodetic surveys, air and satellite photography.	Photographs and other back-up material.	Maps and sketch-
95%	5%			Engineering laboratory research and development, production feedback.	Not given.	Not given.
100%				Design engineering.	Engineering drawings.	Engineering drawings, specifications.
x	x			Product development.	Drawings, handbooks, and catalogs.	Drawings, handbooks, and catalogs.
x	x		NATO nations.	Defense supply.	Supply lists.	Supply lists.
x	x	x		Pre-production evaluation, laboratory research, development testing, etc.	Back-up data on details of research and development testing.	Engineering drawings, specifications, purchase descriptions, catalogs, technical manuals, training manuals.

DIRECTORY CODE	TYPES of DATA-DOCUMENTS: STATE of REFINEMENT	TYPES of DATA-DOCUMENTS: FORM of DATA-DOCUMENT	DATA-DOCUMENT PROCESSING: OPERATIONS PERFORMED: CATALOG	INDEX	ABSTRACT	STORE	EVALUATE	REFORMAT	REPRODUCE	DISSEMINATE	OTHER	EXTENT of AUTOMATION: Substantial	Limited	None	USER SERVICING: USING COMMUNITIES: SCALE
D-1	Not given.	Hardcopy.	x	x	x			x	x	x			x		National.
D-2	Original camera footage and sound tracks, protective intermediate media and reference prints	Motion picture film, magnetic sound tracks, video tapes and kinescopes.	x	x	x	x	x	x	x	x	Appropriate disposal.		x		National.
D-3	Negatives and final prints.	B&W single and double weight prints, glossy and matte; color slides and transparencies.	x	x		x	x		x				x		International.
D-4	Not given.	Hardcopy (code books), ADP coded.	x	x	x	x		x	x		Run sample problems to test programs.	x			National nuclear engineering community.
D-5	Final copy.	Microfilm, harcopy.		x		x				x	Retrieve.	x			National.
D-6	Raw data collected and stored; final copy produced.	Hardcopy, photographs, microforms, ADP coded.	x	x	x	x	x	x	x	x	Reduce.	x			International (through agreements with foreign governments).
D-7	Final copy.	Microfilm.				x	x	x	x	x				x	National.
D-8	Final copy.	Microfilm aperture cards.	x	x		x		x	x	x		x			National.
D-9	Final copy.	Hardcopy, microforms.	x	x		x		x	x	x		x			National.
D-10	Working copy.	Hardcopy, microfilm, computer tape.	x	x		x	x	x	x	x	ADP code, update, retrieve, decode.	x			International.
D-11	Final copy.	Hardcopy, microforms.	x	x	x	x	x	x	x	x	Compile, prepare, and develop documents.		x		Nearly all elements of industry on a national scale.

USER SERVICING (continued)

USING COMMUNITIES (continued)			SERVICES PROVIDED				
SCIENTIFIC or TECHNICAL ACTIVITIES	INSTITUTIONS	USER QUALIFICATIONS & RESTRICTIONS	ANNOUNCE DATA-DOCUMENTS	PUBLISH ABSTRACTS	PERFORM DATA-DOCUMENT SEARCHS	PROVIDE COPIES of DATA-DOCUMENTS	
Engineering and manufacturing.	Atomic Energy Commission and its contractors; industrial and other organizations needing materials.	None.	x				
Varied.	Department of Defense and its contractors, universities, hospitals, and TV and motion picture producers.	Requests of private individuals or institutions must be approved by Air Force or Department of Defense.	x		x	x	
Military briefings, training, and public information.	U.S. Armed Forces, government agencies and contractors, non-profit institutions.	Prints are free to government agencies, non-profit organization projects, and to those promoting further understanding of Air Force.	x		x	x	
Nuclear engineering.	Atomic Energy Commission and its contractors; universities with nuclear engineering departments.	None.	x	x		x	
Standardization of engineering data for missile components.	Army Missile Command contractors, government agencies.	None.			x	x	
Military operations, tactics, strategy, logistics planning, intelligence, etc.	U.S. Armed Forces, government agencies, foreign governments.	Small number of maps are classified or restricted under Third Nation agreements.	x		x	x	
Engineering, cataloging, maintenance, and procurement.	Government and industry.	No security classification; Government sanction necessary prior to industrial distribution.			x	x	
Missile design.	U.S. Army Missile Command and its contractors.	Restricted to Army Missile Command and its contractors.				x	
Equipment design.	Department of Defense and its contractors.	Not given.			x	x	
Procurement and supply.	U.S. Armed Forces, NATO, Federal and civil agencies, and industry.	None for surplus buyers. Other services - approval of a DOD contracting officer.				x	
DOD product development, procurement and supply, logistics planning, and training.	Industry, government, educational institutions, non-profit organizations.	Unclassified material may be obtained from Government Printing Office. Classified material may be obtained on a need-to-know basis.			x	x	

USER SERVICING (CON'T.)				OPERATING STATISTICS		
(CON'T.)	FORM of SERVICE					
OTHER	CUSTOMIZED	STANDARDIZED	COST TO USERS	CURRENT VOLUME	RATE of GROWTH	FU
Answer inquiries; publication of Engineering Materials List.	x	x	Drawings may be purchased at cost from CFSTI.	Depository holdings: documents on over 21,000 items.	Not given.	Not give
Preparation of edited film clips and briefings.	x		To private individuals and institutions: $7 search fee.	Depository holdings: 101,000,000 feet of film; services provided: 14,000 services per year; staff: 55 personnel.	Yearly input: approximately 50% increase for 1967 input as compared with 1957 input.	Greater computer and data
	x	x	Free or available for a fee.	Depository holdings: approximately 550,000 still photo negatives and prints.	Accession rate: approximately 1,500 new accessions per month.	Expansion with grow
	Not given.		None.	Depository holdings: 2,000 computer programs.	Not given.	Complete in progre
	Not given.		Free to MICOM contractors; $3,300 per year to govt agencies.	Items in system: 200,000 items; users served: 90 contractors and government agencies.	Users served: users have almost tripled from 1963-1968.	Growth of
		x	$.25 to $12 for individual user.	Depository holdings: over 2,000,000 maps.	Accession rate: constant.	Continued Department
	x	x	None.	Documents processed per year: 150,000 microfilm and/or hardcopy documents; staff: 14 personnel.	Accession rate: 1,018 new and revised documents per month.	Future aut
	Not given.		Not given.	Depository holdings: 855,000 documents; users served: 5,000 requests per day.	Accession rate: 6% increase per year in master data file.	Facsimile t
	Not given.		Not given.	Depository holdings: 300,000 drawings, 20,000 catalogs, and 9,500 specifications.	Accession rate: 56,600 items per year.	Further aut
	x	x	Varies.	Depository holdings: documents on 4,200,000 items.	Not given.	Full autom December 19
		x	Varies.	Depository holdings: 50,000 original drawings and 1,800 specifications (as of June 1967).	Accession rate: constant.	Not given.

FUTURE PLANS
Not given.
Greater utilization of video tape; computerization of inventory control and cataloging.
Expansion of depository will occur with growth of Air Force.
Complete revision of library now in progress.
Growth of data in file.
Continued service to meet needs of Department of Defense.
Future automation under study.
Facsimile transmission under study.
Further automation under study.
Full automation expected by December 1968.
Not given.

DATA DOCUMENT DEPOSITORIES

CONTINUED ON NEXT PAGE

B

DATA DOCUMENT DEPOSITORIES

Science Communication
Washington, D. C. 200 07

DIRECTORY CODE	TITLE or COMMON NAME	YEAR ESTABLISHED	HOUSING INSTITUTION & ADDRESS	ANNUAL BUDGET $10-50,000	$50-100,000	$100-250,000	$250-500,000	OVER $500,000
D-12	Engineering Data Systems (EDS)	--	Headquarters, U.S. Army Missile Command Redstone Arsenal, Alabama 35809					x
D-13	Engineering, Drawings and Microfilm Section, Navy Publications and Printing Service	--	Navy Publications and Printing Service Code 0724 Washington Navy Yard Washington, D.C. 20390					x
D-14	Fort Monmouth Electronics Command Engineering Drawing Repository	1947	U.S. Army Electronics Command Technical Data, Cataloging, and Standardization Directorate AMSEL-TD Fort Monmouth, New Jersey 07703					x
D-15	Frankford Arsenal Engineering Drawing Repository		U.S. Army Frankford Arsenal SMUFA-N1100 Birde and Tacony Streets Philadelphia, Pennsylvania 19137				x	
D-16	Harry Diamond Laboratories (HDL) Engineering Document Depository	1956	Harry Diamond Laboratories (sponsored by U.S. Army Materiel Command) AMXDO-EDB, Section 712 Washington, D. C. 20438			x		
D-17	Marine Corps Central Technical Data Repository	1967	Commanding General Marine Corps Supply Activity Code 874 1100 South Broad Street Philadelphia, Pennsylvania 19146			x		
D-18	Naval Air Systems Command (NAVAIR) Engineering Data Bank	1961	Naval Air Technical Services Facility 700 Robbins Avenue Philadelphia, Pennsylvania 19111					x
D-19	Naval Ordnance Central Technical Documents Office	1958	U.S. Naval Ordnance Station Louisville, Kentucky 40214					x
D-20	Naval Ordnance Engineering Drawing Depository	1918	U.S. Naval Ordnance Lab (NOL) White Oak Silver Spring, Maryland 20910			x		
D-								

A

OPERATIONAL SUPPORT									OPERATING PURPOSE and STATUS	
SOURCE of SUPPORT (%)									SCOPE	COVERAGE
FOR FISCAL YEAR ENDING	FEDERAL GOVERNMENT	STATE & LOCAL GOVERNMENT	INDUSTRIAL or COMMERCIAL	EDUCATIONAL INSTITUTIONS	PROFESSIONAL SOCIETIES	NON-PROFIT INSTITUTIONS	USER CHARGES	OTHER (IDENTIFY)		DOCUMENTS COLLECTED
100%									National.	Semiconductor File, Computer Logic Circuits File, Army Master Missile Commodity File, Missile Command Common Parts File.
100%									National (data resources) International (using community)	Engineering drawings, manufacturers' and standard drawings, model ship drawings, and indexes of ships.
100%									National.	Engineering drawings, master patterns, manufacturers' drawings, military and Federal specifications and standards, and regulations.
100%									National.	Engineering drawings, procurement drawings, and related documents on ordnance mission materiel.
100%									International (through American-British-Canadian-Australian cooperative programs).	Specifications, manufacturing process reports, test equipment manuals, maintenance manuals, and EDP records.
100%									International.	Engineering drawings and engineering change orders.
100%									International.	Engineering drawings.
100%									International.	Engineering drawings, standards, specifications, and associated lists.
100%									National.	Engineering drawings.

OPERATING STATUS (continued)

DIRECTORY CODE	COVERAGE (continued) DATA CONTENT of DOCUMENTS: SUBSTANCE, MATERIALS or EQUIPMENTS	COVERAGE (continued) DATA CONTENT of DOCUMENTS: PROPERTIES or PERFORMANCE VALUES	OPERATING MOTIVE: INTERNAL STAFF SUPPORT	OPERATING MOTIVE: NON-PROFIT EXTERNAL SERV.	OPERATING MOTIVE: PROFIT-MAKING EXTERNAL SERV.	OPERATING MOTIVE: OTHER	CONTINUITY of OPERATION: AD HOC	CONTINUITY of OPERATION: PERIODIC	CONTINUITY of OPERATION: CONTINUOUS
D-12	Missile systems and parts.	Electrical or mechanical requirements, Federal stock numbers, etc.	x			Service sold to contractors and other government agencies.			x
D-13	Hull structure, propulsion, electric plants, communications and control, auxiliary and armament equipment and systems, etc.	Design parameters, maintenance procedures.		x					x
D-14	Type and style of electronic components (e.g., specific type of transistor, specific value of capacitator), materials for structural members.	Performance parameters, test methods to determine performance.	x	x					x
D-15	Fire control equipment for infantry/artillery, army aircraft and tank gunnery, small arms ammunition, propellant actuated devices, etc.	Design parameters.	x	x					x
D-16	Electronic and proximity fuses (conventional and guided missile), electro-mechanical and electro-chemical fuses and fuse components, etc.	Electrical, mechanical, environmental, ballistic, explosive, and human factors.	x	x					x
D-17	Small arms, guns, armored vehicles, wheeled vehicles, communications equipment, calibration and test equipments, etc.	Requirements for procurement, maintenance, cataloging, provisioning, interchangeability, etc.	x	x					x
D-18	Airframes, target drones, gliders, target pilotors, aircraft power plants, engine accessory equipment, communication and navigation equipment, etc.	Design parameters, structural strength, maintenance and reprocurement characteristics.		x					x
D-19	Ordnance equipment, gun mounts and turrets, rocket launchers, depth charge projectors, launching devices, pyrotechnic equipment, etc.	Design parameters.		x					x
D-20	Fuses, missiles, and Naval ordnance materiel.	Not given.	x						x

SOURCES of DATA-DOCUMENTS						
INSTITUTIONAL SOURCES (%)						
GOVERNMENT & CONTRACTORS	INDUSTRIAL & COMMERCIAL	EDUCATIONAL & NON-PROFIT	OTHER	SCIENTIFIC & TECHNICAL ACTIVITIES GENERATING DATA-DOCUMENTS	UNPUBLISHED DATA-DOCUMENTS	PUBLISHED DATA-DOCUMENTS
x	x			Missile system design and testing.	Not given.	Not given.
100%				Engineering design, laboratory research, product development.	Not given.	Drawings and indexes.
100%				Laboratory research, product development, engineering design, and standardization activities.	Engineering drawings, manufacturers' drawings, and master patterns.	Military and Federal specifications, standards, and handbooks.
100%				Laboratory research, engineering design, product development.	Engineering drawings.	Specifications and technical reports.
90%	10%			Laboratory research, engineering design, product development.	Preliminary design sketches, reports, and supporting data.	Manuals and technical data package material.
100%				Procurement and maintenance.	Not given.	Engineering drawings.
20%	80%			Engineering design, product development, maintenance and procurement.	Drawings.	Drawings.
100%				Engineering design, product development.	Not given.	Drawings, standards, and specifications.
100%				Engineering design.	Drawings produced by Naval Ordnance Lab and its contractors.	Not given.

DIRECTORY CODE	TYPES of DATA-DOCUMENTS: STATE of REFINEMENT	TYPES of DATA-DOCUMENTS: FORM of DATA-DOCUMENT	DATA-DOCUMENT PROCESSING: OPERATIONS PERFORMED: CATALOG	INDEX	ABSTRACT	STORE	EVALUATE	REFORMAT	REPRODUCE	DISSEMINATE	OTHER	EXTENT of AUTOMATION: Substantial	Limited	None	USER SERVICING: USING COMMUNITIES: SCALE
D-12	Working copy.	Microfilm cartridges, computer tape.		x		x				x	Retrieve, provide visual display.	x			National.
D-13	Preliminary design drawings, working copy, and final copy.	Hardcopy, microforms, ADP coded.		x		x	x		x	x			x		National.
D-14	Final copy.	Hardcopy, microfilm aperture cards.	x	x		x		1	x	x		x			International.
D-15	Working copy, final copy.	Hardcopy, Microfilm.		x		x			x	x			x		National.
D-16	Primarily final copies of production data.	Hardcopy, 35mm aperture cards, 16mm microfilm reels, and ADP tape.	x	x		x	x	x	x	x		x			International.
D-17	Basic drawings, engineering change orders, final drawings.	Hardcopy, microforms.	x	x		x	x	x	x	x			x		National (Government activities).
D-18	Working copy, final copy.	Hardcopy, microforms, ADP coded.		x		x	x		x	x		x			International.
D-19	Final authenticated copy.	Hardcopy, and ADP-coded microfilm aperture cards.	x	x		x	x	x	x	x		-			International.
D-20	Final copy (master copies of drawings).	Mylar masters, microfilm aperture cards.	x	x		x	x	x	x			x			International.

