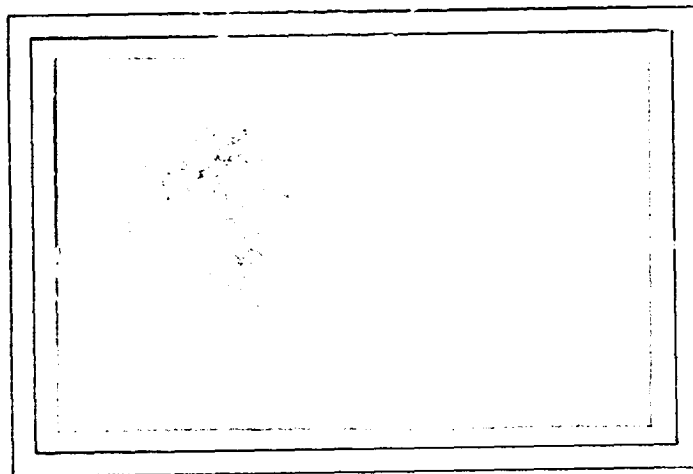


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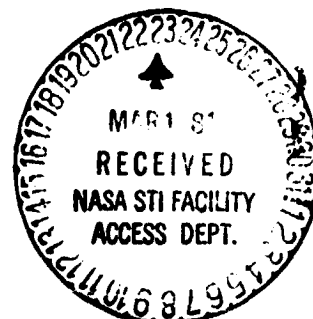
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NALNET BOOK SYSTEM!
COST BENEFIT STUDY

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EXECUTIVE SUMMARY

The purpose of this study was to determine the most cost-effective means of meeting NASA's requirements for an automated book system. Based on the characteristics of the current book system, the needs of the NASA Center libraries, and the state-of-the-art in library automation, the study examined possible configurations for a book system that would build on the present, provide for the immediate future, and accommodate to developing trends.

Our approach was to determine the goals of NASA's library network system, NALNET; the functions of the current book system; the products and services of a book system deemed desirable or necessary by NASA Center libraries, and the characteristics of a system that would best supply those products and services.

We set out to evaluate the following operating modes:

1. The current STIMS file mode assuming an acceptable level of data verification exists.
2. The PUBFILE mode assuming the file is brought up to date and an acceptable level of data verification exists. The RECON display and search capability are to be retained essentially as in Mode 1 above.
3. Mode 1, above, except developing software improvements for products as appropriate to the baseline Center needs.
4. Mode 2, above, except developing software improvements for products as appropriate to a baseline set of Center needs.
5. Mode 1, above, except that cataloging and products would be obtained from the most cost/beneficial source including at least OCLC, RLIN, BNA and STIF where STIF would remain as a

source for all NASA library book information suitable for RECON retrieval, interlibrary loan, the Union COM Index, and the Union Accession List.

6. Mode 2, above, except that cataloging and products would be obtained from the most cost/beneficial source including at least OCLC, RLIN, BNA and STIF, where STIF would remain as a source for all NASA library book information suitable for RECON retrieval, interlibrary loan, Union COM Index, and the Union Accession List.

We are recommending that NALNET adopt mode 5. Specifically:

1. Cataloging should be the responsibility of the NASA Center libraries. Each library should be free to choose the most cost-effective source of its own local cataloging, considering the individual library's needs for cataloging and catalog products; its current situation; and its evaluation of the related services offered by the bibliographic utilities and other automated systems. Cataloging should not be centralized at STIF.
2. Each library should be strongly encouraged to adopt a system that provides MARC format cataloging records for contribution to NALNET, preferably a bibliographic utility. A standard format will reduce the problems of integrating records and enable the libraries to take advantage of vendor services, such as interlibrary loan and circulation control, if they so desire.
3. The Facility's major responsibility should be the maintenance of the book database. This includes enforcing standards for the records to be entered, reconciling variant records for the same title, and correcting errors in the database. A high priority should be placed on the timely addition of cataloging records and holdings information to the database.

4. The Facility should be encouraged to subscribe to one or more bibliographic utility(s) itself, for purposes of checking and reconciling records submitted for the NALNET database, to speed up whatever input cataloging it still provides, and to eliminate as much as possible of the keying function at STIF.
5. The NALNET book file should be managed primarily as a union finding list. It should not attempt to provide local cataloging products, but should concentrate on gathering and standardizing the records of the holdings of the NASA libraries. STIMS should remain the system used, but the STIMS database must be upgraded.
6. In addition, standards need to be developed for the records going into the database, to reduce the inconsistency that leads to duplication of records.
7. The book file should function secondarily as an information retrieval system. The sophisticated search capabilities of RECON make the book file a valuable tool in identifying needed book titles, whether or not they are held by NASA libraries.
8. The only products generated from the book file should be those readily produced under STIMS and demanded by the Center libraries. These include:
 - a. Local accessions lists as requested.
 - b. A union accessions list.
 - c. An annual or biennial KWIC on COM.
 - d. Book surplus lists on demand.

The network's card production capability should be phased out as quickly as possible.

A major premise of all these recommendations is that, given the current state-of-the-art in library automation in general and in bibliographic utilities in particular, it is not cost-effective for NASA to try to maintain a full-range of cataloging services on its own system, be that STIMS or PUBFILE. The automation of cataloging services requires more than the simple mechanization of what was a manual operation. The bibliographic utilities draw on large teams of specialists in this area to stay ahead of the state-of-the-art. They conduct research into catalog-related areas; for example, currently both OCLC and ERLIN are researching patron-access online catalogs. The costs of developing and maintaining these systems are shared among large numbers of libraries (over 2,300 use OCLC). In addition, the utilities are designed to be flexible, to accommodate the different needs of different libraries, and to provide a large range of related services on demand. The result is that the bibliographic utilities can support higher quality systems with a greater range of services at a lower total cost to NASA.

1. INTRODUCTION

1.1 Purpose of the Study

The purpose of this study was to determine the most cost-effective means of meeting NASA's requirements for an automated book system. Based on the characteristics of the current book system, the needs of the NASA Center libraries, and the state-of-the-art in library automation, the study examined possible configurations for a book system that would build on the present, provide for the immediate future, and accommodate to developing trends.

1.2 Approach

Our approach was to determine the goals of NASA's library network system, NALNET; the functions of the current book system; the products and services of a book system deemed desirable or necessary by NASA Center libraries; and the characteristics of a system that would best supply those products and services.

We set out to evaluate the following operating modes, as described in the NASA Statement of Work for this study:

1. The current STIMS file mode assuming an acceptable level of data verification exists.
2. The PUBFILE mode assuming the file is brought up to date and an acceptable level of data verification exists. The RECON display and search capability are to be retained essentially as in Mode 1 above.
3. Mode 1, above, except developing software improvements for products as appropriate to the baseline Center needs.
4. Mode 2, above, except developing software improvements for products as appropriate to a baseline set of Center needs.

5. Mode 1, above, except that cataloging and products would be obtained from the most cost/beneficial source including at least OCLC, RLIN, BNA and STIF where STIF would remain as a source for all NASA library book information suitable for RECON retrieval, interlibrary loan, the Union COM Index, and the Union Accession List.
6. Mode 2, above, except that cataloging and products would be obtained from the most cost/beneficial source including at least OCLC, RLIN, BNA and STIF, where STIF would remain as a source for all NASA library book information suitable for RECON retrieval, interlibrary loan, Union COM Index, and the Union Accession List.

Our study encompassed these five tasks:

1. Review of the current book system;
2. Review of NASA Center library requirements;
3. Examination of the current state-of-the-art in library automation and projected changes;
4. Development and evaluation of alternative approaches;
5. Preparation of recommendations.

Specific activities undertaken included discussions with management personnel within NASA; with the current Scientific and Technical Information Facility (STIF) contractor, Planning Research Corporation, and with the former contractor, Informatics, Inc.; visits to ten NASA Center libraries and phone interviews with the remaining two libraries; an examination of the available documentation on the NALNET system; and discussions with various vendors and brokers of automated library services. We also collected statistical information from the NASA Center libraries on their volume of book system-related activity and their cataloging costs.

The NASA Library Network (NALNET) was established to provide expanded and improved products and services for users and to lower costs through coordinated activities. To this end, the network maintains a central database including files of bibliographic records for books, journal articles, and reports. These files are accessible through an online retrieval system (NASA/RECON) which offers flexible searching of the various databases. The computer system is maintained by the NASA Scientific and Technical Information Facility, which is operated by the Planning Research Corporation (PRC) under contract.

The NASA libraries have in common their agency affiliation, their subject interest in space technologies, and their function of supplying information services to their users. But these libraries have differences also. The director of each library reports to the manager of the Center in which the library is housed. The Centers themselves differ according to their administrative arrangements and missions, which create different constraints on the libraries' operations and different information needs on the parts of their users. The libraries are also geographically dispersed, and located in areas which differ in their availability of other information resources.

Most library networks are voluntary associations of autonomous libraries in which the impetus for network activity comes from the member libraries. The network engages in activities and provides products and services according to the desires of the libraries. NALNET differs from this in being more of a top-down network. NALNET activities are the responsibility of a Library Coordinator located at NASA Headquarters. Although Headquarters has no direct authority over the libraries, decisions about NALNET are more often made at the Headquarters level, with the libraries reacting to, rather than initiating, such decisions. The Coordinator is also the link between the libraries and STIF.

NALNET is just one of several organizations within which each of the Center libraries operate. Each NASA library is, of course, a part of its own Center. Most of the libraries have formal or informal cooperative arrangements with other libraries in their geographical areas. Currently two of the libraries

are users of bibliographic utilities, which links them with the other libraries using that same utility. The NASA libraries, as Federal libraries, also have ties with other Federal libraries, usually the ones in a library's same geographical area.

1.4 The Scientific and Technical Information Facility

The NASA Scientific and Technical Information Facility (STIF) is a government-owned, contractor-operated information processing facility near Baltimore, Maryland. The Facility, aided by the Technical Information Service of the American Institute of Aeronautics and Astronautics (AIAA), provides the major operational support for NASA's scientific and technical information system.

The Facility is composed of six divisions which carry out 16 projects as described in the Facility contractor's Statement of Work. Table 1 shows the assignment of the projects to divisions:

TABLE 1. ASSIGNMENT OF PROJECTS TO FACILITY DIVISIONS

Facility Division	Statement of Work, Project Number and Name
1. NALNET Services	3.00. Library Series Input 7.00. Library Publications and Products
2. Document Processing	1.00. Acquisition 2.00. Document Series Input 5.00. Announcement Media 6.00. Bibliographies and Publications 8.00. Indexing and Listings
3. User Services	4.00. Support Series Input 9.00. Literature Searches 10.00. Microfiche Production 11.00. User Registration and Document Supply 12.00. Support Operations
4. Computer Services	13.00. ADP Support
5. Applications Systems	14.00. Systems Studies 15.00. Systems Support 16.00. Systems Development
6. Technology Transfer (a public relations interface of NASA technology with the public, e.g., with companies which could use the technology for development of new products)	Supports portions of various projects

Earl Watterson, NALNET Services head, views NALNET Services, Document Processing and Technology Transfer as "sister" divisions, since each is processing information items and providing products and services. These three divisions are, in turn, supported by User Services, Computer Services, and Applications Systems.

The Facility's direction comes from NASA Headquarters' Scientific and Technical Information Branch (STIB): the Statement of Work outlines the scope, project structure, and requirements and responsibilities of the contract; product and service specifications supplement the Statement of Work; Technical Directives are issued periodically to give more specific direction to tasks, to supply Center input, or to request Facility management reports.

The Facility acquires, abstracts and indexes report literature in aerospace technology, while AIAA processes the corresponding technical journal literature. The citations and abstracts for reports and journal articles are stored in the Facility's computer for user online access. Other Facility activities include publication of the abstract journals Scientific and Technical Aerospace Reports (STAR) and Limited Scientific and Technical Aerospace Reports (LSTAR), and preparation of specialized bibliographies, such as Computer Program Abstracts and Earth Resources. Selected Current Aerospace Notices (SCAN) is a series of approximately 190 semi-monthly current awareness bibliographic publications citing selected documents from STAR and International Aerospace Abstracts (IAA).

The Facility maintains and updates the current approved subject terms and cross references in the NASA Thesaurus. It also produces and distributes microfiche for most documents covered by STAR and LSTAR and provides literature searches for those authorized users who do not have online access to the database.

The Facility's computerized system, called NASA/RECON, is available to NASA scientists and engineers, both civil servants and contractors, to conduct their own literature searches. The RECON system is used for information retrieval

is an online, time-shared, and real-time system comprised of the central computer (the IBM 360/65 at the Facility), an information storage facility, and the RECON terminals located in NASA Centers.

The file management system currently being used to handle this information flow is the Scientific and Technical Information Modular System (STIMS). It is a batch-oriented, table-driven file management system that provides database management, search and retrieval, output formatting, and publications-generating capabilities. STIMS was originally designed to handle the scientific and technical report literature, but is being applied to other types of files.

1.5 The Book System

One of the NASA/RECON databases is the NALNET Book File (the V-10,000 Series database). The book file is the heart of the NASA book system, which is designed to provide NASA libraries and their users with improved control of and access to monographic literature. The book file database consists of bibliographic citations to the post-1968 books held by NASA Center libraries except National Space Technology Laboratories (NSTL); some earlier titles for selected other Center libraries; the MARC (Library of Congress cataloging) records for post-1968 titles falling into Library of Congress subject classes of interest to NASA; and the book holdings of AIAA, the American Institute of Aeronautics and Astronautics, which are currently being added.

The libraries' holdings are added to the database in the form of catalog records. As part of the book system operations, the NASA Facility maintains a central cataloging unit to catalog books for the Center libraries which choose to contract for that service. These records are then added to the database and provided to the contracting libraries in the form of catalog cards. Libraries not using the central cataloging facility provide copies of their own cataloging records to the Facility to be added to the database.

The Facility uses the database to generate a number of catalog-related products designed to meet the needs of the individual libraries and of the network as a whole. The catalog cards provided by the central cataloging unit are one of

these products. Other individual library products included in the Facility work statement include local book accessions lists, shelf lists, COM catalogs, book labels, circulation cards, and surplus books lists. Union products which incorporate records for and are provided to all the libraries include a union book accessions list and a union list of books on COM. Not all of these products are being generated currently; Section 2.3 describes the current products.

1.6 The Present Study

The present study was commissioned in response to the concerns expressed in the Book Committee Report about the development of PUBFILE. As noted above, this was to be a cost-effectiveness study, and not just a cost study. The difference between the two is that we were concerned not only with costs but with effectiveness, that is, with what the book system needs to be able to do, as well as the cost of doing so. In our discussions with the various stakeholders in this study, it immediately became apparent that the most basic question that we had to answer was what products and services did the NASA Center libraries need from the book system. PUBFILE was developed to meet product specifications which the contractor felt could not be met with STIMS. A fundamental question is whether the libraries currently need those products and would accept them centrally-produced; a second question is whether they can be produced by STIF at an acceptable level of quality and at a cost competitive with alternative sources.

The report that follows documents our findings. Section 2 presents our description of the current STIMS-based book system and the proposed PUBFILE system. Section 3 contains our analysis of the NASA libraries' needs for products and services. Section 4 details some aspects of the state-of-the-art in library networking and use of bibliographic utilities. These utilities have made tremendous progress in the last few years in producing cataloging-oriented products and services that are highly responsive to libraries' individual requirements; the various alternatives are discussed in Section 4. Then Section 5 presents our evaluation of all the alternatives in light of NASA requirements, and our recommendations for NASA actions.

2. THE BOOK SYSTEM

This report is concerned with the NALNET book system, the purpose of which is to make available to the NASA Center libraries and their users information about and access to monographic literature held by NASA libraries and other books of interest to NASA users. The book system has three major components: a database, a centralized cataloging and processing unit, and a set of products and services.

In evaluating the book system, we were concerned not only with the functions that it is designed to perform but also the effectiveness with which it meets the needs of its users. This dual concern underlies our total cost-effectiveness study; only after we have determined the effectiveness of alternative system configurations can we begin to compare them on the basis of costs.

In order to evaluate the book system, we studied its three major components in some detail. Its effectiveness in meeting user needs is described in Section 3.

2.1 The STIMS Database

The NALNET book file is one of the files currently on STIMS and accessible through RECON. The book file was added to STIMS as a means of using RECON's sophisticated information storage and retrieval capabilities to share information about books held within the NASA libraries and other books of interest to the NASA libraries. The database consists of the post-1968 holdings of all the NASA Center libraries except NSTL, and MARC monograph records with Library of Congress classifications matching a NASA interest profile. The post-1968 monographs of AIAA are currently being added.

In evaluating the current database, we have to consider whether the content of the database is appropriate to the functions that it is to fulfill; whether the design of the database, in particular the record format, can support those functions; and whether the quality of the database is acceptable. These

distinctions are important in determining what steps need to be taken to maintain and improve the database.

2.1.1 Content

The book file consists of one record for each title, with library holding codes and local call numbers for those titles owned by one or more NASA libraries. The record is a MARC record when one is available; otherwise, the record is that of the first library to contribute its cataloging. Approximately 500 to 1,000 records are added to the book file each week.

Table 2 describes the overlap in holdings among the NASA Center libraries. Sixty-nine percent of the titles in the database owned by the NASA libraries are held by only one library. The remaining titles are held by more than one library. The high proportion of unique titles indicates that the collections are very dissimilar. One might expect that in a network like NALNET there would be a core group of aerospace titles held by nearly all the libraries, but Table 2 shows that this is not the case; only 14 percent of the titles in the database that are held by NASA libraries are held by more than two of them.

Another way to look at Table 2 is the number of cataloging transactions represented by the titles held by the NASA libraries. If each library were to perform its cataloging entirely independently, every item would have to be cataloged (assuming that none of these items represent multiple copies within a single library), regardless of the number of titles represented, since each library would have to catalog all of its own items. In that case, the data in Table 2 represents 121,299 cataloging transactions. On the other hand, if all of the libraries participated in shared cataloging, and once a title was cataloged all other libraries that acquired it would use the cataloging of the first library to catalog it, the 121,299 items would require 76,154 cataloging transactions, one for each title. Fully shared cataloging would reduce the number of cataloging transactions by 37 percent.

Libraries not using the Facility for cataloging contribute records for titles not on the database by submitting their catalog records to the Facility.

TABLE 2. NASA STIF STATISTICS AS OF SEPTEMBER 30, 1980

Titles ¹ in the STIMS V-10,000 (books) database	349,450
Titles held by one or more libraries	76,154
Total number of items held ²	121,349

Multiple library holdings:

Titles held by:	No. of Titles	% of Titles	No. of Items
1 library	52,318	69	52,318
2 libraries	12,941	17	25,882
3 libraries	5,406	7	16,218
4 libraries	2,703	4	10,812
5 libraries	1,433	2	7,165
6 libraries	778	1	4,668
7 libraries	362	-	2,534
8 libraries	134	-	1,072
9 libraries	60	-	540
10 libraries	9	-	90
Total	76,154	100	121,299

¹A title is a unique bibliographic record. Not all titles in the database are owned by NASA libraries.

²A title may be represented by more than one item if more than one library has a copy of the same title.

Except for Goddard, which submits its records in machine-readable form annually, the records come to the Facility in the form of catalog cards. Libraries that do not have card catalogs and/or have their own cataloging information in machine-readable form nevertheless produce cards to be sent to the Facility for re-keying. Facility staff check the incoming records against the database to determine whether they do actually represent new titles.

For titles already in the file, libraries can report their holding codes and local call numbers online. For other additions or corrections to existing records, libraries submit papercopy and the Facility staff initiate the transactions to update the records.

The Library of Congress records are received in machine-readable form on periodic MARC tapes. The tapes are searched for records whose LC classifications meet the NASA profile. A MARC-to-STIMS conversion program converts those records into STIMS format and adds them to the book file. Because the STIMS record has fewer fields than MARC, some fields are concatenated and some information deleted in the conversion. An edit routine checks for possible matches between incoming MARC records and existing records; these matches are then reviewed to see whether they do indeed represent the same title. If they do, the MARC record takes precedence in the file.

The current standards for records added to the database by the Facility and the Center libraries state that cataloging should conform to that of the Library of Congress, and be based on the Anglo-American Cataloging Rules (AACR). These standards leave much room for variation, mainly in the interpretation of the application of the rules. Over the life of the database, no consistent system of authority control has existed for reconciling these differences. The result is that records are sometimes duplicated because they are not recognized as variant cataloging for the same title; and the quality of the non-MARC records in the database is uneven.

Such a master file, or union catalog, can serve three distinct functions which make conflicting demands upon it. It can provide the libraries with an

authoritative source of catalog records; it can tell a library that materials are held in a network of participating libraries; it can tell a given library what it owns itself.

When the database functions as an authoritative source of cataloging, the highest priority is placed on the quality of the records in the database. Usually this means that when a MARC record is available, it is used; when a MARC record is not available, the contributed record is to be as close to MARC as possible in its adherence to AACR and its completeness.

Where the catalog acts as a finding tool for the network, it needs to suppress cross-library differences so that all the records for a given title are brought together in one place. The records entering the database have to be standardized. This can be accomplished through pre-coordination, in which the libraries agree among themselves on detailed cataloging standards to which contributed records must conform. This reduces the variation among the records coming into the database. The alternative is post-coordination, where libraries submit records that meet more general standards, and the unit responsible for building the database reconciles differences among them. Currently, NASA has opted for post-coordination except for one agreement: all records are to be closed entry.

Where the catalog is intended to replace or supplement the local library's own catalog, it must preserve the local variations in cataloging. The purpose of cataloging and classification is to help the user find needed information and show relationships among the items in the collection. To this end, each library catalogs a title to suit its own collection and its own users' information needs. The local cataloger integrates new titles into an existing collection by checking to see which call numbers and subject headings have already been used; the forms of corporate and personal names that already appear in the catalog; and how related titles (e.g., earlier editions, titles in the same series) have been cataloged. A system that preserves these local variations can provide products and services to the local library to replace or supplement local catalog products. The University of California, for example, is developing an online union catalog under the principle of full reversibility; every contributing library's full

record can be reconstructed from the union file record at any time. The result is that the online union file exactly represents each library's local card catalog. In theory, the participating libraries need no longer maintain their individual catalogs, but can rely on the central system.

NALNET does not subscribe to the principle of reversibility; when one library's holdings are added to a record already in the file, the only local information that is preserved is the call number. The result is that the subset of NALNET records that have a particular library's holdings attached do not completely reflect the local catalog; decisions made at the local level on forms of entry, subject headings, and bibliographic description will appear in the local catalog but not in the NALNET database. The database does serve as a source of authoritative cataloging, to the extent that MARC records take precedence. However, the quality of the contributed records varies.

These policy decisions have major implications for the current NALNET book system. The decision not to preserve local cataloging means that the database serves the network first, and the contributing library second. Information of use in generating local catalog products is lost. Instead, the decision to preserve only one record per title means that the database serves primarily as a finding list, that is, a means of bringing together information about the holdings of the NASA Center libraries for purposes of interlibrary resource sharing.

The decision not to pre-coordinate, or standardize, the cataloging provided by the Center libraries in any but the most general way places the burden for maintaining the quality of the database on the Facility. The local libraries retain their autonomy in cataloging materials to suit their local needs; the Facility then has to reconcile, or normalize, the differences among the records that result, in order for the file to fulfill its role as a finding list.

2.1.2 Format

STIMS was originally designed to manage journal and report literature for RECON searching and for the production of NASA products, such as STAR. This is an important point in evaluating the ability of STIMS to serve the book system. The NASA libraries catalog their books according to the Anglo-American Cataloging Rules (AACR), which were designed specifically to describe monographic literature and, furthermore, to construct card catalogs. Although AACR II, which was adopted by most of the libraries of the country January 1, 1981, is intended to be less card-dependent and more adaptable to machine-retrieval, it represents a modification of, but not a complete departure from, AACR I.

The AACR record is function-oriented, that is, the position of an information element in the catalog record depends on its function. For example, the main entry, which could be a personal name, a corporate name, or a title, has a definite position in the catalog record. But the STIMS record format was designed for journal and technical report literature, and is oriented to type of information. For example, a corporate name is always treated as a corporate name, regardless of whether or not it is a main entry.

In translating the book records from cataloging records provided by the Library of Congress or by NASA libraries into STIMS records, the information is rearranged and some of it is lost. MARC, the Library of Congress format for machine-readable cataloging records, allows for a larger number of fields and subfields than does STIMS, so in converting records from MARC to STIMS fields are concatenated and some information is lost. Since the purpose of the subfield is to indicate differences in the functions of various information elements, which then translates into differences in how the information appears when catalog cards are generated from the machine-readable record, it is not possible to regenerate the entire MARC record, or to generate a full, conventional catalog card image from the STIMS record.

2.1.3 Quality

In our discussions with the NASA librarians and others involved in the creation and use of the database, we identified the following problems with the current STIMS database:

1. Duplicate records: Due to inconsistencies in cataloging practices, errors of judgment, and some software problems, some titles are represented by more than one record.
2. Errors in record content:
 - a. Incorrect holdings and call number information. Changes have not always been reported, and changes reported have not always been posted to the database.
 - b. Errors in other data elements, due to cataloger errors, Library of Congress errors, software problems, and perhaps other reasons as well.
3. Errors in format:
 - a. Information entered into incorrect fields, either by mistake, or deliberately, in order to "juryrig" card production.
 - b. Glitches in the MARC to STIMS conversion process. Many of the sources of these errors were rectified over time, but the incorrect records were not changed.
4. Variations in the quality of non-MARC records.
5. Missing records. The libraries tell us that not all of their holdings that should appear in the database do.

Many of these problems were temporary and have been corrected. For example, minor modifications have been made to the software. Turnover in personnel sometimes takes care of some of the human error problems. Unfortunately, once an error has entered the database, it remains until someone initiates a correction. Both the NASA Center librarians and the Facility personnel tell us that errors remain in the database.

No systematic attempt has been made to determine the number of records with such errors and the effort required to eradicate them. The cost of cleaning up the database would also depend on the standards set for the revised database. Decisions would have to be made about which kinds of problems must be resolved, and which could be allowed to remain. These depend, in turn, on decisions about the future uses and configuration of the database.

In the meantime, the Facility staff is initiating preliminary efforts to improve cataloging production and distribution, as described below.

2.2 STIMS Book Processing

When a book is received by a NASA library, it has to be processed, an activity which consists of 1) creating a bibliographic description of the book for the local library's catalog and for the NALNET book file and 2) making the book physically shelf-ready: making and inserting a book pocket and circulation card, affixing a book label with the book's call number, and so forth.

2.2.1 The Centralized Cataloging Unit

The NASA Center libraries may perform their own processing, as 10 of the 12 currently do. The Facility also maintains a centralized cataloging and processing unit with which the libraries may contract for services. The Facility's book processing services include descriptive cataloging, Library of Congress and NASA subject indexing, Library of Congress classification, and NASA categorization. Currently two NASA libraries, Lewis and Langley, have the Facility catalog their books for them. Both get some associated processing products, such as circulation cards and book pockets, but neither has the Facility make their books fully shelf-ready.

Briefly, STIF book processing follows these steps:

1. Langley's books are sent to the Facility; Lewis sends copies of the front matter (title page, table of contents, etc.) from books to be cataloged.