USER SERVICING (continued)

USING COMMUNITIES (continued)			SERVICES PROVIDED				
SCIENTIFIC or TECHNICAL ACTIVITIES	INSTITUTIONS	USER QUALIFICATIONS & RESTRICTIONS	ANNOUNCE DATA-DOCUMENTS	PUBLISH ABSTRACTS	PERFORM DATA-DOCUMENT SEARCHS	PROVIDE COPIES of DATA-DOCUMENTS	
Design engineering, logistics item entry control.	Government agencies and industry.	Not given.			x		
Military logistics planning.	Department of the Navy and its contractors, Naval shipyards, the Fleet, foreign governments, and the general public.	Some documents under security classification; approval by a DOD contracting officer needed for depository users.	x		x	x	
Military logistics planning.	Government and industry.	Some documents under security classification; approval by a DOD contracting officer needed for depository users.				x	
Engineering design, procurement.	U.S. Armed Forces and foreign governments through military assistance programs.	Some documents under security classification; approval by a DOD contracting officer needed; rights-in-data restrictions.				x	
Primarily electronics ordnance projects, performed on Government contracts.	U.S. Armed Forces and their contractors; American-British-Canadian-Australian standardization nations.	Most documents under security classification; approval by a DOD contracting officer needed by depository users.			x	x	
Military logistics planning.	U.S. Armed Forces and government agencies.	Rights-in-data restrictions.	x		x	x	
Aircraft and missile logistics.	Department of Defense and its contractors, foreign governments through military assistance programs.	Approval by a DOD contracting officer or military plant representative needed by depository users.			x	x	
Manufacturing, ordnance, and military logistics planning.	Government and government contractors.	Some documents under security classification; approval by a DOD contracting officer needed by depository users.	x	x	x	x	
Naval and Army ordnance.	Government, industry, and foreign governments through military assistance programs.	Some documents under security classification; approval by a DOD contracting officer needed for depository users.	x		x	x	

USER SERVICING (CON'T.)				OPERATING STATISTICS		
(CON'T.)	FORM of SERVICE					
OTHER	CUSTOMIZED	STANDARDIZED	COST TO USERS	CURRENT VOLUME	RATE of GROWTH	FU
		x	Not given.	Depository holdings: over 250 microfilm cartridges.	Not given.	Not give
Provide technical assistance; maintain a centralized index bank.		x	Not given.	Documents processed per month: 6,000 documents; documents released to users: 10,000 per month; staff: 13 personnel.	Volume of documents processed per month: constant; documents released to users: 10% increase from 1966-1968.	Not give
Publish index to documents.		x	None.	Depository holdings: 4 complete sets of 900,000 ECOM microfilm aperture cards, 4 complete sets of commercial microfilm aperture cards, and 30,000 hardcopy documents.	Accession rate: 75,000 microfilm aperture cards per set per year; 2,000 hardcopy documents per year.	Continue Command.
	x	x	Not given.	Documents processed per year: 4 million aperture cards.	Volume of documents processed per year: 20% increase per year.	Expansio initiati of procu
Provide indexes to standards; conduct reviews of standardization changes.	x	x	None.	Depository holdings: 35,000 drawings, 200 specifications, and 150 manuals in active file.	Accession rate: 8,000 drawings per year; 20 specifications per year.	Further s
		x	None.	Documents processed: 3,250 items per week; drawing requests: 2,500 per week.	Not given.	Participa Departmen cerning d
		x	None for users in U.S.	Documents processed: 2,500 per day.	Not given.	Complete
	Not given.		None.	Depository holdings: 8,000,000 microfilm cards, 1,000,000 hardcopy documents, and 10,000,000 offset documents.	Not given.	Not given.
		x	Charges made to non-government activities for reproduction costs.	Depository holdings: 100,000 documents.	Accession rate: 2,000 authenticated documents per year.	Not given.

A

FUTURE PLANS
Not given.
Not given.
Continued support of the Electronics Command.
Expansion in microfilming activities; initiation of computer compilations of procurement data lists.
Further automation.
Participation in all related Department of Defense programs concerning data in microform.
Complete automation of operations.
Not given.
Not given.

DATA DOCUMENT DEPOSITORIES

CONTINUED ON NEXT PAGE

B

DATA DOCUMENT DEPOSITORIES

DIRECTORY CODE	TITLE or COMMON NAME	YEAR ESTABLISHED	HOUSING INSTITUTION & ADDRESS	ANNUAL BUDGET $10-50,000	$50-100,000	$100-250,000	$250-500,000
D-21	Naval Ship Missile Systems Engineering Data Document Repository	1963	U.S. Naval Ship Missile Systems Engineering Station Port Hueneme, California 93041				
D-22	Naval Supply Depot	1962	Naval Supply Depot 5801 Tabor Avenue Philadelphia, Pennsylvania 19120				
D-23	Nuclear Ordnance Commodity Data Support Center	1962	Atomic Energy Commission SAWRR Kelly Air Force Base, Texas 78241	x			
D-24	Picatinny Arsenal Engineering Data Micro-Reproduction System	1959	U.S. Army Picatinny Arsenal Engineering Services Division, Micro Data Branch (SMUPA-TD2) Dover, New Jersey 07801			x	
D-25	Planetary Research Center	1963	Lowell Observatory Flagstaff, Arizona 86001			x	
D-26	Rock Island Arsenal Engineering Drawing Repository		U.S. Army Rock Island Arsenal SWERI-RDB-9260 Rock Island, Illinois 61201	x			
D-27	Tin Research Institute Data Document Depository	1948	Tin Research Institute, Inc. 483 West Sixth Avenue Columbus, Ohio 43201		x		
D-28	U.S. Air Force Engineering Data Support Center	1958	Headquarters, Air Force Logistics Command Code SGLD Wright-Patterson Air Force Base, Ohio 45433				x
D-29	U.S. Army Aviation Materiel Command Technical Data Repository	1963	U.S. Army Aviation Materiel Command AMSAV-AD P.O. Box 209, Main Office St. Louis, Missouri 63116			x	
D-30	U.S. Army Natick Laboratory Support Office	1939	U.S. Army Natick Labs Design and Drafting Office AMXRES-ELD Natick, Massachusetts 01762				x
D-31	U.S. Army Tank Automotive Command Engineering Drawing Repository	1956	U.S. Army Tank Automotive Center Technical Data and Standardization Directorate (AM STA-T) Warren, Michigan 48090				x

OPERATIONAL SUPPORT								OPERATING PURPOSE and STATUS	
SOURCE of SUPPORT (%)									
FEDERAL GOVERNMENT	STATE & LOCAL GOVERNMENT	INDUSTRIAL or COMMERCIAL	EDUCATIONAL INSTITUTIONS	PROFESSIONAL SOCIETIES	NON-PROFIT INSTITUTIONS	USER CHARGES	OTHER (IDENTIFY)	SCOPE	COVERAGE DOCUMENTS COLLECTED
100%								National	Engineering drawings, standards, specifications, configuration data, training films.
100%								National (mission interests of Department of Defense).	Standards, specifications, Selected Qualified Products lists, handbooks, and other procurement and logistics data.
100%								International.	Air Force drawings and specifications.
100%								National (data resources) International (using community)	Drawings, specifications, engineering orders, engineering parts lists, purchase descriptions, descriptions of manufacture, technical data package listings.
85%					15%			International.	Planet photographs, composite photographs, and maps.
100%								International.	Engineering drawings, engineering orders (for new releases and revisions), engineering parts lists, and purchase descriptions.
					100%			International.	Manuals, trade catalogs, reprints of technical articles, etc.
100%								International.	All engineering drawings of weapons systems related to support of Air Force missions (except those related to nuclear ordnance).
100%								National.	Engineering drawings, standards, specifications, manuals, etc.
100%								National.	Design drawings.
100%								National.	Engineering drawings.

B

OPERATING STATUS (continued)

DIRECTORY CODE	COVERAGE (continued) — DATA CONTENT of DOCUMENTS: SUBSTANCE, MATERIALS or EQUIPMENTS	PROPERTIES or PERFORMANCE VALUES	OPERATING MOTIVE: INTERNAL STAFF SUPPORT	NON-PROFIT EXTERNAL SERV.	PROFIT-MAKING EXTERNAL SERV.	OTHER	CONTINUITY of OPERATION: AD HOC	PERIODIC	CONTINUOUS
D-21	Surface missile systems (Terrier, Tartar, Talos, and Point Defense) - rocket engines, warheads, launchers, fire control and weapon direction equipment, etc.	Design parameters, quality assurance documentation, test results, and training data.	x	x					x
D-22	All items of equipment developed or produced by Department of Defense.	Design, performance, and operational characteristics.		x					x
D-23	Test equipment, containers, etc for nuclear commodities and ordnance items.	Physical performance characteristics.		x					x
D-24	Conventional and selected atomic ordnance devices and ammunition.	Design parameters, specifications, purchase descriptions, manufacturing specifications, ordnance procedures, etc.	x						x
D-25	Planets.	Measurement of diameters, triangulation of surfaces, degrees of rotation, etc.	x						x
D-26	Towed field and anti-aircraft artillery; common tools and equipment for testing, maintenance, and repair of Army materiel, etc.	Design parameters and purchase descriptions.	x	x					x
D-27	Tin metal, tin coatings, tin alloys, and tin chemicals.	Physical and mechanical properties, methods of use, and applications.		x					x
D-28	Aerial weapons systems, subsystems, equipments, components, and spare parts.	Maintenance and procurement characteristics.	x	x					
D-29	Army aircraft, aeronautics, air delivery, amphibious, and related equipment.	Provisioning, procurement, maintenance, overhaul, and repair.	x	x					x
D-30	Textiles, clothing, body armor, footware, food service equipment, field support equipment, etc.	Design parameters.	x						x
D-31	Tank-automotive vehicles, wheeled and tracked.	Design parameters.	x						x

SOURCES of DATA-DOCUMENTS						
INSTITUTIONAL SOURCES (%)				SCIENTIFIC & TECHNICAL ACTIVITIES GENERATING DATA-DOCUMENTS	UNPUBLISHED DATA-DOCUMENTS	PUBLISHED DATA-DOCUMENTS
GOVERNMENT & CONTRACTORS	INDUSTRIAL & COMMERCIAL	EDUCATIONAL & NON-PROFIT	OTHER			
100%				Research, engineering design, product development.	Not given.	Not given.
100%				Defense product design, development, testing, and evaluation.	None.	Specifications, standards, and Selected Qualified Products lists.
100%				Product development and evaluation.	Drawings, as needed.	Drawings and specifications.
90%	10%			Laboratory research, engineering design, product development, and product evaluation.	Drawings and associated lists, purchase descriptions, etc.	Specifications and standards.
		100%		Worldwide planet photography.	Not given.	Not given.
95%	5%			Laboratory research (rubber, plastics, lubricants), product development (weapons, combat vehicles, and targets).	Not given.	Drawings and associated lists.
3.3%	3.3%	3.3%	90% - Research laboratories in London, England.	Laboratory research and product development.	None.	Trade catalogs, manuals, and technical articles.
100%				Reprocurement, maintenance, and supply.	Official Air Force copies of weapons-systems drawings by Air Force contractors.	All published data documents reproduced from published data or documents.
100%				Development, evaluation, and production of aircraft systems and related equipment.	Drawings, specifications, standards, manuals, etc.	Drawings, specifications, standards, manuals, etc.
100%				Engineering design, laboratory research, and product development.	Drawings.	None.
100%				Engineering design, laboratory research, and product development.	Experimental drawings.	Drawings.

DIRECTORY CODE	TYPES of DATA-DOCUMENTS: STATE of REFINEMENT	TYPES of DATA-DOCUMENTS: FORM of DATA-DOCUMENT	DATA-DOCUMENT PROCESSING: OPERATIONS PERFORMED: CATALOG	INDEX	ABSTRACT	STORE	EVALUATE	REFORMAT	REPRODUCE	DISSEMINATE	OTHER	EXTENT of AUTOMATION: Substantial	Limited	None	USER SERVICING: USING COMMUNITIES: SCALE
D-21	Preliminary copy, final copy.	Hardcopy, microfilm aperture cards, and ADP coded.	x	x		x	x	x	x	x		x			International.
D-22	Final copy.	Hardcopy.	x	x		x				x		x			International.
D-23	Final copy.	Microforms, ADP coded.				x		x	x	x			x		National.
D-24	Working copy, final copy.	Hardcopy, microfilm aperture cards.		x		x	x	x	x	x		x			International.
D-25	Duplicate and composite copies of planetary photographs.	Plates, glass, paper, film, and ADP cards.	x			x					Classify.	x			International.
D-26	Final copy.	Hardcopy, microforms, ADP coded.	x			x		x	x	x			x		International.
D-27	Final copy.	Hardcopy.		x	x		x			x				x	International.
D-28	Working copy, final copy.	Microfilm aperture cards.	x	x		x			x	x	Disposal of obsolete drawings.	x			International.
D-29	Working copy, final copy.	Hardcopy, microforms.		x					x					x	National.
D-30	Final working copy.	Hardcopy (full-size drawings).		x		x	x	x	x	x			x		National.
D-31	Final copy.	Hardcopy, microfilm.		x		x	x		x	x				x	International.

USER SERVICING (continued)

USING COMMUNITIES (continued)			SERVICES PROVIDED				
SCIENTIFIC or TECHNICAL ACTIVITIES	INSTITUTIONS	USER QUALIFICATIONS & RESTRICTIONS	ANNOUNCE DATA-DOCUMENTS	PUBLISH ABSTRACTS	PERFORM DATA-DOCUMENT SEARCHS	PROVIDE COPIES OF DATA-DOCUMENTS	
Missile systems acquisition and support.	U S. Navy and foreign governments through military assistance programs.	Some documents under security classification; approval by a DOD contracting officer needed by depository users.			x	x	
Military procurement and logistics planning.	Department of Defense and its contractors, and foreign governments through military assistance programs.	Some documents under security classification; approval by a DOD contracting officer needed by depository users.	x			x	
Military logistics planning.	U.S. Armed Forces, Government agencies, and contractors.	Some documents under security classification; approval by a DOD contracting officer needed by depository users.				x	
Military product development, production, and logistics planning.	U.S. Armed Forces, Government agencies, and industry.	Some documents under security classification; approval by a DOD contracting officer needed by depository users.	x		x	x	
Study of planetary surfaces and atmospheres.	Not given.	No documents under security classification; documents available to applicants with a well-defined "guest investigator" status.	Not given.				
Military logistics planning.	U.S. Armed Forces, and foreign governments through military assistance programs.	No documents under security classification; approval of a DOD contracting officer needed for depository users.			x	x	
Research and engineering uses of tin.	Industry and commerce, government, professional societies, etc.	None.	x			x	
Military logistics planning, maintenance, and engineering design.	Department of Defense and its contractors, and foreign governments through military assistance programs.	Some documents under security classification; approval by a DOD contracting officer needed by depository users.			x	x	
Aircraft manufacturing, logistics, repair, overhaul, and procurement.	Government and industry.	No documents under security classification.				x	
Engineering design, product development, maintenance and procurement, and laboratory research.	U.S. Armed Forces, Defense Supply Agency, and Government laboratories.	None.				x	
Military logistics planning, vehicle design.	Government and contractors.	Some documents under security classification; rights-in-data restrictions.			x	x	

USER SERVICING (CON'T.)				OPERATING STATISTICS		
(CON'T.)	FORM of SERVICE					
OTHER	CUSTOMIZED	STANDARDIZED	COST TO USERS	CURRENT VOLUME	RATE of GROWTH	
Provide computer printout of document listings.	x	x	Not given.	Depository holdings: 200,000 original drawings, 1,750,000 microfilm aperture cards, and 80,000 specifications.	Not given.	C F
	x	x	None for individual users.	Requests per day: 13,000.	Users served: 8-10% increase in past two years.	Fi
		x	None.	Depository holdings: 150,000 drawings and specifications.	Volume of operation remains constant.	No
Conduct training programs for personnel from other Government installations.		x	None for users in U.S.	Documents processed: approximately 2,000,000 documents (1967); staff: 60 personnel.	Not given.	In 16
	x		None, unless special reproductions are needed.	Depository holdings: 15,000 photographs.	Accession rate: 1,000 acquisitions per year.	No
Research records on obsolete or inactive items on request.		x	Varies.	Documents processed: 100,000 per year.	Volume of depository holdings: 50% in past four years (with the incorporation of the Watertown Arsenal and Springfield Arsenal depositories).	Co a
	x		None.	Users served: 12,000 recipients on mailing list; staff: 5 personnel.	Volume of operation remains constant.	Not
	x	x	None	Documents processed: 9,500,000 frames of microfilm processed in 1967.	Accession rate: 54,000 frames per month.	Com
		x	None.	Documents processed: 1,500,000 - 2,000,000 microfilm copy cards processed per year; 250,000 hard-copy documents processed per year.	Accession rate: 5,000 new documents per month.	Not
	x		None.	Depository holdings: 15,000 drawings; users served: 100-200 requests per month.	Not given.	Not
	x		None.	Documents processed: 2,000,000 documents per year; staff: 81 personnel.	Accession rate - 1,000 documents per month.	Fun

FUTURE PLANS
Continuation of operations as at present.
Further automation.
Not given.
Initiation of microfiche and 16mm. microfilm capabilities.
Not given.
Conversion of facilities to a substantial degree of automation.
Not given.
Computerization of indexing systems.
Not given.
Not given.
Further automation.