2. Each item is checked against the book file on RECON.

- a. If the complete record already exists in the database, the library's holding code and local call number are added (copy cataloging), and a set of catalog cards produced, (step 8).
- b. If an incomplete record is found in the database, the necessary information are added (partial cataloging).
- c. If the item is not found on RECON, MARCFICHE and/or the National Union Catalog are checked. If found, modifications are made to the catalog record found as needed (partial cataloging).
- d. If the item is not found on MARCFICHE and/or the National Union Catalog, original cataloging is performed.

Approximately 100 items per week are in the original/partial cataloging categories. The contract requirement calls for the Facility to be able to do 4,000 items of original/partial book cataloging per year.

- 3. LC subject indexing and classification are performed, if needed.
- 4. A new record is coded for data entry using a NOIPS (NASA On-line Input and Photocomposition System) form; elements to be added to an incomplete record are entered into the STIMS record via ATS terminals. NOIPS and STIMS keying are accomplished by a subcontractor.
- 5. The data go from key to disc, and a proof listing is printed overnight.
- 6. A proof and review cycle is initiated as a result of comparing coding sheets to proof listings. Record corrections and updates

are performed through STIMS coding and keying. When records are finally approved, they are dumped into the book database, and RECON is updated.

7. Prior to a production run of catalog cards, record numbers (V numbers) are input and a proof listing in card format is printed for the NALNET Division. A librarian compares the proof listing with the source material (i.e., book or photocopy of the front matter of a book, if original cataloging; a MARC record from LC tapes; or a copy of a cataloging record as supplied by Center libraries). Errors are corrected in the database, increasingly by use of ATS terminals.
8. Catalog cards are produced from the updated database by use of a high speed printer, reviewed again, and distributed to the requesting libraries.
9. NASA subject indexing and NASA categorization are performed by the Document Processing Division for all records which did not previously appear in the database with holdings; STIMS coded; keyed; put on disc; proofed; and, when approved by Quality Assurance, added to the record in RECON.

Since Planning Research Corporation took over the STIF contract in July, 1980, they have been working to improve the quality and timeliness of the products and the efficiency of the operation, largely by eliminating duplicate effort.

Where the computer used to produce only 15 percent of the catalog cards supplied by the Facility, as of January, 1981, it produces 92 percent of the orders. The remaining eight percent contain such specific problems in format or subject content as would require excessive computer system modifications for routine error-free production. However, the NALNET Division has requested a task assignment to study the necessary changes and to update the system appropriately.

An effort is also being made to improve turnaround time for cataloging done by the Facility. Currently (November 1980), it takes five to six working days for the Facility to create the records for titles not already in the database. It takes 15 working days, however, for those for which a STIMS record already exists, because the staff is making corrections in the STIMS records as they go.

Generating the record is only one step in updating the file, however. The new or revised records still have to be added to the existing file. These changes are currently backlogged about 15 working days. PRC expects to reduce this backlog.

Langley still notes a backlog of approximately 275 books and, due to a high percentage of errors on cards, has a technical monitor check every set of catalog cards upon arrival from the Facility. Beginning November 1980, Ms. Hess has directed that this monitoring be reduced to only the more difficult records, such as foreign language documents and proceedings of conferences. The turnaround time as reported by Langley is approximately 25 to 30 working days from delivery of books to STIF to delivery of books and card sets to Langley. Lewis reports 15 to 30 working days for the receipt of card sets produced by partial/original cataloging and five to 15 working days for card sets ordered online.

In general, the current thrust at the Facility is to exercise greater quality control over existing procedures and to initiate minor reprogramming changes to insure a better and closer match with system and product specifications. These improvements have also brought about a major cost reduction in book cataloging and processing services. The cost of book processing per title for Langley and Lewis has dropped considerably from the \$16.71 estimated by the previous contractor in May, 1980, to \$12.89 reported by the contractor at the end of September, 1980, and \$9.96 reported at the end of October, 1980.

2.2.2 Center Library Book Processing

Our information about how the NASA Center libraries perform their book processing was gathered during the on-site and telephone interviews and on a

statistical data form sent to all the Center library heads after the site visits. Table 3 summarizes our findings. (Appendix A contains the reports of the Center interviews, Appendix B the survey form, and Appendix C contains completed survey forms from the 12 libraries.)

The 10 libraries doing their own cataloging have it done by on-site or local area contractors. Eight of the 12 have their current cataloging records in machine-readable form; Ames' and Headquarters' are in MARC format: Ames uses RLIN, and Headquarters uses OCLC. (See Section 4.) Besides Langley and Lewis, which use the Facility, and Marshall, whose catalog is online on RECON, other machine-readable catalog records include Goddard's, which are MARC-like (BIBPRO), and Jet Propulsion Lab's and NSTL's, which are all non-MARC. Manual systems are used by four libraries: Dryden, Johnson, Kennedy, and Wallops.

The number of book titles processed by each library during fiscal year 1980 varied greatly, from NSTL's 65 to Langley's 3,258. Half the libraries processed fewer than 400 titles last year.

The local processing cost per title (descriptive cataloging, classification, and preparation of a set of catalog cards, or an entry in a book or COM catalog) varies from Kennedy's \$2.33 per title to \$11.80 at Johnson.

Turnaround time also varied greatly from NSTL's and Dryden's one day (because they usually process their small number of books immediately) to the average of three to six weeks that Lewis and Langley experience with original cataloging from the Facility.

A strict comparison of costs and turnaround times is misleading, because the kind and quality of service also varies from one library to another. Dryden, for example, does minimal cataloging when a book arrives ("fastcat"), then orders cards from the Library of Congress. LC is slow and the cards that are received reflect the cataloging for the Library of Congress' collection of 19 million, not Dryden's 4,262 book titles. But "fastcat" gets the book into circulation immediately. Ames, as an RLIN user, gets cards modified online to suit Ames' own catalog and formatted to Ames' own specifications. As an RLIN shared-cataloging user, Ames

TABLE 3. NASA CENTER LIBRARIES' BOOK PROCESSING

Library	Book Cataloging/Processing		Current Cataloging in Machine Readable Form	Number of Book Titles Processed in FY 1980	Cost of Book Processing per Title	Average Hit Rate	Average Turnaround Time	Type of Catalog
	Done by	Source of						
Amen	Contract Staff	RLIN, MARC/FICHE	MARC	3,128	\$10.74	High-but do some original cat'ing rather than wait for title to appear on RLIN	1 month maximum	Card
Hyden	Contract Staff	LC cards Temporary PASTCAT	No	170	\$7.74	75% of LC cards acceptable	1 day "fastcutting" 2 months LC card sets	Card
Coddard	Contract Staff (BIBPRO)		MARC-like	1,699	\$10.75*		26 days	ONL as of Sept. 1980
Headquarters	Contract Staff	OCLC	MARC	280	\$10.51	95% on OCLC	6 days - 1 week	Card (plans to go to CON)
Jet Propulsion Laboratory	In-house	CIP, RECON	Non-MARC	1,640	\$ 8.59	CIP + RECON = 85-90%	4 days	Book (Books and reports interfilled)
Johnson	Contract Staff through FY80 - Now in-house		No	700	\$11.80		2 weeks	Card
Kennedy	Contract Staff		No	265	\$ 2.33	Very high on RECON	1-2 days	Card
Langley	Cataloging - STIP Processing - Contract Staff		STIMS	3,158	\$9.96 as of 10-80		5-6 weeks during FY 1979	Card
Lewis	Cataloging - STIP Processing - Contract Staff		STIMS	1,147	\$9.96 as of 10-80	Find 73.52 on RECON (May-July 1980) before requesting original cat'ing from STIP -	3-6 weeks original cataloging 1-3 weeks card sets ordered "online"	Card
Marshall	Contractor - Redstone Sci/Tech Info. Center		Non-MARC	250	\$8-10	75-80% on RECON	3-5 days	Online on RECON (Closed card catalog) 1978
National Space Technology Laboratories	Contract Staff	American Book Publishing Record, CIP	Non-MARC	65	Approximately \$7.00		1 day	Book (Books, reports, some journals interfilled)
Wallops	Contract Staff	RECON, MUC, CIP	No	370	\$3.07	90% on RECON	1 week	Card

* \$10.75 represents 1/4 of the average book cost per system entry, since the bibliographic system is one of four parts of the entire system.

also gets online access to its own catalog records, as modified, and to those of the other RLIN users, including Stanford University, with which Ames engages in extensive resource sharing. (See Section 4.3 for a fuller description of RLIN services.)

We have already described (Section 2.1.1) how the libraries that do their own cataloging contribute records to the STIMS database.

2.2.3 Centralized Versus Decentralized Processing

The rationale for centralized cataloging is reduced costs through economies of scale. Duplication of effort is eliminated by cataloging a book only once for more than one library. The libraries avoid multiple subscriptions to major cataloging tools such as the National Union Catalog. And libraries with few titles to catalog which do not need a full-time cataloger may get better quality cataloging than if it were done by a non-specialist. Where libraries are sharing a union catalog, as are the NASA libraries, centralized cataloging can also mean better quality control through greater consistency.

The disadvantages of centralized cataloging are due to the distance between the cataloging center and the library. One major disadvantage is time: books and/or front matter must be sent to the Facility and catalog products sent back. This extra shipping and handling inevitably adds to the delay in getting new materials to the library user.

Another disadvantage is that the cataloging is no longer tailored to the collection to which an item is being added and to the needs of the library's users. The extent to which this is a problem varies, depending on the local library's decisions about the extent to which cataloging from other sources, such as the Library of Congress, must be modified to meet the needs of local users. The catalog is a major tool in linking the library's collection to the needs of its users; by subscribing to centralized cataloging the library is surrendering some control over the construction of that tool. If the local library is going to review and modify the cataloging provided by the central source, the economies of centralization are lost.

The NASA libraries do not benefit particularly from the economies of scale of centralized cataloging of a title once for the entire network because of the small percentage of multiple library holdings in the book database. Sixty-nine percent of the titles held within NASA are held by only one library, only 17 percent are held by two, and 14 percent by three or more.

Within NALNET, currently only two libraries are using the central cataloging services and Lewis is seriously considering performing its own cataloging using OCLC. When we asked the other libraries why they did not use the Facility, we heard many complaints about the quality and timeliness of the Facility's products. More importantly, however, most libraries expressed a high degree of satisfaction with the way in which they are currently doing their cataloging. The libraries differ markedly in their cataloging methods, but have in common the fact that most feel that they have found the best method for their own particular situation. There is not much that the Facility could do to persuade them to subscribe to centralized cataloging. Where the library's own costs for cataloging are greater than those of using the Facility, the library feels that it is justified by the greater effectiveness of local cataloging: a more timely product better tailored to the library's own needs.

2.3 Products

Several products are spun off from the NALNET database. Some of these are designed to assist the local library in managing and accessing its own collection. Others reflect the holdings of the network and can be used by local libraries and users to locate materials elsewhere in the network or to make decisions about the local collection in relation to the network's holdings. The products specified for NALNET can be classified as local products, designed primarily to assist the Center library in controlling and accessing its own collection, and union products, which serve the network as a whole.

2.3.1 Local Products

The following local products are called for in the Facility contractor's Statement of Work:

1. Local book catalogs (annual and quarterly cumulatives) for each requesting NASA, or NASA-affiliated library. These products have not been produced and are not currently supported by operational software.
2. Local COM catalogs, particularly a title and author catalog, and a subject catalog, produced monthly for each requesting NASA or NASA-affiliated library. Each monthly catalog is to include the cumulated bibliographic data in the V-10,000 series database for an individual library. The product has not been produced and is not currently supported by operational software.
3. Catalog card sets are to be produced for a requesting library either according to a schedule or on demand. The set consists of a main entry, title and added entries, LC subject heading cards, extra main entry cards as required, and a shelflist card. These are currently being produced for Langley Research Center and Lewis Research Center. The catalog card set plus selected other local cataloging products make up a cataloging package.
4. Other local cataloging products that can be generated at the Facility are Library of Congress call number book labels, circulation cards, and book pockets. Langley receives Library of Congress call number book labels. Lewis receives circulation cards and book pockets.
5. Local book shelflists to be produced annually with monthly cumulations to each requesting library. The listings are to be comprised of citations of the library's book holdings entered in the V-10,000 series database sorted by local call number.

Local book shelflists were produced several years ago for Headquarters Langley, and Lewis, but problems in the sort routine

resulted in products that were not in strict shelflist order. Therefore, the local book shelflist is not currently supported by operational software.

More recently Dryden and the Jet Propulsion Laboratory have received RECON printouts sorted by local call number, which appeared in two sections: 1) those records using the LC classification as it appears on the MARC tapes; and 2) those records for which the LC classification has been altered to fit local needs. A sort problem also resulted in products that were not in strict shelflist order.

6. Local Book Surplus Lists, designed as a communication medium for exchanges of books among NALNET libraries. The libraries are required to notify one another before discarding materials, in case another library wishes to acquire the item. Although the product specifications exist (NASA-SPEC-00-3405-93) and the production of semiannual local book surplus lists is called for in the present Facility contractor's Statement of Work, the product has never been produced. However, it is not called for in a proposed modification of the Statement of Work.
7. The Local Current Book Accession List, entitled "New Books", "is a listing of all new book titles, held by a NASA-funded library, which have been added to the V-10,000 series for the individual library since the last publication of the list," (NASA Spec. 00-3405-87). Citations are grouped by NASA subject categories and listed alphabetically by title within the NASA subject categories. A citation consists of abbreviated descriptive cataloging information, local call number and V-number. Pre-1968 titles, newly added to the V-10,000 series, are not to be included. Bibliographic citations are to be computer produced and with some manual preparation, camera-ready copy of each local accessions list is prepared and distributed to the individual libraries.

2.3.2

Union Products

The union products currently specified include:

1. The Union Book Index on Computer Output Microfilm (COM) which consists of three parts:
 - a. Title KWIC (Keyword in Context) Index consisting of the permuted book title, LC call number, and accession number with access by keywords in the title;
 - b. Conference KWIC Index consisting of permuted conference title, LC call number, and accession number with access by keywords in the title;
 - c. Accessions List consisting of accession number, title, author, publisher, publishing date, LC call number, holding library abbreviated name, local call number if variant from the LC call number, and NASA category number. Access is by accession (V) number.

These three parts fulfill the contractor's Statement of Work to produce indexes to NASA-held V-10,000 series items as follows: "(a) arranged by accession number, and (b) arranged by permuted keywords based on specified data elements." The Union Book Index on COM is to be produced annually. The first was produced in 1978 with an annual supplement in 1979. The 1980 supplement is projected to be produced in January or February 1981. The Facility still considers the KWIC on COM experimental, since it was never in routine operation. The software, although not currently operational, is being upgraded. The Statement of Work also calls for three cumulative quarterly indexes to be produced annually. These quarterly indexes have not been produced and are not currently supported by operational software.

2. The Union Current Book Accessions List, entitled "New Books in NASA Libraries," a union list of all new book titles added by individual NASA funded libraries to the V-10,000 series since the last union list was produced. The format is similar to the local accessions list in that the books are grouped alphabetically by title, under NASA subject categories. Each holding library's name, its local call number and the V-number are listed below the descriptive cataloging information.

2.4 PUBFILE

The former Facility contractor, Informatics, Inc., undertook the development of a more MARC-compatible formatted file system for the NALNET book system in order to better produce NALNET products. This new system, PUBFILE, is a dual file system which maintains the STIMS book file for searching on RECON. At the same time it maintains a parallel file of book records in a format that is more MARC-compatible, that is, it has more of the information needed to generate a standard card format record.

In January, 1978, an effort was begun to convert the existing STIMS V-10,000 series database into PUBFILE format. Work on PUBFILE has progressed to the point where it could be demonstrated to the NASA Center librarians in May, 1978. At that time the software was functioning but not complete, and a very "quick and dirty" conversion of the STIMS book file to PUBFILE had been done. In addition, the STIMS file had errors which were not corrected before the conversion began.

The NASA Center librarians who witnessed the demonstration objected to 1) the inaccuracies in the file; 2) the change in the RECON display that accompanied the transition to PUBFILE; and 3) the expenditure of developing a new system rather than improving the old. These objections are documented in the NALNET Book Committee Report of June, 1979, which also suggested a cost comparison of OCLC, RLIN, the National Library of Medicine system (now known as the Integrated Library System, or ILS), and other bibliographic utilities, as well as STIMS and PUBFILE.

The conversion from STIMS to PUBFILE was discontinued June 1, 1979, as directed by Headquarters. The only PUBFILE activity that continued after that date was the creation of documentation.

2.4.1 PUBFILE Design

The content of PUBFILE is the same as STIMS in that each title is represented by a record with library holding codes and local call numbers attached to those records owned by one or more NASA libraries. The record is a MARC record when one is available; otherwise, the record is that of the first library to contribute its cataloging. A difference from STIMS is that the library's record is in a MARC-like format with more fields and subfields, rather than a STIMS format, which concatenates many of the MARC fields.

The PUBFILE database as it exists at present contains fewer records than the current STIMS database. Since the conversion process started in January, 1978, and all work on PUBFILE was halted in June, 1979, none of the libraries' recent acquisitions are included, nor was the retrospective conversion completed.

The PUBFILE format is MARC-like, with a larger number of fields and subfields than STIMS. Data that was concatenated into one STIMS field or was lost in conversion from MARC to STIMS is separated into distinct subfields in the PUBFILE format. For example, in PUBFILE the series statement is separated into parts -- author/title form, title form, untraced -- by use of subfield designators, rather than being put into one field without subfield designators, as in STIMS. The subfield designators allows the retrieval of each distinct part of the series statement.

Another important format characteristic of the PUBFILE design is the ability to express both the type and function of certain data elements in the cataloging record. For example, a personal name (type) can either have the function of a main entry or an added author entry. PUBFILE allows for this differentiation by assigning one three-digit numeric tag when the personal name is used as a main entry and a different three-digit tag when a personal name is used as an added author entry. STIMS is based on type of data elements only, and does not differentiate functions.

The quality of the records in PUBFILE is dependent upon the quality of the STIMS records from which they were converted. The problems evident in the STIMS database: 1) duplicate records; 2) errors in record content; 3) errors in format; 4) variations in the quality of non-MARC records; and 5) missing records all could appear in PUBFILE if the errors were not identified and corrected during conversion. The STIMS database was not cleaned up prior to the STIMS to PUBFILE conversion. The conversion itself was "quick and dirty," based primarily upon the LC card number. Although some errors in STIMS were corrected during conversion to PUBFILE, other errors seem to have been introduced.

2.4.2 STIMS and PUBFILE

As noted in Section 2.1.2, STIMS was designed to accommodate report and journal literature and to meet the needs of the RECON information retrieval system. The book literature was added to STIMS at a later date, and the generation of cataloging products came even later. STIMS was not designed to fulfill these functions; rather, it was decided after the system was in existence that it could be used for these purposes, as well. However, the STIMS records is very different from the MARC record, which is designed specifically to accommodate monographic catalog records. The most important differences are 1) in the conversion from MARC to STIMS, some of the information used to generate a full card image from the catalog record is lost, and 2) MARC is function-oriented while STIMS is element-oriented.

Bringing up PUBFILE at this point, with a STIMS book file already in existence, requires that the PUBFILE software be completed and that a PUBFILE database be generated from the existing STIMS file. A general clean-up of the existing database would also be necessary.

3. NASA CENTER LIBRARIES' REQUIREMENTS

In our proposal, we said that we would begin by assessing the NASA Center libraries' needs for products and services. The effectiveness of any information system depends on the extent to which it meets the needs of its users. An important question in evaluating the alternatives for the WALNET book system is which products and services it must be able to provide, particularly since the rationale for the development of PUBFILE was that STIMS was not capable of producing all the specified products. To simply evaluate the alternatives based on their ability to produce products and services that may no longer be needed would be short-sighted and could lock NASA into a system that would be dysfunctional.

In assessing their needs, we asked the libraries how they currently use the book system, and how it could serve them better. The book system is closely tied to the libraries' individual cataloging operations: two libraries use the book system for their own cataloging, the others use the book system to complement their own cataloging efforts to varying degrees. Therefore, we also asked about how the libraries do their cataloging currently, their plans for the future, and the advantages and disadvantages of their current methods of cataloging.

We divided the libraries' needs into their needs for products, and for the database and retrieval system.

3.1 Cataloging

Currently, two of the 12 libraries, Langley and Lewis, are using the centralized cataloging services of the Facility, but Lewis is investigating doing its own cataloging using OCLC. The other 10 libraries perform this function locally, with Ames using RLIN and Headquarters using OCLC.

The libraries differ in their methods and volume of cataloging, but each generally felt the current mode of operation was best meeting local needs. Performing cataloging locally allows the library to tailor its catalog to its own

collection and to the needs of its users and generally means more timely input. Performing cataloging locally also supports a desire for autonomy that was expressed by a number of the libraries. In general, the libraries expressed no interest in using the Facility's centralized cataloging services due to satisfaction with their present local methods and problems of timeliness and quality from the Facility.

3.2 Products

The Book Committee Report of June, 1979, incorporates a matrix detailing the libraries' preferences on products, services, and other book system characteristics. We used this matrix as a guide in our interviews. We soon found two major shortcomings with the matrix approach:

1. Some of the products and services listed are mutually exclusive; others are complementary; often preferences for one system characteristics depend on the decisions that are made on other characteristics.
2. The matrix format provides little room for qualification or discussion. In talking with the librarians about why they had expressed the preferences that they did we learned much more about their true preferences than could be communicated through the matrix.

In addition, of course, some opinions had changed since that report was prepared.

Instead of reproducing the matrix with our own findings, we have grouped the topics addressed by the matrix and summarized our findings below.

3.2.1 Local Products

NASA libraries are similar to other groups of libraries in that their catalogs are in several formats. Libraries are gradually moving from the

conventional card catalog to book catalogs, to COM catalogs, toward the goal of online catalogs.

The card catalog, although familiar to the patron and librarian, is expensive in that it consumes valuable space, requires extensive maintenance, and is not easily updated when changes occur in subject headings and in cataloging rules.

Book catalogs produced from machine-readable data are generally the next phase and have the advantages of compactness and flexibility to cope with changes. However, the cost of cumulation and production of paper copy is enough that the library is usually forced to (1) produce updates rather than reproduce the entire catalog at given intervals, or (2) re-cumulate the entire catalog only at infrequent intervals.

COM catalogs are less expensive to produce than book catalogs, so the entire catalog can be generated at more frequent intervals than can book catalogs. Both microfiche and microfilm are very compact, and the readers take up relatively little space.

An online catalog provides the most up-to-date bibliographic information to users as well as greater access to that information through flexible search capabilities.

The production of catalog cards or of other forms of catalogs in card-image (e.g., a COM catalog with each entry formatted like a catalog card) requires that the system be able to generate a standard card image according to AACR, which the current STIMS system cannot do. In addition, the production of a complete, cumulated catalog, such as a book or COM catalog, for any library requires that the library's entire holdings be on the database, which is currently true only of Johnson and Dryden. Otherwise, the catalog would only represent part of the collection, and users would have to check more than one place to determine whether a title was owned. Finally, for a machine-generated cumulated catalog to replace the locally-produced catalog requires that the variations in the local

cataloging record be maintained, which STIMS does not. A local book or COM catalog produced from STIMS would be a listing of the records currently available online with a given library's locator attached. It would not represent the library's entire collection; it would not reflect the local cataloging variations as they appear in the local card catalog; and not all records could be formatted in standard card format.

Local Card Catalogs. Currently, eight of the 12 NASA libraries are using card catalogs: Ames, Dryden, Headquarters, Johnson, Kennedy, Langley, Lewis, and Wallops. Headquarters is looking towards a COM catalog in the spring of 1981 mainly due to the necessity to conserve space. Ames has the capability for an online file with RLIN for 1975 onward, and is considering using RLIN for a full online catalog.

The only libraries that receive cards from the Facility are the two that have the Facility to do their cataloging, Langley and Lewis. Both complained to us of the timeliness, quality, and cost of card sets.

Dryden might be interested in receiving catalog card sets from the Facility if the timeliness, quality, and price were good. Other libraries using card catalogs were satisfied with their current operations, and had no interest in using the Facility.

Local Book Catalogs. Book catalogs are currently used by JPL and NSTL. JPL's catalog interfiles the full collection of books and reports and NSTL's includes books, reports and some journals interfiled. Both Centers' catalogs are being produced by contract staff.

For the Facility to produce a book catalog for any of the libraries would require that the library's holdings not currently on NALNET -- generally pre-1968 titles -- be added to the database, or that the Facility develop the software to work with the library's current database (where such exists). Only NSTL has considered having its catalog produced by the Facility in the future. This would entail inputting NSTL's approximately 9,900 book holdings into the

V-10,000 series database, since none of NSTL's books are currently in the file. JPL is not interested in using the Facility for catalog production, because it is pleased with its current product. None of the other centers voiced an interest in a book catalog.

Local COM Catalogs. Goddard is the only current user of a COM catalog, having changed from a book catalog to a COM catalog at the end of September, 1980. Goddard feels the Facility should have the capability of producing a local COM catalog, although Goddard itself would not use the Facility for its own COM catalog production due to satisfaction with its local contractor-produced product. As noted above, Headquarters has plans for future COM catalog implementation. Langley and Lewis would consider a COM catalog, but it is of low priority.

Local Online Catalogs. Marshall has been using RECON as an online catalog since it closed its card catalog in 1978. It currently has 85 percent or 2800 of its 3300 titles in the database, and there are plans to input the other 500 pre-1978 titles. A shelflist in card format is the backup to RECON. Marshall is satisfied with RECON's use as an online catalog for its small, stable collection in spite of the fact that the only local cataloging variation in the RECON record is the local call number. Other libraries would be interested in an online catalog, possibly through RECON, if the database were reliable and if the records included local cataloging variations. These conditions have not been currently met to the satisfaction of any of the 11 other libraries.

Ames is interested in an online catalog through RLIN. The capability exists for one for Ames' 1975 and onward titles, although RLIN does not intend for its system to support user-accessible terminals.

Local Book Shelflist. No libraries were interested in an annual local book shelflist with monthly cumulations. Langley and Lewis were interested in a shelflist on demand. Dryden and NSTL both expressed possible future interest. (Dryden completed an update of its holdings on RECON this fall through the use of a quasi-shelflist produced in RECON format. None of NSTL's holdings are in the V-10,000 series database, so a shelflist is a current impossibility.) The other eight libraries did not desire to receive a shelflist from the Facility for one of several reasons.

1. The V-10,000 series database is not complete.
Pre-1968 titles are only beginning to be added.
2. The database does not include the local information,
such as copy numbers, needed for inventory.
3. The data is not accurate. Center libraries have
commented that too many errors exist in holdings
assignments and local call numbers.
4. Some libraries, such as Goddard and JPL, have no need
for a Facility-produced product because they have their
own local automated systems.

Local Book Surplus Lists. Qualified interest in Facility-produced local book surplus lists was expressed by six libraries: Ames, Dryden, Jet Propulsion Laboratory, Johnson, Langley, and NSTL. Ames qualified its response with the need to start with reliable information. Many of Dryden's surplus books are never entered into the V-10,000 series database because they are gift books which are not pertinent to the collection. A Facility produced list would only be a partial listing. JPL recognized a need for surplus lists because of government regulations, but felt that most libraries would be discarding the same books. Langley and Johnson were interested in a well-designed list for books and journals. NSTL uses the lists produced individually by the Center libraries, so it was thought that having the activity coordinated by the Facility would be helpful.