DATA DOCUMENT DEPOSITORIES

CONTINUED ON NEXT PAGE

B

DATA DOCUMENT DEPOSITORIES

DIRECTORY CODE	TITLE or COMMON NAME	YEAR ESTABLISHED	HOUSING INSTITUTION & ADDRESS	ANNUAL BUDGET $10-50,000	$50-100,000	$100-250,000	$250-500,000	OVER $500,000	
D-32	U.S. Naval Ammunition Depot Library Engineering Data Branch	1967	U.S. Naval Ammunition Depot Code AD12 Crane, Indiana 47522		x				1
D-33	U.S. Naval Facilities Plan Files Section	--	Naval Facilities Engineering Command Naval Depot, Yard and Docks Annex Code 0412 Washington, D.C. 20390				x		1
D-34	U.S. Naval Mine Engineering Depository	1956	U.S. Naval Mine Engineering Facility Naval Weapons Station Yorktown, Virginia 23491					x	10
D-35	U.S. Naval Training Device Center Draving Control	1950	U.S. Naval Training Device Center Code 3332 Orlando, Florida 32813	x					10
D-36	U.S. Naval Underwater Weapons Research and Engineering Station Documentation Support Department	1948	U.S. Naval Underwater Weapons Research and Engineering Station Code DO Newport, Rhode Island 02840		x				100
D-37	U.S. Naval Weapons Center Document Depository	1966	U.S. Naval Weapons Center Information Handling Branch (Code 5553) China Lake, California 93555			x			100
D-38	Watervliet Arsenal Engineering Records Section	1960	U.S. Army Watervliet Arsenal Laboratory Support Office (Code SWEWV-RDA) Watervliet, New York 12189			x			100
D-39	LATE ENTRY: Aeronautical Chart and Information Center	1942	Department of the Air Force Aeronautical Chart and Information Center Second and Arsenal St. Louis, Missouri 63118					x	100

Science Communication
Washington, D. C. 200 07

OPERATIONAL SUPPORT									OPERATING PURPOSE and STATUS	
	SOURCE of SUPPORT (%)								SCOPE	COVERAGE
OVER $800,000	FEDERAL GOVERNMENT	STATE & LOCAL GOVERNMENT	INDUSTRIAL or COMMERCIAL	EDUCATIONAL INSTITUTIONS	PROFESSIONAL SOCIETIES	NON-PROFIT INSTITUTIONS	USER CHARGES	OTHER (IDENTIFY)		DOCUMENTS COLLECTED
	100%								International.	Engineering drawings, ordnance specifications, and ordnance operating procedures.
	100%								National.	Architectural engineering drawings: contract, standard, and definitive drawings.
x	100%								International.	Engineering drawings, technical manuals, and procurement and logistical data.
	100%								National.	Engineering drawings, photographs of equipment.
	100%								International.	Master Naval Ordnance Systems Command drawings, operating and ordnance pamphlets, and related historical data.
	100%								National.	Engineering drawings, specifications, energy charts, test reports, handbooks, manuals, and catalogs.
	100%								International.	Engineering drawings, engineering parts lists, inspection equipment lists, gauge drawings, Selected Qualified Products lists.
x	100%								International.	Aeronautical charts, maps, and Flight Information Publications.

OPERATING STATUS (continued)

DIRECTORY CODE	COVERAGE (continued) DATA CONTENT of DOCUMENTS: SUBSTANCE, MATERIALS or EQUIPMENTS	COVERAGE (continued) DATA CONTENT of DOCUMENTS: PROPERTIES or PERFORMANCE VALUES	OPERATING MOTIVE: INTERNAL STAFF SUPPORT	OPERATING MOTIVE: NON-PROFIT EXTERNAL SERV.	OPERATING MOTIVE: PROFIT-MAKING EXTERNAL SERV.	OPERATING MOTIVE: OTHER	CONTINUITY of OPERATION: AD HOC	CONTINUITY of OPERATION: PERIODIC	CONTINUITY of OPERATION: CONTINUOUS
D-32	Conventional ammunition, synchros, pyrotechnics, resolvers, and other precision components.	Engineering design parameters, maintenance and procurement characteristics.	x	x					x
D-33	Naval shore establishment structures; civil, structural, and mechanical engineering components which span or traverse both land and sea, etc.	Contract and standard specifications, criteria descriptions of various structures.		x					x
D-34	Mine and depth charges.	Complete inservice design and maintenance.	x	x					x
D-35	Training devices for aerospace, surface, and undersea warfare.	Procurement and field maintenance requirements.		x					x
D-36	Torpedos, underwater missiles, underwater fire control equipment, torpedo launchers, torpedo tubes, and associated equipment.	Design parameters, physical properties, maintenance and procurement characteristics, and operating procedures.	x	x					x
D-37	Aircraft-launched missiles, rockets, assemblies, and component parts.	Specifications and performance values; fit, form, function, and evaluation.	x	x					x
D-38	All types of weapons systems, from 20mm. up.	Design parameters, procurement and maintenance characteristics.	x	x					x
D-39	Not given.	Aeronautical navigation data.	x	x					x

SOURCES of DATA-DOCUMENTS						
INSTITUTIONAL SOURCES (%)				SCIENTIFIC & TECHNICAL ACTIVITIES GENERATING DATA-DOCUMENTS	UNPUBLISHED DATA-DOCUMENTS	PUBLISHED DATA-DOCUMENTS
GOVERNMENT & CONTRACTORS	INDUSTRIAL & COMMERCIAL	EDUCATIONAL & NON-PROFIT	OTHER			
100%				Laboratory research, weapons engineering design, and procurement and maintenance.	Engineering drawings.	Engineering drawings, operating procedures, and specifications.
100%				Architectural engineering design.	Drawings (20% of holdings)	Drawings (80% of holdings)
95%	5%			Inservice design, Fleet service mine testing, development engineering, test equipment calibration, and worldwide surveillance.	Design data.	Drawings and technical publications.
100%				Electronic engineering design	Engineering drawings.	None.
100%				Laboratory research, engineering design, product development, and environmental monitoring.	Drawings and historical data.	Operation and ordnance pamphlets.
80%	15%	5%		Systems development, aviation ordnance, weapons development, propulsion development, etc.	Technical notes and notebooks, design sketches, environmental test reports, informal notes, etc.	Weapon training handbooks, operation manuals, weapon design specifications, manufacturers' brochures and catalogs.
100%				Engineering design, product development.	Documentation on terminated projects.	Engineering drawings and associated lists.
100%				Not given.	Maps, charts, documents.	Aeronautical charts, Flight Information Publications.

DIRECTORY CODE	TYPES of DATA-DOCUMENTS: STATE of REFINEMENT	TYPES of DATA-DOCUMENTS: FORM of DATA-DOCUMENT	DATA-DOCUMENT PROCESSING: OPERATIONS PERFORMED: CATALOG	INDEX	ABSTRACT	STORE	EVALUATE	REFORMAT	REPRODUCE	DISSEMINATE	OTHER	EXTENT of AUTOMATION: Substantial	Limited	None	USER SERVICING: USING COMMUNITIES: SCALE
D-32	Final copy.	Hardcopy (including full-size drawings), microfilm.	x	x		x		x		x			x		International.
D-33	Originals to final copy.	Hardcopy, microfilm.	x	x	x	x	x	x						x	National.
D-34	Draft, working copy, final copy.	Hardcopy, microfilm, ADP coded.	x	x	x	x	x	x	x	x		x			International.
D-35	Final copy.	Hardcopy, microfilm, and ADP-coded indexes to drawings.		x		x	x	x	x	x			x		International.
D-36	Draft, working copy, final copy.	Hardcopy, microfilm.		x	x	x	x	x	x	x	Originate drawings.		x		International.
D-37	Draft, working copy, final copy.	Hardcopy, microfilm, ADP coded.	x	x		x	x	x	x	x			x		National.
D-38	Draft, working copy, final copy.	Hardcopy, microfilm aperture cards.		x		x		x	x	x		x			International.
D-39	Final copy.	Hardcopy, ADP co'd.	x	x		x	x	x	x	x		x			National.

USER SERVICING (continued)

USING COMMUNITIES (continued)

SCIENTIFIC or TECHNICAL ACTIVITIES	INSTITUTIONS	USER QUALIFICATIONS & RESTRICTIONS	SERVICES PROVIDED: ANNOUNCE DATA-DOCUMENTS	PUBLISH ABSTRACTS	PERFORM DATA-DOCUMENT SEARCHES	PROVIDE COPIES of DATA-DOCUMENTS	
Ammunition manufacture, maintenance and procurement of ammunition.	U.S. Armed Forces, Department of Defense and its contractors, and foreign governments through military assistance programs.	Some documents under security classification; approval by a DOD contracting officer needed by depository users.	x		x	x	
Architectural engineering.	Government facilities engineers.	None.	x		x	x	
Military logistics planning.	U.S. Armed Forces, Government agencies, American Ordnance Association.	Some documents are under security classification; approval by a DOD contracting officer needed by depository users.	x		x	x	
Military logistics planning.	U.S. Armed Forces, and foreign governments through military assistance programs.	Some documents are under security classification; approval by a DOD contracting officer needed by depository users.				x	
Research, development, production, operation, and maintenance of weapons systems.	U.S. Navy, Government agencies, DOD contractors, and foreign governments through military assistance programs.	Some documents are under security classification; approval by a DOD contracting officer needed by depository users.	x	x	x	x	
Weapons research, design, and development.	Naval Weapons Center and any associated institutions; government and industry.	Approval by a DOD contracting officer needed by depository users.	x		x	x	
Engineering design, military logistics planning.	Primarily U.S. Armed Forces and DOD contractors; some foreign governments through military assistance programs.	Some documents are under security classification; approval by a DOD contracting officer needed by depository users.	x		x	x	
Air navigation.	U. S. Air Force, Department of Defense, National Aeronautics and Space Administration.	Some documents are under security classification; approval of a DOD contracting officer needed for depository users.	x				

USER SERVICING (CON'T.)				OPERATING STATISTICS		
(CON'T.)	FORM of SERVICE					
OTHER	CUSTOMIZED	STANDARDIZED	COST TO USERS	CURRENT VOLUME	RATE of GROWTH	
	x	x	None.	Depository holdings: 150,000-200,000 documents in collection.	Accession rate: 100,000 new documents per year.	
	x	x	Search and printing fee - $3.00. Reproduction fee - $.50.	Depository holdings: 400,000 drawings.	Not given.	
	x		Not given.	Depository holdings: 71,000 documents	Accession rate: 5,000-6,000 documents per year.	
		x	None.	Documents processed: 50,000-75,000 documents per year.	Volume of operation remains constant.	
	x	x	None.	Depository holdings: 97,500 master drawings; staff: 15 personnel.	Accession rate: 5,000 master drawings per year.	
	x	x	Approximate minimum charge - $11.00.	Documents processed: 100,000 16mm. images per year.	Expected rate of growth in depository holdings: 10% per year (until 1970).	
	x	x	None.	Documents processed: approximately 400,000 microfilm aperture cards produced per year; staff: 17 personnel.	Not given.	
	x	x	Publications may be purchased from Coast and Geodetic Survey.	Not given.	Not given.	

A

FUTURE PLANS
Expansion in microfilming capabilities.
Maintenance of tri-service standard drawings.
Continued growth.
Further expansion in use of microfilm.
Total coverage on all active fire-control systems, torpedo tubes, and torpedo launchers within 5 to 10 years.
Inclusion of design disclosure documentation information.
Computerization of parts lists; ultimately, a completely automated system.
Not given.

B

E. Data Programs Development and Coordination

1. Summary

Data program planning and coordination efforts are sponsored by professional societies and trade associations; agencies of the Government; international organizations, foundations, research institutes, or academic institutions. Panels or committees frequently combine representation from some or all of these groups. Thirty-five typical programs are reported in this section of the census.

It would seem, from the description of the 35 data program planning efforts, that organizations of this type might prove a productive instrument for the future planning of national data systems. As representative of large discipline- or industry-oriented sectors of scientific and technological endeavor, they could provide the channels of communication to the active developers of data systems. Much of the concern of planning and coordinating groups, to date, has been with requirements for document handling rather than data management and data system requirements. It should, therefore, be noted that this directory does not attempt to cover groups involved in planning and coordination of research-type document handling system requirements. To have done so would have exceeded the scope of this study and would have required a much larger directory just to present a representative sampling of such efforts.

As reported in the Survey of Data Activities of Selected Professional Societies and Trade Associations in Part B of this volume, many organizations have standards committees concerned with the establishment of criteria for acceptable practices. Two organizations concerned wholly with standardization activities -- the USA Standards Institute and the National Conference of Standards Laboratories -- are reported in the census; several of the other societies reported in this section include standardization activities among other data coordination activities. However, organizations reporting standards activities as their only data program development effort, have not been included. The National Bureau of Standards Miscellaneous Publication 288, Directory of United States Standardization Activities, is a recent publication reporting the activities of 486 organizations.

Nine of the 35 data program planning efforts are conducted by professional societies. The missions of these groups are to assess the current status of data efforts within their scientific or technological field, to identify major unfulfilled needs for data, to stimulate, advise, and assist in matters of improvement in techniques of data transfer, and to provide a focal point for coordinating professional efforts to manage data. It can be seen that, although profession-oriented, most data-development programs of the societies have representation from Government agencies, both military and civilian, and are providing links and channels of exchange between the professional and governmental data management planning.

Ten of the data program development groups described in the directory listings are located in the Federal government, six of them in the defense sector. They represent major cooperative programs to design and maintain coordinated data efforts within or between departments or agencies of the governmental structure. Generally, the programs are concerned with various phases of progress toward emerging Federal or national data systems. They are Federally chartered, planned, supported, and implemented; implicit in their objectives (and, in many cases, so stated) are establishment of national-level data systems. One non-defense program consults with a panel from industry and evaluates both Federal and non-Federal requirements for the program. In the defense programs, the chief concern is with technical data and its documentation in support of defense engineering development and procurement operations. Industry must be involved in these plans, for both the generation and the usage of the data are frequently in the hands of the contractor and subcontractor.

The remaining 18 data program development efforts herein reported represent the planning or coordinating of data and information activities by such large organizations as the National Academy of Sciences-National Research Council, the National Bureau of Standards, the Office of Science and Technology, and several international organizations. Generally, they represent, either in their membership or in the administration of their programs, very broad communities of interest, many disciplines, and relatively high-levels of leadership in Government, science, education, and industry. Again, their interests lie in the review of the adequacy and scope of present programs, the identification of gaps in the communication necessary to develop such programs, and the encouragement (and, in several efforts, the funding) of data management programs.

2. Directory of Typical Data Programs Development and Coordination

E-1

Air Force Materials Information Centers Program

Air Force Materials Laboratory
MAAM
Wright-Patterson Air Force Base, Ohio 45433

Mission and Scope: This program has developed and coordinated information and data centers to serve those in need of scientific or technical information on materials for research and development. It was established to cover data dealing with materials of interest to the U. S. Air Force; services of component centers, however, are provided to Government agencies and contractors, subcontractors, suppliers, and others such as research institutes and universities, in a position to aid the defense effort.

Administration and Coverage: The program has initiated and currently directs the operation of the following data centers: Aerospace Materials Information Center, Air Force Machinability Data Center, Defense Ceramic Information Center, Defense Metals Information Center, Electronic Properties Information Center, Mechanical Properties Data Center, and Thermophysical Properties Research Center. Data currently covers materials such as metals and alloys, adhesives, lubricants, electrical and electronic materials, ceramics, oils, plastics, polymers, and related processes and manufacturing methods.

(continued)

E-1

Air Force Materials Information Centers (continued)

History and Status: In the early part of 1960, the Materials Information Branch was established as a centralized technical information service for the Air Force Materials Laboratory. Individual centers were established periodically between 1960 and 1967.

E-2

Air Quality and Emission Data Program

U. S. Public Health Service
National Center for Air Pollution Control
4676 Columbia Parkway
Cincinnati, Ohio 45226

Mission and Scope: The objectives of the program are to develop and maintain a national program for (1) surveillance of air quality; (2) collection, storage, and evaluation of air quality data; and (3) inventory of air pollutant emissions and methods utilized for their control

Administration and Coverage: Four functional sections have been designated for implementation of the objectives. The Data Acquisition and Analysis Section is responsible for systems to store and retrieve the pertinent data, for the preparation and dissemination of statistical analyses and reports, and for insuring the validity of air quality and other data routinely obtained. The Laboratory Services Section provides chemical and physical analytical and laboratory services, exercises quality control over analytical data entering the storage and retrieval systems, and maintains a collection and inventory of samples obtained in the collection processes. The National Air Pollutant Emissions and Control Section maintains an inventory of emissions of air pollutants and methods and practices used in their control, collects and disseminates data on emissions and controls, and develops methodology for

(continued)

E-2

Air Quality and Emission Data Program

pertinent types of surveys. The National Air Surveillance Networks Section provides requisite data on ambient and other air use situations and provides data and samples of pollutants for analysis and study.

History and Status: In 1953, the Public Health Service set up the National Air Sampling Network (NASN) with 17 stations to measure the solid pollutants in the air. As awareness of vast quantities of gaseous pollutants grew, the Continuous Air Monitoring Program (CAMP) was begun in 1960. With the ever-pressing problem of air pollution control, the Air Quality and Emission Data Program has evolved as a Federal action to unify support of planning for environmental health and disease prevention.