Local Book Accessions List. Five libraries, Headquarters, Johnson, Langley, Lewis, and Wallops are currently using the local book accessions list as a notification to patrons of new books. Headquarters receives the Facility produced list rather than ordering the product from OCLC. Ames uses the list as a proof listing of what has been entered into RECON, as it feels the list is not timely enough to be used by patrons. The other six libraries either have no need for a local accessions list or produce their own, sometimes combining book accessions with other accessions. For example, Dryden types a weekly accessions list

of books, reports, and some journals received from all sources -- NASA, other government agencies, and private companies. Goddard, one of the libraries which produces its own accessions list, feels that the Facility's system should have the capability.

3.2.2 Union Products

Union Book Index on COM. Most libraries use the union book index on COM only as a backup to RECON when RECON is down. It has no information not in the online file and is considerably less convenient to use. RECON down time has been reduced considerably so that the libraries are rarely inconvenienced (Lewis estimates about once every three months). The union book index on COM is used more heavily by two of the smaller libraries. Both Dryden and NSTL use the KWIC COM indexes in conjunction with the COM accessions list for interlibrary loan. This is a two step process in which (1) the appropriate title is found on one of the KWIC COM indexes and the V-number for that title is noted, then (2) the V-number is searched in the COM accessions list to find local holdings information. Since the number of ILL searches for these two libraries is small, use of the COM union indexes is satisfactory. Dryden generally uses the COM union indexes before searching RECON for any purpose, since they have only dial-up access and they incur charges for each use. The conference KWIC is sometimes used to identify proceedings that have been difficult to access on RECON.

Eleven of the 12 libraries preferred merging the two KWIC COM indexes (conference and book title) into one KWIC COM index, although several said they rarely, if ever, used the book title KWIC. Headquarters felt they were more useful as separate indexes.

Union Book Accessions List. More use is made of the union accessions list than of the local accessions lists. Nine libraries receive it, either using it for selection purposes or for patrons' requests for interlibrary loan. Wallops states this is one of the two most heavily used products, while Ames receives it for its users, but does not find it timely. The Jet Propulsion Laboratory and Dryden do not want the product. Dryden has found that previous use by patrons

for ILL was a source of frustration as most new books were not readily available to other libraries. JPL does not find the product timely enough for selection. NSTL has not received the union book accessions list, to its knowledge.

3.3 Database

3.3.1 Information Retrieval

The book file can be accessed through any of a number of fields, including author, title, Library of Congress classification, Library of Congress and NASA subject terms, report number, and contract number. The RECON text searching capability makes it possible for the user to search for individual words and phrases that appear within the title, corporate and conference name, publisher, subject, and added entry fields. (See Figure 1.)

This flexible and powerful search capability makes the NALNET book file extremely useful for information retrieval. One common kind of request for which the NASA libraries use NALNET is to identify a specific title based on an incomplete reference. A less frequent kind of request for which RECON is also well-suited is for a selection of titles on a given subject. Because of the large number of MARC records in the book file, the search is not limited to titles held by NASA libraries. Once a title is identified, other sources, such as the National Union Catalog, can be used to find libraries from which the item can be borrowed.

3.3.2 Interlibrary Loan

When a user wants a book not in his or her local library's collection, the librarian uses the book file to determine whether it can be borrowed from another NASA library. The holdings information on the book record tells the librarian which library owns it and the local call number.

Table 4 summarizes the results of our statistical survey of NASA libraries. It shows that book literature is a small part of the total information resources of the NASA libraries, and that books are also a small proportion of the libraries' total interlibrary loan. Journal and report literature are more

NASA LIBRARY NETWORK BOOKS (NALNET BOOKS) FILE

No.	Code	Field
1	ACC	ACCESSION NUMBER
2	YER	PUB/COPY YEAR
3	ISS	ISSUE NUMBER
4	CIN	LC CALL NUMBER
5	ISP	ISBN
6	DDN	DEWEY DECIMAL NUM
7	CCN	LC CARD NUMBER
8	MSC	MISC. CLASSIFICATION NO.
9	PAP	PERSONAL AUTHOR PREFIX
10	AO	PERSONAL AUTHOR
11	PAD	PERSONAL AUTHOR DATE
12	PAT	PERSONAL AUTHOR TYPE
13	PAN	PERSONAL AUTHOR NOTE
14	TFX	TITLE PREFIX
15	UTL	TITLE
16	ATL	ALTERNATE TITLE
17	RTL	ROMANIZED TITLE
18	TLS	TITLE SUPPLEMENT
19	TFT	TITLE PAGE TRANSCRIPTION
20	CNP	CORPORATE NAME PREFIX
21	CRP	CORPORATE NAME
22	CNS	CORPORATE NAME SUPPLEMENT
23	CMX	CONFERENCE OR MEETING PREFIX
24	CMN	CONFERENCE OR MEETING NAME
25	CMP	CONFERENCE OR MEETING PLACE
26	CMD	CONFERENCE OR MEETING DATE
27	CMS	CONFERENCE OR MEETING SUPPL
28	EDS	EDITION STATEMENT
29	PEX	PUBLISHER PREFIX
30	PUB	PUBLISHER
31	POP	PLACE OF PUBLICATION
32	PBS	PUBLICATION STATEMENT
33	CCI	COLLATION
34	SER	SERIES TITLE
35	SAP	PRICE
36	LGN	LANGUAGE NOTE
37	GEN	GENERAL NOTE
38	CTN	CONTENTS NOTE
39	CIC	COPY,ISSUE,COPYPRINT NOTE

Figure 1. Book File Fields

NASA LIBRARY NETWORK BOOKS FILE (NALNET BOOKS FILE) (CONT)

<u>No.</u>	<u>Code</u>	<u>Field</u>
40	ABS	ABSTRACT OR ANNOTATION
41	CSN	CATALOGING OR SOURCE NOTE
42	MSN	MISCELLANEOUS NOTE
43	VEN	VENDOR NOTE
44	SUB	SUBJECT READING
45	SAE	ADDED ENTRY
46	NJS	NASA SUBJECT TERM
47	NSH	SUBJECT TERM - MESH
48	CAL	AMES-ATLL CALL NO.
49	CAR	AMES-ATL CALL NO.
50	CFR	FLIGHT CALL NO.
51	CGD	GODDARD CALL NO.
52	CJP	JPL CALL NO.
53	CJN	JOHNSON CALL NO.
54	CKN	KENNEDY CALL NO.
55	CLA	LANGLEY CALL NO.
56	CLE	LEWIS CALL NO.
57	CMA	MARSHALL CALL NO.
58	CHQ	NASA HQ. CALL NO.
59	CWA	Wallops CALL NO.
60	CIT	FACILITY CALL NO.
61	MAI	MAIN ENTRY INDICATOR
62	AEI	ADDED ENTRY INDICATOR
63	CAS	CATALOGING SOURCE
64	RET	RECEIPT DATE
65	LNG	LANGUAGE CODE
66	CPC	COUNTRY OF PUBLICATION CODE
67	CFT	COPYRIGHT BIT
68	REF	REFERENCE BIT
69	HLD	HOLDINGS/ORDERS
70	ORD	ORDER DATE
71	ORN	ORDER NO.
72	ORQ	ORDER QUANTITY

Figure 1. Book File Fields (cont.)

TABLE 4. NASA CENTER LIBRARIES' BOOK SYSTEM ACTIVITY

	Ams	Dryden	Goddard	Headquarters	Jet Propulsion Laboratory	Johnson	Kennedy
A. HOLDINGS							
1. Book volumes held 1979-80	75,655	NR	65,155	27,376	91,860	56,000	33,244
a. % change 1974-75 to 1979-80	48.3%	NR	34.5%	14.9%	-0.4%	13.1%	17.3%
b. Book volumes as % of volumes of all types held	11.2%	NR		NR	8.6%	6.4%	2.1%
2. Book titles held 1979-80	46,721	4,262	36,711	18,229	NR	40,000	16,606
a. % change 1974-75 to 1979-80	61.1%	NR	42.8%	19.0%	NR	13.0%	4.3%
3. Book titles added 1979-80	3,128	170	1,699	280	1,640	700	265
a. % increase 1978-79 to 1979-80	7.3%	4.1%	5.0%	1.6%	NR	1.8%	1.6%
B. INTERLIBRARY LOAN							
1. Total items loaned 1979-80	3,440	139	2,373	589	738	536	488
2. Total books loaned 1979-80	NR	NR	191	151	72	145	43
a. Books loaned as % of total	NR	NR	8.0%	25.6%	9.8%	27.1%	9.8%
b. Books loaned to NASA libraries as % of total books loaned	NR	NR	39.3%	33.1%	45.8%	51.7%	88.4%
3. Total items borrowed 1979-80	1,072	225	977	NR	6,454	1,014	520
4. Total books borrowed 1979-80	NR	NR	296	96	900	490	98
a. Books as % of total items borrowed	NR	NR	30.3%	NR	13.9%	48.3%	18.8%
b. Books borrowed from NASA libraries as % of all books borrowed	NR	NR	34.1%	NR	35.1%	44.9%	46.8%

NR = No response

TABLE 4. NASA CENTER LIBRARIES' BOOK SYSTEM ACTIVITY
(Continued)

	Langley	Lewis	Marshall	National Space Technology Laboratories	Wallops	Total	Mean
A. HOLDINGS							
1. Book volumes held 1979-80	67,599	64,651	3,600	NR	20,767	505,907	50,591
a. % change 1974-75 to 1979-80	NR	21.3%	NR	NR	-1.2%	---	18.4%
b. Book volumes as % of volumes of all types held	5.2%	5.0%	0.4%	NR	3.2%	---	5.3%
2. Book titles held 1979-80	50,001	28,093	3,320	9,884	19,729	273,636	24,876
a. % change 1974-75 to 1979-80	NR	33.8%	NR	NR	-1.2%	---	24.7%
3. Book titles added 1979-80	3,258	1,147	250	65	370	17,969	1,497
a. % increase 1978-79 to 1979-80	6.6%	4.3%	NR	0.7%	1.9%	---	3.5%
B. INTERLIBRARY LOAN							
1. Total items loaned 1979-80	918	744	60	26	NR	18,043	913
2. Total books loaned 1979-80	608	109	9	11	47	1,386	139
a. Books loaned as % of total	66.2%	14.7%	15.0%	42.3%	NR	---	24.2%
b. Books loaned to NASA libraries as % of total books loaned	43.1%	85.3%	100.0%	9.1%	85.1%	---	56.1%
3. Total items borrowed 1979-80	1,939	1,945	10	2,400	NR	31,173	3,117
4. Total books borrowed 1979-80	662	91	10	600	46	3,289	299
a. Books as % of total items borrowed	34.1%	4.7%	100.0%	25.0%	NR	---	34.4%
b. Books borrowed from NASA libraries as % of all books borrowed	78.1%	53.8%	80.0%	16.7%	87.0%	---	52.9%

NR - No response

often the media through which scientific and technical information is published. The libraries vary considerably in the extent to which they depend on, and supply, other NASA libraries for interlibrary loan of books. This is a function of the amount of overlap among the libraries' interests and of the availability of other sources. Libraries like JPL that are surrounded by non-NASA libraries with relevant collections are generally more likely to use local sources for ILL because they are faster. Others, like Wallops, rely more heavily on the NASA network.

The most complained about problems with the database, duplicate records and inaccurate holdings information, affect interlibrary loan more than any other use of the database. Duplication of records means that the requesting librarian may not find all the copies within NALNET, information that is needed in case the title is not readily available at the first libraries contacted. The inaccurate holdings and call number information mean that the request may go to a library that no longer owns the title, or the call number provided by the borrowing library may be the wrong one, in either case delaying delivery to the user.

RECON does not have an interlibrary message transmittal capability such as has been developed by some of the commercial bibliographic utilities. The OCLC interlibrary loan module, for example, allows a library to poll several libraries listed as holding a given item. The bibliographic description does not have to be rekeyed, the request and replies are transmitted electronically, and the system automatically goes on to the next library if no reply is received within a given period of time. The NASA libraries have to relay requests and replies by more traditional means, typing and mailing them.

3.3.3 Cataloging Source Data

A NASA Center library that performs its own cataloging tries to begin with an authoritative catalog record, which it then modifies to suit its own collection and needs and transcribes onto catalog cards or into machine-readable form. Original cataloging is performed only if no source record can be located.

A number of sources of authoritative cataloging data are used, including Cataloging in Publication (Library of Congress preliminary cataloging printed in the book itself), MARCFICHE (a COM copy of the complete MARC tapes purchased from a vendor), and the National Union Catalog (Library of Congress and other major libraries' cataloging records). Several of the NASA libraries use the STIMS book file as a source of data for their cataloging efforts. The MARC records in the book file provide the Library of Congress' cataloging. The NASA libraries' records for titles not on MARC allow some sharing of the cataloging effort among NASA libraries.

The major disadvantages of the current database as a source of cataloging information are two: 1) the MARC file is not complete, and the quality of the NASA libraries' cataloging varies; 2) the MARC records added to the database are selected by matching their Library of Congress classifications with a NASA profile. The NASA Centers' interests are broadening, as they diversify into newer areas of research, so more and more of the titles that the libraries catalog are not included in NALNET's subset of MARC. Because the libraries themselves differ in their cataloging standards, they also differ in the extent to which they are willing to use one another's catalog records as they appear on STIMS. An added problem with using other NASA libraries' cataloging is that there are delays in getting the record into the system.

3.4 The Book System Meeting Needs

The book system remains an important NALNET activity. It contributes toward the NALNET goals of improved service, reduced costs, and increased resource sharing. However, to meet the current needs of the NASA libraries more effectively, it needs some revisions.

3.4.1 The Database and Retrieval System

One of the major current uses of the book system is for information about books, including but not limited to those held by the NASA libraries. To fulfill this information retrieval function, the NASA libraries need:

- o A large database that includes most of the book literature of interest to the NASA libraries.
- o A sophisticated information storage and retrieval system to provide flexible searching of the database.

The current STIMS database and RECON retrieval system fill these needs. RECON and STIMS have the added advantages of being currently in operation and working with other kinds of NASA literature, as well. They will continue to exist with or without the book file. In addition, it is easier for librarians and users to be able to search the same system for different kinds of documents. From the end user's perspective, the segregation of files based on document format is artificial. The more integrated the system the easier it is for the user.

We considered recommending that the Facility mount the full MARC database on STIMS in order to expand the range of titles available, but decided that such a file would be too large and too broad, introducing unnecessary costs and extraneous titles. Instead, we suggest that the NASA Center libraries review the current MARC selection profile to determine whether it still meets their needs or should be revised to reflect their changing interests.

The book file is a major interlibrary loan tool. The concept of a NASA union file is a valid one. For the book file to fulfill this union file function would require:

- Accurate information;
- Standards for the addition of records to the file to minimize duplication;
- Careful monitoring of additions to the file by the Facility to ensure the quality of the database.

The errors in the STIMS book file have more significance for interlibrary loan than for information retrieval. Erroneous holdings and call number information and duplicate records make the system unreliable as an interlibrary loan tool. A complete clean up of every record in the file, however, would involve more than the 22 percent of the records which currently have holdings information. One way that the local holdings information can be updated is by generating local shelflists for the individual libraries to check and correct.

The question of open versus closed entry requires special comment. The current standards for records added to the database call for closed entries; that is, each volume of a series requires a separate record. The rationale for closed entries is that they provide holdings information; if a library has a broken run of a monographic serial, for example, having a closed entry for each item allows one to determine which titles are held and which are not. This information is useful for two purposes:

1. For the owning library, as inventory information.
2. For a borrowing library, to determine which libraries have the specific volume needed.

The difficulty with closed entry is that it requires considerable duplication of information and of effort, because a record must be generated, stored, and retrieved for each individual item. Ames, for example, has estimated that one-third of its current catalog records are open entries, so the increase in the number of records would be considerable.

Because the current standard of closed entry imposes additional costs on the reporting libraries in the form of additional records generated, many of the libraries that use open entries in their own catalogs simply do not submit records for those titles to the Facility. This reduces the coverage and therefore the usefulness of the NALNET book file.

In our discussions with the libraries, we found that the major proponent of closed entries was Goddard. The other libraries that favored closed entries were small libraries for whom the disadvantages of closed entries were minor. The larger libraries who have many items in series preferred open entries.

The choice is not exclusively between open and closed entries, however. The NALNET Periodicals File includes a holdings note and subscription status field for each library for each title. This appears to offer a solution for the open-closed entry dilemma. It would be useful for the Facility to investigate the feasibility of modifying the STIMS record to include holdings information on items in series. If this should prove to be infeasible, the system could go to open entries. The system is not a local library inventory system.

3.4.2 Cataloging and Cataloging Products

Among the NASA libraries we found little interest in centralized cataloging and cataloging product generation. Only two of the 12 libraries are currently using the Facility for cataloging and one of those is on the verge of shifting to doing its own cataloging with OCLC. The phenomenal development of bibliographic utilities in the last few years has made it possible for libraries to retain control over their own cataloging while enjoying the benefits of systems shared, not just with other NASA libraries, but with as many as several thousand other libraries.

Our assessment of the NASA Center libraries' needs for products has convinced us that there is a mismatch between the need for the various products and the effort expended to produce them. The major difficulty with the product generation has been the inability of STIMS to fully recreate a standard catalog card image because of the loss of information in the conversion from MARC or local library catalog record to STIMS. What we found was that the libraries do not particularly need this capability.

Only two libraries are currently using the Facility to produce cards, and one of those libraries is seriously considering switching to OCLC. Many other sources of catalog cards and forms of catalogs are available, as evidenced by the 10 libraries that do not currently get cards from the Facility. We see no reason to upgrade the Facility's card production capability to cover those cases in which STIMS is insufficient. Furthermore, we see little reason to maintain an original/partial cataloging capability at the Facility for the sake of only one or two libraries.

COM or book catalogs would be of more use to the NASA libraries, largely because so many of them complained about space limitations. However, producing COM catalogs from the current database would not meet the libraries' needs, because the database does not reflect the local catalog: not all titles are in the database and the local cataloging variations are lost. If the libraries wanted their COM references to appear in card image format, which is usually the case, they would have the same problems with the COM as with cards. The libraries already have online access to this information. The only real advantage to a COM or book catalog would be that they can be used without a terminal.

The local shelflists would also be of limited use, especially given that the database does not currently accurately reflect the various libraries' holdings. The major use of local shelflists would be to check the database against the libraries' holdings, a step which would be of major volume. The sorting problems that have been experienced in generating such shelflists can be rectified through software development.

The local book surplus lists are easy to produce, and only require a minimal record in order to identify the title being weeded. Half of the libraries expressed a qualified interest in this kind of information, so local book surplus lists can be a low priority product.

The local accessions list can also be readily produced off STIMS, because it is not necessary that the record appear in full standard catalog card format. The major problem with the accessions lists is timeliness. In addition, some libraries would prefer to have other accessions included, which is more

difficult and perhaps impossible. A local book accessions list could be produced for each library, however, as long as accessions are promptly reported to the Facility and posted to the database.

The union book index on COM is a useful back-up to the online file, but it is not a major product and should not be treated as such. As the basic edition becomes more out of date and more supplements are produced, it will become less useful. The Facility should undertake a cost study for re-cumulating the product annually or biennially, as the basis for a decision to either drop the product, produce it annually, or produce it biennially with supplements during alternate years.

The union book accessions list suffers from the same problems of timeliness as do the local accessions lists. Every effort should be made to improve the speed with which items are added.

4. BIBLIOGRAPHIC UTILITIES

4.1 Introduction

As part of this study, three major bibliographic utilities and three other automated library systems were examined for their potential as components of the NASA book system. Each of these systems offers a set of services which can fulfill some of the libraries' requirements, services which can be bought by NALNET as a whole or the libraries individually. The purpose of this chapter is to describe some of the alternatives available. We cannot stress too strongly that each system offers a different set of services, so no two are strictly comparable. Each library will need to decide which services it prefers and how much it is willing to pay for them.

It is important to note in considering these alternatives that the Federal Library Committee (FLC) through its network, FEDLINK, to which NASA belongs, has negotiated contracts with several of these vendors and can negotiate with others if there is a demand. FEDLINK offers services, such as training, which complement the systems available. By negotiating as a block, the Federal libraries working through FEDLINK are often able to get more favorable terms from the vendors than if they negotiated on their own. And, finally, FEDLINK has certain administrative capabilities that help to cut through the procurement red tape.

Table 5 presents a summary comparison of the systems' costs and Table 6 summarizes their capabilities. Appendix D reproduces detailed cost data received from the vendors and FLC.

4.2 OCLC, Inc.

OCLC, Inc., was founded in 1967 by the Ohio College Association and was originally called the Ohio College Library Center. In 1977 the name was changed to OCLC, Inc. OCLC operates an online computer network used by over 2,200 libraries in 50 states, Canada, and other countries. There are more than 3,000 remote computer terminals in the network that access a very large database (13.4 billion bytes of disk storage) containing catalog records of books and other library materials. This database represents the largest bibliographic record collection in the world and as such can offer many features specifically designed for the library community.

Libraries use the OCLC system to catalog books, order custom-printed catalog cards, maintain location information about library materials, and arrange for interlibrary lending of materials.

To achieve its objectives, OCLC has designed a computer network system whose overall design provides for six subsystems listed below; the first three are operational.

<u>Subsystem</u>	<u>Operational Date</u>
1. Cataloging	August 1971
2. Serials Control	January 1975
3. Interlibrary Loan	April 1979
4. Acquisitions	Scheduled in 1981
5. Circulation Control and Remote Catalog Access	
6. Information Retrieval and Subject Access	

4.2.1 Cataloging

The Cataloging Subsystem provides bibliographic information essential to other subsystem activities. The OCLC Online Union Catalog is the database of bibliographic information created by the cooperative cataloging effort of participating libraries cataloging in MARC format according to AACR standards,

plus the full MARC database. The Online Union Catalog contains more than 6,000,000 bibliographic records for books, serials, audiovisual materials, maps, manuscripts, scores, sound recordings, and other library materials. Each library can specify from a number of options for catalog card format, numbers of cards produced, and filing order. The cost for creating each library's Catalog Card Profile is a one-time only charge based on the actual OCLC staff time required.

The database is currently growing at a rate of about 25,000 records per week. Of these, approximately 21,000 are provided by member libraries; the remainder comes from Library of Congress MARC Distribution Service records that are batch-loaded into the system weekly. OCLC users have online access to the Library of Congress Name-Authority file of records, an important reference tool for cataloging. The basic online record in OCLC is a MARC record or, if no MARC record exists, that of the first library cataloging the item; local variations to these records are preserved only on archival tapes, not online.

There are over 65,000,000 location symbols in the database associated with OCLC bibliographic records, which identify each library that has used an OCLC bibliographic record for cataloging. Each record in the database has, on the average, 10 institution symbols within its holdings display. These symbols form the basis for the ILL subsystem.

Users of the Cataloging Subsystem may order custom-printed catalog cards shipped in filing order, machine-readable records through the OCLC-MARC Subscription Service, and accessions lists.

The card production system is capable of handling the individual needs of participating libraries. OCLC produces, at the request of a participating institution, magnetic tapes of that institution's catalog records. It is on these tapes that local modifications to the basic catalog record are preserved. Tapes are produced weekly, biweekly, monthly, quarterly, or semi-annually; they are in MARC II communication format, except that the records are unblocked and of variable length. Tape specifications are 9-track, 1600 characters per inch, (800 c.p.i. optional), with ANSI standard tape labels. OCLC prepares a tape of an

institution's records according to the options the institution chooses on the OCLC-MARC Subscription Service Request form. Institutions wishing to take advantage of this service complete a provided form.

It is to be noted that records on tape may not contain exactly the same information that appears on the catalog cards. Any data that is automatically added to or deleted from catalog cards will not be added to or deleted from the corresponding tape record. In the case of subject headings, those present in the bibliographic record when the request is made to create a tape will be included. If a library specifies that non-LC subject headings be bracketed on cards, the brackets will appear only on the cards, not in the tape record. This aspect can be important for the consideration of adding NASA subject terms to records contributed by member NASA libraries.

OCLC produces, as a final Cataloging Subsystem product, at the request of a participating library, lists of that library's current accessions which have been cataloged on the OCLC Online System. This service provides a formatted, accurate list that may be reproduced for patrons of the library. Four decisions are made by the library regarding the accessions list: 1) primary sort sequence (institution or holding library); 2) secondary sort sequence (call number or subject); 3) print medium (unlined paper or multilith duplication masters); and 4) frequency (semimonthly, monthly or quarterly).

OCLC plans to undergo a full database conversion based on AACR II rules in January, 1981. Using an algorithm, OCLC expects that approximately 95 percent of the records currently held in the database will be successfully converted to the new format and corporate heading modifications. The remaining records will be tagged as non-AACR II and as libraries locate and use such records, they can be changed. It should be noted that this conversion will not result in "pure" AACR II records since old as well as new LC name and authority data will be kept in the record. It will, however, make pre-1981 records consistent with those from 1981 onward.

One question that arises when a library evaluates a bibliographic utility is whether the library can expect to find the records that it needs already on the system, or whether it will have to originally catalog a large proportion of its holdings. The more records already on the system, the less additional effort required of the library. A random sample of 117 RECON records (drawn by the Facility) for titles held by NASA libraries were checked against the OCLC database by the project team and 99 of the same 117 RECON records were checked against the RLIN database by the Ames Library. The results are as follows:

	n	Found	Not Found
OCLC	117	96%	4%
RLIN	99	78%	22%

The records not found in the OCLC database were primarily of Federal and State Government origin. It appears that the great majority of new titles received by NASA libraries could be found in the OCLC database.

4.2.2 Interlibrary Loan

The Interlibrary Loan Subsystem is designed to increase the availability of library resources to patrons by enabling libraries to draw upon collection resources from other libraries. Potential lending libraries are identified in the Online Union Catalog by their unique institution symbols attached to bibliographic records for items they have cataloged. According to OCLC, libraries formulate, transmit, and fulfill loan requests more rapidly and efficiently through online communications among libraries.

The ILL Subsystem consists of the OCLC Online Union Catalog, an ILL Transaction File, and an ILL Message Waiting File. Users send and receive ILL requests and responses through the online system by supplying information on ILL transaction records. Requests may be created from information extracted from a bibliographic record in the Online Union Catalog, or for items for which no bibliographic record exists in that catalog.

The subsystem includes a referral feature that sends the ILL request, in turn, to any five OCLC member libraries selected by the borrower. A request remains with a potential lender for up to four days. If that lender fails to respond during this time, the system automatically refers the request to the next potential lender. Borrowers and lenders update the online transaction record from the time the request is made until the transaction is complete.

OCLC indicated, during the site visit made for this study, that a feature to be added soon to the ILL subsystem will enable a library to specify the order and grouping of institution symbols during the creation of an ILL request. As an example, the NASA libraries which opt to use OCLC could configure a display which shows first other NASA libraries which hold a title and then, secondly, geographically close libraries which could be tapped.

4.2.3 Serials Control

The Serials Control Subsystem uses serial bibliographic records in the Online Union Catalog to provide libraries with several aspects of serials control: check-in, union listing, claiming, and binding. Currently, only check-in is operational. However, the ability to use the subsystem as a participating library in OCLC should be of some interest, since the current NASA system does not incorporate all the features of this subsystem.

4.2.4 Acquisitions

The Acquisitions Subsystem, which will be available by mid-1981, will support ordering, receiving, and claiming operations for the acquisition of library materials. The subsystem will also provide administrative and planning data, including fund commitment reporting. Local information from the Online Union Catalog entered during the ordering process will facilitate cataloging and processing. The OCLC Acquisitions Subsystem will permit users to place orders for all types of bibliographic materials, renew subscriptions, request publications or price quotes, create deposit account orders, send prepaid orders, cancel orders, create and adjust fund records, and receive periodic fund reports.

As with the Serials Control Subsystem, the Acquisitions Subsystem functions are not directly applicable to this study of the current book system. Yet the information provided can assist in a determination by NASA as to the scope of future features of this utility which may be implemented by participating libraries.

4.2.5 Circulation

The Circulation Control Subsystem will eventually provide for the capability to eliminate manual preparation of circulation forms, increase current status and location information about items for staff and patrons, and help ensure uniform application of library policy. Some NASA libraries would like to be able to use a circulation system which ties into their cataloging system. The projected OCLC capabilities will offer the opportunity if selected by a participating NASA library.

4.2.6 Information Retrieval

The Information Retrieval and Subject Access Subsystem will eventually provide multiple access capabilities, such as subject search, to library staff and patrons. Currently, access to the file is by one of several specific search keys: LC card number, OCLC control number, CODEN, author name, title, author-title combination, or standard numbers (ISSN or ISBN). This is much less flexible than RECON. There is no specific time established for the addition of these other search capabilities to OCLC's repertoire. This absence of subject retrieval, if OCLC is chosen by any NASA library, mandates a continued dependence on RECON for location of book titles by subject categorization.

4.2.7 OCLC, Inc., Summary

OCLC, Inc. is currently the system of choice of Headquarters and Johnson and is under consideration by Lewis. The bibliographic utility's capabilities, advantages, and disadvantages are summarized below.

4.2.7.1 Capabilities

- a. Provides catalog cards according to library's specifications, ready for filing.
- b. Provides machine-readable tapes of library's newly-cataloged titles as frequently as once per week, if desired.
- c. Generates a local accessions list.
- d. Makes available other subsystems (electronic messaging inter-library loan subsystem with automatic forwarding capability, serials control subsystem), and more are in the planning stages (acquisitions subsystem scheduled for 1981, circulation control, subject access).
- e. Can be accessed by either an in-house or special terminal.

4.2.7.2 Advantages

- a. Largest bibliographic database.
- b. 2,200 participating libraries.
- c. FLC has a negotiated contract with OCLC, which results in a large number of Federal library OCLC members.
- d. Access to full MARC database.
- e. A conversion of a majority of the records to indicate AACR II format will occur in January 1981.

4.2.7.3 Disadvantages

- a. Designed as a cataloging and not information retrieval system; in particular, no subject access.
- b. Not as many special libraries are members; there are a greater number of public and academic libraries.

The Research Libraries Information Network (RLIN) is an operating component of the Research Libraries Group, Inc. (RLG), which is owned by a growing number of member institutions (presently numbering 22) including Columbia, Princeton, Stanford, Brown, Cornell, Johns Hopkins, New York, and Yale Universities, The New York Public Library, and the Universities of Michigan and Pennsylvania. The RLIN system provides for both bibliographic record searching and cataloging.

Membership in RLG is limited to major research libraries. Other libraries are allowed to belong to RLIN (but not to RLG) under the following conditions: they were RLIN users when it was Stanford University's BALLOTS system, before RLG took possession of the system; they have collections in areas defined by RLG as of interest (currently law, art and architecture, and Southeast Asia); or they contract with RLIN through the California Library Authority for Systems and Services (CLASS), which brokers RLIN services in the West.

Officially, RLIN is not now available to the NASA libraries for shared cataloging, except to the libraries in the CLASS service area (Ames, JPL, and Dryden). The Federal Library Committee/FEDLINK contracts with RLIN for search-only services (they can inspect records but cannot modify them nor add holdings), so this service is available to the NASA libraries. However, CLASS has suggested to us that they might be willing to negotiate with RLG for permission to broker RLIN services to the NASA libraries.

Because of the advantages of the RLIN system for the NASA libraries, we are including it as a possible alternative, with the caveat that it is not readily available and may not be available at all for the non-Western libraries. Because it is not officially available at the present time, however, RLIN did not meet with us. They did provide us with information, as did FLC and CLASS, which forms the basis of this description.

4.3.1 Information Retrieval

The RLIN database contains LC MARC book and non-book records (including LC authorities); records of users' present and archival machine-readable cataloging; and users' acquisitions and cross-reference records. The RLIN database consists of over 1 million records which are almost all monographs at this time. LC MARC records represent the bulk of the database, and Stanford's records represent another large segment.

RLIN's database can be searched using the following indexes:

- Personal Name
- Corporate/Conference Name
- Title Word
- LC Card Number
- RLIN Record Identification Number
- Local Call Number
- Subject Heading
- International Standard Serial Number (ISSN)
- CODEN
- Plate Number for Musical Scores
- Issue or Matrix/Take Number for Sound Recordings
- Sound Recording Label
- Map Classification Code
- International Standard Book Number (ISBN)

The RLIN search language is extremely flexible. Several text words can be combined in one search command without necessarily imitating the actual word order. Terms from more than one field can be combined in a single request. Single words, including authors' names, and subject headings can be truncated in order to search on variations on a given word or name. It is also possible to search only a subset of the database, such as one library's holdings.

Records retrieved can be displayed in several different formats, ranging from a short display of the essential bibliographic information to a replication of a catalog card to a record fully tagged with LC MARC data element indicators and subfield delimiters.

To access RLIN for searching-only applications, a variety of ASCII standard video terminals and video-printer terminals can be used. These terminals use voice-grade telephone lines via direct telephone dial-up or through the Tymnet telecommunications network. Most NASA libraries have various CRT and thermal printer terminals on-site at the present time which could be employed for the search-only application.

4.3.2 Other Services

RLIN allows shared cataloging users to call up records from the database, modify them, and order cards, which are delivered ready for filing, as does OCLC. In addition, however, RLIN maintains the library's own catalog records online, which makes it possible to add an additional copy, correct a record, or search a library's own holdings directly. Catalog cards are shipped from the RLC central offices daily if the institution receives in excess of 15,000 cards per month (representing approximately 1,500 to 2,000 titles cataloged); otherwise cards are shipped weekly. Each institution must indicate its choice of shipping method.

RLIN has recently instituted an ILL messaging system. Libraries can search other libraries' holdings as well as their own. When an item is found, a message can be transmitted to the holding library requesting that the item be sent. The ILL subsystem does not have the automatic forwarding capability of the OCLC subsystem, but it does provide electronic message transmittal.

RLIN began to offer search access to the LC name and subject authority files in early 1979. Authority control which would automatically lead a user to alternate forms of entry or which would prevent the input of incorrect data will

not be available until mid-1981 after RLIN has implemented a software package called the Network File Design (NFD).

RLIN will provide access to new LC subject and name authority records in the AACR II format. They will change any cataloging formats that might need adaptation because of the new rules, and it is possible that RLIN will make a pass through their database converting name and subject entries that have a direct, one-for-one relationship between the old and new forms.

RLIN plans to offer book and microform catalogs as possible products shortly. RLIN cannot serve as an online catalog to its participating libraries because it does not have the computer resources to do so, nor is it anticipated that it will have them in the foreseeable future.

4.3.3 Future Development

A cost-benefit study for both centralized and distributed serials control subsystems is in the RLIN development schedule. It is thought that a centralized serials control system will not generate sufficient revenues versus computer resources expended so it is unclear what direction RLIN will take or when.

RLIN conducted a limited (maximum of 10 libraries) implementation of the Stanford acquisitions system during the second quarter of 1979. The system lacked provision for fund accounting and management reports. Improvements to the system are to be made after the Network File Design has been implemented. Availability of this subsystem is not yet known at this time.

RLIN has no formalized plans relating to circulation control.

There will be a new computer processor installed in 1981 to serve East Coast libraries. This will reduce the telecommunications charges currently accrued by a library using this bibliographic utility for cataloging and/or searching. The savings to be realized from the new processor cannot be calculated at this time.

4.3.4 RLIN Summary

The Ames Library currently uses RLIN for shared cataloging. The bibliographic utility's capabilities, advantages, and disadvantages are summarized below.

4.3.4.1 Capabilities

- a. Provides catalog cards according to library's specifications, ready for filing.
- b. Provides machine-readable tapes of library's catalog records.
- c. Maintains participating library's local catalog records online, but does not have the computer resources to serve as an online catalog with patron access.
- d. Other services are available (electronic messaging interlibrary loan service, subject access, access to LC name and subject authority files) and more are in the development phase (book and microform catalogs, acquisitions system, and possibly a serials control system).
- e. Can be accessed by either an in-house or special terminal.

4.3.4.2 Advantages

- a. Subject access to all records.
- b. Library can input local cataloging information and preserve it online, making it possible to change a record or search a library's holdings directly.

- c. Extremely flexible search language including truncation and the ability to search more than one field in a single request.
- d. Access to full MARC database and records of member research libraries.
- e. Members are research libraries.
- f. New East Coast computer processor to be installed in 1981 will reduce telecommunications charges.

4.3.4.3 Disadvantages

- a. It is possible that RLIN may be available only to those libraries in the Western States. FLC's contract with RLIN is for subject-searching only.
- b. Interlibrary system is not as sophisticated as OCLC's, as it does not have automatic forward capability, and it offers access to fewer libraries.
- c. Smaller than OCLC -- 1,000,000 records (almost all monographs) compared to OCLC's 6,000,000 records (monographs, serials, maps, recordings, etc.).
- d. No formalized plans related to circulation control.

4.4 Blackwell/North America, Inc.

Blackwell/North America, Inc. (B/NA) is a service organization that manipulates magnetic tapes of bibliographic records (its own master tapes plus machine-readable input from contracting libraries) to produce a variety of products. It is not used for cataloging, but for creating catalog products from catalog records.

B/NA has been in the process of re-negotiating its contract with the Federal Library Committee. Because of this, and because of other heavy contractual commitments, B/NA told us that at the time of our investigation it was not in a position to take on new customers, especially Federal libraries, and, therefore, was not interested in meeting with us to discuss the needs of the NASA libraries. The information in this section was garnered from B/NA's marketing documents, FLC, and other secondary sources. The cost data presented in Table 5 is from the expired contract; no current figure is available.

4.4.1 Services Offered

The B/NA database is composed of 2,500,000 records which are utilized in a batch mode. The records are compiled from the U.S., British, and Australian MARC tapes and those records contributed by customers. Each customer has a separate database maintained by B/NA, but no online access is provided. Access points are ISBN, LC card number and a B/NA number.

Until November 1, 1980, there was a contract between B/NA and the Federal Library Committee (FLC) for the processing of OCLC/MARC tapes for the production of COM catalogs. This contract, which has officially expired, has not yet been re-awarded (as of the writing of this report).

The overall services provided under the expired FLC contract were:

1. Extraction of a library's holdings from the FEDLINK tapes.
These FLC/FEDLINK Master Tapes are of records in the OCLC database from all FEDLINK members. These tapes are produced,

currently, at six month intervals and have an accumulation of over 300,000 records. The two types of extraction requirements are a retrospective extract from the cumulative set, and extracts from specific tapes, e.g., the most recently received tapes.

2. Creation of a clean master file for a given library or group of libraries by merging OCLC/MARC tapes and eliminating duplicates and superseded records.
3. Periodic Master File maintenance, i.e., periodic merging of the latest OCLC tape into the library's master file.
4. Production of catalog products on COM microfiche, COM roll film, and/or line printer or photocomposed pages, depending on individual library requirements. The catalog types available include main entry catalog, author catalog, title catalog, subject catalog, series catalog, and shelf list.
5. Production of accessions lists.
6. Special products, e.g., selected serials or other database subset listings (including KWOC from titles) and special bibliographies.

A member library which has not previously received OCLC tapes could request an extract of their records from the FEDLINK Master. For example, any NASA libraries participating in OCLC would have their records on these tapes and could receive these B/NA services. Also, under the FLC contract, a small number of libraries regularly requested an extract of their data from the current six month accumulation when it was received.

4.4.2 Additional Services of Interest to NASA Libraries

The B/NA contract had to deal with multiple-library tapes which were for an agency with several libraries, as in the case of NASA. Such tapes can be

used to produce agency-level union catalogs; and, by extracting the records with a given holding symbol, catalogs may be produced for the individual libraries, as for the agency as a whole.

The contract was designed to deal with a variety of library configurations. The smaller libraries were estimated to need as few as one or two catalog productions a year with quarterly accessions lists. A few were determined to need monthly catalogs and weekly accessions list. Typically, as FLC indicated in its Work Statement, the smaller libraries would have 10,000 bibliographic citations, while larger ones would have around 150,000 citations. The average library was estimated to have about 30,000 to 40,000 citations. In comparison, in FY 1980, the range of titles added annually by NASA libraries was from 65 to 3,258; and the range of unique titles held was approximately 3,000 to 50,000 per NASA library.

A prerequisite to the use of B/NA services by the NASA libraries would be the availability of current cataloging records in MARC compatible format, such as would be obtained from OCLC or RLIN. Once the records were in machine-readable form, B/NA could work with them to combine and edit the records from the different libraries. Some services that could be arranged if desired include:

1. Collapsing duplicate OCLC records from library tapes resulting from use of the "update" command.
2. Text editing for all main and added entries of descriptive cataloging in order to ensure correct filing.
3. Conversion of local name authority records to MARC, resulting in name cross-references.
4. Recataloging all LC subject headings to LCSH/8 (the latest edition), including interfiling and verifying cross-references. Local interpretation of LC is maintained with updating of subdivisions when required.

5. Generation of edited tapes for local online computer systems as an alternative to COM products.

B/NA can also assist a library in converting its current manual catalog records into machine-readable form. This service would be useful to a library desiring to have its entire catalog in one machine-readable file.

Essentially, there are three methods, two B/NA-keyed and one library-keyed, which could be elected by a library wishing to use this service under the FLC contract.

1. Conversion services wherein keying, proofing, and editing are performed by B/NA's staff.
 - a. Turnkey Service: Either the library or B/NA will microfilm the official shelflist or catalog of the library. In addition to keying, proofing and editing, B/NA's staff will also perform pre-conversion searching and, optionally, post conversion matching against the microfilm catalog.
 - b. Cooperative: Library staff perform the pre-conversion searching against their own official shelflist or catalog and prepare manual listings of input which are submitted to B/NA. The library staff are also responsible for matching conversion output against the source file and for organizing input for field updates resulting from this matching process.

2. Library-Keyed Input

In addition to pre-conversion searching and post-conversion matching, the library also remains responsible for keying its own input according to the various other formats required by B/NA. This order format can be submitted in the form of OCR scan sheets or 9-track computer tapes. Also available are

offline or batch telecommunications. B/NA can install the Easy Access Order System II software which uses the Texas Instruments 770/1 intelligent computer terminal.

According to the degree of involvement and effort supplied by B/NA's own staff in their Cataloging Department, the average cost per title can vary widely. A turnkey conversion can cost over \$1.50 per title, a cooperative approach should cost approximately \$1.00 per title, and a library-keyed conversion could cost about \$.50 per title in terms of cost paid to B/NA for input order processing, editing, and various products output during the course of activities performed on behalf of the members of FEDLINK. It is possible that additional economies of scale can be achieved for those libraries which have "alien" databases not in MARC format produced in the course of cataloging activities on earlier systems or acquisitions or circulation activities of the departments of the library. Such is the experience with many of the NASA libraries. B/NA can develop special programming services to convert these "alien" databases to MARC by means of a format conversion or a replacement conversion.

4.4.3 Summary

B/NA is not comparable to OCLC and RLIN because its primary mission is to work with the records produced by systems like OCLC and RLIN to produce catalog products. B/NA's capabilities are in combining records from more than one library, and for one library over time, in maintaining the database produced from them, and spinning off products such as COM. Current cost data is not available from B/NA to compare it with the Facility. Some of B/NA's services may be of use to individual NASA libraries, depending on their preferences for local catalog products.

4.5 Other Systems

Three other services, available for NASA libraries' consideration, can locally replace some of the capabilities of the three major utilities thus far discussed. These three are: the Integrated Library System (ILS), MARCFICHE, and MINIMARC. This discussion does not purport to limit consideration to these systems, but indicates some alternate possibilities for an individual NASA library's decision.

4.5.1 Integrated Library Systems (ILS)

The ILS has been recently released to the public by the Lister Hill National Center for Biomedical Communication of the National Library of Medicine through the National Technical Information Service (NTIS). The ILS is an automated library system offered for under \$50,000.

The basic ILS system from NTIS includes a full MARC compatible database capability; a comprehensive circulation and inventory control subsystem; a limited serials control module; a complete set of management reports; and extensive online user and system documentation. The ILS will be offered initially on three micro/minicomputer systems: IBM Series/1, including the 4,952 single board processor; Digital Equipment Corp. PDP-11/XX, including the LSI-11/23 microcomputer; and Data General NOVA 4 and ECLIPSE minicomputers.

The ILS is designed to run with proven off-the-shelf hardware and software. All components are standard and operating in thousands of different applications all over the world. There are no special purpose or experimental pieces of equipment or software. Reliability should be at least as good as that of any other comparably-sized computer system. The operating system has several years of development and hundreds of thousands of operating hours.

Supporting vendors for the ILS software can provide a wide range of services including library systems analysis and design, hardware acquisition in

support of ILS customers, custom software or modifications to meet local needs, and an extensive onsite user training program.

The ILS design has evolved over a period of three years. One of the most important goals in its design was to provide a base for the development of a complete library system. Although the first major module selected for implementation was circulation, a significant analysis effort was performed to insure that all follow-on subsystems could be implemented with little or no impact on the existing functions. To accomplish this, two basic design concepts were determined:

1. A Master Bibliographic Record format that could support changes, primarily adding of fields, as new subsystems are implemented; and
2. A program design that basically separated every function from every other. This separation had to exist if new modules are to be integrated without significant code changes.

4.5.1.1 Cataloging

Central to the entire ILS is a MARC-based bibliographic record. This basic record is then operated upon by all the subsystems. The Master Bibliographic File is created either by machine-readable input or by local cataloging and keying.

ILS is capable of accepting input in the form of MARC tapes or similar MARC-formatted tapes, such as from OCLC. The tape processing subsystem allows the library to specify a selection strategy which chooses only those records meeting certain characteristics. If the input is standardized, as from the MARC records, the library can then use ILS' editing capability to modify the record to suit local cataloging needs. Alternatively, the library can perform its own cataloging manually (or using any other method) and then key the records into the ILS, where they will then be available for other ILS functions.

Critical to the system design is the concept that ILS is committed to the MARC format. Therefore, ILS authority files are structured much like the bibliographic files. This permits the cataloger to select desired tags from the complete online MARC authorities format to build a local authority profile in much the same manner as was presented for the master bibliographic file. This aspect of the ILS is in true conformance with one of the basic recommendations of this study, i.e., that NASA book cataloging be performed with MARC format and under MARC rules.

4.5.1.2 Circulation

The circulation subsystem includes such features as patron registration, check-out, check-in, and renewal of materials; patron and item inquiry routines; and inventory control.

4.5.1.3 System Network Access

A prototype, experimental microprocessor-based "black box" interface is being developed for ILS for the purpose of accessing a variety of networks or utilities from a single terminal. The basic concept is to provide an inexpensive interface that would permit the user to access multiple systems from a single terminal. The purpose of the multiport "black box" is to emulate the data communications protocols unique to the systems being accessed rather than relying on a specific terminal to perform that function. The user could readily log into several systems, e.g., RECON, OCLC, RLIN, etc., and then access them as needed from a standard terminal. The work yet to be accomplished here includes defining the protocols, working out agreements with the utilities and testing in a realistic environment.

4.5.1.4 Interlibrary Loan Subsystem

The significant features to be developed in this subsystem include the capability to access a network (e.g., OCLC), search for the intended item, retrieve appropriate bibliographic data, print the ILL request using the pertinent

data, and prepare the mailing label. Similar to the OCLC approach, for those institutions willing to accept ILL requests from remote sites, the above scenario would be altered by submitting the ILL request electronically at the supplying institution after the successful search has been completed. The ILS is also to provide the capability of going a step further for multiple institutions using the ILS. For example, if libraries X and Y use ILS, library X will be able to link to library Y's system, search for an item, determine its status (availability) and submit an ILL request remotely after finding it available.

4.5.1.5 Summary

ILS is a multi-function, stand-alone automated library system that could be of benefit to NASA libraries desiring those functions. It is being designed to interface with bibliographic utilities. Not all of its subsystems have been fully implemented, however.

4.5.2 MARCFICHE

MARCFICHE offers an alternative to machine access to the Library of Congress MARC records. It is currently being used by several NASA libraries and the Facility to access LC cataloging copy.

MARCFICHE consists of a continuously growing fiche collection manufactured and distributed by the MARC Applied Research Company of Washington, D.C. Its primary content is the MARC files: English language books published since 1966, "popular titles" published as early as 1900, and recent LC cataloging in all Roman-alphabet languages, for a total of 1,500,000 titles. MARCFICHE is searched by looking for a particular item through indexes on fiche. Each work is referenced by LC Card Number, ISBN, Main Entry and Title (in one alphabet), and LC Call Number. Every index line entry point carries a partial title, "flag" and "lookup" coordinates

Fiche are identified as "cataloging" (with white headings), the quarterly index (with yellow headings), and a weekly update (with green headings).

On the receipt of new fiche, users insert the white cataloging at the back and replace the previous green update. Old indexes are discarded quarterly. Missing MARCFICHE are replaced free-of-charge.

Index and update headings show beginning entry content, and are sequenced as detailed previously by LC Card Numbers, ISBN, Main Entries and Titles (in one alphabet), then Call Numbers. A scan for title-page title will most quickly yield the desired entry point. Telephone-book filing places entries as spelled. Foreign articles are filed so persons not skilled in a language may locate cataloging. A "lookup" coordinate is right-justified on each index line (entry point). The first digits are the cataloging fiche number. The next character is the column within that fiche. The last two digits are the sequential position within the column.

MARCFICHE is produced as 24 power negative (white character) second generation microfiche on headed, 5 mil 4x6 (105mm) diazo color coded film. The 24 power fiche is displayable on almost any reader. However, a 32 to 48 power reader is recommended. Almost all NASA libraries have a fiche reader capable of reading these fiche.

MARCFICHE is acquired in two parts: backfile and current subscription. The complete backfile is a one-time purchase price of \$395 for cataloging and indexes to date. It contains over 1,900 cataloging and index fiche. Current subscription to LC MARC cataloging for one year, plus January and July total cumulative indexes by Card Number, ISBN, Main Entry and Title, costs \$185. This provides two shipments of MARCFICHE, each consisting of six months of LC MARC cataloging and total cumulative indexes to the entire file.

MARCFICHE is used by over 1,000 libraries around the world. Libraries of every size and type subscribe to this inexpensive and most current source for Library of Congress cataloging. Because of the rapid turnaround of production of MARCFICHE from the MARC tapes, the NASA libraries opting to use this service (as several already do) would be able to have early access to MARC records of their new titles. MARCFICHE does not provide machine-assisted editing and production, however; the catalog records would still be produced manually and submitted to the Facility to be keyed into the database.

4.5.3 MINI MARC

MINI MARC is a cataloging resource and utility system developed by Informatics, Inc. It supplies subscribers with the entire Library of Congress Machine-Readable Cataloging (MARC) database in machine-readable form. Each record contains all the elements of the Library of Congress descriptive and subject cataloging. The database is kept current through a weekly subscription service. It is a stand-alone minicomputer system which provides for cataloging in an individual library.

MINI MARC was designed and programmed to serve as a bibliographic control center, integrating existing and/or planned automated systems. The system is composed of four basic components: the Central Processing Unit (CPU); the Floppy Diskette Unit; the CRT Display; and the Keyboard Unit.

Catalogers can access any record in the database at any time. The entire MARC database is written on floppy diskettes. The diskettes number over 500 in total. The specific floppy diskette is selected, inserted into one of the drives and the cataloging data appears on the display screen in less than a second. A ROM reader, as part of the system, offers author/title and LCCN access to the database records.

MINI MARC allows changes, deletions, modifications, and additions to MARC data. A library's own cataloging requirements are met, as the MINI MARC software lets a cataloger tab through a record field by field, and provides a back tab key for any entries that may have been skipped over. An "exclusion" feature lets those tags not pertinent to a user profile be deleted. All revisions made to the cataloging record are instantly reflected on the screen so that the cataloger knows what alterations have been made at any time. The library is the final authority on all records produced.

With the addition of the MINI MARC printer, clerical tasks are reduced since there is no hand-typing of headings and other information on cards. A copy of the bibliographic record, a shelflist card, catalog card sets, spine labels, and book pocket labels can be produced in-house.

MINI MARC can be used to create original records for titles not included in the MARC database. The MINI MARC screen displays a cataloging form which contains all necessary tags, indicators, and subfield codes to guide the operator in creating a MARC-like record.

The MINI MARC system has been installed at approximately 15 sites. Interface software with the CLSI circulation system has been developed so that a direct transfer of records between the two systems may take place. Additionally, a dial-up interface to RLIN has been created which allows for the searching of an RLIN record, the capture of the record's data by the MINI MARC system, and the writing of the record into the system.

Purchase price for the MINI MARC system is \$45,000.00. The card printer costs \$5,750.00; labels software costs \$1,000.00; and, card set production software \$1,000.00. The CLSI and RLIN interface software cost \$3,000.00 each. Informatics suggests that a lease/purchase agreement could be reached, at an estimated cost of \$1,200.00 per month.

MINI MARC offers an alternative to the bibliographic utilities for an individual library. It provides in-house capability to access, edit, and create cards from the MARC database. It does not produce machine-readable output for the Facility to add to the STIMS database, however, and its high fixed costs make it economical only for a library with a large volume of cataloging. Unlike ILS, it offers no related services.

4.6 Comparisons of the Three Major Systems

As requested in the Statement of Work, a cost comparison chart of proposed alternatives for book cataloging and spin-off products as provided by bibliographic utilities is needed. Table 5, based on the original matrix, is a close approximation of these costs. Preparing the chart was a difficult task since each utility provides varying types and amount of service, whereas the matrix delineates a specific item cost not always in conformity to the utility's pricing scheme. The cost data is interpolated from materials provided directly by the utility or

by the Federal Library Committee. Where FLC brokers these services, we included FLC's added costs, because we are recommending that the NASA libraries work through FLC wherever possible. Appendix D is a more detailed listing of each line cost or cost table for implementing the major systems.

Table 6 presents further comparisons of the capabilities of the three major commercial systems plus STIMS and PUBFILE. It is intended to show that the systems offer different services and have different capabilities, and to compare those services and capabilities where possible.