E-3

American Institute of Chemical Engineers (AIChE) System on Estimating Physical Properties

American Institute of Chemical Engineers
345 East 47th Street
New York, New York 10017

Mission and Scope: The primary objective of this group has been to design and implement a computer program which will permit physical properties of compounds and mixtures to be estimated. The main emphasis in the design work has been to develop a good, main, or executive structure as opposed to the design and implementation of individual physical property estimation methods.

Administration and Coverage: The Society's Computation Committee outlined a project to develop a program for the estimation of physical properties of chemical compounds from various known parameters. Funds were sought from a number of companies interested in the project and the society was successful in raising funds to contract the work needed to develop the system.

History and Status: The project was developed in 1960, with the work beginning in 1963. The project has now been completed and the computer programs and other data made available to the sponsoring companies.

E-4

American Ordnance Association (AOA) Engineering Data Management Section

American Ordnance Association
Transportation Building
Washington, D. C. 20006

Mission and Scope: The primary aim of this group is to provide to the Government a group of experienced and responsible administrators from industry who assist in the formulation of requirements in the general area of engineering data management. The Section has been instituted in support of the overall mission of the AOA -- the advancement of adequate national defense of the United States in the fields of weapons technology, production and logistics.

Administration and Coverage: Members of the Section are usually at the management level in their companies and have a variety of specialized knowledge in related techniques such as computer-aided design, automated graphics, microfilm, and reproduction. Members speak as individuals; there is no requirement that viewpoints should reflect official company policies. The policies and activities of the unit are developed and directed by a 19-man Steering Committee which assigns problems and studies to existing subsections or Ad-Hoc groups, or, when necessary, organizes a new subsection or panel. Government liaison representatives have been assigned to work with the Section from

(continued)

E-4

AOA Engineering Data Management Section (continued)

Army, Navy, Air Force, Marine Corps, Defense Supply Agency, Department of Defense, and NASA. Fields of interest covered by the documentation activities are all ordnance, armament, weapons, weapon systems and related equipment for the Armed Forces of the United States.

History and Status: Recently, the AOA Engineering Documentation Section has split into the Engineering Data Management Section and the independent Computer-Aided Design Technology Section. Subsections functioning actively at the present are: MIL-D-1000, Dimensioning and Tolerancing, MIL-STD-100, Preparation and Management of Specification, Micro-Reproduction Systems, and NASA Engineering Documentation. A further major continuing activity of the Section is the sponsorship of meetings which provide opportunities for exchanges of views and opinions between Government officials responsible for procurement of data and individuals from contractor agencies which develop and furnish data to the Government agencies.

E-5

American Society for Testing and Materials Committee on Numerical Data

ASTM
1916 Race Street
Philadelphia, Pennsylvania 19103

Mission and Scope: This coordinating committee seeks to: Cooperate with the Office of Critical Tables in the field of publishing numerical reference data pertaining to engineering materials; stimulate, advise, and assist the ASTM Board and technical committees on matters of numerical data storage, retrieval, and publication.

Administration and Coverage: The Committee maintains cognizance of data projects in the field of engineering materials on behalf of the Engineers Joint Council Information Systems Committee, by its membership contacts with other agencies engaged in publication, storage, and retrieval of these types of data.

History and Status: The Committee was initiated in 1961 and has published a manual on storage and retrieval of materials engineering data. The scope of its advisory capacity is currently under revision.

E-6

Animal Morbidity and Mortality Data System

San Diego Zoo
San Diego, California

Mission and Scope: This data effort has as its primary operating objective the collection, analysis, and dissemination of animal morbidity and mortality data to veterinary medical institutions of learning and research.

Administration and Coverage: Participants in the planning of this effort, to be operated at the San Diego Zoo, are the Agricultural Board of the National Academy of Sciences-National Research Council and representatives of Cornell University Veterinary Medical School, as well as the San Diego Zoo administration. Included in the coverage will be relative incidence and distribution of disease and death in both domestic and non-domestic animals at several national zoos. Statistics on livestock morbidity and mortality, diagnosis and epidemiology of economic and transmissible diseases of animal viruses, and exotic diseases of animals will be included. The ultimate intent is to use these data in medical research, particularly in the veterinary medical field.

History and Status: A pilot program is underway at the San Diego Zoo to assist in the planning of full-scale national operation. Funding for the pilot project is supplied by the U. S. Department of Agriculture; funds are being sought for the remainder of the project.

E-7

Chemical Information and Data System (CIDS)

U. S. Army Research Office (STINFO)
3045 Columbia Pike
Arlington, Virginia 22204

Mission and Scope: This program is to be developed as an automated system of specialized chemical information and data services for the Army. Its immediate objectives are: (1) To determine the feasibility of handling chemical and related information by automated techniques; (2) To investigate systems concepts; (3) To evaluate resource requirements for establishment of an information network; and (4) To determine if an operational network should be established. The system will be designed to meet all chemical information service requirements of Army laboratories and installations; data will be collected from all pertinent sources.

Administration and Coverage: Overall administration of the program is through the Scientific and Technical Information Office of the U. S. Army Research Office, with various phases of the plans being conducted by the Army Materiel Command at Frankford and Edgewood Arsenals and at other Army installations. Data coverage will include chemical information required to pursue Army missions, with emphasis on chemical warfare agents, explosives, fuels, lubricants, and other chemicals vital to defense activities. Also included will be biomedical data

(continued)

E-7

Chemical Information and Data System (CIDS) (continued)

(physiological properties, biochemistry, pathology, physiochemistry) and materials data (special hazards, propellants, explosives, pyrotechnics, military applicability, use, production, nondestructive testing, etc.).

History and Status: The proposed system was initiated as an exploratory development project in 1963. Components of the system are in test and development stages, and further study is continuing at the present time.

E-8

Committee on Data for Science and Technology (CODATA)

National Academy of Sciences-National Research Council
2101 Constitution Avenue, N. W.
Washington, D. C. 20418

Mission and Scope: This planning committee of the International Council of Scientific Unions (ICSU) has been established to stimulate and coordinate informally on a worldwide basis the rapidly growing effort to collect, evaluate, compile, and publish the evaluated numerical data of science and technology. Tasks set are: (1) To ascertain through its members (a) what work on critical compilation of evaluated numerical data is being carried on in each country; (b) what work is being sponsored by each Scientific Union or by other international groups; and (c) what the needs of science and industry are for additional compilations of evaluated data; (2) to achieve coordination among and strengthening of existing programs in such a way as to maximize their effectiveness, to minimize unintentional or undesirable overlap, and to recommend new compilation programs when necessary; and (3) to encourage the support of needed work by appropriate private, governmental, and inter-governmental agencies; and to encourage experimental work.

Administration and Coverage: The ICSU is the coordinating body for 15 international unions representing major areas of science. CODATA will have representation from

(continued)

E-8

CODATA (continued)

twelve international unions and from six countries. The unions participating in this numerical data evaluation effort are those active in the fields of astronomy, biological sciences, crystallography, geodesy and geophysics, geography, geological sciences, physiological sciences, pure and applied biophysics, pure and applied chemistry, pure and applied physics, scientific radio, and theoretical and applied mechanics. France, West Germany, Japan, the United Kingdom, the United States, and the USSR are the countries represented. The program will be carried out by a permanently staffed Central Office, financed by participating countries.

History and Status: In June, 1964, a proposal for the committee was placed before the ICSU Executive Committee; a favorable reaction was given to the formation of a working group which established CODATA. The Central Office is located for the first two years of the program (1967 and 1968) in Washington, D. C. at the NAS-NRC; the Office plans to move to Western Europe for a second period. It is expected that members of CODATA will seek to organize appropriate advisory groups in their countries or unions. Such committees will increase awareness in many disciplines of the need for strong programs for preparing reference data.

E-9

Committee on Scientific and Technical Information (COSATI)

Office of Science and Technology
Federal Council for Science and Technology
Executive Office of the President
Washington, D. C. 20506

Mission and Scope: The primary objective of COSATI is to develop among the executive agencies of the Federal government a coordinated but decentralized scientific and technical information system for scientists, engineers, and other technical professionals. As a secondary objective, COSATI will be concerned with coordinating and cooperating with improved Federal and national systems for handling scientific and technical information. In particular, COSATI is required to carry out the following activities: (1) Review the adequacy and scope of present programs; identify the problems and requirements and devise or review new programs and other measures to meet these requirements; (2) Recommend standards, methodology, systems, and management policies to improve the quality and vigor of the information activities; (3) Identify and recommend assignments of responsibility among the executive agencies, and make recommendations concerning the resources assigned to the programs of the agencies; and (4) Facilitate, generally, interagency coordination at management levels.

Administration and Coverage: Member agencies are the Departments of Agriculture, Commerce, Defense, HEW,

(continued)

E-9

COSATI (continued)

Interior, and State, and the AEC, FAA, NASA, NSF, and VA. COSATI Panels particularly concerned with data aspects of information activities include Operational Techniques & Systems, Information Sciences Technology, Management of Information Activities, Information Analysis Centers, and the Task Group on National Systems. This Task Group is specifically charged with the study and evaluation of the feasibility of national systems concepts which could serve both government and non-government sectors of science and technology.

History and Status: In 1962, the Federal Council for Science and Technology created the Committee on Scientific Information under the auspices of the Office of Science and Technology, Executive Office of the President. In 1964, the name of the Committee was changed to Committee on Scientific and Technical Information (COSATI) to indicate that its scope of interest included technical, as well as scientific, information activities. The current involvement of over 200 individuals from many government offices on COSATI Panels, Task Groups, etc. is indicative of the extensive role of COSATI in improvement of Federal scientific and technical information activities. In addition, COSATI, through its leadership and initiative, is stimulating organizations in and out of the Government, in the

(continued)

E-9

COSATI (continued)

United States and overseas, in science and technology and other fields, to seek new methods of improving their capability to communicate efficiently and effectively both within scientific and technical communities and between communities.

E-10

Committee on World-Wide Science Information System

c/o UNESCO
United Nations
New York, New York 10017

Mission and Scope: A preliminary working group of this joint ICSU/UNESCO Committee agreed that its purpose should be to promote compatibility among the science information systems being created in many countries and in several disciplines in response to the exponential growth of science information. To prevent the barriers which could develop between disciplines, languages, differing computer technologies, and even to some extent between nations, the Committee is attempting to develop an effective means of interchange among existing and planned systems before they become too rigidly established to permit effective interchange.

Administration and Coverage: Members of the joint committee represent the United States, USSR, the United Kingdom, West Germany, Japan, and Hungary, as well as the ICSU and UNESCO membership. Discussions are based on working papers prepared for the meetings on such topics as chemistry worldwide, physics worldwide, science information in the United Kingdom, and reports on international data programs such as CODATA. Initially the program is restricted to data coverage of the basic natural sciences.

(continued)

E-10

Committee on World-Wide Science Information (continued)

History and Status: The first planning group met in Paris in January, 1967; the first meeting of the full Committee took place in December, 1967. Initial tasks approached were standardization of information transfer vehicles, selectivity, and transferability across language barriers. Proposals for possible world-wide systems were reviewed and a major international conference was planned for 1970.

E-11

The Council of Social Science Data Archives (CSSDA)

The Bureau for Applied Social Research
Columbia University
605 West 115th Street
New York, New York 10025

Mission and Scope: The CSSDA is a planning, policy-making, and information-disseminating group for coordinating and publicizing the activities of a confederation of 20 social science data archives, most of which are in the United States. Its most basic principles are that machine-readable data and supporting documentation useful to the social science community should be readily accessible, at minimum cost, to scholars, and be rediffusible to archives and individuals

Administration and Coverage: Committees have been formed and are coordinating activities in information retrieval, computer development, standards, international inventorying of archived data, and an electronic network for telecommunications. The Council and its members are represented on the Standing Committee on Data Archives of the International Social Science Council which shares advice and information among archives in different countries, coordinates developments, and fosters the creation of new archives.

History and Status: The Council began in 1962 as a "Committee of Eight", sponsored by the Inter-University

(continued)

E-11

Council of Social Science Data Archives (continued)

Consortium for Political Research. After a year of meetings, a plan of action received support from the National Science Foundation. With continuing support of NSF, CSSDA has assembled a permanent staff, established and coordinated goals for the Council, and fostered the establishment of working groups to initiate cooperative efforts leading to operation of a coordinated, national social science data system.

E-12

Department of Defense Technical Data and Standardization Policy Committee

Office of the Assistant Secretary of Defense
Washington, D. C. 20301

Mission and Scope: The Committee is established as the principal interdepartmental, inter-agency coordinating and advisory body to the Office of Technical Data and Standardization Policy. It is the mechanism for achieving sound and integrated DoD policies and programs in the field of technical data and standardization.

Administration and Coverage: Membership consists of one individual from each of the following: Office of Assistant Secretary of Defense for Installations and Logistics; Office of Director, Defense Research and Engineering; each Military Department; and the Defense Supply Agency. Observers are nominated from other interested Government agencies. Policies and procedures are recommended and progress monitored in areas of technical data necessary for research, development, engineering, procurement, production, provisioning, cataloguing, standardization, quality control, maintenance, storage, distribution, operations, and disposal. Responsibility is assumed also for policies and programs for technical data management and for procedures for acquisition, processing, retrieval, dissemination, and use of technical data in support of DoD activities. All

(continued)

E-12

DoD Technical Data Committee (continued)

aspects of the DoD Standardization Program are considered by the Committee, including review and maintenance of the Defense Standardization Manual.

History and Status: The Committee was established in June, 1964, at which time it assumed the duties and responsibilities formerly held by the Technical Logistics Data and Information Committee. Current active subcommittees are: Drawing Practices and Management; Technical Manual Management; DoD Authorization Data List; Data Quality Management; Carrier Management and Training Program for Technical Data Management; Technical Data and Cost Reporting; Impact of Computer Technology on Technical Data and Standardization Policies.

E-13

Drug Information Association (DIA)

College of Pharmacy
University of Cincinnati
Cincinnati, Ohio 45221

Mission and Scope: DIA's objective is to further modern technology of communication in the medical, pharmaceutical, and allied fields. It exists to provide a climate of cooperation for the transfer of drug information with a minimum of duplication of effort.

Administration and Coverage: Property, affairs, and business of DIA are managed by a Board of Directors which governs the Association, establishes its policies, and determines its operations. Membership in the association is open to those who in any way are concerned with drug information. DIA seeks to encourage and develop improved methods of collecting, selecting, indexing, evaluating, and presenting research data generated from chemical, pharmacologic, and clinical drug studies.

History and Status: DIA was established in 1964. The Association is continuously providing a medium for exchange of information, particularly in the areas of processing, both manual and automated, of drug data by the publication of the periodical, Drug Information Bulletin. Annual meetings and symposia are concentrating on such topics as adverse reactions, information problems using automatic data collection systems, etc.

E-14

Engineers Joint Council (EJC) Information Systems Committee

Engineers Joint Council
345 East 47th Street
New York, New York 10017

Mission and Scope: In the EJC's comprehensive program to improve engineers' access to technical information, this Committee has the objective of encouraging and promoting development of improved methods for handling information and using machine techniques in the engineering profession. The Council's position has been and continues to be one of planning for the establishment of a national information center sensitive to the needs of engineers.

Administration and Coverage: EJC planning functions are carried out in cooperation with and with representation by other groups in the profession, specifically the United Engineering Trustees, Engineering Index, and the Engineering Societies Library. Grants toward initial phases of the development of the program have been received from the Engineering Foundation and from the National Science Foundation. The focus is on coverage of general engineering or support information and data -- that is, properties of materials, etc.

History and Status: The Committee is in its seventh year of the program. The Subcommittee on Engineering Data
(continued)

E-14

EJC Information Systems Committee (continued)

has been created with the responsibility for contributing inputs to the overall planning effort concerning the role and treatment of the data components of the national engineering information system. The Subcommittee is currently compiling an inventory of the principal existing engineering data resources -- e.g., data compilations, manuals, handbooks, etc. Another data-related activity being carried on by the Council involves study of computer-aided design.

E-15

Federal Committee for Meteorological Services and Supporting Research

U. S. Department of Commerce
Environmental Science Services Administration
Washington, D. C. 20235

Mission and Scope: This Federal advisory committee has been charged with the responsibility of facilitating the interagency coordination and planning functions of the Department of Commerce in: (1) Meteorological services and supporting research, as outlined in Bureau of the Budget Circular A-62; and (2) United States participation in international meteorological programs, with particular emphasis on the World Weather Program (WWP) of which the World Weather Watch (WWW) is a major activity.

Administration and Coverage: Data programs involving coastal weather reporting, weather radars, hurricane warning centers, fire weather service, upper-air data collection facilities, meteorological satellites, rawinsonde stations, etc. are reviewed, validated, and presented to the Federal Coordinator. Three major coordinating committees responsible to the Federal Coordinator (the Interdepartmental Committee for Meteorological Services (ICMS), the Interdepartmental Committee for Applied Meteorological Research (ICAMR), and the Interagency Committee for World Weather Programs (ICWWP) implement these programs.