TABLE 5. COMPARATIVE COST ANALYSIS SUMMARY

ELEMENT	OCLC	RLIN	B/NA
1. <u>Cataloging</u>			
a. "Copy" cataloging	96%	Not known	Online, interactive book cataloging unavailable
% hit rate			
System Charge	\$1.36	\$1.70	
Labor	Not Known	Not Known	
b. "Altered" cataloging			
% hit rate	Review results in report	Comparison not done	Online, interactive book cataloging unavailable
System Charge	\$0.70	\$1.30	
Labor	Not Known	Not Known	
c. "Input" original cataloging			
% non-hit rate	Review results in report	Comparison not done	Online, interactive book cataloging unavailable
System Charge	\$0.00	\$0.00	
Labor	Not Known	Not Known	
d. Closed vs. Open Entries	COST DATA NOT APPLICABLE		
e. Decentralized vs Centralized	COST DATA NOT APPLICABLE		
f. Adjustment to future LC cataloging rules (AACR II)	\$75.00/person for AACR II training	In Progress	Not Known
2. <u>Indexing</u>			
a. LC Terms	ALL UTILITIES LOAD MARC TAPES WHICH INCLUDE LC SUBJECT HEADINGS		
b. NASA Terms	Can be added to card and m/r record	Can be added	Can be added

TABLE 5. COMPARATIVE COST ANALYSIS SUMMARY
(CONT'D)

ELEMENT	OCLC	RLIN	B7NA
3. <u>Categorizing</u> NASA Categories			
4. <u>Data Ent</u> (For non-cataloging libraries)	Recommended input merger at Facility		
5. <u>Database Maintenance</u> Updating, verifying and purging			
6. <u>Products</u> (Base-line Products)			
a. Local Shelflist primarily in call number sequence with complete copy data for inventory purposes	Not available	Noc available	\$.10/card estimate plus \$25.00/hour provide conversion programming from RECON to MARC
b. Catalog cards, labels, circulation cards, book pockets	Cards and labels printed locally; \$.042/card; average card profile is \$300.00	Book cards, spine labels not done; \$.04/card; Profile program at \$33.00/hour	
c. On-line ordering of catalog cards	No Charge	No Charge	Not available
d. Local catalog on COM (Subject, Author/Title)	Available from vendors	Available from vendors	Available from local records in B/NA data base
e. Union Accession List (Bi-weekly)	Print locally	Print locally	
f. Local Accession List (Bi-weekly)	140 items = \$14.00 140 items = \$.10/item	Print locally	
g. GPO Tapes--Selected NASA Classes	Added to OCLC data base	No	No

TABLE 5. COMPARATIVE COST ANALYSIS SUMMARY
(CONT'D)

ELEMENT	OCLC	RLIN	B/NA
h. Periodic Tapes of New NASA Accessions	\$25.00/tape plus record copying charges		
i. On-line Catalogs		Computer resources not yet sufficient but possible	Not available
j. Union Book on COM (Annual and Quarterly Cums)	Available from vendors	Available from vendors	Will produce from MARC-format records
k. Source Data Entry	No Charge	No Charge	Not online; conversion keying by B/NA or library
7. <u>Interlibrary Loan</u>	\$.95 per request	Search can segment by group of library	Not available
8. <u>Retrieval</u>			
a. Books separately	Connect time (if using TYMNET)	Depends on time connected to system	Offline, batch searching
b. Books with other NASA files	Not available	Not available	Not available
c. Stored Profiles (SDI)	Not available	\$.28/search per month against new MARC	Not available
9. <u>Equipment Costs</u>			
a. Terminal	OCLC Terminal: \$3,700.00	RUN Programmed terminal: \$4,160.00	Not Applicable
b. Line Charges	\$8.00/hr. at 300 baud	\$11.00/hr. at 30cps; \$13.00 at 120 cps	Not Applicable
c. Printer	Not needed	Not needed	Not applicable

TABLE 5. COMPARATIVE COST ANALYSIS SUMMARY
(CONT'D)

ELEMENT	OCLC	RLIN	B/KA
d. Computer Time	Not applicable	\$40.00/hr. with 2 hrs. minimum per month	Not applicable
e. Maintenance	\$33.00/month for terminal	\$55.00/month for terminal	Not applicable
<u>Start-Up Including:</u>			
a. Training	\$19.00/hour \$200.00/2 days for full session	\$300.00 plus expenses per day	Not applicable
b. First Time User		\$150.00 (incl. documents)	
c. Other	Fedlink fee = 10% of subtotal		
10. <u>Software Development</u> (Including file generation, conversion, validity, maintenance)			
a. Modifications to existing software	Not needed	Not needed	Not needed
b. Development of new software	Not needed	Not needed	Needed to add STIMS records
c. Development of interface software	SLIGHT MODIFICATION OF MARC TO STIMS FOR ADDITION OF RECORDS TO STIMS		Needed to add STIMS records
11. <u>Operating Costs</u>			
a. Data file verification with cleanup	Procedure would need definition before cost estimate; see report text		
b. Data update			
c. Integration of selected library system into an existing library operation			
d. Materials			
e. Mailing			
f. Other			

TABLE 6. SYSTEM CAPABILITIES

CAPABILITIES	STIMS	PUBFILE	OCCLC	RLIN	B/NA
<u>Information Retrieval</u>					
Searching	Multiple access points Text search Proximity search	Uses STIMS	Title Author/title search keys	Fewer access points than STIMS, more than OCLC Text, proximity searching	N/A Batch searching only at B/NA
Non-NASA titles	Selected MARC	Uses STIMS	Full MARC Titles added by participating libraries	Full MARC Titles added by participating libraries	
NASA index terms	Yes	Uses STIMS	Yes	Yes	
Stored profiles	Yes	Uses STIMS	No	No	
Books with other NASA files	Same system; different files	Uses STIMS	No	No	
<u>Cataloging</u>					
Copy cataloging	"Online" (Add holdings, local call #)	"Online"	Online	Online	Not a cataloging system
Altered cataloging	Offline	Offline	Online	Online	
Closed vs. open entry	Closed	Open	Open	Open	

TABLE 6. SYSTEM CAPABILITIES (CONT'D)

CAPABILITIES	STIMS	PUBFILE	OCIC	RLIN	R/NA
Extent of centralization	Centralized; librs. can do own cataloging and submit	Decentralized lib. shares system with other NASA and non-NASA librs.			
AACR II Adaptation	Needs to be designed and implemented	Not currently an active system	To be adapted Jan. 1, 1981	To be adapted Jan. 1, 1981	
<u>Interlibrary Loan</u>					
Libraries available	NASA libraries only; holdings need to be updated	2,200 libraries all types all over U.S.	About 100 libraries research libraries & Calif. libraries		
Message transmittal	No	No	Yes	Yes	Not as sophisticated as OCLC's
<u>Products</u>					
Local shelflist	With limitations	Closer to "standard"	Available only for titles entered into the system	Will do conversion	
Catalog cards	About 85% can be produced	100%	100% with full local control over format	N/A	
Online ordering of catalog cards	For copy cataloging only	Yes	Yes	N/A	
Local catalog on COM	Lacks local citing variations Not all records in standard card format	Standard card format available	Tapes of full local records available to send to vendor or Facility for COM	Can spin off full local file on tape as needed for vendor or Facility	Produced from machine-readable records

TABLE 6. SYSTEM CAPABILITIES (CONT'D)

CAPABILITIES	STIMS	PUBFILE	OCCLC	RLIN	B/NA
Union accessions list	Yes	Yes	Tapes can be merged	Can produce tapes	Yes, from tapes
Local accessions list	Yes	Yes	Yes	Can produce tapes	Yes, from tapes
GPO Tapes	No	No	Yes	No	No
Tapes of new NASA accessions	Yes	Yes	Yes	Yes	Would use as input - not product
Online catalogs	Not full local catalog record		Not designed for end user	Under Investigation; Can approximate now.	N/A
Union Book on COM	Not full local catalog record Not full card format in all cases.		Can be produced by another vendor or Facility from tapes.		Is a vendor who would produce from tapes.
<u>Status</u>	In operation	File conversion Some software development	Immediately available; libraries may do retrospective conversion but not necessary.		Contract with FLC in negotiation.
			May not be available to NASA libraries.		

5. EVALUATION AND RECOMMENDATIONS

The preceding chapters have described the current book system, assessed the libraries' needs from the book system, and investigated the state-of-the-art in library automation. In this chapter, we evaluate several alternatives for the book system and present our recommendations.

5.1 Alternative Operating Modes

In the Statement of Work, we were asked to evaluate six alternative modes of operation for the book system.

Mode 1 is the current STIMS file mode, assuming an acceptable level of data verification exists. In this mode, STIF performs partial or original cataloging for the Center libraries contracting for that service and produces catalog cards and related products from the book file. The other NASA Center libraries do their own cataloging or have it done under contract, and send copies of their records in to STIF for loading into the book file. One library sends machine-readable records, the others send hard copy.

STIF reviews the incoming records to determine whether they duplicate records already on the database, and adds the records and/or holdings information to the book file. The file is a RECON file in STIMS format and consists of one record for each title, usually the MARC record, plus local call numbers for all holding NASA libraries.

STIF currently produces catalog cards, spine labels, book cards, and other processing-related products for the libraries that contract for the service. It also produces a union accessions list, local accessions lists for the libraries requesting them, and a KWIC on COM of book titles separate from the conference KWIC.

Mode 2 is the PUBFILE mode, assuming that the file is brought up to date and an acceptable level of data verification exists. The PUBFILE mode differs

from Mode 1 in that in addition to the STIMS database an additional PUBFILE database runs in tandem with it. The PUBFILE database would be in MARC format and would be used to produce all the products listed in the product specifications. The STIMS file would remain for searching on RECON.

Mode 3 is Mode 1, except developing software improvements for products as needed. In evaluating the Center libraries' needs, we found a difference between the products that the libraries needed and those that they wanted to receive from STIMS. The products that we would recommend to be included in the product specifications under Mode 3 are:

1. Catalog cards.
2. Local accessions lists on demand.
3. A union accessions list.
4. An annual or biennial KWIC on COM covering the book file.
5. Book surplus lists on demand.
6. Local shelflists for use in correcting the STIMS database.

The major difference between Modes 1 and 3 that we would recommend are an increased emphasis on the quality of the STIMS database. This would require a one-time clean-up effort, plus the development of standards for records going into the database and procedures for enforcing those standards, to ensure the continued quality of the database.

Mode 4 is identical to Mode 2, except that it would also incorporate the improvements recommended under Mode 3. This would require again additional attention to the quality of the database.

Mode 5 is Mode 1, except that the cataloging and products would be obtained from one or more vendors or bibliographic utilities. Based on our description of the state-of-the-art in Chapter 4, the only practical sources of these products and services at this time are OCLC and RLIN. In addition, the tapes generated using the bibliographic utilities, OCLC and RLIN, can be delivered to various vendors to produce other products, such as local COM catalogs.

Mode 6 is Mode 2, except, as with Mode 5, the bibliographic utilities and/or other vendors would be the source of cataloging and catalog-related products.

5.2 Basis of Evaluation

The previous chapter described six alternative modes for a NASA book system. We now need to evaluate each alternative in terms of how well it would satisfy the needs of the libraries; estimate the costs and the effectiveness of alternatives; and choose the "best" alternative for the recommended future book system.

Cost-effectiveness analysis compares alternatives on the basis of one of the following criteria:

1. Choose the alternative with the greatest effectiveness for a fixed level of cost, or
2. Choose the alternative with the lowest cost for a fixed level of effectiveness.

Cost-effective methodology assumes that all the alternatives to be compared meet the intended goals and objectives, stated here in terms of needs. In reality, this seldom is the case. Strictly speaking, the methodology calls for eliminating, without consideration of their costs and effectiveness, those alternatives not meeting the goals or needs.

The application of one of the criteria stated above often requires a somewhat artificial exercise in order to set either the cost or effectiveness of each alternative at the same level. In practice, the alternatives cost different amounts and have different levels of effectiveness. Generally, one alternative is more effective and costs more than the other alternatives. There is no analytical basis for choosing the "best" alternative when this is the case. We get around this problem by assuming the same amount of money will be spent on each

alternative; this amount is most often set at the cost of the current system. The actual application of these techniques generally requires relaxing some of the analytical restrictions inherent in the conceptual basis of cost-effectiveness analysis.

Even greater difficulties come into play if instead of effectiveness we want to consider actual benefits of the alternatives. Benefits can seldom be quantified in a satisfactory manner for comparisons. Consequently, the benefits of alternatives are listed and discussed in a qualitative manner. This is the case for this project.

5.3 Criteria

From our needs assessment (Section 3), we can identify the following requirements which the NALNET book system must meet and against which any proposed system must be evaluated.

5.3.1 Cataloging

The libraries require catalog records of high quality; that describe the actual items held in each collection; and that can be geared to each library's specific collection. Catalog records serve to identify what is held within the collection and to relate each item to others already in the collection, so they have to be tailored to the particular collection and to the information needs of the users of that collection. They also require a fast turnaround time on cataloging, so that new items can be added to the collection and the catalog in a timely fashion. The Center libraries generally prefer the current largely-decentralized cataloging, because it provides them with control over the content of the cataloging record and over the time required.

5.3.2 The Information Retrieval System

The libraries need a large database of titles of interest to their users, regardless of whether those titles are held within NASA, and a flexible

searching capability for retrieving this information from the database. They also need a large number of high quality cataloging records for titles that they are likely to acquire, to use as source data for their own cataloging. The database must be updated regularly, with new records added as quickly as possible.

They also need accurate and up-to-date holdings information for titles held within the NASA Center libraries for interlibrary loan. The inclusion of libraries other than NASA Center libraries would be an added benefit. An online interlibrary loan message transmittal capability would also be valuable.

5.3.3 Products

The NASA Center libraries need a source of catalog cards, since most still rely on card-form catalogs. The other products needed include a union accessions list, local accessions lists for those libraries that request them, book surplus lists on demand, and the book KWIC on COM, produced in annual or biennial intervals. It is also advisable for the libraries to be able to receive their local catalog records (including all local modifications) in machine-readable form and in MARC format, since this would enable them to take advantage of current and future automated library services, such as local COM catalogs or online catalogs.

One important point to keep in mind is that neither NASA nor its Centers are static. In addition, developments in libraries and in library automation are changing librarians' perceptions of their roles and of the products and services that they need in order to meet their users' information needs as effectively as possible. The NALNET book system must be able to adapt to future needs.

5.4 Qualitative Evaluation

Table 7 presents our initial evaluation of the alternative modes. We compare each mode with the needs of the libraries as developed in Chapter 3.

TABLE 7. COMPARISON OF MODES WITH LIBRARIES' NEEDS

MODE	1 STIS	2 PUBFIL	3 STIS With Modifications	4 PUBFIL With Modifications	5 STIS & Bibliographic Utilization	6 PUBFIL & Bibliographic Utilization
Cataloging						
Adapt to local needs	Only if decentralized	Same as 1	Same as 1	Same as 1	Bibliographic utilization (b.u.) designed to meet wide range of local needs	Same as 5
Fast turnaround	Best if decentralized; some delay inherent in having to send materials to STIS	Same as 1	Same as 1	Same as 1	Excellent	Same as 5
Preserves local cataloging	Only in hard-copy catalog in local library; not in database	Same as 1	Same as 1	Same as 1	MLN does, OLC same as 1	Same as 5
Information Retrieval						
Large, varied database	NASA holdings plus selected MARC	Same as 1	Same as 1	Same as 1	Full MARC + holdings of many other libraries	Same as 5
Flexible searching capability	Yes, through RECON	Same as 1	Same as 1	Same as 1	Varies with the b.u.; MLN more flexible than OLC. MARC would still be used.	Same as 5
Quality cataloging source records	Contributed (non-MARC) records not always of sufficient quality	Same as 1	Standards for contributed records defined and enforced	Same as 3	U.S. impose standards on contributed records. More review available	Same as 5
Speed of update	Contributed records often added slowly	Same as 1	Can be improved	Same as 4	Online	Online
NASA libraries' holdings for interlibrary loan (ILL)	Not current and accurate	Same as 1	Updated; improved future quality control	Same as 3	Same as 5	Same as 5
Other libraries' holdings for ILL	No	No	No	No	Yes; large number of other b.u. users	Same as 5
ILL message transmission	No	No	No	No	Yes, via b.u.'s	Same as 5
Products and Services						
Catalog cards	Yes; although not all types of records in correct format	Yes	Same as 1	Yes	Yes	Yes
Union accession list	Yes	Yes	Yes	Yes	Could be produced by STIS from b.u. tapes	Same as 5
Local accession lists	Yes	Yes	Yes	Yes	Same as union accession lists	Same as 5
Book surplus lists	No	No	Yes	Yes	Produced by STIS from b.u. tapes	Same as 5
MARC on CD-ROM	Yes	Yes	Yes	Yes	Produced from b.u. tapes or STIS	Same as 5
MARC tapes of local catalog records	No	No; would cause local variations, though books record could be produced in MARC format	No	Same as 2	Yes; for titles cataloged since joining b.u.	Same as 5
Ability to adapt to future changes in requirements, needs	Limited; cost, effort borne by NASA	More flexible than 1, but cost still borne by NASA	Same as 5	Same as 2	Cost borne by large number of libraries. Responsibility of experienced staff at b.u.'s	Same as 5
Other comments		MARC format database could be used in future with vendor software to produce variety of products	No	Same as 2	Same as 2	Same as 2
					Access to other b.u. products & services, e.g., ordering and circulation subsystems	Same as 5
					Cost of developing additional services and products widely shared	Same as 5

Mode 1 is the present mode, and mode 2 is PUBFILE. Modes 3 and 4 are improvements over modes 1 and 2 because, by definition, they incorporate changes to modes 1 and 2 necessitated by our needs assessment. We can therefore state categorically that: 1) modes 1 and 2 do not meet the libraries' needs, and therefore fall below our minimum requirements for the NALNET book system, and 2) modes 3 and 4 are more effective at meeting those needs than are modes 1 and 2, respectively. Therefore, modes 1 and 2 are dropped from consideration.

However, mode 1 does remain relevant to our discussion because it represents the current system, and therefore provides us with baseline information on costs and performance.

Modes 3 through 6 can be represented conceptually as a two-by-two matrix. Modes 3 and 5 are STIMS-based; modes 4 and 6 PUBFILE-based. Modes 5 and 6 add to the basic system the use of bibliographic utilities. The matrix that results:

	STIMS	PUBFILE
Without bibliographic utilities	Mode 3	Mode 4
With bibliographic utilities	Mode 5	Mode 6

In evaluating these four alternatives, we are left with two key questions:

1. Which is the more cost-effective internal STIF file structure, PUBFILE or STIMS?
2. Can the use of bibliographic utilities significantly improve the performance of the NALNET book system?

In considering the four remaining modes, we note that the reason for the development of PUBFILE was to provide the NASA libraries with a MARC-format database from which to generate products. The bibliographic utilities also provide a MARC-format database from which to generate products. Mode 6 combines

both PUBFILE and bibliographic utilities, which is basically redundant. Such redundancy introduces added costs, at little or no increase in effectiveness. Mode 6 is therefore eliminated as inferior to modes 3, 4, and 5.

In comparing the remaining modes, we find that modes 4 and 5 are similar. Both represent improvements over mode 3 in that they provide the NASA libraries with a MARC format database from which to generate cataloging and related products. Mode 4 uses the PUBFILE file structure to do this; mode 5 uses the bibliographic utilities. In comparing PUBFILE to the bibliographic utilities, we find considerable cost and benefit advantages to the bibliographic utilities:

1. They operate on proven software.
2. They enjoy considerable economies of scale in sharing development and maintenance costs among as many as several thousand libraries.
3. They provide member libraries with the option of subscribing to additional services, such as ILL, circulation, and acquisitions subsystems, for which there are also economies of scale.
4. They provide access to the records of large numbers of libraries, in addition to the NASA Center libraries, for ILL and cataloging.

Without identifying the specific costs of PUBFILE, we can conclude that the costs of PUBFILE will be greater and its benefits less than those of the bibliographic utilities.

The comparison is now down to modes 3 and 5, STIMS with and without the addition of bibliographic utilities. The arguments for the advantages of the bibliographic utilities over PUBFILE are true in comparison with STIMS, as well. Because STIMS is the currently-operating system, however, it is less costly than PUBFILE, and mode 3 is less costly than mode 5 because mode 5 adds

to STIMS the costs as well as the benefits of the bibliographic utilities. The comparison now rests on whether the added benefits of mode 5 are sufficient to justify the added costs.

Mode 5 preserves the STIMS file structure so that the book file remains RECON-searchable. It solves the problem of the catalog records that STIMS cannot produce in standard AACR format because the utilities can and do produce all records in AACR format. In addition, as users of bibliographic utilities the NASA libraries will have full control over their own local cataloging; will have access to the bibliographic utilities' databases for cataloging and inter-library loan; will be able to receive the records for titles cataloged since joining the bibliographic utilities in MARC format, and can convert earlier titles, as well, if they choose; and will have the option of using other utility services.

5.5 Cost Comparisons

In the discussion above, we concluded after a comparison of benefits and a preliminary investigation into the kinds of costs incurred under each mode that modes 3 and 5 were the only viable alternatives. The question that remains is what is the cost of the added benefits of mode 5 over mode 3. This section presents our cost comparisons. Because mode 1 is the present system, we include it in our cost comparisons as a reference point. (Table 8)

The Center libraries provided information on the number of titles processed and the associated costs (Table 3). In order to compare similar costs for mode 5, the current rates of OCLC and RLIN were used along with typical labor costs for the Center libraries (see calculations in Table 9). In terms of estimated total cataloging costs, mode 5 is about 37 percent (\$79,384 versus \$126,797) less costly than the present system, mode 1. The mode 5 calculations are based on the assumption that all Center libraries use a bibliographic utility. All libraries except Ames was assumed to use OCLC; we assume that Ames will remain with RLIN.

**TABLE 8 . CATALOGING COSTS FOR
PRESENT SYSTEM
(MODE 1)**

Library	Number of Titles Processed		Cost of Processing ¹		Total Pre- cessing Cost	Cataloging Done By
1. Ames	3,128	X	\$10.74	=	\$33,594.72	RLIN
2. Dryden	170	X	7.74	=	1,315.80	Contract
3. Goddard	1,699	X	10.75	=	18,264.25	Contract
4. Headquarters	280	X	10.51	=	2,942.80	OCLC
5. JPL	1,640	X	8.59	=	14,087.60	In-house
6. Johnson	700	X	11.80	=	8,260.00	Contract
7. Kennedy	265	X	2.33	=	617.45	Contract
8. Langley	3,258	X	9.96	=	32,449.68	STIF
9. Lewis	1,147	X	9.96	=	11,424.12	STIF
10. Marshall	250	X	9.00	=	2,250.00	Contract
11. NSTL	65	X	7.00	=	455.00	Contract
12. Wallops	370	X	3.07	=	<u>1,135.90</u>	Contract
					\$126,797.32	

Total number of titles process in FY1980 = 12,972

Average cost to process a book title = \$126,797.32 ÷ 12,972 titles = \$9.77

¹Cost includes descriptive cataloging; classification; production of one set of catalog cards; labor costs, materials; utility charges; terminal cost and maintenance.

SOURCE: KRI Center Library Survey.

**TABLE 9. ESTIMATED BIBLIOGRAPHIC
UTILITY CATALOGING COSTS**

COST ELEMENTS	OCLC	RLIN
First Time Use Charges: FTU ¹ X No. Titles	FTU ¹ @ \$1.36 X 9,844 titles ² = \$13,387.84	FTU ¹ @ \$1.65 X 3,128 titles ³ = \$5,161.20
Terminal Amortization: Terminal cost X No. libraries + 5 years	Terminals @ \$3,700.00 X 11 libraries + 5 years = \$8,140.00	\$832.00 ⁴
Terminal Maintenance: Monthly terminal maintenance X 12 months X No. libraries	Terminal maintenance @ \$33.00/ month X 12 months X 11 lib- raries = \$4,356.00	\$660.00 ⁴
Labor Charges: No. titles + No. titles pro- cessed/hour ⁵ X labor charge/hour ⁶	9,844 titles + 4.7 titles pro- cessed/hour ⁶ X labor charge ³ \$15.14/hour ⁵ = \$31,710.25	3,128 titles + 4.2 titles pro- cessed/hour ⁷ X labor charge ³ \$15.14/hour ⁵ = \$11,275.70
Card set: Cost per card X Ave. no. cards/set X No. titles	Cards @ \$0.042/card X 7 cards/ set X 9,844 titles = \$2,894.14	Cards @ \$0.044/card X 7 cards set X 3,128 titles = \$963.42
Unit Cost/Title: Total costs + No. Titles	Total costs @ \$60,488.23 + 9,844 = \$6.14	Total costs @ \$18,892.32 + 3,128 = \$6.04

Footnotes:

¹FTU = First Time Use

²Total number of book titles cataloged in FY 1980 by all NASA Center libraries except Ames.

³Number of book titles cataloged in FY 1980 by Ames.

⁴Provided by Ames.

⁵Assumes \$18,000 annual salary and 75% indirect costs.

⁶Based on library norms of 1.8 titles per hour for original cataloging (assumed to represent 10% of total cataloging) and 5 titles per hour for non-original cataloging (90%).

⁷Based on library norms of 1.8 titles per hour for original cataloging (assumed to represent 25% of total cataloging) and 5 titles per hour for non-original cataloging (75%).

We conclude from these cost estimates and the earlier discussions on the expected benefits of the two modes that mode 5 is both more effective and less costly for cataloging than either the present system or mode 3, the modified STIMS.

The total volume of cataloging activity in the NASA libraries is declining. If this decline continues, the number of titles processed in 1985 will be 12,800, a reduction of 12 percent from 1980 (Appendix F). If this is true, we expect mode 5 to be even more attractive than mode 3 in the future, since under mode 3 NASA would be maintaining a system to accommodate fewer and fewer titles, resulting in higher costs per title as the system's fixed costs are spread over fewer total titles.

Cataloging costs would decrease somewhat if NASA libraries adopted open-entry records rather than the current closed-entry. According to data from two of the libraries, it was estimated that the reduction in the number of catalog records would be about 25 percent under an open-entry approach. This implies that 75 percent of the total titles acquired would cost \$9.77 per title to process and the remaining 25 percent would only require editing of existing records. The editing cost was estimated at \$1.20 by Wiederkehr.¹ Based on the FY80 number of titles processed, changing from closed-entry to open-entry records would reduce overall costs roughly 22 percent.

Another service which would be different under mode 1 and mode 5 is interlibrary loan. While volume of interlibrary loan of books is not great among NASA libraries, it is of interest to compare the estimated costs under the two modes. Only the borrowing costs for the libraries will be estimated, since it is ILL borrowing request that the systems affect. Palmour² estimated that the labor cost for an ILL request was about \$1.30 in 1979 for small academic libraries not using the OCLC ILL subsystem. For similar libraries using the OCLC ILL subsystem, the estimated labor cost was \$1.10. Inflating the 1979 figures at 10

¹Wiederkehr, Robert R.V., Alternatives for Future Library Catalogs: A Cost Model. Final report of the Library Catalog Cost Model Project prepared for the Association of Research Libraries. Rockville, Md.: King Research, Inc., 1980.

²Palmour, Vernon E., NEWIL Interlibrary Loan Study: An Evaluation. Green Bay, Wisconsin: North East Wisconsin Intertype Libraries, Inc., December 1979.

percent, we estimate labor costs for 1980 at \$1.43 without OCLC and \$1.21 with OCLC. Adding 75 percent for indirect costs and the system changes for OCLC and RLIN, the estimated costs for a single borrowing request are as follows:

Present system	\$2.50
Mode 5, OCLC	\$3.07
Mode 5, RLIN	\$2.72

Interlibrary borrowing requests cost more under OCLC and RLIN, but also have improved effectiveness over the manual approach due to faster communications.

The other area where we want to compare costs is for the products specified in the Request for Proposal. These estimated unit costs and pertinent comments are shown in Table 10 for modes 1, 3, and 5. Mode 5 offers more of the products and probably at lower costs.

We conclude from the above analysis, that mode 5 is the preferred alternative. It appears to have greater benefits and cost less than mode 1 and mode 3.

5.6 Recommendations

We have reviewed the current NALNET book system and examined the potential of the proposed system (PUBFILE); we have discussed needs for products and services from NALNET with the librarians at NASA Center libraries; we have summarized the characteristics and capabilities of two major bibliographic utilities and several other library automation tools, and we have evaluated six alternative modes of NALNET operations. We have recommended mode 5, the STIMS file structure coupled with the use of bibliographic utilities for cataloging.

The following are our specific recommendations for NALNET. The proposed system configuration is presented in Figure 2.

TABLE 10. COST COMPARISONS FOR PRODUCTS

Element	Mode	Mode 1	Mode 3	Mode 5
PRODUCTS				
Local shelflist		Not currently produced	Production needed for data base cleanup	\$2,487.60 (see Note 1, Appendix E)
Catalog cards		Included in cataloging costs	Same as Mode 1	\$3,857.00
Online ordering of catalog cards		No STIMS charges to NASA libraries	Requirement to be eliminated when cards dropped	No separate charges
Local catalog on COM		Not currently produced	Not to be produced	\$216.91 (see Note 2, Appendix E)
Union accessions list		\$280.14 (12/80 management report)	Same as Mode 1	\$213.20 (see Note 3, Appendix E)
Local accessions list		\$41.80 (12/80 management report)	Same as Mode 1	\$14.00 (see Note 4, Appendix E)
NASA accessions tapes		Not currently produced	Not to be produced	\$84.20 (see Note 5, Appendix E)
Online catalogs		Not available with use of STIMS	Not available	Not available on bibliographic utilities
Union book on COM		Current production costs not available until 3/1/81	Same as Mode 1	\$1,146.80 (see Note 6, Appendix E)
			Addition of Local Book Surplus Lists	

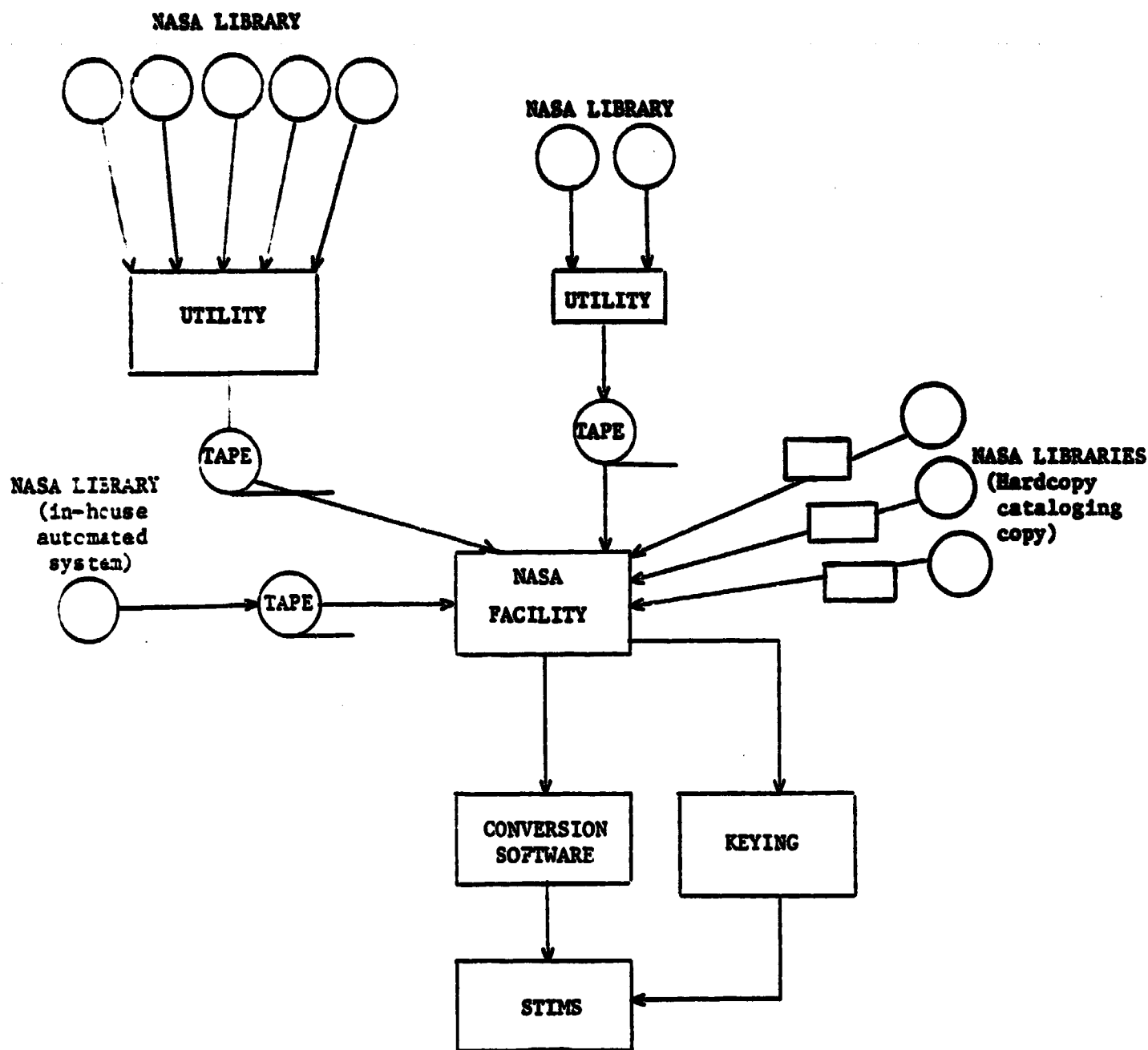


Figure 2. Recommended Book System Design

5.6.1 The Book System

1. Cataloging should be the responsibility of the NASA Center libraries. Each library should be free to choose the most cost-effective source of its own local cataloging, considering the individual library's needs for cataloging and catalog products; its current situation; and its evaluation of the related services offered by the bibliographic utilities and other automated systems. The data included in this report can contribute to that evaluation process. By working with other federal libraries through FEDLINK, the NASA libraries will be able to negotiate favorable terms with vendors without sacrificing individual choice.
2. Each library should be strongly encouraged to adopt a system that provides MARC format cataloging records for contribution to NALNET, preferably a bibliographic utility. A standard format will reduce the problems of integrating records and enable the libraries to take advantage of other vendor's services, such as interlibrary loan and circulation control, if they so desire. As NASA libraries join and participate in bibliographic utilities, MARC format records will become a matter of course in their operations.
3. The Facility's major responsibility should be the maintenance of the book database. The Facility should be responsible for maintaining the integrity of the database, which includes enforcing standards for the records to be entered, reconciling variant records for the same title, and correcting errors in the database. A high priority should be placed on the timely addition of cataloging records and holdings information to the database. One major reason for encouraging the libraries to use cataloging sources that provide them with MARC format records is that those records can be transmitted to the Facility in machine-readable form and integrated into the database without rekeying and without extensive software development. A MARC-to-STIMS conversion package already exists.

4. The Facility should be encouraged to subscribe to one or more bibliographic utility(s) itself, for purposes of checking and reconciling records submitted for the NALNET database, to speed up whatever input cataloging it still provides, and to facilitate the inputting of data submitted by NASA libraries in hard copy form, i.e., to eliminate as much as possible of the keying function at STIF.
5. The NALNET book file should be managed primarily as a union finding list. It should not attempt to provide local cataloging products, but should concentrate on gathering and standardizing the records of the holdings of the NASA libraries. STIMS should remain the system used, but the STIMS database must be upgraded. The holdings and call number information for each title must be verified; this could be accomplished either as a one-time effort by STIF personnel or by the individual NASA libraries. The task would require a systematic checking of shelflists against shelves for the 121,000 holdings records in the current database. This would take less than the five to six person-years that the Book Committee Report estimates would be required to verify the PUBFILE database, because only the holdings information, not the entire record, would be verified.
6. In addition, standards need to be developed for the records going into the database, to reduce the inconsistency that leads to duplication of records. These standards should include open entries; we have recommended that the Facility investigate adding the individual libraries' holdings information for multi-volume titles.
7. The book file should function secondarily as an information retrieval system. The sophisticated search capabilities of RECON make the book file a valuable tool in identifying needed book titles, whether or not they are held by NASA libraries. The NASA libraries should review the current LC classification profile used to select the MARC titles to add to the database to ensure that it reflects their current needs.

8. The only products generated from the book file should be those readily produced under STIMS and demanded by the Center libraries.

These include:

- a. Local accessions lists as requested.
- b. A union accessions list.
- c. An annual or biennial KWIC on COM.
- d. Book surplus lists on demand.

The network's card production capability should be phased out as quickly as possible.

A major premise of all these recommendations is that, given the current state-of-the-art in library automation in general and in bibliographic utilities in particular, it is not cost-effective for NASA to try to maintain a full-range of cataloging services on its own system, be that STIMS or PUBFILE. The automation of cataloging services requires more than the simple mechanization of what was a manual operation. The bibliographic utilities draw on large teams of specialists in this area to stay ahead of the state-of-the-art. They conduct research into catalog-related areas; for example, currently both OCLC and RLIN are researching patron-access online catalogs. The costs of developing and maintaining these systems are shared among large numbers of libraries (over 2,300 use OCLC). They also have other sources of funding; for example, OCLC's research into online catalogs is currently supported by the National Science Foundation. In addition, the utilities are designed to be flexible, to accommodate the different needs of different libraries, and to provide a large range of related services on demand. The result is that the bibliographic utilities can support higher quality systems with a greater range of services at a lower total cost to NASA.

5.6.2 The NALNET Organization

1. As the Center libraries seek and contract for interaction with bibliographic utilities, the agency should consider, as a matter of policy, the centralization and coordination of all such activities for purposes of cost-effectiveness and approved cooperative

processing. The experiences of other Federal agencies in developing intra-agency "mini-networks" can prove valuable to NASA. A critical mass of use for any utility ensures lower costs and improved cost-accounting. And combining contract negotiations with commercial database supplies (e.g., Lockheed, SDC, BRS, N.Y. Times), bibliographic utilities (e.g., OCLC, RLIN), and tape-processing vendors (e.g., BNA) works to the benefit of users and contractors alike.

For example, the Federal Library Committee, through its FEDLINK operations, has been given authority by GSA to negotiate contracts with such suppliers, utilities, and vendors on behalf of any and all Federal libraries. For FY81, for example, a standard waiver has been given by GSA to FEDLINK to permit negotiation for the best price to the government on contracts involving all Federal libraries. NASA Headquarters Library, for example, took advantage of this means for joining the OCLC utility. FEDLINK has a waiver also for sole-source procurements for special terminals required for particular systems (e.g., the OCLC terminals). All of this means that NASA, working with FEDLINK on behalf of all NASA Center libraries, can negotiate cost-effective contracts.

FLC also has negotiated contracts on behalf of FEDLINK members for additional bibliographic-related services, some of which are: RLIN (subject searching only); DATALIB (interactive acquisitions from Sigma Data); DIALOG (Lockheed), ORBIT (SDC), and BRS for secondary source searching.

The obvious advantage to such an arrangement is having FLC perform as a mediator and centralized negotiating source for the numerous Federal libraries. After independent discussions with both FLC and the bibliographic utilities, it was strongly recommended that the NASA libraries, whenever practicable, utilize the FLC arrangements.

2. The NASA Center libraries and STIF need to work together more closely to bring about the changes in operating procedures and sharing of responsibilities that are recommended here. The NASA libraries need to take a more active role in charting the future of NALNET and in working with the Facility to ensure that their needs are met. The NASA Book Committee already in place or a similar group of Center librarians would be a workable mechanism for input from the Center libraries to agency decisions about information products and services from STIF or other sources (the bibliographic utilities, Library of Congress, etc.).
3. In addition to formal communication via Committee 3, there needs to be improved feedback from the Center libraries to STIF directly, preferably via online telecommunications. An interim step, pending either extensive modification to RECON or - more likely - fuller participation by NASA Center libraries in bibliographic utilities, would be to provide an online messaging system capability between the libraries and the NALNET Division. The libraries could input, on the spot, their requests for corrections or additions to the STIMS record; the Facility could pull those messages off and convert them to input instructions for the system operators at STIF. In addition, the NALNET staff could post notices of system news of interest to the NASA libraries.

Such system content, format, or duplicative record notices to STIF, or messages on services and products to the Center libraries, can be made on existing RECON terminals connected to the Facility. Those libraries which do not have RECON terminals or are using them only infrequently or inefficiently should be supported by the agency, either with terminals and communications lines or with training to bring those Centers up to speed in use of helpful technologies.

5.6.3 Analysis

As requested in the contract's Statement of Work, analysis of our findings provides answers to the listed questions as follows:

1. What modifications should be made to STIF operations to improve cost effectiveness, e.g., installation of bibliographic utility terminals at STIF; input use of machine readable or printed records from other networks utilized by one or more NASA Center libraries, production of current and future products with or without product specifications modifications?

Our recommendations call for STIF to phase out cataloging operations and increase its emphasis on the maintenance of the database. To accomplish this, the NASA Center libraries should increasingly input their own cataloging records in machine-readable form and STIF should load those records into the NALNET database, reconciling and normalizing variations as required.

For the foreseeable future, some records will continue to be submitted in hard copy form. STIF should use bibliographic utilities to search for those titles and capture as many of the records in machine-readable form as possible, for input to the NALNET database. STIF should not, of course, add its own identification as a holdings source, and probably cannot add other NASA libraries' holdings codes, to OCLC or RLIN catalog records, at least according to the current rules of those utilities. But STIF can search and retrieve individual catalog records on tape and generate new records for its own use.

We have said that the primary STIF product should be the book database maintained in current, accurate, complete fashion for effective use by NASA libraries and their patrons. Other products

from STIF should be only those requested by Center libraries to fulfill their needs.

2. What are the advantages and disadvantages of bibliographic utilities, e.g., RLIN, OCLC, BNA, if used by NASA Centers in the production of current and future NALNET products?

The advantages and disadvantages of bibliographic utilities for NASA purposes are summarized in Table 6 in Chapter 3. We can also repeat what was said earlier, that bibliographic utilities enjoy economies of scale that permit them to offer a greater range of services at total lower cost than could be otherwise available to NASA.

3. In recommended approaches, what changes, if any, at NASA Centers should be made to their NALNET interfaces that would be cost beneficial?

The NASA Centers, we have said, should be encouraged to join bibliographic utilities or use other automated tools to accomplish local cataloging. Their interface with the NALNET database then will be increasingly via machine-readable records, transmitted on tape or by online communications. Cost benefits for such configurations are included in the next section.

The NASA Center libraries should also be able to communicate with STIF via modern linkages such as online messaging or, eventually, online access to the database itself. The experiences of the bibliographic utilities in providing access to the database for individual libraries, without violating the integrity of the master file, can be of value in developing such libraries/STIF interfaces.

4. In light of the probable future developments in cataloging, what level of processing would be most cost effective for NALNET?

NALNET should phase out its cataloging function in favor of the Center libraries' performing their own cataloging, to meet their own local needs. As the Center libraries increasingly take advantage of bibliographic utilities and other automated services, more and more of their cataloging will be in the MARC format. This in turn will make the NALNET maintenance of the book file for interlibrary loan and retrieval purposes a more direct and cost-effective operation. Economic analysis is given in the next section.

5. What user-oriented products are the most cost effective, i.e., card catalog, book catalog, COM catalog, and online catalog?

We have said that libraries in general are moving from the conventional card catalogs to book catalogs, to COM catalogs, toward the goal of online catalogs. We recognize that smaller NASA Center libraries might still be using card catalogs over the next five-year period, but overall more NASA libraries will have online catalogs by that time.

6. How can special requirements at NASA Centers be accommodated cost effectively by NALNET or by the library bibliographic utilities, i.e., OCLC, etc.? Are there possible modifications that could decrease costs arising from special local requirements?

Our survey of NASA Center libraries showed that they are generally satisfied with their local processing arrangements. Timeliness and specific unique needs are factors in this preference. The shared cataloging services offered by the bibliographic utilities

would preserve or even enhance these factors. As we noted earlier, the utilities can offer special services, i.e., services which accommodate specialized needs, more cost effectively than the Facility can.

7. In light of all the factors covered in this study, which internal STIF file structure, STIMS or PUBFILE, would be most cost effective?

We have determined that it would not be cost effective, in light of all the factors covered in this study, to bring up PUBFILE to operational status. The products that were the major reason for PUBFILE's creation are no longer needed by the NASA Center libraries. The MARC format to be provided by PUBFILE is being provided increasingly by participation in bibliographic utilities.

APPENDIX A

NASA CENTER LIBRARY TRIP REPORTS

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Dryden Flight Research Center	A-5
Goddard Space Flight Center	A-8
Headquarters	A-11
Jet Propulsion Laboratory	A-15
Johnson Space Flight Center	A-18
Kennedy Space Center	A-21
Langley Research Center	A-23
Lewis Research Center	A-27
Marshall Space Flight Center	A-31
National Space Technology Laboratories	A-34
Wallops Flight Center	A-37

NASA TRIP REPORT

Center: Ames Research Center

Date of Interview: October 10, 1980

Interviewed: Ralph Lewis, Chief, Library Branch

Interviewer: Nancy DeWath

Library

Ames is a center for research in basic science, engineering, and technology. It has no major projects, no hardware responsibilities, making its interests more research-oriented than any of the other Centers. Among its major areas are life sciences research, biochemistry, biophysics, and space biology. In addition to the main library, there is a branch life sciences library.

The Ames Library has cooperative arrangements with both San Jose State University and the nearby Stanford University Libraries. Ames has access to Stanford's collection on RLIN and an agreement with Stanford that Ames may borrow one item for each that it owns. An ILL system with accounting on RLIN is expected soon to replace the manual processes. Other principal suppliers of ILLs are the University of California at Berkeley libraries and other NASA libraries, the latter group being a major source of journals, due to its liberal journal lending policies. Ames also borrows from a broad assortment of other libraries and information sources.

Most of the library's contact with its Ames clientele is by phone. However, the library is also heavily used by researchers and librarians from industries in the area.

Cataloging

Ames has been using RLIN for cataloging since 1975. Cataloging is entirely the responsibility of contract staff. Their contract is to perform cataloging in the most cost-effective manner possible, which has proven to be RLIN.

Since the library does not currently have an RLIN printer, it uses MARCFICHE to get an initial copy of the MARC record, which is then modified offline first.

One major advantage of RLIN is that the online file corresponds exactly to what is in the Ames catalog, for titles cataloged since 1975, and the library can at any time get a tape of its holdings (which it has not done, so far). The library maintains a card catalog, but is now reaching the point where it will have to expand its card file, and is considering adding RLIN terminals in the catalog area instead.

With RLIN, the library has access to the full MARC tapes as well as the cataloging data from numerous research libraries, can modify the record online to reflect Ames' holdings and needs, and later access that modified record. The system also produces catalog cards formatted and sorted according to the library's specifications. The Ames Library places great emphasis on timely access to materials, and with RLIN the cataloging backlog is virtually non-existent. Ames can also modify its records at any time, as needed.

Ames is currently entering retrospective catalog records onto RLIN and expects within a year or two to have its complete book cataloging records in the database.

NALNET

Ames' major complaint with NALNET, as compared to RLIN, is the library's lack of control over the file. Whereas in RLIN the library's local cataloging is preserved, in NALNET in theory only one record - MARC, or that of the first library to catalog an item - appears for the entire network. NALNET also lacks authority control, so that duplicate records do appear. The file also lacks cross-references. Finally, the time required to get a record into NALNET is excessive, and not in keeping with Ames' objective of timely access.

The main reason Ames cannot use NALNET in the same way it uses RLIN is that NALNET is a bibliographic file, not a library support system. NALNET does not support all cataloging efforts at the local level. RLIN is easier to use for

cataloging than RECON, because it is set up as a cataloging tool with procedures developed for that purpose, while RECON's main function is information retrieval.

One of NALNET's strong features is RECON's search system. Although RLIN has the flexibility of partial word searching, Ames thinks RECON has superior search capabilities.

Looking toward the future, Ames would like remote catalog access for its users. With its location close to Stanford, where RLIN is housed, dial-up access for users around the Center is a possibility.

Other Comments

As an RLIN user, Ames has access to the other services of the network, such as the upcoming ILL system. The range of services available to the Library as RLIN users is much greater than they get from NALNET. Because of the large number of libraries sharing the development costs, and RLG's ability to get outside funding, the cost to Ames is probably much less than would be the cost to develop similar services on NALNET. RLIN is committed to keeping up with developments in library automation.

Ames estimates that about one-third of its book titles are continuations. Closed entries for this many items would be, in the staff's opinion, unnecessarily burdensome. The effort required to create the records and the catalog space required to file them, is too great.

NASA TELEPHONE INTERVIEW REPORT

Center: Dryden Flight Research Center

Date of Interview: October 21, 1980

Interviewed: Karen J. Puffer, Head

Interviewer: Joan Foley

Library

Dryden Flight Research Center started as a high speed flight test station in the 1950's, expanded with the X-15 program in the 1960's, then was cut by half at the end of the decade when the X-15 program died. Located on the edge of a dry lake bed northeast of Los Angeles, it is still a center for high speed, high altitude, high performance aircraft testing.

As a result, the library's subject emphaser include flight research, aerodynamics, flight testing and systems, aerostructures, stability, propulsion, instrumentation and data systems. Interest in computers, especially microprocessors, has increased. The collection consists of 7,010 volumes (books and serials), 616,721 microfiche and 196 shelves of loose documents. An archival collection (part of it is microfiche of X-15 documents) is held in GSA storage at Laguna, California, by National Archives, but is accessible from Dryden's card catalog.

Prior to 1973, the library staff was Civil Service, but as of 1973, it was taken over by a contractor. Staff is currently two professionals (Karen Puffer has been there since 1973). The entire collection has been heavily reorganized since 1973. It has been moved, converted from Dewey to LC, and extensively weeded.

Dryden is one of the smallest NASA libraries. It is the only NASA library that doesn't have a RECON Terminal. For the past 1-1½ years, the staff has had access to the NALNET databases through a dial-up terminal (Texas Instruments Silent 700) over free FTS lines. Ms. Puffer feels that a

RECON terminal, especially the dedicated line, is "outrageously expensive." As a result of not having a RECON terminal, the NALNET databases are consulted only after KWIC COM is used.

The library is "almost an adjunct to the mail room" in that the duties encompass a tremendous amount of routing -- especially of serials. The staff also distributes free publications, files loose-leaf services for a legal library at the Center, and handles telephone books, college catalogs, etc.

Users are mainly the research scientists and engineers, with some use by administrators and, infrequently, the public.

Cataloging

Book processing is done by the contractor. LC card sets are ordered for the card catalog, but temporary "fastcat" cataloging is done manually by the contractor upon the book's arrival if the LC card set has not arrived. Four "fastcat" cards are prepared, two for the circulation system and an author entry and title entry for the card catalog. A "fastcat" catalog card includes author, title, publisher, and date. Upon completion of "fastcatting," the book is circulated to the requestor. When the LC card set arrives, the book is recalled and processed. The "fastcat" cards are pulled from the card catalog and the LC cards filed. The book is then entered into the NALNET/RECON book database. "Fastcat" procedures have been used formally for four years, and have solved the problem of delays in receiving LC card sets.

Ms. Puffer estimates that 75% of the book collection is satisfactorily covered by LC cards. The other 25% is prepared by the contract staff either 1) because of necessary alterations to the LC card, often due to Dryden's use of closed entry cataloging, or 2) because LC has not cataloged the book. For the number that need alteration or cataloging, a high percentage are on RECON, so few items actually need original cataloging. Estimated processing times are as follows: one hour to "fastcat", one-half hour to process an LC card set, and one hour to do original cataloging.

Selection is done by the patrons because they have the technical expertise. Ms. Puffer selects from other NASA Centers' surplus lists as possible.

NALNET

The products most heavily used are KWIC COM and the Union List of Serials. The staff do not use either the Local Book Accessions List (they type their own list weekly for distribution, which includes all accessions -- books, reports, etc. -- from all sources -- NASA, Air Force, Navy, Northrop, etc.) or the Union Book Accessions List (it is mainly a source of frustration because the books are not readily available for ILL).

Interlibrary loan is mainly with NASA libraries; many serials ILLs are from AIAA. The California State University and College system is also used.

Dryden has recently completed a verification of its book holdings versus a RECON-generated quasi-shelflist provided by STIF, dated March 1980. Corrections have either been entered through its own terminal or by STIF via request from Dryden.

Other Comments

OCLC and RLIN were both investigated one to one and one-half years ago, but costs (a new terminal and line charges) were prohibitive. Hit rates were not investigated. The staff originally preferred RLIN to OCLC, due to RLIN's inclusion of more academic and special libraries and OCLC more public, but that situation may be equalizing. (RLIN, at that time was also less expensive). Dryden is also interested in automation -- especially for routing.

NASA TRIP REPORT

Center: Goddard Space Flight Center

Date of Interview: September 24, 1980

Interviewed: Adelaide Del Frate, Head

Interviewers: Cynthia Shockley, Joan Foley

Library

The Goddard Space Flight Center Library was established in 1965 as a science-technology research library with heavy concentration in the fields of astronomy, physics, mathematics and space science. In recent years, the subject growth has emphasized computers, communication, climatology, engineering and remote sensing. The Library serves a Center with 3458 civil service staff of whom 51% are technical, as well as an on-site contractor staff of 2750 persons of whom 19% are technical. Of this group, about 1800 staff are core users; the library adds about 40 new users per month.

The collection database routinely provides a complete spectrum of book-type printed catalogs, computer-output microfilm, authority files and in-process files. A major spin-off from the book database is the circulation inventory tape for the in-house-developed 360/95 online circulation system. A recent estimate indicated that there were 40,000 book titles (or 68,000 volumes). A contractor produces a magnetic tape of the book collection current catalog for use in the circulation control system.

The Goddard Center is closest to Ames in terms of its support of theoretical rather than scientific activity. In addition to this similarity, Goddard is also similar to the Jet Propulsion Lab in subject orientation. Unlike other NASA libraries, there is no indefinite loan policy to staff. Instead a reserve system of one week for new titles, two weeks for the current fiscal year and four weeks for older books has been the policy since 1972. The library is a member of the Baltimore-D.C. consortium established by Johns Hopkins University and is a

major contributor to that group's serial holdings. The Goddard library also deals with the Naval Research Lab, U. S. Geological Survey, the National Bureau of Standards, the Applied Physics Lab, DOE, HUD and DOT libraries.

ILL processing is conducted with the use of a standard Goddard form. One ILL loan technician is responsible for the entire process which consists of about 400 transactions per month. For photocopy ILL's approximately 20% are made to NASA libraries and for volume ILL's, 45% are made to WALNET members.

Cataloging

Selection of books is done by library staff and the ordering process performed under contract with amounts decremented from the account.

Cataloging of books is conducted at the MARC II level. Classification and cataloging conforms to AACR and Library of Congress schedules (with some modifications) and must provide for closed entry cataloging. The basic record format, data elements, and tags conform to the MARC II format. NASA terms are placed on the cataloging record. The Goddard library has had a book catalog for some time, and at the end of September began producing a COM catalog.

A contractor has always performed the cataloging tasks. Library staff will attach a RECON record to the physical volume if available -- the contractor has no access to RECON. The contractor prepares a magnetic tape of the catalog records which is forwarded to the Facility. The tape contains the main entry record with abbreviated records for added entries needed for book or COM catalog production. The contractor also provides thesaurus updates, performs authority file and LCSH modifications, and does keyboarding and verification of records. The keyboarding is accomplished via WYLBUR.