(continued)

E-15

Federal Committee for Meteorological Services (continued)

History and Status: A BoB Circular, November 13, 1963, and a letter from President Johnson, October 23, 1964, chartered the Committee's objectives. As recommended by the Committee and proposed by the Secretary of Commerce, functions of the Committee were redefined in November, 1967, to include those of the Interagency Committee for International Meteorological Programs (ICIMP).

E-16

Federal Item Identification Guides (FIIG) Improvement Program

Defense Supply Agency
Cataloguing and Technical Data Division
DSAH-SC
Cameron Station
Alexandria, Virginia 22314

Mission and Scope: The object of the FIIG Improvement Program is to establish guidelines for use in establishing a single identification record in a machine-sensible format for multiple logistics purposes, and to provide a means for instant retrieval of the data. Existing item identification media were developed primarily for cataloguing purposes. Starting with these media as a base, the Program will provide refined techniques and methods to serve maximum logistics functions for the Department of Defense.

Administration and Coverage: Headquarters, Defense Supply Agency is responsible for administration of the FIIG Program, acting under policy direction of the Office of the Assistant Secretary of Defense, Installations and Logistics. This responsibility is accomplished in coordination with the Military Services/Agencies and the General Services Administration. The Field Command, Defense Atomic Support Agency (DASA) is responsible for development, preparation, and coordination of all FIIG's which are designed specifically for use in the nuclear ordnance field. The Defense Logistics Services Center assists in the final preparation of the Guides.

(continued)

E-16

FIIG Improvement Program (continued)

The resulting data bank will consist of technical data received as a result of technical characteristic data submitted as replies to the applicable requirements in the approved and published guides, and item related management data such as size, weight, packaging, transportation, etc. The technical replies for each characteristic of an item of supply will contain all the data required for describing an item, to compare with and differentiate from all related items in the data bank.

History and Status: The project was initiated in 1965 with a revised manual providing guidance and direction for the preparation and use of the FIIGs in October of 1966. The selection and scheduling of FIIG priorities will be dependent on the needs of the other programs requiring the expanded data.

E-17

Global Atmospheric Research Program (GARP)

Committee on Atmospheric Sciences
National Academy of Sciences
2101 Constitution Avenue, N. W.
Washington, D. C. 20418

and

Office of the World Weather Program
Environmental Science Services Administration
Washington Science Center
Building #5
Rockville, Maryland 20852

Mission and Scope: This program is being planned to measure the motions of the entire lower atmosphere (below 30 kilometers) so that it can be studied as a single physical system leading to an improved physical and mathematical basis for medium and long-range weather predictions. Sponsorship of the program is by the International Council of Scientific Unions/International Union of Geodesy and Geophysics/Committee on Atmospheric Sciences, in association with the Committee on Space Research (COSPAR) and the World Meteorological Organization. Present participants in the United States are NAS-NRC, ESSA, NSF, and NASA.

Administration and Coverage: The ICSU and WMO are now establishing a Joint GARP Organizing Committee for development of the international program. The ICSU/IUGG/CAS is being restructured to serve as the GARP

(continued)

E-17

Global Atmospheric Research Program

Policy Group for the ICSU. In the United States, ESSA has the Federal responsibility for development and coordination of U. S. participation in the program. The National Academy of Sciences has the scientific responsibility for setting forth the specific scientific objectives, data measurement requirements, and the initial technological feasibility studies. Problems to receive principal attention by GARP are: Tropical dynamics, radiation, earth-atmosphere exchange, numerical models, and the necessary research, development, testing, and evaluation of advanced technological means for obtaining and communicating the required measurements and data.

History and Status: The cooperating international groups convened a two-week GARP Study Conference in the summer of 1967 at Stockholm. The meeting outlined major scientific areas and significant problems requiring study to meet objectives of programs in each area. The National Academy of Sciences is now establishing a U. S. Committee for GARP which will also serve as a national and international focus for scientific coordination and communication.

E-18

Interagency Data Exchange Program (IDEP)

Headquarters U. S. Army Missile Command
Redstone Scientific Information Center
AMSMI-RBP
Redsonte Arsenal, Alabama 35809

Other Offices:

Los Angeles Air Force Station
Air Force Unit Post Office
Los Angeles, California 90045

U. S. Naval Fleet Missile Systems Analysis
and Evaluation Group
Corona, California 91720

Mission and Scope: This is an Army/NASA, Navy, and Air Force cooperative effort designed to provide exchange of component test data among the government agencies, their contractors, and major subcontractors who are engaged in missile and space activities. Objectives are: (1) To promote the standardization of test information reporting procedures; (2) to provide alternate source parts information through access to broader range of dependable data; (3) to provide a source for general parts and components test data at the research, exploratory development, and other pre-production stages of the procurement cycle; and others concerning the support of research and development projects in the defense industries.

Administration and Coverage: IDEP documents are pri-
(continued)

E-18

Interagency Data Exchange Program

marily the results of controlled tests conducted by participants and associated subcontractors engaged in the design, development, and production of equipment for the Government. Summary sheets for parts testing are prepared by participants for microfilming, reproducing, and distribution by the administering IDEP offices who perform editorial changes to submitted material only as necessary to reflect the standard format and establish index coding before report distribution. Test reports include data on electronic, electrical, mechanical, electromechanical parts and components, materials, production processes, pyrotechnical test equipment devices, procedures, reliability, etc.

History and Status: Original approval of IDEP was obtained in 1959 from the Commanders of the Army and Air Force ballistic missile programs and from the Navy Special Project Office. Currently, the program has been approved at the Assistant Secretary level for Research and Development in the Army, Navy, and Air Force, and by the Assistant Administrator for Industry Affairs of NASA A constantly expanding and up-to-date file, currently of more than 20,000 documents on all phases of parts testing, is available for immediate reference. More than 250 new reports enter the system each month.

E-19

International Hydrographic Bureau (IHB)

Avenue President J. F. Kennedy
Monte Carlo, Monaco

U. S. Office:

U. S. Naval Oceanographic Office
Washington, D. C. 20390

Mission and Scope: The data activities of this international organization assist in its broad aims to: (1) Establish permanent association between hydrographic services of the various maritime countries, (2) coordinate their work with a view toward rendering navigation easier and safer in all seas; and (3) endeavour to obtain uniformity in hydrographic documents; (4) encourage coordination of hydrographic surveys with relevant oceanographic activities; and (5) provide for close cooperation between the IHB and existing international organizations in the field of oceanography. Any maritime state may apply for admission as a member of the Bureau.

Administration and Coverage: Conferences every five years are attended by delegates from each member state, one usually being the head of the state's Hydrographic Office. Resolutions are passed by majority vote and have no legal binding force. Mutual exchange of representatives with International Union of Geodesy and Geophysics and with the International Association of Lighthouse Authorities is provided. Projects being conducted include: Study of

(continued)

E-19

International Hydrographic Bureau (continued)

documents published by various hydrographic officers; study of methods of hydrographic surveying; study of methods used for the production of the results of surveys; study of construction and use of instruments and apparatus. Data have been compiled and published by the Bureau on: Shoals of doubtful existence or position; authentic world geographical positions; harmonic tidal constants; radio aids to maritime navigation and hydrography; general bathymetric charts covering the entire world.

History and Status: The IHB was established in 1921 and held its Ninth International Conference in 1967. At present, programs are continuing for standardizing nautical charts and publications, publicizing of developments in hydrography and navigational methods by means of bilingual periodical and special technical publications, and for compilation of General Bathymetric Charts of the Oceans.

E-20

International Nuclear Data Committee

c/o National Neutron Cross Section Center
Brookhaven National Laboratory
Upton, Long Island, New York 11973

Mission and Scope: The Committee recommends and encourages cooperation in the exchange of neutron data among the major computerized compilation centers in Western Europe, the United States, USSR, and the International Atomic Energy Agency (IAEA). Information essential for reactor designers and theoretical or experimental physicists will thus be made available throughout the world.

Administration and Coverage: The responsibility for collecting and disseminating information is shared by four centers: (1) The Brookhaven National Laboratory serves the United States and Canada; (2) the Neutron Data Compilation Centre of the European Nuclear Energy Agency serves countries in Western Europe and Japan; (3) the Nuclear Data Information Centre in Obninsk in the USSR for Eastern European countries; and (4) the IAEA Nuclear Data Unit in Vienna serves all other countries in Asia, Africa, South and Central America, Australia, and New Zealand.

History and Status: All four centers have agreed to exchange information. Submissions and exchange of data will take place by means of printed listings, punched

(continued)

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International Nuclear Data Committee (continued)

cards, or magnetic tape. Graphical plots of such information are also available.

E-21

International Years of the Quiet Sun (IQSY)

U. S. National Committee for IQSY
Geophysics Research Board
National Academy of Sciences - National Research Council
2101 Constitution Avenue, N. W.
Washington, D. C. 20037

Mission and Scope: Objectives of this international cooperative research program are to observe and study, during a period of minimum solar activity: (1) Geophysical and solar system phenomena in which the sun is an important controlling factor, and correlations with conditions on the sun; (2) the effects of isolated instances of solar activity; and (3) geophysical parameters free of the effects of solar activity. The data resulting from these studies are archived in the World Data Centers.

Administration and Coverage: This is a special committee of the International Council of Scientific Unions with representation from several other international unions. Cooperating organizations include WMO, International URSI-gram and World Day Service, World Magnetic Survey, Committee on Space Research, and Scientific Committee on Antarctic Research. The U. S. Committee for IQSY has developed and coordinates the United States program particularly in the area of publishing the manuals, guides, and catalogs of data. Data coverage includes areas of aeronomy, airglow, aurora, cosmic rays and geomagneti-

(continued)

E-21

IQSY (continued)

cally trapped radiation, geomagnetism, ionospheric physics and radio astronomy, meteorology, the sun, and the interplanetary medium.

History and Status: The operational phase of research was carried on from January 1, 1964 to December 31, 1965; analysis of results followed with a final general assembly and symposium held in London, July 1967. International exchange and archiving of data continue.

E-22

Marine Sciences Council Data Management Program

Marine Sciences Council
Executive Office of the President
Washington, D. C. 20506

Mission and Scope: The Council operates under the broad objectives set forth by mandate of the President and Congress in the Marine Resources and Engineering Development Act of 1966 "to develop, encourage, and maintain a coordinated, comprehensive, and long-range national program in marine science for the benefit of mankind. ---" One of the specific goals is the expansion of human knowledge of the marine environment. In this regard, the Marine Science Council initiated a comprehensive data management study, jointly funded by participating agencies and administered by the Office of Naval Research, which is proceeding in two phases to identify and evaluate the requirements for information and data management to support all aspects of national marine resource and engineering development activities, as projected for the next ten years.

Administration and Coverage: An interagency advisory group and a panel of consultants, representing Government and industry, were established to evaluate both Federal and non-Federal requirements and to monitor the study. The first phase was designed to: (1) Review and analyze the findings of related studies of data

(continued)

E-22

Marine Sciences Council (continued)

managements, such as the feasibility study for a national buoy system; (2) assess customer requirements for marine data; (3) survey the relevant literature on storage, retrieval, and reduction of marine data; (4) collate the plans of selected agencies for the development of improved oceanographic data handling capabilities; and (5) develop a detailed plan for the second phase of the study.

History and Status: The first phase of the study to determine the specific scope and structure of the study is now complete. Interviews by the contractor study team were held with representatives of 28 Federal agencies and departments and with representatives of the scientific, educational, and industrial community throughout the country. The second phase of the study, to be carried on in 1968, will attempt to: (1) Identify and forecast data requirements; (2) delineate a national data program; and (3) determine cost estimates for the principal components of the program and competitive alternatives. The study, projected for completion in early 1969, should indicate how data functions and activities might logically evolve on a national scale to achieve progress in providing the kinds and quality of services needed by all sectors of the marine science affairs community.

E-23

Metal Properties Council

Engineering Foundation
345 East 47th Street
New York, New York 10017

Mission and Scope: The major purposes of this organization are: (1) To identify major unfulfilled needs for reliable data on the engineering properties of metals and alloys; (2) to evolve, plan, and conduct programs for collecting, generating, and evaluating such data so it may be useful; (3) to arrange for making such data available promptly; and (4) to keep informed of and to utilize the results of related activities, both national and international, in order to avoid duplication of effort.

Administration and Coverage: The Council is supported by a solicitation of funds from industry, government, and others. Staff efforts of this newly-organized group are at present supported by a grant from the Engineering Foundation, although operation is relatively independent of the supporting organization. In addition, the Council is sponsored by three major societies: ASME, ASTM, ASM. It is expected that the work of the Council will provide most of the backup engineering data needs for the boiler and pressure vessel activities of the American Society for Mechanical Engineers (ASME).

History and Status: The Council has been recently de-
(continued)

E-23

Metal Properties Council (continued)

veloping a campaign to solicit funds from sponsors in order to carry on its planned activities. It is expected that its scope will broaden considerably to provide a setting for coordinated data activities in the metals fields generally. The Council has developed relationships with certain government-supported data projects, specifically the Mechanical Properties Data Center. The Council expects to provide for dissemination of data through existing publication channels.

E-24

National Academy of Sciences-National Research Council (NAS-NRC) Scientific Information Activities Program

NAS-NRC
2101 Constitution Avenue, N. W.
Washington, D. C. 20418

Mission and Scope: NAS-NRC is a private, non-profit organization of distinguished scientists and engineers dedicated to the furtherance of science and its use for the general welfare. An extensive network of information and data activities has resulted from the activities of committees of the National Academy and the staffs of the National Research Council.

Administration and Coverage: As a general rule, the NAS-NRC does not attempt to establish operating information or data centers directly. However, in the course of the work of a committee, great amounts of information collected by the committee for study prove too valuable to be dispersed or discarded. In such cases, specialized information centers are sometimes formed and maintained long after the committee has completed its study. Continuing data publications such as sets of tables, directories, and other data-documents are by-products of committee investigations. Typical committees which have identified needs for and encouraged development of data activities are: Ad Hoc Committee on Information Processing in the Behavioral Sciences; Agricultural

(continued)

E-24

NAS-NRC (continued)

Board; Committee on the Handbook of Biological Data; Committee on Toxicology; Committee on Kinetics of Chemical Reactions; Committee on Spectral Absorption Data; Committee on National Index of Fungus Cultures; Materials Advisory Board; World Data Center-A; and many others.

History and Status: In general, the work of NAS-NRC is performed by the combined membership and by several thousand scientists and engineers from throughout the nation and abroad through membership in its committees. Some committees are permanent; other ad-hoc committees have completed their studies and turned over their duties to active data efforts. New committees and sub-committees are formed as advances in science and technology create needs for additional study and analyses. Frequently, new study activity is accompanied by new requirements for collection and evaluation of specific scientific or technical data.

E-25

National Conference of Standards Laboratories (NCSL)

c/o J. R. Van de Houten
Aerojet-General Corporation
Department 1770
Building 20[illegible]A
Post Office Box 1947
Sacramento California 95809

Mission and Scope: This group is a nonprofit organization of standards and calibration laboratories, in industry, education, and government, which promotes cooperative action on common problems of management and operation.

Administration and Coverage: The Conference is sponsored by the National Bureau of Standards, and liaison relationships are maintained with several professional societies concerned with data management problems, including the ASTM, Institute of Electric and Electronics Engineers, American Ordnance Association, and the USA Standards Institute. Its committees of Members' Delegates, under the guidance of an 11-man Board of Directors, formulate voluntary standards of practice for the guidance of members, study the calibration needs of science and industry, conduct measurement agreement comparisons, and establish performance criteria for measurement standards and instruments.

History and Status: NCSL was planned at the first

(continued)

E-25

NCSL (continued)

Standards Laboratories Conference in 1962. A second conference was held in 1966 at the National Bureau of Standards.

E-26

National Science Foundation (NSF) Discipline-Based Information Program

National Science Foundation
1800 G Street, N. W.
Washington, D. C. 20550

Mission and Scope: One of the broad objectives of the National Science Foundation in the information field is to develop discipline-based information systems utilizing the professional societies as principal vehicles to define the program needs and, where appropriate, conduct the program development effort. The disciplines expected to be included as systems efforts are chemistry, physics, biosciences, engineering, and geological sciences. The goals for a National Chemical Information Program, for instance, are to assess and plan for the information needs of all sectors of chemical activity in the United States, to be based largely on controlled improvement and cooperation of existing information services.

Administration and Coverage: The administration of these discipline-based programs can be illustrated by a description of the National Chemical Information Program. This Program was jointly funded, initially, by several Federal agencies, including DoD, HEW, Atomic Energy Commission, and NSF. Beginning in 1967, the NSF assumed total funding responsibility, The American Chemical Society and, more specifically, the Chemical Abstracts Service
(continued)

E-26

NSF Information Programs (continued)

have been the initiators of the Program. Additional studies of the data aspects have been conducted by the National Bureau of Stnadards and contractor organizations. The intention is to cover the hard core of basic chemical information -- i. e., the identity and characteristic properties of chemical compounds.