Recent cataloging statistics reflect the following categories of bibliographic records: Original: 41%, Library of Congress (use of MARCFICHE): 38%, Volumes added to series: 21%. The "volumes added to series" is necessary due to the closed entry requirements.

Each volume added to a series must have an individual bibliographic record. Multiple copies of a particular volume share the same record, but each copy must have a unique accession number. These procedures accommodate closed entry cataloging and the file's inventory function. As a result of this requirement the catalog is larger than normal (about a 21% explosion factor). This integration of circulation, catalog and inventory functions is a distinct requirement by Goddard and one that has impacted other NASA libraries, since others must also catalog in closed entry mode.

The Goddard library will be joining RLIN for its subject retrieval capabilities; the contractor already belongs to the RLIN network for cataloging purposes.

Other Comments

In general, the Goddard library is satisfied with products and services provided by the Facility (the serials list is considered the best and should be kept). In the future, workshops should be organized for the NASA librarians prior to the annual meeting to provide a technical forum not always evident during the meeting as conducted.

Goddard has access to SDC and Lockheed.

NASA TRIP REPORT

Center: Headquarters

Date of Interview: August 28, 1980

Interviewed: Alfred C. String, Jr., Head

Interviewers: Nancy DeWath, Cynthia Shockley, Joan Foley

Library

The NASA Headquarters Library is unique in that it serves mainly management personnel -- rather than either research or operations personnel. All NASA programs are monitored at Headquarters, so the book collection's subject emphases are administration, management, other policy-related social sciences, and aerospace science and technology. The collection is also heavy in biographical reference and business information, partly to fulfill requests from the public for inhouse use of materials.

The Headquarters Library is experiencing three limitations: budget, space, and staff. The materials budget is currently \$150,000. The book budget has dropped, so many acquisitions are direct user requests. Limited space has contributed to the decision to convert more materials (especially serials) to microform and to use some compact, electrically moveable shelving for the book collection.

The staff is currently four civil servants, down from 11 civil servants in 1965. The decrease in staff contributed to the decision to engage the services of a support contractor to handle most processes other than reference and answering the telephone. Included in the duties is book processing. The support contract, which started August 4, 1980, includes three people, two of whom had previous experience (one of them for 14 years) at the Headquarters Library.

Cataloging

Another recent change has been the contracting of OCLC services; the terminal was installed June 26, 1980. Products received are catalog card sets and a semi-annual archival tape.

Prior to joining OCLC, the Headquarters library book processing and serials ordering was done at the Facility. Disadvantages were expense and a turnaround time of from two to three weeks.

The hit rate on the first try on OCLC was in the mid-90th percentile. The Headquarters Library's collection is not as technical as some of the other NASA Center libraries, nor are there as many foreign titles; these factors may have favorably affected the hit rate. The only category of publications which Headquarters has that is not always complete on the OCLC tapes is Congressional documents, which are still being cataloged.

OCLC strengths, in addition to the high hit rate, are:

1. Turnaround time for catalog cards is six days.
2. Many Federal libraries in the area use OCLC, so having access to these holdings is very helpful for interlibrary loan.
3. The database is larger than NALNET/RECON. It includes the holdings of many more libraries, and it includes all of the MARC tapes, as well as the GPO tapes.
4. Joining OCLC puts the Headquarters Library "in the mainstream."
5. OCLC is very hospitable; libraries can have their own record formats, but OCLC keeps the MARC record inviolate.
6. The OCLC tape could be used to generate a local COM catalog, an especially helpful product due to the library's space problems.

Mr. String has done a comparison study between OCLC and RECON: taking 63 titles found on OCLC either as complete records or Cataloging in Publication (CIP) data, the same titles were searched on RECON. The results were as follows:

OCLC

Complete record }
CIP data } 63

RECON

Complete records = 25
Incomplete records in one way
or another = 19
No record = 16
Previous editions in NALNET (2 of
the 3 earlier editions were
cataloged by the Facility.) = 3

NALNET

Headquarters contributes to NALNET by: 1) sending an OCLC-produced catalog card to STIF if there is no RECON record or if the RECON record is incomplete, and 2) having the support contractor add Headquarter's holding code and local call number online to a complete RECON record.

Mr. String and the library staff do the selection; the support contractor does the ordering and book processing. If OCLC comes out with an acquisitions module (scheduled for Spring 1981), Headquarters will try it.

Over half of the interlibrary loan borrowing of books and serials has been from NASA libraries. Borrowing from area Federal libraries will undoubtedly increase, as OCLC is generally checked first. Serials in the life sciences are borrowed from Ames Research Center rather than NLM, because an express delivery service between Ames and Headquarters gives one day service.

Other Comments

In reviewing the NALNET Book System products and services, Mr. String made the following observations:

1. RECON's subject access is essential.
2. He would like to consider an online catalog possibly through NALNET but confined to NASA holdings or Headquarters Library holdings.

3. This library uses the local accessions list from STIF, so did not order this product from OCLC.
4. The Union Accessions list is used mainly for selection and is available on distribution to users.
5. The book title KWIC COM is used only when RECON is down or busy. (The Conference KWIC COM is used more. He does not want the two lists combined.)
6. He would like to see a central journal collection at the Facility, especially for older titles, due to storage problems at the Center libraries.
7. The Facility should be more careful in duplicate checking. The LC card number is too capricious to be relied upon.
8. Mr. String's personal goal is to have a file (COM) catalog for 1978 onward.
9. He feels that having a "Books on Order" file on RECON would clutter the database.
10. The GPO tapes have been useful on OCLC. He thinks they would be helpful on RECON.
11. He would like to see the pre-1968 books added to NALNET, the more the better, but it is expensive to make copies of front matter to be sent to the Facility.
12. He doesn't feel that there is a need to have books on SCAN. The report and journal literature is enough.

NASA TRIP REPORT

Center: Jet Propulsion Laboratory

Date of Interview: October 8, 1980

Interviewed: Joseph Wyncoop, Manager; Alice Wilder, Administrative Group
Supervisor, Library Technical Services

Interviewer: Nancy DeWath

Library

JPL is operated under contract to NASA by the California Institute of Technology. It has been in existence since the 1930's, and the library was begun in 1943. JPL houses both JPL and (sub)contract staff. While most of its work is for NASA, DOE contracts are of growing importance as well. JPL is the prime center for unmanned space exploration, and its information needs cover both research and applied science, with special interest in space biology and celestial mechanics.

The book collection is about 90,000 volumes, representing perhaps 45,000 titles, 15,000 of which are in the NALNET book file.

The library has close ties with the Caltech libraries, and with other libraries in the Los Angeles area and elsewhere in California. JPL ILL requests are searched on OCLC at Caltech. The Library also uses NALNET to locate items in other NASA Center libraries.

Cataloging

JPL does its own cataloging. The first source for cataloging information is Cataloging in Publication (CIP). Books without CIP are searched on NALNET. About 10 to 15 percent of all titles require original cataloging. The catalog record is standard AACR except that no notes are made, and LC Subject Headings are not assigned. Subject terms are assigned instead from the NASA, TEST, and DOE thesauri. The cataloging information is put on a worksheet and then keyed into

a word processing system, which is used to produce shelflist cards and to input data into the library's own Library Information Retrieval System (LRS). LRS operates in a batch mode and is used to generate a local book catalog. For titles not in NALNET, an extra shelflist card is generated, LCSH are assigned, and the card sent to the Facility. For titles in NALNET, the JPL call number and holding code are submitted online.

The library is well-pleased with LRS, but would prefer for the system to be online. LRS covers all of the library's holdings, regardless of date, integrates book and report literature, and has open entries, all desirable features from the library's view.

NALNET

The major users of NALNET are the technical services staff and the reference staff. The technical services staff use NALNET as a source of cataloging information for titles without CIP. They find the MARC records very useful, although they have noted numerous typographical errors in them, some of which affect searching. They find the quality of records input by the Facility and by the other NASA Center libraries to be variable, and so are cautious about using those records. They also find a large number of variant records for the same title. One problem with the MARC records is that as the Center's research interests broaden not all the titles that they acquire are included in the portion of the LC schedule included in the book file. A problem with the RECON display is that they can only identify the main entry by looking at the "cutting" of the LC classification. The reference staff values NALNET primarily for its free text searching, which makes it possible to track down items, especially conferences, with difficult titles or for which the user only has a partial title. They rarely search on LCSH or NASA terms; usually they are trying to verify a title. They do not use it for access to their own collection, preferring LRS. For ILL, they do not find NALNET very useful. They prefer to use libraries nearby, and are discouraged by the large number of NALNET records which have no holdings. However, they can use the NALNET MARC records to get the LCCN, with which they can find locations in the NUC Register of Additional Locations. As the NASA libraries' budgets dwindle, and their interests diverge, the JPL staff expect NALNET's usefulness for ILL to decrease.

The JPL staff have found numerous errors in the JPL holdings on NALNET. Some of this is because early in the development of the databases they sent the Facility the full LRS shelflist printout, which was incomplete. They have also noted that errors that are reported are not corrected.

Other Comments

The JPL staff find the separation of report and book literature in NALNET to be dysfunctional. They argue that users are not concerned about the form of material, and creating separate databases requires them to check more places for a single title.

They also feel very strongly that closed entries create unnecessary problems. For them to create and submit a separate record for each new volume in a continuation would be burdensome, and to get multiple records in a search would be unwieldy. Since JPL catalogs with open entries, no open entry records are currently being submitted to the Facility. To add to the difficulty, some series that JPL treats as monographic series with open entries, other libraries have included in the serials file.

NASA TRIP REPORT

Center: Johnson Space Center

Date of Interview: September 11, 1980

Interviewed: Albert Kelly, Head

Interviewer: Cynthia Shockley

Library

The Johnson Space Center (JSC) Library was begun in 1962 -- the same year the Center was built. The library, like most others in the NASA network, includes both Civil Service and contractor staff. The number of users registered with the library are 6500 to 7000. It is unknown as to how many patrons are served annually. There are currently 40,000 book titles (or 56,000 volumes) in the library. The annual growth rate has typically been about 1200 titles per year; however, this will be declining to about 1000 in 1980. The FY80 total budget was for \$117,700; the FY81 budget will be \$105,000 (out of which \$88,000 will actually be for library expenditure; the balance will be spent on acquisitions for permanent loans. A comparable amount from the above FY80 budget was also utilized for such acquisition). Since JSC is primarily an operational R&D center, almost 75% of the budget is for journals. Of the FY81 budget of \$88,000, 22% or \$19,360 will be spent on acquiring books. There are to be, as of October 1980, seven full-time and one part-time Civil Service staff members.

Until October 1, 1980, the Library will have had contractor support for acquisitions, cataloging, processing, and supplies. The Civil Service staff until this time provided circulation and reference services. As of FY81 this contract will disappear, and only one GS slot will be available to take up those tasks previously handled under contract. This contract elimination has prompted JSC to consider use of a bibliographic utility (specifically OCLC). (JSC recently reported that in November, 1980, they submitted the necessary paper work to FLC to purchase the services of OCLC for cataloging and ILL support through FEDLINK.)

The operation of the library since 1962 has been fairly consistent. There is an offline automated circulation system (with permanent loan tracking built in). Book selection is conducted with review of AIAA, user-provided selection slips and input from reference librarians. The Library is cutting back on SCAN usage since many who had signed up were receiving the service out of interest rather than necessity. Over a six month period an analysis was made of the user population and it revealed about a 50-50 split between civil servants and contractor staff. Subject emphases have been engineering, life sciences, astrophysics and other sciences involved in aerospace and earth resources. Unlike Langley which is a working research Center, Johnson SC is an operations-oriented Center working primarily with Kennedy SC on major projects such as the Shuttle. The library has limited dealings with some other local libraries, e.g., Rice University and Houston Medical, but primarily uses NALNET for ILL rather than close-by institutions.

Cataloging

Approximately 30 percent of JSC's cataloging and card set production was done by the Facility while the other 70 percent was done inhouse through late 1979. At that time, the entire process of cataloging and card set production was undertaken by JSC. Problems with the Facility's work included: the number of errors causing a remake of a card by JSC (note: some errors were not reported to the Facility); name authority records used by NALNET were not in conformance with LC; more information could be arranged on one card (rather than use of second card) by JSC than by the Facility (see also Lewis Research trip report); slow turnaround of card production (two to six weeks); lack of collation statement on NALNET cards; and, by individual design the JSC began switching its cataloging requirements to AACR II before NALNET. The Johnson Library expects to create cross-references for corporate authors in anticipation of AACR II.

According to cost analysis, under the contract the cost for cataloging a title on an in-house basis was \$7.67 per title in professional time and \$11.80 in total costs when additional tasks (e.g., typing up card set) were added.

When NALNET was first used by Johnson, a copy of its shelflist was sent to the Facility for the purpose of inputting older titles. The library therefore assumes that all of their book titles are resident on the RECON database. The usual cutoff date of 1968 may not apply to this NASA library.

Other Comments

The Johnson SC Library would prefer to remain autonomous. There is little impetus noted here to become a particularly active member of NALNET. It would be of interest to this library if a better patron interface were created for RECON searching. With a greater tutorial capability, patrons could perform more of their own research and relieve the burden placed on diminishing staff. A real-time online interactive input capability for inputting catalog records would also be desired.

NASA TRIP REPORT

Center: Kennedy Space Center

Date of Interview: September 10, 1980

Interviewed: Milorad Konjevich, Head

Interviewer: Cynthia Shockley

Library

The Kennedy Space Center (KSC) library was established in 1962 and has never been operated by Civil Service staff. The library's functions are performed by 16 contract staff under the direction of Vincent Rapetti. Mr. Konjevich's expertise lies in management and technical publishing, and he relies on Mr. Rapetti for involvement in NASA activities concerning NALNET. Library resources include over 33,000 technical books and bound journals and subscriptions to more than 700 periodical titles. About 500 books per year are acquired. Subject areas of concentration include engineering, environment and some management; technical reports are for the most part concerned with the Shuttle. A large archival collection on the space program as it pertains to Kennedy Space Center is maintained.

There are virtually no local libraries that the KSC library can interact with and therefore RECON is heavily used for ILL transactions; however, the State library system and the AIAA are also utilized for ILL requests. About 1000 ILL transactions take place per year.

Out of 13,000 total staff at Kennedy, approximately 3,000 - 4,000 are registered users for library services. Only registered users have circulation privileges.

Cataloging

The KSC Library prepares and produces its own catalog cards for about one to two books per day. When a book arrives at the library, it is checked in NALNET

to see if a record exists for the title which can be utilized. Book Publishing Record and Cataloging in Publication (CIP) data are also used for cataloging information. Mr. Rapetti estimated that only about one percent of the 500 books acquired each year require original cataloging.

The library often selects titles by reviewing the "New Books List" distributed by the Facility. Contractor staff input KSC's holding code and local call numbers into RECON and review the LC subject headings. Occasionally, they modify main and added entries. The KSC library prefers the option of both closed and open entries and would like to be able to enter pre-1968 titles to the RECON database.

Other Comments

The library is acquiring a dial-up terminal for access to the DOE database. There is an internal SDI distribution list maintained on a word processor. Like Johnson, KSC is mission-oriented and prefers an autonomous state.

NASA TRIP REPORT

Center: Langley Research Center

Date of Interview: September 4, 1980

Interviewed: Jane Hess, Head;
Carolyn Floyd, Librarian

Interviewers: Cynthia Shockley, Joan Foley

Library

Langley Research Center Technical Library is the oldest of the NASA Libraries, having been founded in the early 1920's as a part of NACA. It was the first library to use the Facility in the 1970s for book processing and is one of only two libraries using it currently.

Langley is research-oriented and one of the largest libraries. Their NACA archival collection (1915-1958) and current technological sources are extensive. Colleges and universities use Langley as a technical library and it is open to the public. In 1971, it moved into its own three-story building. The staff consists of 13 Civil Service employees, two part-time helpers, and a contract staff of nine headed by an MLS. The Civil Service staff handles reference, administration, selection, and the monitoring of catalog card production while the contract staff handles procurement, circulation, and preparation of shelf-ready books. As mentioned earlier, the Facility does the book cataloging.

A selection committee is composed of the library Head, Head Subject Specialist, six professional reference librarians, and 24 consultants (scientists, engineers and branch managers at Langley). The committee grades proposed titles as essential, important, or merely interesting; the latter are seldom ordered.

Cataloging

Purchase requests go out daily. Vendors send books directly to the Facility for cataloging. Previously books came to Langley from vendors, then were shipped to the Facility, a process which was changed by Ms. Hess when she became Head to cut down on turnaround time by 2-1/2 months. The Facility staff receipts and inspects the books from the vendor, then mails the packing slip/invoice to Langley's acquisitions department. Langley also receipts and inspects books upon arrival. The contract's technical monitor, Carolyn Floyd, inspects the catalog cards as they arrive with the books. The books are then made shelfready and are charged out to the requestor.

Problems in the above procedures are:

- 1) Cost: cost per book title was quoted in May 1980 as \$16.71.
- 2) Turnaround time: average turnaround time (time from STIF's receipt of a book to Langley's receipt of the book) in FY1979 was about 5-6 weeks, and about the same for FY1980.
- 3) Backlog: there is currently (September 1980) a backlog of 186 books at the Facility.
- 4) Errors on the catalog cards and in NALNET/RECON include:
 - a) inaccurate assignment of holdings to record or lack of assignment of holdings to record.
 - b) not using established call numbers for series volumes.

NALNET

Concerning the Facility products and services, Langley

1. Would like STIF to generate local book surplus lists for both books and journals.
2. Uses KWIC COM products only as a backup, and is not really pleased with the product, although "it is better than nothing." The staff comments that it is helpful to have the call number.
3. Would prefer that the Facility catalog the backlog before adding Langley pre-1968 titles to NALNET.
4. Would like to have conference proceedings analyzed with title access to papers within proceedings on RECON.
5. Would like books on Selected Current Aerospace Notices (SCAN).
6. Uses stored profiles heavily.
7. Is not interested in Books on Order File.
8. Feels that the serials format needs to be standardized and suggests use of MARC.
9. Needs access by report number.
10. Doesn't need GPO tapes on RECON.
11. Would like to be able to use both closed and open entries when appropriate (e.g., closed entry for handbooks with different titles, open entry for encyclopedias). If use of both is not a possibility, Langley will go with closed entries.
12. Would like to be able to search the V files with the A and N files, if it is possible to use the same mnemonic codes.
13. Would like STIF to generate a printout of backlogged titles.

Other Comments

Ms. Hess feels that Langley receives strong support from NASA researchers and engineers and all levels of management. A library committee composed of seven or eight users, representative of all five Langley directorates, is kept informed of library matters by the Head and meets twice a year to give direction and support to the library.

Langley is more automated now than it has been in several years. CLSI is used for circulation and acquisitions, but more management information is desirable, so they are looking at other automation systems. The library staff has been trained to conduct literature searches on Lockheed, SDC, and BRS databases and have been offering this service since August 1980.

NASA TRIP REPORT

Center: Lewis Research Center

Date of Interview: September 17, 1980

Interviewed: Dorothy Morris, Head

Interviewer: Cynthia Shockley

Library

The library at the NASA Lewis Research Center is one of the earliest ones -- begun in 1943 when NASA was NACA. The primary subject areas for book collections when founded supported the engine research activity of NACA during World War II, in conjunction with Langley Research. The library is now comprised of 55,000 volumes of books, representing 27,000 unique titles. The book collection gains about 1250 titles (or 1900 volumes) per year. This figure reflects a current constant growth with no expected major increases or decreases.

The FY 81 budget for book acquisitions (and including technical films) will be \$82,000. The library staff is composed of 14 people, all of whom are Civil Service employees. The only contract let by the library is for binding. Approximately 3000 patrons are served annually, of which 2000 are research scientists and engineers. About 165 patrons receive SCAN and the New Books list. Subject analysis is gradually moving from pure sciences (particularly physics) into areas dealing with earth sciences and energy.

In many ways the Lewis Library is similar to the Langley site. Both are research-oriented (as opposed to operations); both have developed a self-generated purchase order routine for books which expedites the process; and both use the NASA Facility for the production of catalog card sets.

The Lewis Library has an extensive network with local libraries, e.g., Cleveland Public, Oberlin College, Case Western Reserve and Cleveland State Universities, and the Universities of Akron and Toledo. Via Allen Memorial Library, Lewis has access to medical literature and MEDLINE. When an ILL request demanding

immediate response is received, this local network is used. Normal ILL processing, however, is performed with the use of NALNET/RECON.

Cataloging

Until 1971, the Lewis Library performed its own in-house original cataloging. When Langley began cataloging with the use of NALNET in 1971, Lewis followed suit. The process established in that year has remained similar until the present time, i.e., books are ordered and received at Lewis and the card sets are ordered from the Facility (either with use of "online" ordering or as a result of original cataloging performed by the Facility). Each book order is done directly; there are no approval or blanket orders; both publishers and vendors are used. Titles are selected as a direct result of reference activity and from feedback received from lists of new titles which are developed by the Library and circulated among staff/patrons.

Over a five month period in 1979 and a three month period in 1980, the following statistics were collected on the number of "hits" found in the RECON database for titles received at Lewis:

DATA MONTH	TOTAL TITLES	NUMBER TITLES FOUND ON RECON	"HIT" RATE
January 1979	85	52	61.2%
February 1979	100	73	73.0
March 1979	87	30	34.5
April 1979	39	31	79.5
May 1979	122	83	68.0
1979 OVERALL	433	269	62.1%
May 1980	80	51	63.8%
June 1980	33	25	75.8%
July 1980	98	79	80.6%
1980 OVERALL	211	155	73.5%

The Lewis Library also estimates the following turnaround time for receipt of card sets:

SHIPMENT PORTION \ ORDER TYPE	ORIGINAL CATALOGING BY FACILITY	CATALOGING WITH USE OF RECON/ONLINE ORDER
First 1/3 - 1/2 of any shipment	3 work weeks	1 - 2 work weeks
Remainder of shipment (1/2 to 2/3)	5 - 6 work weeks for total shipment	3 work weeks for total shipment

The cataloging staff stated that from five to ten percent of the records found on RECON require some modification to meet the standards set at Lewis. A prime example of a modification made concerns the generation of a second card by the Facility that contains only call number, ISNG, etc. Often the staff will delete the notation "(continued on card 2)" and type number-related data around the hold on the first card. This procedure saves filing time and reduces the size of the catalog. (See also Johnson SC report.)

Other criticisms of the current cataloging system include:

- Prefer open entries (closed entries only increase the number of cards to be filed)
- Don't know what the Facility plans to do with AACR II requirements
- The dashes contained in the ISBN are often not correct and therefore unsearchable
- Numerous duplicate records

At the current time Lewis is seriously considering the use of a bibliographic utility (specifically OCLC); however, no contract has been made with FEDLINK and the impact of this study will be assessed.

Other Comments

The basic concept of generation of a card set in stricter conformance to MARC is well-received at Lewis: the library prefers a MARC entry.

The library has three UTS 400 terminals and an additional one installed in the Development Engineering Building (after training) for remote (yet onsite) RECON searching. An Anderson-Jacobsen 832 (300 baud) with an impact printer was just installed for interface with Lockheed. Access to DOE and DTIC is also direct. Searching on SDC databases is performed by the Facility with an average two weeks turn around time.

NASA TRIP REPORT

Center: Marshall Space Flight Center

Date of Interview: September 9, 1980

Interviewed: Charlotte Dabbs, Head

Interviewer: Cynthia Shockley

Library

This library was established in 1960 as an internal document repository which also, at that time, served as an ordering focal point for book-buying for NASA offices. In 1962, the Redstone Scientific and Technical Information Center was established by the Army, and created a library merged from two previous collections. It is these two facilities--the Marshall/NASA library and the Redstone Scientific Information Center (RSIC)--which form the library resources at the Huntsville facility. The NASA library headed by Ms. Dabbs is relatively small, and has a book collection of about 3,000 volumes. The RSIC's collection of 3,000,000 cataloged items has approximately 175,000 books and 75,000 journal volumes and is the largest Army library (and the largest library of its technical type in the world). The Marshall library makes extensive use of the RSIC library and all of its automated systems and has a contract for \$900,000.00 with the larger library to have most technical and reference services performed.

The mission fields for the Marshall SFC have been guided missiles, space research (both applied and pure sciences), management, psychology and general reference. Some subject area modifications include moving from vehicle development areas to environmental space conditions (e.g., cabins), satellites and telescopes. Some developing subject areas are coal use and the overall energy field.

The Marshall library communicates regularly with the Johnson and Kennedy Center libraries. Also exchanges occur with the Ames (life sciences) and Langley (aerodynamics) libraries.

Cataloging

Book selection is done by Ms. Dabbs on the basis that for every book acquired one book must be discarded. On the average, about 300-500 new books per year are acquired. Selected titles are forwarded to the acquisitions librarian located at the Redstone (RSIC) library. Many times Redstone receives, in its drop shipments, multiple copies of a title; after RSIC catalogs the title, the second copy is checked out to the Marshall library. Such drop shipments comprise 75-80% of Marshall's acquisitions. Once the physical volume is received at Marshall, the title is checked on RECON. If the title does appear in NALNET, Marshall enters itself as a holding institution; if the title is new to NALNET, a typed catalog card or shelflist record is obtained from RSIC and is forwarded to the Facility for input. Ms. Dabbs estimated that it takes about 10 minutes to search for a new title and to generate a catalog card/shelflist record for the Facility. An additional

All original cataloging is performed by RSIC according to its contract with the Marshall library. No card catalog is maintained; RSIC has an online capability for entering and maintaining the computer-produced catalog as well as diskette magnetic storage. The RSIC closed its card catalog in January 1980 and relies on COM fiche now. COM catalogs are produced every three months in toto, with monthly updates.

Marshall was told, based on an estimate by Informatics, Inc., in May 1980, that new contract requirements would require payment of approximately \$16.00 for input of partial or complete cataloging. Since this information was available locally, it was decided to submit copies of those records to the Facility in card form.

NALNET

NALNET is utilized only as a reference tool by this library since neither the generation of catalog cards nor original cataloging is performed with the system. Two years ago, when the decision was made to use NALNET for reference,

Marshall cleaned up and purged its records on RECON. There is a continuing problem with the library being identified as the holder of a title when in actuality it is not. (Other NASA libraries noted same problem.) No current products or services of the Facility related to the NALNET book system are used by Marshall. They use CCM products from RSIC.

Marshall indicated that a problem of duplicate entries in NALNET plagues the searching procedure described above. A suggested improvement to NALNET was the adding of a capability to allow for online record corrections rather than by paper transmission.

Marshall also makes current extensive use of Cutter/Sanborn numbers. In the last two years the library's thinking has altered in a direction that eliminates such a specific call number entry and concentrates on retrieval for the patron. Redstone may not totally ascribe to AACR II since these cataloging rules "do not always best provide for technical materials."

Ms. Dabbs was interested in determining how NASA subject terms are added by the Facility to book records which are not directly processed by them. Also, there is a problem of different mnemonics between the D and F files which adds some difficulty to online searching. KWIC COM is used infrequently by Marshall as a backup to NALNET, since system downtime has become minimal.

Other Comments

The library has a dial-up Execuport 300 for access to Lockheed and DOE. There are tentative plans to obtain a high speed printer and add online access to RSIC files. The library also possesses two public fiche readers, one roll reader, and fiche reader for reference and one portable fiche reader.