History and Status: To date, the primary emphasis has been on the automation of Chemical Abstracts and development of new services based on the information resource created. Specifically, a large effort has been expended toward development and implementation of an automated registry of chemical compounds. Initial steps toward national information systems in physics, engineering, and geological sciences are being taken by the American Institute of Physics, Engineers Joint Council, and American Geophysical Union, respectively. These efforts are initially concentrating on development of document handling systems and services.

E-27

National Security Industrial Association (NSIA) Technical Advisory Committee

1030 Fifteenth Street, N. W.
Washington, D. C. 20005

Mission and Scope: The objective of the Committee is to act as a focal point for coordination of industry actions and to act as a spokesman concerning industry views on data management programs and data handling systems serving national defense or security programs.

Administration and Coverage: The Committee formulates recommendations for utilization and handling data and information in existing data banks, such as IDEP, FARADA, PRINCE/APIC, etc. Affiliations with other advisory committees, such as the Contractors' Advisory Board of IDEP, are considered. Scope of coverage falls into three basic categories: Program-oriented information and data, including the scientific and technological aspects of DoD and other Government research, development and procurement programs and requirements; (2) Product-oriented information and data, including specific data on materials, parts, equipments, or systems procured by government agencies under contracts. Problems the Committee concerns itself with include industry-government agreement on how much and what kind of data are required, proprietary rights issues, and similar questions; and (3) Science and technology-oriented information and data which deals

(continued)

E-27

National Security Industrial Association

with needs of support data files in specific subject areas. The objective is to present to both government and industry plans for centralized data storage and retrieval services for each area. Issues of standardization and obsolescence of data are also considered.

History and Status: The Committee was organized in 1964. Since that date, it has sponsored joint industry-government meetings dealing with information and data management. In addition, it has reviewed and evaluated findings from government-sponsored studies of data service needs and data system requirements.

E-28

National Water Data Program

U. S. Geological Survey
Office of Water Data Coordination
Washington, D. C. 20242

Mission and Scope: This broad agency program has as its objectives: (1) To design a national water-data network; (2) to coordinate the national network with the specialized water-data activities already existing in the United States; and (3) to maintain a central catalog of information on national network and specialized water-data and on Federal activities to acquire such data.

Administration and Coverage: Participants represent the Departments of Agriculture, Army, Commerce, Interior, State, and the Tennessee Valley Authority and the Water Resources Council. The coordinating office has surveyed the Federal agencies to gather information on the collection of surface water and quality-of-water data. Also being prepared are surveys on ground water and aerial water data.

History and Status: The Bureau of the Budget issued a Circular in August, 1964, directing the Geological Survey to establish a coordinating body among the Federal agencies. Since its establishment, the Office has assembled a staff and prepared a plan of operation for the development of a national water-data network.

(continued)

E-28

National Water Data Program (continued)

Upon completion of the survey of Federal agencies, the inventory will be extended to the non-Federal establishment to solicit the cooperation and participation of the state agencies and other groups.

E-29

Office of Critical Tables (OCT)

National Academy of Sciences-National Research Council
2101 Constitution Avenue, N. W.
Washington, D. C. 20418

Mission and Scope: The program of the OCT is an expression of the NAS-NRC's awareness of the need for continuing action to supply the scientific and technological communities with reliable tables of numerical data in the physical sciences. One of the important functions of the Office has been to survey the status of the efforts made by compilers in all countries to evaluate, compile, and publish systematically data for all areas of the physical sciences. The survey is an aid to planners of compilation programs in avoiding overlap of effort, in identifying gaps where work should be initiated, and in appraising standards of performance.

Administration and Coverage: The Office operates jointly under the following divisions of NAS-NRC: Chemistry and Chemical Technology, Earth Sciences, Engineering, and Physical Sciences. The Executive Committee of the OCT serves as the U. S. National Committee for CODATA and as a review committee for the National Standard Reference Data System. The Advisory Board is composed of representatives of prominent scientific, engineering, and technological organizations in the United States and of govern-

(continued)

E-29

Office of Critical Tables (continued)

ment agencies; and a number of members-at-large having special interest or competence in the compilation of critical data.

History and Status: The Office of Critical Tables was established in 1957 with recognition of the need to continue the types of activity which had produced the International Critical Tables of Numerical Data. An initial survey of data compilation activities was published in 1961, with a revision issued in 1966. The functions of the Office were modified by the establishment in 1963 of the National Standard Reference Data System which became the funding and operational focus in the United States for the collection and dissemination of critically evaluated numerical property values for pure substances. Besides its advisory obligations to the NSRDS, the OCT is increasingly occupied with national and international aspects of coordination and communication among compilers, particularly in the standardization of usage of symbols, terminology, and basic constants. It currently provides office space and partial staffing for the CODATA.

E-30

Office of Standard Reference Data (OSRD)

National Bureau of Standards
Institute for Basic Standards
Washington, D. C. 20234

Mission and Scope: In view of the National Bureau of Standards' responsibility for broad leadership of the national measurement system, the Office of Standard Reference Data has been established to activate and coordinate the National Standard Reference Data System (NSRDS). The basic objectives of the Office are: (1) To provide standard reference data to the technical community; (2) to coordinate standard reference data activities of DoD, AEC, NASA, NSF, Commerce, Interior, and other government agencies; (3) to operate a national standard reference data center at NBS; (4) to establish standards of quality for various products of the NSRDS; and (5) to establish standards of methodology and such other functions as are required to ensure the compatibility of all units of the NSRDS.

Administration and Coverage: OSRD has been established within the NBS Institute of Basic Standards with the assignment of coordination and contracting responsibility for the conduct of the NSRDS. The Office has no direct operational responsibility for the data evaluation centers, within and outside NBS, that constitute the NSRDS. The NSRDS is chartered to develop standard reference data for pure

(continued)

E-30

Office of Standard Reference Data (continued)

substances. For management purposes, the scope of data coverage has been divided into nuclear data, atomic and molecular data, solid state data, thermodynamics and transport data, chemical kinetics, colloid and surface properties, and mechanical properties. In each area, OSRD has made efforts to identify properties of interest, survey existing activities, establish priorities for expansion of existing projects and for initiation of new ones, and to enter into contractual or other financial arrangements with qualified scientists to undertake collection and evaluation of data within a specific area. To make products of the NSRDS available to users, the Office develops mechanisms for provision of publication, distribution, and user services.

History and Status: Following a recommendation by COSATI, the NSRDS was established by a directive in June, 1963, from the Office of Science and Technology. Advisory panels of specialists, some comprised of existing or slightly modified committees of the National Academy of Sciences-National Research Council and others specially assembled, have contributed to formulation and implementation of data collection and evaluation in specific areas. The areas of thermodynamics and transport properties and the atomic and molecular proper-

(continued)

E-30

Office of Standard Reference Data (continued)

ties have been judged to be of highest priority for initial effort. Studies are being set up and funding has been obtained for ten international efforts for development of standard reference data.

E-31

Pan American Institute of Geography and History (PAIGH)

Ex- Arzobispado #29
Mexico 18, D. F.

U. S. Office:

Chief Geographer
U. S. Geological Survey
Washington. D. C. 20242

Mission and Scope: PAIGH seeks to develop and disseminate geographical, historical, and related scientific studies and to initiate relevant investigations and activities. Its scientific activities include promoting the international exchange of scientific information and data, and acting in a planning capacity for cooperation in both research and its application in cartography, geography, and the geophysical sciences. Members are the governments of 21 American states, including Canada. Participants from the United States are representatives from the Army, Navy, Air Force, Geological Survey, ESSA, Bureau of the Census, Department of State, and Library of Congress.

Administration and Coverage: The organization coordinates cooperative research projects, establishes training centers, and contracts with experts who perform their assigned functions among governmental agencies, professional societies, and institutions of higher education of its member nations. Commissions on cartography,

(continued)

E-31

PAIGH (continued)

geography, and history have committees on such areas as geomagnetism and aeronomy, seismology, hydrography, regional and applied geography, oceanography, climatology, and anthropology. Special committees on oceanography and geophysical sciences, as well as reporting stations on volcanic activity, have been established.

History and Status: The organization was established in 1928, with the United States becoming a member in 1935. In 1949, it became a specialized organization of the Organization of American States (OAS). In 1961, the United States created a national section of the PAIGH, with functions including advising the Department of State and U. S. members of the Directing Council concerning the policies and programs of PAIGH. Meetings and work programs are continuing.

E-32

United States of America Standards Institute (USASI)

10 East 40th Street
New York, New York 10016

Mission and Scope: This is a nonprofit membership organization whose bylaws provide for representation from national trade, technical and professional groups, firms from commerce and industry, government agencies and departments, consumer groups, and similar organizations. The Institute serves as the national clearinghouse for standards and provides the machinery for developing and approving standards which are supported by a national consensus.

Administration and Coverage: Three councils make up the operating arms of the Institute -- the Member Body Council, in which the responsibility for the approval of standards rests, and the Company Member Council and the Consumer Council, both of which have an input into the standards program of the organization in that they can recommend standards projects to be developed. Each Council may establish such boards and committees as are considered necessary to accomplish its program. The Member Body Council develops and maintains all procedures relating to the preparation, approval, acceptance, and designation of standards, and the constitution of standards boards and committees. The Company
(continued)

E-32

USA Standards Institute (continued)

Member Council develops programs to maintain liaison with, and represent the interests of, commerce and industry in the work of the Institute. The Consumer Council is responsible for the representation and protection of the interests of the consuming public in the work of the Institute. It is also concerned with the application of the Institute's procedures for certification and labeling of consumer goods.

History and Status: USASI, which replaced the American Standards Association in 1966, was originally organized as the American Engineering Standards Committee in 1918 by five engineering societies, including the ASME and the ASTM. Three Government departments -- War, Navy, and Commerce -- were invited to join. Trade associations and further professional societies were added until incorporation in 1948. At this time, the 10 Member Bodies from Federal agencies were legally excluded. The reorganization in 1966 was a result of the desire to expand the program and accelerate the output of voluntary national standards. The Institute is the United States member of the International Organization for Standardization (ISO) which represents the national standards bodies of 52 countries.

E-33

U. S. Naval Ordnance Systems Command Documentation Management Branch

ORD-0452
Munitions Building
Washington, D. C. 20360

Mission and Scope: The technical documentation program's purpose is to provide the Fleet and fleet activities with technical information and instructions for the operation, maintenance, and training support of all weapons systems, equipment, components, and material under the cognizance of the Naval Ordnance Systems Command. The technical documentation is produced basically for the U. S. Navy; however, some support data are provided foreign navies.

Administration and Coverage: This Branch manages the program. It is concerned with making certain that adequate technical documentation is provided along with all ordnance hardware and that such documentation is being printed and made available for the users' needs. Coverage is in technical instruction manuals concerned with all aspects of ordnance weapons systems.

History and Status: The program has been in existence since 1850 and with the proliferation and sophistication of ordnance hardware has grown to nearly 44,000 volumes.

E-34

World Data Center-A, International Geophysical Year (IGY)

Geophysics Research Board
National Academy of Sciences-National Research Council
2101 Constitution Avenue, N. W.
Washington, D. C. 20418

Mission and Scope: This coordinating body is responsible for the archiving activities of eleven sub-centers, each of whose objectives are: Collecting a complete set of data in the field for which it is responsible, safekeeping of the incoming data, correct copying and reproduction of data, supplying copies to other World Data Centers, and preparing catalogues of all data in its charge. This activity is part of the international data exchange program set up by the International Council of Scientific Unions through its special committee for the International Geophysical Year (CSAGI). World Data Center-B is established in the USSR, and a third center, WDC-C is comprised of a number of discipline centers in various nations.

Administration and Coverage: The WDC-A Coordination Office is located in the National Academy of Sciences - National Research Council, Washington, D. C. The archives comprising the collections of data from the IGY are: Airglow and Ionosphere; Aurora (Instrumental); Aurora (Visual); Cosmic Rays; Geomagnetism, Gravity, and Seismology; Glaciology; Longitude and Latitude; Meteorology and Nuclear Radiation; Oceanography;

(continued)

E-34

World Data Center -A (continued)

Rockets and Satellites; Solar Activity.

History and Status: The World Data Center complex was established in 1956. With the termination of the IGY, the functions and responsibilities of the centers have been extended on a continuing basis to other activities, such as the International Years of the Quiet Sun 1964-1965, and are carried out in cooperation with the International Council of Scientific Unions. As some of the sub-centers completed their data tasks, locations were transferred and some archives consolidated. Those centers having to do with upper-atmosphere studies have been gradually transferred to a consolidated center in Boulder, Colorado under the aegis of ESSA. Those for meteorology and nuclear radiation are consolidated with the National Weather Records Center in Asheville, and the geomagnetics center with ESSA, Washington, D. C. The center on oceanography is maintained at the National Oceanographic Data Center; the Latitude and Longitude Center is part of the Nautical Almanac Office at the Naval Observatory in Washington, D. C. The Glaciology center remains with the American Geographical Society, and the NAS-NRC has retained administration of the Rockets and Satellites program.

E-35

World Weather Watch (WWW) of the World Meteorological Organization (WMO)

World Meteorological Organization
Case Postale No. 1
Geneva 20, Switzerland

Mission and Scope: WMO is encouraging interaction and member nation cooperation in pursuing the following objectives: (1) To facilitate building a network of stations for making meteorological observations; (2) To propose systems for exchanging meteorological information; (3) To promote standardization of weather observations and uniform publication of observations and statistics; (4) To further the application of meteorology to aviation, shipping, utilization of water resources, air pollution, etc.; and (5) To further research and training in meteorology and to help coordinate international activities in this respect.

Administration and Coverage: WMO, now a specialized agency of the United Nations, is a non-governmental organization composed of the directors of national meteorological services. It has been concentrating on the establishment of meteorological stations and training centers all over the world and has induced developing countries to expand their own services. WMO has incorporated the technologies of orbital weather satellites and automated data processing equipment in the design of a World Weather Watch (WWW).

(continued)

E-35

World Weather Watch (continued)

History and Status: WMO was initiated in 1950 as a replacement for the International Meteorological Organization and now has 132 members. Early decisions in the planning of the World Weather Watch established that there should be a number of world meteorological centers, forming an integral part of the global observing system. An integrated system of centers will eventually include world, regional, and national meteorological centers. Three world centers have been set up in Melbourne, Australia; Moscow, and Washington, D. C. Two streams of continuous and parallel action are being implemented: (1) The introduction of proven technology into the existing international meteorological system -- initial goals to be achieved by 1971; and (2) the development of new technology such as physical models of the atmosphere which can be used by high-speed electronic computers, meteorological satellites, horizontal sounding balloons, and automatic meteorological ocean buoys -- to have operational status in the early 1970's for incorporation into the first stream of development progress.

F. Non-Designated (Agency) Data Handling and Service Operations

1. Summary

Twelve typical data-handling and service operations associated with Governmental mission-oriented agency or department activities have been included in this section of the census. They were found to have a great many of the characteristics of formal data efforts in that they collected, processed, stored, published, analyzed, retrieved, or disseminated data. However, their operational motives were strictly in support of an overall mission of the agency or department in which they were located. There were no formally-organized operational contexts for these data activities -- that is, no budget had been allocated for data activities alone; and, if an office or special housing existed for the conduct of the data effort, research or related activities were frequently co-housed and jointly staffed.

Data in some of these operations (i.e., Department of Agriculture Pesticide Control Data Center and the Veterans Administration's system) are restricted in usage to participants in the mission program of the agency or department. Other data operations of this type publish or make available the data they have collected to the public or a sector of the private economy -- (e.g., Fish and Wildlife Service Publication Program, and the Department of Agriculture Forest Products Lab Publications).

In all but one of these efforts, the agency data activities are integrated into an overall mission of public service. The exception, the Atlantic Undersea Test and Evaluation Center (AUTEC), is a representative data effort, integrated with a large-scale research effort which generates great amounts of data in its testing and measuring studies. Although this effort now serves a restricted using group, its data by-product could perhaps be applied to use by a larger and less integrated user community. AUTEC is only one example of literally hundreds of such activities currently existing within the Federal Government, especially within DoD and NASA. For example, the NASA Apollo Program operates several dai efforts. Although these efforts appear to be formally structured, the operators reported that these efforts would be terminated at the completion of the Apollo Program; therefore, they should not

be included in the census. The question concerning inclusion or exclusion of these efforts is not particularly important since similar efforts within other agencies are included. However, it does appear important to consider the effectiveness of such efforts in performance of specific data management operations. Review of past practices indicates that the episodic operation of data efforts to support short-duration missions constitute an effective means to achieve the data-communications required to conduct the mission. However, such efforts currently contribute little or nothing to the longer range management of the data resource within the technology area. For example, operation of the Apollo Test and Reliability Information Center is important for intra-program coordination. However, it is questionable if data compiled by this Center is useful only to the Apollo Program or that the data should be abandoned upon completion of the Apollo Program. Rather, the Center should be operated and such data compiled with an awareness of possible applications in both concurrent and subsequent programs.

2. Directory of Typical Non-designated (Agency) Data Handling and Service Operations

F-1

Atlantic Undersea Test and Evaluation Center (AUTEC)

Department of the Navy, Headquarters
International Airport
West Palm Beach, Florida 33406

Purpose: AUTEC is a developing all-Navy network of deep water test ranges, instrumented to permit a wide variety of data collection by tests, measurements, and evaluations to be made under realistic deep sea conditions.

Coverage: Submarines, surface ships engaged in anti-submarine warfare, weapons, transducers, sonobuoy, sonars, fire control systems, etc.: Noise measurements, directivity studies, tracking, submerged tactical characteristics, alignment, testing, etc.

Operational Status: Center was commissioned in February, 1967, and will be operated under a 20-year agreement between the United States, Great Britain, and the Government of the Bahamas. The weapons range went into operation in late 1966 and the acoustic range has been installed with work on the sonar range beginning and scheduled for completion in 1970. Data gathered are available to all the material commands, operating commands, naval laboratories, and supporting Navy contractors and private institutions.

F-2

Cancer Chemotherapy Program Analysis Branch

National Institutes of Health
National Cancer Institute
7550 Wisconsin Avenue
Bethesda, Maryland 20014

Purpose: As part of the Cancer Chemotherapy Program"s continuing search for chemical compounds with an anti-tumor effect, the Branch collects and makes available test data on synthetic compounds, plant extracts, and fermentation products with potential anti-tumor activity.

Coverage: Materials of potential interest to cancer chemotherapy investigators: Ring system, functional group, fragment chain, specific element, alphabetic term, supplier, or any combination of these characteristics.

Operational Status: The Branch has been fully operational since 1956. Approximately 140,000 tests are processed annually and disseminated to some 1,600 users. About 15,000 new materials are introduced yearly.

F-3

Department of Agriculture Forest Products Lab Publications

Forest Products Lab
Walnut Street
Madison, Wisconsin 53705

Purpose: This data activity publishes handbooks on wood and wood products in support of the Department of Agriculture's program directed toward more efficient and diversified utilization of forest materials.

Coverage: Wood, wood fiber materials: Adhesive construction, laminated wood products, chemicals for wood, sandwich core materials and facings, packaging for air and surface transportation, physical and strength properties, improvements in the processing and protection, etc.

Operational Status: The publication program has been producing the handbooks and manuals on wood usage as part of its overall program since 1910. An average of 1,500 copies of each document are distributed.

F-4

Department of Agriculture Pesticide Control Data Center

Agriculture Research Service
Pesticides Regulation Division
Administrative Building
Washington, D. C. 20250

Purpose: The mission of the center is to check, record, and make available toxicity data relevant to all pesticides which are marketed on an interstate basis.

Coverage and Operational Status: Toxicity data are stored on index cards, one for each chemical compound used in formulating pesticides. The program covers all products sold in the United States whether they are produced by domestic or foreign firms. Use is primarily for the Pesticide Regulation Division, although the data are available to the Public Health Service and the FDA. Some of the data are proprietary and therefore not available to industry. The Center reviews formulations every five years.

F-5

Department of Interior Division of Pesticides Registration

Bureau of Sport Fisheries and Wildlife
Washington, D. C. 20240

Purpose: The data activities of this group are in support of the agency mission which is to review manufacturers' labels for pesticides for acceptance or rejection of application.

Coverage: Piscicides, hematocides, insecticides, molluscacides, acaricides, fungicides, herbicides, rodenticides, avicides: Physical and chemical properties, uses, type formation, targets, chemical names, trivial names, trade names, common names, peculiarities of chemical compounds, toxicities.

Operational Status: The program was initiated in 1966 and, at present, is in-house to facilitate label review. Approximately 8,000 items, each representing 10 or more types of data, are entered per year.

F-6

Fish and Wildlife Service Publication Program

U. S. Department of the Interior
Bureau of Commercial Fisheries
Washington, D. C. 20240

Purpose: The data-publishing program of the agency produces statistical volumes and compilations of unanalyzed and partially analyzed data used in the governmental and commercial fisheries.

Coverage: Volume and value of the catch of fishery products, employment in the fisheries, quantity of gear operated, number of fishing craft employed, volume and value of the production of processed fishery products, cold storage freezings and holdings, foreign trade in fishery commodities, etc.

Operational Status: The first complete survey of the fisheries of the U. S. was made by the Bureau of the Census in 1908 and have been made by the Bureau of Fisheries for the years 1931, 1950, 1954, 1960, 1962, 1963, and 1965. All appropriate records collected by the various State fishery agencies are used in assembling the data. The latest volume of Current Fishery Statistics totaled over 2,000 pages issued in 330 publications. Five Data Reports, 10 microfiches of 473 pages, were issued in 1966.

F-7

Food & Drug Administration Color and Cosmetics Data System

Bureau of Science
Division of Color and Cosmetics Chemistry, S-200
Division of Color Certification and Evaluation, S-300
200 C Street, S. W.
Washington, D. C. 20204

Purpose: By analyzing, collecting, and maintaining data, especially in the area of photometry, on chemical structures and compounds related to and used in cosmetics and colors, this agency activity fulfills its responsibility to meet statutory requirements in the subject area of the Federal Food, Drug, and Cosmetic Act.

Coverage: Spectrophotometric and chromatographic data on organic and inorganic chemicals: Color and cosmetic chemicals, oils-terpenes, perfumes, food color, surface color, etc.

Operational Status: The program was established in 1941 in response to the FD&C Act of 1938. It continues to publish appropriate Federal regulations.

F-8

Food & Drug Administration Instrument Systems Research Branch

Division of Pharmaceutical Sciences
Washington, D. C. 20204

Purpose: This agency data activity provides all FDA and other interested laboratories (state and commercial) optical and magnetic spectra of pharmaceuticals.

Coverage: Pharmaceuticals, ingredients, excipients, related substances: Infrared spectra, ultraviolet-visible spectra, NMR spectra, mass spectrographs (in the future).

Operational Status: The Branch was established in 1961 and has been fully operational since 1962 with the continuing responsibility to meet statutory requirements in the subject area of Federal Food, and Cosmetic Act. It has produced 746 spectra in three volumes to date and is adding about 100 to 150 per year.

F-9

Geological Survey Water-Supply Papers

U. S. Geological Survey
Water Resources Division
Room 1242 N
F Street between 18th and 19th Avenues, N. W.
Washington, D. C. 20240

Purpose: In line with the Geological Survey's mission to evaluate the water environment of the United States, this activity stores, retrieves, disseminates, analyzes, and publishes water data, including surface, quality, and ground water data.

Coverage: Water data: organic chemistry, inorganic chemistry, biochemistry, physical chemistry, spectrographic analysis, pesticides, temperature, specific conductance, PH, turbidity, oxygen content, etc.

Operational Status: The Survey data collection program began around 1890, with the first of five volumes now in publication produced in 1958. The general purpose of the section is to prepare computer programs for the computation, storage, and retrieval of water data.

F-10

Public Health Service National Center for Radiological Health

Bureau of Disease Prevention and Environmental Control
1901 Chapman Avenue
Rockville, Maryland 20852

Purpose: The Center collects, evaluates, collates, analyzes, and interprets pertinent national data in support of a national program for the prevention and control of radiological hazards to public health.

Coverage: Radiological health data: Sources, exposures, doses, equipment, materials, damage in mammalian systems, long term effects, etc.

Operational Status: The reorganization of the Public Health Service in January, 1967 changed the Division of Radiological Health of the former Bureau of State Services to its present Bureau. A full time staff of scientists and physicians composed of dentists, radiologists, radiological physicists, health physicists, industrial and sanitary engineers, chemists, etc. participate in the program. The center publishes its own data compilations, a major one being Radiological Health Data and Reports.

F-11

Public Health Service National Center for Urban and Industrial Health

Bureau of Disease Prevention and Environmental Control
6935 Wisconsin Avenue
Chevy Chase, Maryland 20015

Purpose: The Center collects, analyzes, evaluates, and repackages data and establishes criteria and standards in support of a national program for the prevention and control of environmental hazards and health problems.

Coverage: Data associated with urban living, transportation, and industry: Accidents, occupations, water supply, housing, solid waste disposal, salvage techniques, general sanitation, etc.

Operational Status: A reorganization of the Public Health Service in January, 1967 saw the formation of the Center from a number of divisions and offices of the now extinct Bureau of State Services. A broad range of specialists - biochemists, biologists, hydrologists, oceanographers, toxicologists, pharmacists, epidemiologists, etc. - participate in the program. Various data banks with both raw and evaluated data are located throughout the Center and form the base for the standards and measurements for which the Center is responsible. The Center publishes Environmental Health Series, Drinking Water Standards, and other compilations.

F-12

Veterans Administration Automated Management Information System for Department of Medicine and Surgery

Data Processing Centers
Hines, Illinois
and
Austin, Texas

Purpose: The data services of the system provide for the reporting of medical statistical data as a part of the overall agency's information management.

Coverage and Operational Status: Services, divisions, and units in the VA hospitals, outpatient clinics, domiciles, and restoration centers such as laboratories, pharmacies, prosthetics, libraries, etc. provide medical statistics and information. Data are processed at Centers on 36 different medical programs and placed on magnetic tapes for usage in various VA programs.

G. Small Evolving Data Handling and Service Operations

Several data activities identified as candidates for the preliminary census evidenced some of the characteristics of formal data efforts but have not evolved beyond the provision of bibliographic, referral, or very limited query answering services. Three that are listed are components of the National Standard Reference Data System but are still in the literature review or data collection stages with as yet limited compilation or evaluation activities. Five are typical evolving efforts of the agency mission-oriented type, and two are examples of information activities within the Atomic Energy Commission.

This census and previous studies have shown that data service centers which utilize the literature as the primary data source exhibit a characteristic evolutionary cycle, beginning with identification and collection of source documents, acquiring bibliographic control of source documents, characterizing data content of relevant documents, etc. until the center has evolved to a status which includes integration of all the operations required to provide a high quality data service to its users.

G-1 **Clinical Pathology Data Processing System**
National Institutes of Health
Bethesda, Maryland 20014

G-2 **Data Center for Binary Oxides**
Institute for Materials Research
National Bureau of Standards
Washington, D. C. 20234
Sponsor: Office of Standard Reference Data

G-3 **Data File of Wildlife Control Chemicals**
Denver Wildlife Research Center, Bldg. 45
Federal Center
Denver, Colorado 80225
Sponsor: Department of Interior

G-4 Diffusion in Metals and Alloys Data Center
Metal Physics Section
Institute for Materials Research
National Bureau of Standards
Washington, D. C. 20234
Sponsor: Office of Standard Reference Data

G-5 Home Economics Data Center
Consumer & Food Economics Research Division
U. S. Department of Agriculture
Federal Central Building
Hyattsville, Maryland 20781
Sponsor: Agriculture Research Service

G-6 Microwave Spectra
Institute for Basic Standards
National Bureau of Standards
Washington, D. C. 20234
Sponsor: Office of Standard Reference Data

G-7 Pesticide Registration Group
Department of Health, Education and Welfare
U. S. Public Health Service
Washington, D. C. 20203

G-8 Pesticide Residue Data Processing
Department of Fish and Game, Field Station
981 Sedsmith Drive
Sacramento, California

G-9 Reactor Physics Constants Center
Argonne National Laboratory
9700 South Cass Avenue
Argonne, Illinois 60439
Sponsors: AEC and University of Chicago

G-10 Shock Wave Data Center
Lawrence Radiation Laboratory
S Division
Post Office Box 808
Livermore, California 94550

LISTING OF DATA EFFORTS ACCORDING TO FIELD OF SCIENCE OR TECHNOLOGY

1. Aerospace Sciences and Space Technology

Aeronautical Chart and Information Center D39
Aeronautical Standards Group Publication Program B2
Air Force Global Weather Central C3
Air Force Still Photographic Depository D3
Atomic Collision Cross Sections Data Center C7
Atomic Transition Probabilities Data Center C10
Center for Diffusion in Gases C15
Computerized Data Storage and Retrieval System for Deployable Aero Decelerators C19
Deep Space Network (DSN) A2
Defense Metals Information Center (DMIC) C25
Directory of Technical Specifications B9
Electronic Parts for Space Applications Data C29
Environmental Technical Applications Center C32
Geomagnetic Data Center C37
Interagency Data Exchange Program (IDEP) E18
Jeppesen and Company Publications B13
Meteorological Rocket Network of the InterRange Instrumentation Group A4
National Aerospace Standards B16
National Environmental Satellite System A6
National Space Science Data Center (NSSDC) C59
Naval Air Systems Command (NAVAIR) Engineering Data Bank D18
Nimbus/ATS Data Utilization Center C61
Satellite Tracking and Data Acquisition Network (STADAN) A10
Society of Automotive Engineers (SAE) Data Publishing Program B22
Space Detection and Tracking Center (SPADATS) A11
Thomas Micro-Catalogs B26
TRANET Satellite Tracking Network A12
U. S. Army Aviation Materiel Command Technical Data Repository D29
U. S. Naval Training Device Center Drawing Control ... D35
U. S. Naval Weapons Center Document Depository D37
World Data Center-A, International Geophysical Year (IGY) E34

2. Agricultural and Food Technology

Advances in Chemistry Series B1
Animal Morbidity and Mortality Data System E6
Department of Agriculture Forest Products Lab Publications F3
Department of Agriculture Pesticide Control Data Center F4
Department of Interior Division of Pesticides Regulation F5
Fish and Wildlife Service Publication Program F6
Food & Drug Administration Color and Cosmetics Data System F7
Morton Collectanea C48
National Index of Fungus Cultures C54
National Water Data Program E28
Nutritional Data B19
Pesticide Registration Group G7
Pesticide Residue Data Processing G8
Sadtler Research Laboratories Data Program C60

3. Astronomy

Atomic Transition Probabilities Data Center C10
Central Bureau for Astronomical Telegrams A1
International Years of the Quiet Sun (IQSY) E21
Minor Planets Data Center C47
Planetary Research Center D25
World Data Center-A, International Geophysical Year (IGY) E34
Yale University Observatory Publications B32

4. Behavioral and Social Sciences

Bureau of Applied Social Science C12
Bureau of the Census C13
Bureau of Labor Statistics Information System C14
Council of Social Science Data Archives E11
Economic Growth Center at Yale University C28
Home Economics Data Center G5
Human Factors Task Data Center C38
International Data Library and Reference Service C40
International Development Data Bank C41
Latin American Data Bank C43
National Data Bank for Air Quality Data C52
National Opinion Research Center (NORC) C58
Pan American Institute of Geography and History (PAIGH) E31
Project TALENT Data Bank C65
Roper Public Opinion Research Center C68

5. Biological Sciences

Data File of Wildlife Control Chemicals G3
The McLean Card Catalogue of American Foraminifera B14
Morton Collectanea C48
Museum Information Retrieval System C49
National Center for Health Statistics C50
National Data Bank for Air Quality Data C52
National Index of Fungus Cultures C54
National Oceanographic Data Center (NODC) C57
National Science Foundation (NSF) Discipline-Based Information Program E26
Office of Biological Handbooks B20
Public Health Service National Center for Radiological Health F10

6. Chemistry and Chemical Engineering

Advances in Chemistry Series B1
Advisory Center on Toxicology C2
American Petroleum Institute (API) Research Project 44 ..... C6
Atomic and Molecular Physical Data Program C8
Cancer Chemotherapy Program Analysis Branch F2
Center for Diffusion in Gases C15
Chemical Information and Data System (CIDS) E7
Chemical Thermodynamics Data Group C17
Cryogenic Data Center, Cryogenic Data Compilation Unit C22

LISTING OF DATA EFFORTS ACCORDING TO FIELD OF SCIENCE OR TECHNOLOGY

6. Chemistry and Chemical Engineering (Continued)

Crystal Data Center C23
Data File of Wildlife Control Chemicals G3
Department of Interior Division of Pesticides Regulation F5
Fleet Numerical Weather Facility (FNWF) C33
Fused Salts Information Center C34
Geochemical Census Branch, U.S. Geological Survey C36
Geological Survey Water-Supply Papers F9
High Resolution NMR Spectra Catalogs B11
The Isotope Datadex B12
Joint Army-Navy-Air Force Thermochemical Tables (JANAF) C42
National Science Foundation (NSF) Discipline-Based Information Program E26
Office of Critical Tables (OCT) E29
Office of Standard Reference Data (OSRD) E30
Pesticide Registration Group G7
Pesticide Residue Data Processing G8
Powder Diffraction Standards Data Program C64
Radiation Chemistry Data Center C66
The Rubber Formulary B21
Sadtler Research Laboratories Data Program C69
Thermodynamics Research Center C76
Toxicological Information Center C78

7. Environmental Sciences and Related Technologies

Air Force Global Weather Central C3
Air Quality and Emission Data Program E2
Army Map Service D6
Computerized Mapping of Disease Project (MOD) C20
Deep Space Network (DSN) A2
Environmental Technical Applications Center C32
Federal Committee for Meteorological Services and Supporting Research E15
Geochemical Census Branch, U.S. Geological Survey C36
Geodex International, Inc. Data Publishing Program B10
Geological Survey Water-Supply Papers F9
Geomagnetic Data Center C37
Global Atmospheric Research Program (GARP) E17
Hydrography and Oceanography Data Center C39
International Ice Patrol A3
International Year of the Quiet Sun (IQSY) F21
The McLean Card Catalogue of American Foraminifera B14
Meteorological Rocket Network of the InterRange Instrumentation Group A4
National Air Surveillance Networks (NASN) A5
National Data Bank for Air Quality Data C52
National Environmental Satellite System A6
National Meteorological Center (NMC) C55
National Oceanographic Data Center (NODC) C57
National Science Foundation (NSF) Discipline-Based Information Program E26
National Upper-Air Network A7
National Water Data Program E28
National Weather Records Center (NWRC) and National Geodetic Data Center (NGDC) C60
Naval Environmental Data Network A8
Nimbus/ATS Data Utilization Center C61
Pan American Institute of Geography and History (PAIGH) E31
Project VELA Seismographic Network A9
Public Health Service National Center for Urban and Industrial Health F11
Solar Forecast Facility C72
Statistics of Drilling & Related Data for Oil & Gas Industry B23
TRANET Satellite Tracking Network A12
Volcanic Activity Network A13
World Data Center-A, International Geophysical Year (IGY) E34
World Magnetic Survey(WMS) A14
World Weather Watch (WWW) of the World Meteorological Organization E35
Worldwide Standardized Seismographic Network A15

8. Electronics and Electrical Engineering

Aeronautical Standards Group Publication Program B2
Army Mobility Equipment Document Depository D7
DATA, Inc. (Derivation and Tabulation Associates) B8
Directory of Technical Specifications B9
Electronic Parts for Space Applications Data C29
Electronic Properties Information Center (EPIC) C30
Engineering Data Systems (EDS) D12
Fort Monmouth Electronics Command Engineering Drawing Repository D14
Harry Diamond Laboratories (HDL) Engineering Document Depository D16
Interagency Data Exchange Program (IDEP) E18
Microelectronics Device Data Bank C46
Microwave Spectra G6
Naval Air Systems Command (NAVAIR) Engineering Data Bank D18
Reliability Analysis Central C67
Systems Effectiveness Program, Military Construction Facilities C74
Tabulation of Data on Receiving Tubes B25
Thomas Micro-Catalogs B26
Tri-Service and NASA Failure Rate Data (FARADA Program) C79
U.S. Naval Avionics Facility (NAFI) Automated Data Processing and Control System for Test Equipment C80
U.S. Naval Failure Rate Data Program (FARADA) C81

9. Medical and Health Sciences and Equipment

Advisory Center on Toxicology C2
Air Quality and Emission Data Program E2
Automated Hospital Information System (AHIS) C11
Cancer Chemotherapy Program Analysis Branch F2
Clinical Pathology Data Processing System G1
Computerized Mapping of Disease Project (MOD) C20

LISTING OF DATA EFFORTS ACCORDING TO FIELD OF SCIENCE OR TECHNOLOGY

9. Medical and Health Sciences and Equipment (Continued)

Drug Information Association E13
Memorial Radiation Center for Cancer and Allied Diseases C45
Microwave Spectra G6
Morton Collectanea C48
National Air Surveillance Networks (NASN) A5
National Center for Health Statistics C50
National Clearinghouse for Poison Control Centers C51
National Data Bank for Air Quality Data C52
National Disease and Therapeutic Index C53
National Index of Fungus Cultures C54
New Drugs B18
Nutritional Data B19
Office of Biological Handbooks B20
Pesticide Residue Data Processing G8
Public Health Service National Center for Radiological Health F10
Public Health Service National Center for Urban and Industrial Health F11
Smith, Kline and French Chemical Data System C71
STORET System C73
United States Pharmacopeial Publishing Program B27
Veterans Administration Automated Management Information System for Department of Medicine and Surgery F12
Veterinary Medical Data Program C82

10. Materials Engineering and Technologies

AEC Engineering Materials Document Depository D1
Aeronautical Standards Group Publication Program B2
Air Force Machinability Data Center C4
Air Force Materials Information Centers Program E1
Alcoa Technical Handbooks B3
Alloy Data Center C5
American Institute of Steel Construction Technical Publications B4
American Society for Testing and Materials (ASTM) Numerical Data Project E5
American Society for Testing and Materials (ASTM) Publication Program B6
Copper Development Association Technical Data Center C21
Crystal Data Center C23
Data Center for Binary Oxides G2
Defense Industrial Supply Center (DISC) Technical Document Depository D9
Defense Metals Information Center DMIC) C25
Department of Agriculture Forest Products Lab Publications F3
Diffusion in Metals and Alloys Data Center G4
Eastman Plastics Division Color Data Bank C27
Electronic Parts for Space Applications Data C29
Electronic Properties Information Center (EPIC) C30
Engineering Materials and Processes Information Service (EMPIS) C31
Engineers Joint Council (EJC) Information Systems Committee E14
Geodex International, Inc. Data Publishing Program B10
Mechanical Properties Data Center C44
Metal Properties Council E23
Metals Handbook B15
Microwave Spectra G6
National Aerospace Standards B16
National Security Industrial Association (NSIA) Information Advisory Committee E27
Parts Reliability Information Center/Apollo Parts Information Center (PRINCE/APIC) C63
Powder Diffraction Standards Data Program C64
The Rubber Formulary B21
Society of Automotive Engineers (SAE) Data Publishing Program B22
Thermodynamic Properties of Metals and Alloys Data Program C75
Thermophysical Properties Research Center (TPRC) C77
Thomas Micro-Catalogs B26
Tin Research Institute Data-Document Depository D27

11. Mechanical Engineering & Machine Technology

Air Force Machinability Data Center C4
Alcoa Technical Handbooks B3
American Institute of Steel Construction Technical Publications B4
American Society of Mechanical Engineers (ASME) Technical Data Program B5
Army Mobility Equipment Document Depository D7
ASHRAE Guide and Data Book B7
Data Center for Binary Oxides G2
Diffusion in Metals and Alloys Data Center G4
Engineering, Drawings and Microfilm Section, Navy Publications and Printing Service D13
Geodex International, Inc. Data Publishing Program B10
Harry Diamond Laboratories (HDL) Engineering Document Depository D16
Metal Properties Council E23
Metals Handbook B15
Microwave Spectra G6
Naval Air Systems Command (NAVAIR) Engineering Data Bank D18
Society of Automotive Engineers (SAE) Data Publishing Program B22
Thomas Micro-Catalogs B26
Tri-Service and NASA Failure Rate Data (FARADA) Program C79
U.S. Army Tank Automotive Command Engineering Drawing Repository D31
U.S. Naval Facilities Plan Files Section D32
U.S. Naval Failure Rate Data Program (FARADA) C81

12. Methods and Equipment

AEC Engineering Materials Document Depository D1
American Society for Testing and Materials (ASTM) Publication Program B6
Copper Development Association Technical Data Center C21
Data Center for Binary Oxides G2
Defense Industrial Supply Center (DISC) Technical Document Depository D9

LISTING OF DATA EFFORTS ACCORDING TO FIELD OF SCIENCE OR TECHNOLOGY

12. Methods and Equipment (Continued)

Defense Logistics Services Center (DLSC) D10
Diffusion in Metals and Alloys Data Center G4
Directory of Technical Specification B9
Interagency Data Exchange Program (IDEP) E18
Marine Corps Central Technical Data Repository..... D17
Microwave Spectra..... G6
National Conference of Standards Laboratories (NCSL)..... E25
National Security Industrial Association (NSIA) Information Advisory Committee..... E27
Naval Supply Depot D22
Parts Reliability Information Center/Apollo Parts Information Center (PRINCE/APIC) C63
Picatinny Arsenal Engineering Data Micro-Reproduction System D24
Reliability Analysis Central..... C67
Rock Island Arsenal Engineering Drawing Repository .. D26
Society of Automotive Engineers (SAE) Data Publishing Program..... B22
Thomas Micro-Catalogs B26
Tri-Service and NASA Failure Rate Data (FARADA) Program..... C79
U.S. Army Natick Laboratory Support Office D30
U.S. Naval Avionics Facility (NAFI) Automated Data Processing and Control System for Test Equipment..... C80
U.S. Naval Failure Rate Data Program (FARADA) .. . C81

13. Military Sciences and Ordnance

Aeronautical Chart and Information Center D39
Aeronautical Standards Group Publication Program.... B2
Air Force Global Weather Central..... C3
Air Force Materials Information Centers Program.... E1
Air Force Motion Picture Depository D2
Air Force Still Photographic Depository..... D3
American Ordnance Association (AOA) Engineering Data Management Section E4
Army Data Retrieval Engineering Systems (ADRES)... D5
Army Map Service..... D6
Army Mobility Equipment Document Depository D7
Atlantic Undersea Test and Evaluation Center (AUTEC)..... F1
Chemical Information and Data System (CIDS)..... E7
Computerized Data Storage and Retrieval System for Deployable Aero Decelerators..... C19
DASA Information and Analysis Center (DASIAC)..... C24
Data Automation Retrieval Equipment (DARE)..... D8
Data Center for Binary Oxides G2
DATA, Inc. (Derivation and Tabulation Associates).... B8
Defense Industrial Supply Center (DISC) Technical Document Depository..... D9
Defense Logistics Services Center (DLSC)..... D10
Defense Metals Information Center (DMIC) C25
Diffusion in Metals and Alloys Data Center..... G4
Edgewood Arsenal Engineering Document Repository .. D11
Engineering Data Systems (EDS)..... D12
Engineering, Drawings and Microfilm Section, Navy Publications and Printing Service..... D13
Environmental Technical Applications Center..... C32
Federal Item Identification Guides (FIIG) Improvement Project..... E16
Forth Monmouth Electronics Command Engineering Drawing Repository D14
Frankford Arsenal Engineering Drawing Repository... D15
Harry Diamond Laboratories (HDL) Engineering Document Depository..... D16
Human Factors Task Data Center..... C38
Interagency Data Exchange Program (IDEP) E18
Marine Corps Central Technical Data Repository..... D17
Microwave Spectra..... G6
National Security Industrial Association (NSIA) Information Advisory Committee..... E27
Naval Air Systems Command (NAVAIR) Engineering Data Bank..... D18
Naval Environmental Data Network A8
Naval Ordnance Central Technical Documents Office.. D19
Naval Ordnance Engineering Drawing Depository D20
Naval Ship Missile Systems Engineering Data-Document Repository..... D21
Naval Supply Depot..... D22
Nuclear Ordnance Commodity Data Support Center.... D23
Picatinny Arsenal Engineering Data Micro-Reproduction System D24
Rock Island Arsenal Engineering Drawing Repository D26
Solar Forecast Facility..... C72
Space Detection and Tracking Center (SPADATS)..... A11
Systems Effectiveness Program, Military Construction Facilities..... C74
Thomas Micro-Catalogs..... B26
TRANET Satellite Tracking Network..... A12
U.S. Air Force Engineering Data Support Center..... D28
U.S. Army Aviation Materiel Command Technical Data Repository..... D29
U.S. Army Natick Laboratory Support Office D30
U.S. Army Tank Automotive Command Engineering Drawing Repository D31
U.S. Naval Ammunition Depot Library Engineering Data Branch..... D32
U.S. Naval Avionics Facility (NAFI) Automated Data Processing and Control System for Test Equipment..... C80
U.S. Naval Facilities Plan Files Section D33
U.S. Naval Mine Engineering Depository..... D34
U.S. Naval Ordnance Systems Command Documentation Management Branch E33
U.S. Naval Ordnance Systems Command Technical Manual Program..... B29
U.S. Naval Publication and Printing Service..... B30
U.S. Naval Training Device Center Drawing Control.. D35
U.S. Naval Underwater Weapons Research and Engineering Station Documentation Support Department..... D36
U.S. Naval Weapons Center Document Depository.... D37
Watervliet Arsenal Engineering Records Section D38

LISTING OF DATA EFFORTS ACCORDING TO FIELD OF SCIENCE OR TECHNOLOGY

14. Nuclear Sciences and Related Technologies

Accelerator Information Center C1
AEC Engineering Materials Document Depository D1
Agronne Code Center D4
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Computer Index Neutron Data (CINDA) C18
DASA Information and Analysis Center (DASIAC) C24
Data Center for Binary Oxides G2
Diffusion in Metals and Alloys Data Center G4
Fused Salts Information Center C34
Gamma Ray Spectrum Catalogue C35
International Nuclear Data Committee E20
The Isotope Datadex B12
Microwave Spectra G6
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Nuclear Data Project C62
Nuclear Ordnance Commodity Data Support Center D23
Public Health Service National Center for Radiological Health F10
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Reactor Physics Constants Center G9
Scientific Information Systems Group C70
Shock Wave Data Center G10
Thermodynamic Properties of Metals and Alloys Data Program C75
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15. Oceanography and Marine Technologies

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16. Pharmacology

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Atomic and Molecular Processes Information Center C9
Atomic Collision Cross Sections Data Center C7
Atomic Transition Probabilities Data Center C10
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LISTING OF DATA EFFORTS ACCORDING TO FIELD OF SCIENCE OR TECHNOLOGY

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Sadtler Research Laboratories Data Program C69
Shock Wave Data Center G10
Thermodynamic Properties of Metals and Alloys Data Program C75
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USA Standards B28
Visual Search Microfilm Files (V. S. M. F.) B31

UNCLASSIFIED
Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1 ORIGINATING ACTIVITY (Corporate author) Science Communication, Inc. 1050 31st Street, N. W. Washington, D. C. 200 07	2a. REPORT SECURITY CLASSIFICATION Unclassified 2b. GROUP NA

3 REPORT TITLE

Study of Scientific and Technical Data Activities in The United States
Volume II - Preliminary Census of Scientific and Technical Data Activities

4 DESCRIPTIVE NOTES (Type of report and inclusive dates)

Final Report

5 AUTHOR(S) (First name, middle initial, last name)

6 REPORT DATE 30 April 1968	7a. TOTAL NO. OF PAGES 874	7b. NO OF REFS
8a. CONTRACT OR GRANT NO. Contract F44620-67-C-0022 b. PROJECT NO ARPA Order 892 as amended c d.	9a. ORIGINATOR'S REPORT NUMBER(S) 9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	

10 DISTRIBUTION STATEMENT

11 SUPPLEMENTARY NOTES	12 SPONSORING MILITARY ACTIVITY AFOSR ~~Office of Aerospace Research~~ 1400 Wilson Boulevard Arlington, Virginia 22209

13 ABSTRACT

This volume presents the findings from a preliminary survey of scientific and technical data activities in industry, the professions, and government. The purpose of the survey was compilation of information which could support the development of national policies and plans with respect to data management and data handling systems. The survey constitutes one of a complementary set of exploratory studies sponsored by the Task Group on National System(s) of the Committee on Scientific and Technical Information (COSATI). COSATI is a committee of the Federal Council for Science and Technology.

The survey scope, roughly defined, includes the more important data activities supporting our national science-technology effort. Emphasis is directed to those data activities and formal data handling efforts which would most likely be considered in conjunction with planning and development of national data systems.

This volume consists of three parts. Part A presents scenarios of data activities in ten selected fields of science or technology. Each scenario covers the characteristics of data, data flows, formal data efforts, and representative data related problems or issues identifiable with the field. The fields covered are aerospace science and technology, electronics and electrical engineering, materials science

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DD FORM 1 NOV 65 1473

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14 KEY WORDS	LINK A		LINK B		LINK C	
	ROLE	WT	ROLE	WT	ROLE	WT
Scientific data						
Technical data						
Data management						
National data systems						
Data handling systems						
Scientific communications						
Data storage and retrieval						
Data collection networks						
Data service centers						
Data libraries						
Data processing						
Computers						
Microfilming						

13. ABSTRACT (continued)

and engineering, chemistry and chemical engineering, agriculture and food technology. biomedical sciences, pharmacology, social and behavioral sciences, environmental and geosciences, and oceanography. A supplementary scenario describes data activities as conducted within the research, developmental, and applications phases of scientific and technological activity.

Part B summarizes results from probes of selected areas of scientific and technical data activity. Areas probed include data activities of medical research institutions, professional societies and trade associations, commercial data processing service centers, and U. S. Army research, development, test and evaluation activities. Part B also includes a review of equipment capabilities.

Part C consists of a preliminary census of 226 formal data efforts which are representative of those efforts currently operating in the United States. The following types of data efforts are included in the census: Data service centers, Data-document depositories, Data program development and coordination, Non-designated (Agency) data handling and service operations, and Small evolving data handling and service operations.

The information contained in this volume supported the preparation of a plan for actions to improve existing data systems and to further explore the feasibility of national data system concepts. This plan is outlined in Volume I of this report.

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