NASA TELEPHONE INTERVIEW REPORT

Center: National Space Technology Laboratories

Date of Interview: October 6, 1980

Interviewed: Katherine Wallace, Head

Interviewer: Joan Foley

Library

National Space Technology Laboratories (NSTL) began in the early 1960's with rocket engine testing, but the project subsided and the major contractor moved out. In order to maintain NSTL, NASA has taken on a more administrative role, as other government agencies were invited to rent space at NSTL. There are currently about a dozen agencies including NASA at NSTL, with NASA partially acting as a host agency.

The library is managed through a maintenance support contract with Pan American Airways. The staff consists of one full-time librarian, one full-time library technician, and one part-time documents clerk. The library's collection, including the book collection of approximately 10,000 titles, covers every subject area except the humanities and the arts.

In spite of the large number of agencies that could possibly be served, the entire library budget (salaries, services, books and journals) provided by NASA during fiscal year 1980 was \$44,000.00. Therefore there is basically no money for books from the budget. Instead the contractor keeps records of all books requested by NASA and later negotiates with NASA to pay for the purchased books. The library is not able to build extensive book collections for other agencies. These agencies must provide their own funding for book purchases.

But the library does provide services, including literature searches through Lockheed's DIALOG and interlibrary loan services, to all resident agencies. This entails using a complex accounting system in order to assign charges to the appropriate agency. The computer terminal used for literature searching was purchased with funds from the NASA Earth Resources Group, and the library has provided two to three searches per week since February 1980. It

is planning to hook up with SDC, BRS and DOE's Energy Line. Ms. Wallace feels that the literature searches have been very successful. The research scientist is present during the search to provide appropriate terminology.

On the other hand, any subject searches on NALNET are sent to the Facility because of lack of familiarity with the RECON terminal. A training program on RECON is desired by NSTL either through the Facility or STIB.

Cataloging

Book cataloging is done by the contract staff at the rate of about 65 titles per year. The Dewey Decimal System is used and cataloging information is mainly from the American Book Publishing Record and Cataloging in Publication (CIP). Very little original cataloging is necessary. Book, report, and some journal catalog records are prepared on transmittal sheets as input to the library's files in the NSTL computer. A book catalog is generated every six months. A shelflist card file is also maintained. Sears subject headings are used rather than LC or NASA.

NSTL's books are not in NALNET, as the library doesn't have the personnel or time to enter them. It is a project that the staff would like to do gradually in the future. Although catalog records are per title, each volume has its own accession number.

NALNET

ILL requests are mainly journals and most is done through NASA libraries, using the NASA Union List of Journal Holdings. For book ILL, NSTL (1) searches KWIC COM first and uses NALNET to some extent, (2) searches the Redstone Arsenal Library's holdings list on microfiche, (3) telephones another Federal librarian in Florida on the free FTS line, or (4) uses area libraries in Baton Rouge, Vicksburg, and New Orleans.

Other Comments

Concerning the current products and services offered by Headquarters and the Facility, the NASA Union list of Journal Holdings is most helpful. KWIC COM is used for ILL. The Library is not receiving the Union Book Accessions List, but would like to try it. Since the holdings aren't submitted to NALNET, there is no Local Book Accessions List. The staff receives other Centers' local accessions lists occasionally and makes them accessible to patrons for ILL.

NASA libraries' holdings need to be clarified, especially in series items. The surplus book lists received from the individual libraries are helpful and perhaps could be coordinated by the Facility.

NSTL is looking to Headquarters to improve automated systems for the Center libraries. They would like to see more services provided by and paid for by NASA headquarters, similar to what some other Federal agencies are receiving. Ms. Wallace would like to have OCLC access, more training programs, and computerized database search services available through FEDLINK. Services of the NASA affiliated institutions should be available. One such example would be to use the computer searchable information resource services of the North Carolina Science and Technology Research Center.

NSTL feels a need for more personnel in order to be able to support NALNET to a greater extent.

NASA TRIP REPORT

Center: Wallops Flight Center

Date of Interview: September 3, 1980

Interviewed: Jane Foster, Head; Betty Alexander, Contract
Librarian

Interviewers: Cynthia Shockley, Joan Foley

Library

The Wallops Flight Center Technical Library is a small scientific and technical library founded in 1959 which serves approximately 890 NASA personnel and contractors. Wallops Flight Center is operations-oriented and the library's collection is in aerospace with emphasis on atmospheric studies, air pollution, the ozone layer, High Altitude Platform, and meteorology. The library is open to the public by appointment. Other patrons include university students and faculty at a marine science consortium facility several miles away. Jane Foster feels that the Library's uniqueness amongst the NASA libraries is due to its small size and more limited holdings.

Cataloging

A contract with the University of Maryland, Eastern Shore (UMES) involving one librarian, one library assistant, and one clerk-typist, provides services to the library including book processing. An 85% hit rate is obtained from NASA RECON. Cataloging in Publication (CIP) with limited alterations and a very small portion of original cataloging comprise the other 15%. The library discontinued receiving LC cards 1-1/2 years ago, but still maintains a card catalog. Jane Foster wants to continue doing the book processing at Wallops Flight Center in order to remain autonomous. She does the selection and Betty Alexander supervises the ordering and cataloging. UMES is joining OCLC, so Wallops will have access to it through the contractor.

Other Comments

Jane Foster is pleased, in general, with services and products from STIF and STIB. She is also satisfied with current communications channels to STIF. She did not wish to change her vote on any item in the Book Committee report. The two products used most frequently are the Local Book Accessions List and the Union Book Accessions List. RECON is used heavily. Wallops adds its local holdings and local call number to an already existant record in the V-10,000 series via RECON. STIMS is fine. Interlibrary loan, both borrowing and loaning, is mostly with other NASA libraries.

APPENDIX B

NASA CENTER LIBRARY STATISTICAL DATA SURVEY

Reimbursement
1979-80

[illegible]

Book: borrowed:

- a. From NASA libraries

**2. Items of all types borrowed
(Include photocopies received
in lieu of loans):**

- a. From NASA libraries

3. Books loaned:

- | | a. To NASA libraries | b. To non-NASA libraries | c. Total books loaned |
|--------------------------------------|----------------------|--------------------------|-----------------------|
| 1. Books received from NASA | 10 | 0 | 10 |
| 2. Books received from other sources | 0 | 0 | 0 |
| 3. Books returned to NASA | 0 | 0 | 0 |
| 4. Books returned to other sources | 0 | 0 | 0 |
| 5. Total books received | 10 | 0 | 10 |
| 6. Total books returned | 0 | 0 | 0 |
| 7. Total books in collection | 10 | 0 | 10 |

**4. Items of all types loaned
(Include photocopies sent
in lieu of loans):**

- a. To NASA libraries
- b. To non-NASA libraries
- c. Total items loaned

4. Average turnaround time for book processing.
(Figure for the current year only.)

[illegible]

***If requested budget areas are not in keeping with your library's methods for financial reporting, please provide alternative budget data as recorded by your center.**

****A member of the King Research project team will be telephoning to answer any questions and go through the book processing cost data with you.**

Overall Note: If possible (and particularly if it expedites responding to this request), please provide a copy of any annual reports from the fiscal years 1975 through 1980. Thank you for your cooperation.

King Research, Inc.

6000 Executive Boulevard, Rockville, Maryland 20852 (301) 881-6766

September 25, 1980

Enclosed is a copy of the NASA Center Library Statistical Data form which, along with either an on-site or telephone interview, is being used to gather information from the NASA Center libraries for the NALNET Book System Cost Benefit Study. The study is being conducted by King Research, Inc., for NASA.

This statistical data form replaces the prototype statistical data form that was left with you during the on-site interview. Please use section B of the enclosed form to record the interlibrary loan information that was recently requested by Madeleine Losee on our behalf.

Either Joan Foley or Cynthia Shockley will be telephoning you concerning your book processing cost data and to answer any questions you may have. Or do not hesitate to call us collect at (301) 881-6766.

Please return the statistical data form in the enclosed self-addressed, stamped envelope by October 15. Thank you very much for your cooperation.

Sincerely,

Joan R. Foley
Research Analyst

JRF:jh

Enclosure

King Research, Inc.

6000 Executive Boulevard, Rockville, Maryland 20852 (301) 881-6766

October 28, 1980

King Research is seeking verification of book processing cost and turnaround time figures as reported by each NASA library on the NASA Center Library statistical data form. Enclosed is a copy of the form received from your library. Please refer to page 3, part C (budget data), questions 3 and 4.

Components of the average cost per book title for processing (question number 3) may differ from one library to another, but the figure should represent the full cost of book processing for each library. Please note that the figure is for book processing only, not journal or report literature processing. The tasks involved are (1) descriptive cataloging, (2) classification, and (3) production of a set of catalog cards or entry in a book catalog, if appropriate.

In many cases this book processing is being done by a contractor. In order to determine the labor-related costs, determine the percentage of total contract costs that applies to the function of book processing.

Labor related costs should include:

1. Direct labor
2. Overhead and/or fringe benefits
(e.g. social security, health insurance, sick leave)
3. G&A (general and administration)
4. Fee

Other fiscal year 1980 costs to be added to labor related costs may include:

1. Materials (e.g. card stock)
2. Cataloging resources (e.g. MARCFICHE, NUC, LC cards)
3. Bibliographic utility charges (OCLC or RLIN)
4. Initial cost of a computer terminal used for cataloging
(e.g. OCLC or RLIN) amortized over a 5 year life expectancy
5. Annual cost of computer terminal maintenance

KRI

The labor related costs plus other costs divided by the number of titles cataloged during fiscal year 1980 equals the average cost per book title for processing.

Question four pertains to the average turnaround time for book processing. Include the time from arrival of the book at the processing unit to its being shelf ready, so the figure includes not only the average book processing time, but the average length of time a book awaits processing.

If any changes need to be made in the data reported by your library, please call me collect at (301) 881-6766 by November 7. If I don't hear from you by that date, your figures will be assumed to contain all the cost categories listed above that pertain to your library, as well as an appropriate measure of turnaround time.

Thank you for your continued cooperation.

Sincerely,

Joan R. Foley
Research Analyst

Enclosure

JRF/tgl

APPENDIX C

COMPLETED SURVEY FORMS BY CENTER LIBRARIES

NALNET BOOK SYSTEM COST BENEFIT STUDY

NASA CENTER LIBRARY STATISTICAL DATA

Center Library: Ames Compiled by: Robert L. Jones Telephone #: _____

Date compiled: _____

A. Collection size

1. Total number of book volumes held
2. Total number of book titles held
3. Total number of volumes or items of all types held (books, journals, reports, microfiche, etc.)
4. Number of book volumes added during fiscal year
5. Number of book titles added during fiscal year
6. Number of volumes or items of all types added during fiscal year.

	FISCAL YEARS 1975-80						Estimated 1979-80
	1974-75	1975-76	1976-77	1977-78	1978-79		
1.	41,000	55,000	69,400	66,000	70,000	70,000	75,000
2.	19,000	30,000	36,000	89,400	44,777	44,777	46,701
3.				55,536	615,000		175,000
4.	4472	4385	4771	4412	4214		3958
5.					3050 *		
6.				2307			

* reported change 12/23/80

B. Interlibrary loan

1. Books borrowed:

- | a. | From NASA libraries |
|-----|-------------------------|
| b. | From non-NASA libraries |
| c. | Total books borrowed |
| 1 | 1 |
| 2 | 2 |
| 3 | 3 |
| 4 | 4 |
| 5 | 5 |
| 6 | 6 |
| 7 | 7 |
| 8 | 8 |
| 9 | 9 |
| 10 | 10 |
| 11 | 11 |
| 12 | 12 |
| 13 | 13 |
| 14 | 14 |
| 15 | 15 |
| 16 | 16 |
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| 88 | 88 |
| 89 | 89 |
| 90 | 90 |
| 91 | 91 |
| 92 | 92 |
| 93 | 93 |
| 94 | 94 |
| 95 | 95 |
| 96 | 96 |
| 97 | 97 |
| 98 | 98 |
| 99 | 99 |
| 100 | 100 |

2. Items of all types borrowed
(Include photocopies received
in lieu of loans):

- | | |
|----|-------------------------|
| a. | From NASA libraries |
| b. | From non-NASA libraries |
| c. | Total items borrowed |

3. Books loaned:

- | | |
|----|-----------------------|
| a. | To NASA libraries |
| b. | To non-NASA libraries |
| c. | Total books loaned |

4. Items of all types loaned
(Include photocopies sent
in lieu of loans):

- | | |
|----|-----------------------|
| a. | To NASA libraries |
| b. | To non-NASA libraries |
| c. | Total items loaned |

B. Interlibrary loan

Estimated
1979-80

C. Budget data[☆]

1. Total annual library budget allocation
2. Amount allocated for book acquisitions
3. Average cost per book title for processing. Includes descriptive cataloging; classification; and production of a set of catalog cards, if applicable. (Figure for the current year only.)

4. Average turnaround time for book processing.
(Figure for the current year only.)

*If requested budget areas are not in keeping with your library's methods for financial reporting, please provide alternative budget data as recorded by your center.

****A member of the King Research project team will be telephoning to answer any questions and go through the book processing cost data with you.**

Overall Note: If possible (and particularly if it expedites responding to this request), please provide a copy of any annual reports from the fiscal years 1975 through 1980. Thank you for your cooperation.

Ames Research Center
Moffett Field, California
94035

October 9, 1980

CURRENT ESTIMATED CATALOGING COST PER NEW TITLE

I. Method:
$$\frac{\text{Total costs}}{\text{Number of new titles}} = \text{Cost per new title}$$

II. Costs¹:

Salaries ² :	26,212	(yearly)
RLIN:	5,520	"
Terminal maintenance:	660	"
Marcfiche ³	355	"
Terminal Purchase (5 yr. amortization)	<u>832</u>	"
	32,747	"
	33,579	

III. Number of new titles⁴: $\frac{2,250}{3,128}$
(changed via Ralph Lewis)

IV.
$$\frac{33,579}{32,747} = 14.55 / \text{title}$$

$$\frac{-2,250}{3,128} = 10.74$$

V. NOTES:

1. All costs are for the period 1979/80
2. Salaries as of Aug. 31, 1980. Salaries are for total labor costs, including benefits, overhead, fringe, G&A, and fee. Time studies have indicated staff time spent on cataloging new titles to be approximately 40% of total time available (total labor costs for one year would be 65,531).
3. Marcfiche is currently used because printer for CRT is not available.
4. For FY 80.
5. General: Authority file maintenance, filing, and book processing are not included in staff time or costs.

4159 = terminal purchase
5 yr amortization

NALNET BOOK SYSTEM COST BENEFIT STUDY

NASA CENTER LIBRARY STATISTICAL DATA

Center Library: NASA Dryden Flight Research Center

Date compiled: 10/17/80 Compiled by: K.J. Puffer Telephone #: (805) 258-3311 x334

A. Collection size

1. Total number of book volumes held

2. Total number of book titles held

3. Total number of volumes or items of all types held (books, journals, reports, microfiche, etc.)

4. Number of book volumes added during fiscal year

5. Number of book titles added during fiscal year

6. Number of volumes or items of all types added during fiscal year.

FISCAL YEARS 1975-80						
1974-75	1975-76	1976-77	1977-78	1978-79	Estimated 1979-80	
:	:	:	:	:	:	:
**	**	2888	3958	4181	4262	
**	**	5557 (+457,929) fiche	6761 (+535,577) fiche	6995 (+573,572) fiche	7,010 * (+616,721) fiche	
:	:	:	:	285	191	
56	239	647	490	242	170	
188 (38,860) fiche	317 (35,905) fiche	105 (28,480) fiche	629 (39,168) fiche	352 (35,900) fiche	211 (43,150) fiche	

*Library also has 196 shelves of loose documents at this time. Totals for previous years are not available

: Statistics not kept ** Library was being recataloged. Previous records were very incomplete

B. Interlibrary loan

1. Books borrowed:

a. From NASA libraries

b. From non-NASA libraries

Total books borrowed

2. Items of all types borrowed
(Include photocopies received
in lieu of loans);

a. From NASA Libraries

b. From non-NASA libraries

c. Total items borrowed

3. Books loaned:

a. To NASA libraries

b. To non-NASA libraries

c. Total books loaned

4. Items of all types loaned
(Include photocopies sent
in lieu of loans):

a. To NASA Libraries

b. To non-NASA libraries

c. Total items loaned

* Calendar year

FISCAL YEARS, 1975-80						Estimated 1979-80
1974-75	1975-76	1976-77	1977-78	1978-79		
4982.70	5798.42	1676.52	9920.32	7032.82	5277.04	2869.19
						\$.52/card set 1.48 hrs staff time
						1 day

1. Total annual library budget allocation

2. Amount allocated for book acquisitions

***3. Average cost per book title for processing. Includes descriptive cataloging; classification; and production of a set of catalog cards, if applicable. (Figure for the current year only.)

4. Average turnaround time for book processing. (Figure for the current year only.)

*If requested budget areas are not in keeping with your library's methods for financial reporting, please provide alternative budget data as recorded by your center.

****A member of the King Research project team will be telephoning to answer any questions and go through the book processing cost data with you.**

Overall Note: If possible (and particularly if it expedites responding to this request), please provide a copy of any annual reports from the fiscal years 1975 through 1980. Thank you for your cooperation.



NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
GODDARD SPACE FLIGHT CENTER
GREENBELT, MARYLAND 20771

REPLY TO
ATTN OF

COMMENTS ON GODDARD SUBMISSION TO KING RESEARCH
NALNET COST BENEFIT STUDY

Nov. 17, 1980

The average cost per book title for Goddard represents:

Average book cost per system entry controlling:

- . the bibliographical system
- . the inventory control system
- . the circulation master data base
- . the management information data entry

The system entry represents a single, one-time investment from which all other benefits are derived.

A handwritten signature in cursive script, reading "Adelaide A. Del Frate".

Adelaide A. Del Frate
Head, Library Branch

Attachment:

Statistical data sheets with data sources

NALNET BOOK SYSTEM COST BENEFIT STUDY

NASA CENTER LIBRARY STATISTICAL DATA

Center Library: NASA Goddard Space Flight Center

Date compiled: Nov. 17, 1980

Compiled by: A. Del Frate

Telephone #: 344-6244

FISCAL YEARS 1975-80						
1) Apr. 1974-75	1) Mar. 1975-76	1) Apr. 1976-77	2) Apr. 1977-78	2) Apr. 1978-79	2) Estimated 1979-80 Apr.	
48457	52459	55287	58471	62169	65155	
25710	27759	29752	31719	33865	36711	
			1979-80 Colloquia tapes GSFC journal art. } 9500 GSFC specs. GSFC X docs.		Journals, bound = 35595	
5704	3907	3235	3190	3700	2991	
3031	2096	2120	1970	2147	1699	
JOURNALS 1567	ONLY: VOLUMES 2054	2093	2044	3800	1000	

A. Collection size

1. Total number of book volumes held
2. Total number of book titles held
3. Total number of volumes or items of all types held (books, journals, reports, microfiche, etc.)
4. Number of book volumes added during fiscal year
5. Number of book titles added during fiscal year
6. Number of volumes or items of all types added during fiscal year.

Data sources:

- 1.) Informatics Cumulative Final Report: NAS5-20505
- 2.) Informatics NAS5-24131 Monthly Report, April, 1980

FISCAL YEARS 1975-80

	1974-75	B) 1975-76	B) 1976-77	C) 1977-78	D) 1978-79	Estimated 1979-80
B. Interlibrary loan						
1. Books borrowed:						
a. From NASA libraries						A) 101
b. From non-NASA libraries						195
c. Total books borrowed		367	329	522	59	296
2. Items of all types borrowed (Include photocopies received in lieu of loans):						
a. From NASA libraries						670
b. From non-NASA libraries						307
c. Total items borrowed		588	498	572	701	977
3. Books loaned:						
a. To NASA libraries						75
b. To non-NASA libraries						116
c. Total books loaned		93	359	298	105	191
4. Items of all types loaned (Include photocopies sent in lieu of loans):						
a. To NASA libraries						652
b. To non-NASA libraries						1721
c. Total items loaned		1718	2081	2877	1600	2373

A. Informatics, NAS5-24131 Monthly Report, Sept. 80 for FY80

B. Library Use Statistics: 1978 compilation

C. FY78 Productivity Report Hdqts.
Lib. Use Stat. FY77-78

D. ILL Monthly statistics

FISCAL YEARS 1975-80

1974-75	1975-76	1976-77	1977-78	1978-79	Estimated 1979-80
					25% of total printed mat. budget
					\$43 per system entry See cover letter
					26 days based on 500 title sample

C. Budget data*

1. Total annual library budget allocation
2. Amount allocated for book acquisitions
- **3. Average cost per book title for processing. Includes descriptive cataloging; classification; and production of a set of catalog cards, if applicable. (Figure for the current year only.)
4. Average turnaround time for book processing. (Figure for the current year only.)

*If requested budget areas are not in keeping with your library's methods for financial reporting, please provide alternative budget data as recorded by your center.

****A member of the King Research project team will be telephoning to answer any questions and go through the book processing cost data with you.**

Overall Note: If possible (and particularly if it expedites responding to this request), please provide a copy of any annual reports from the fiscal years 1975 through 1980. Thank you for your cooperation.

NALNET BOOK SYSTEM COST BENEFIT STUDY

NASA CENTER LIBRARY STATISTICAL DATA

Center Library: NASA Headquarters

Telephone #: 755-2214

Compiled by: Alfred String

Date compiled: October, 1980

A. Collection size

1. Total number of book volumes held
2. Total number of book titles held
3. Total number of volumes or items of all types held (books, journals, reports, microfiche, etc.)
4. Number of book volumes added during fiscal year
5. Number of book titles added during fiscal year
6. Number of volumes or items of all types added during fiscal year.

FISCAL YEARS 1975-80					
1974-75	1975-76	1976-77	1977-78	1978-79	Estimated 1979-80
23,819	24,669	25,385	26,441	27,081	27,376
15,319	16,021	16,574	17,394	17,934	16,229
INCOMPLETE DATA					
1,165	650	716	1,056	640	255
822	702	552	821	540	280
INCOMPLETE DATA					

Budget data*	In thousands
1. Total annual library budget allocation	1,000

1. Total annual library budget allocation

2. Amount allocated for book acquisitions

****3.** Average cost per book title for processing. Includes descriptive cataloging; classification; and production of a set of catalog cards, if applicable. (Figure for the current year only.)

4. Average turnaround time for book processing. (Figure for the current year only.)

Note: Figures for FY 1975-76 do not include funds for books and journals; these were included in the STIB-Facility budget.
Processing costs include contractor direct labor, overhead, and fee, plus apportioned OCLC charges.

*If requested budget areas are not in keeping with your library's methods for financial reporting, please provide alternative budget data as recorded by your center.

****A member of the King Research project team will be telephoning to answer any questions and go through the book processing cost data with you.**

Overall Note: If possible (and particularly if it expedites responding to this request), please provide a copy of any annual reports from the fiscal years 1975 through 1980. Thank you for your cooperation.

FISCAL YEARS 1975-80					
1974-75	1975-76	1976-77	1977-78	1978-79	Estimated 1979-80
26.0	26.0	29.0	27.0	136.5	139.5
No DATA					
				17.0	18.0
					\$10.51
					1 week

NALNET BOOK SYSTEM COST BENEFIT STUDY

NASA CENTER LIBRARY STATISTICAL DATA

Center Library: Jet Propulsion Laboratory Library

Date compiled: 3 October 1980 Compiled by: E. S. Jollie and D. A. Wilder Telephone #: 354-3007
(CALL: 213-354-2286)

FISCAL YEARS 1975-80						
1974-75	1975-76	1976-77	1977-78	1978-79	Estimated 1979-80	
92,200	92,600	92,900	91,800	89,800	91,860	
JPL does not record						
938,680	993,300	1,055,000	1,011,900	1,022,880	1,070,650	
not available	3,800	4,166	1,967	4,943	4,314	
not available	1,660	1,500	58,811	59,998	1,640	
not available	73,971				54,683	

A. Collection size

1. Total number of book volumes held
2. Total number of book titles held
3. Total number of volumes or items of all types held (books, journals, reports, microfiche, etc.)
4. Number of book volumes added during fiscal year
5. Number of book titles added during fiscal year
6. Number of volumes or items of all types added during fiscal year.

B. Interlibrary loan

1. Books borrowed:

- a. From NASA libraries
 - b. From non-NASA libraries
 - c. Total books borrowed
2. Items of all types borrowed
(Include photocopies received
in lieu of loans):

- a. From NASA libraries
- b. From non-NASA libraries
- c. Total items borrowed

3. Books loaned:

- a. To NASA libraries
- b. To non-NASA libraries
- c. Total books loaned

4. Items of all types loaned
(Include photocopies sent
in lieu of loans):

- a. To NASA libraries
- b. To non-NASA libraries
- c. Total items loaned

FISCAL YEARS 1975-80

1974-75	** 1975-76	1976-77	1977-78	1978-79	Estimated 1979-80
4	4	31	107	255	316
258	318	277	217	415	584
262	322	308	324	670	900
68	154	312	500	1,069	1,127
2,342	3,740	2,751	2,436	3,973	5,327
2,410	3,894	3,063	2,936	5,042	6,454
12	8	18	42	27	33
92	133	33	53	48	39
104	141	51	95	75	72
175	580	760	453	478	517
214	351	70	99	224	221
389	931	830	552	702	738

** This column includes the figures for the 3-month transitional period when the Fiscal years were changed.

4. Average turnaround time for book processing.
(Figure for the current year only.)

* Change reported
11-4-80 by
A.G.-10 W. H. H.

Overall Note: If possible (and particularly if it expedites responding to this request), please provide a copy of any annual reports from the fiscal years 1975 through 1980. Thank you for your cooperation.

NALNET BOOK SYSTEM COST BENEFIT STUDY

NASA CENTER LIBRARY STATISTICAL DATA

Center Library: Johnson Space Center Technical Library
 Date compiled: 9-30-80 Compiled by: Albert F. Kelly Telephone #: (713) 483-6268

A. Collection size

1. Total number of book volumes held
2. Total number of book titles held
3. Total number of volumes or items of all types held (books, journals, reports, microfiche, etc.)
4. Number of book volumes added during fiscal year
5. Number of book titles added during fiscal year
6. Number of volumes or items of all types added during fiscal year.

FISCAL YEARS 1975-80							Estimated 1979-80
1974-75	1975-76	1976-77	1977-78	1978-79			
X	X	X	X	X	X	X	
49,500	51,000	52,500	54,000	55,000			56,000
35,400	36,400	37,500	38,600	39,300			40,000
650,000	700,000	750,000	800,000	830,000			870,000
1,500	1,500	1,500	1,500	1,000			1,000
1,050	1,000	1,100	1,100	700			700
50,000	50,000	50,000	50,000	30,000			40,000

FISCAL YEARS 1975-80

	1974-75	1975-76	1976-77	1977-78	1978-79	Estimated 1979-80
	181	196	189	201	208	196
	544	505	441	374	314	294
	725	701	630	575	522	490
	220	420	625	671	544	639
	1310	938	668	550	363	375
	1530	1358	1293	1221	907	1014
	55	63	77	68	54	75
	25	52	63	74	81	70
	80	115	140	142	135	145
	47	95	140	235	250	253
	93	115	148	155	225	283
	140	210	288	390	475	536

B. Interlibrary loan

1. Books borrowed:
 - a. From NASA libraries
 - b. From non-NASA libraries
 - c. Total books borrowed
2. Items of all types borrowed
(Include photocopies received
in lieu of loans):
 - a. From NASA libraries
 - b. From non-NASA libraries
 - c. Total items borrowed
3. Books loaned:
 - a. To NASA libraries
 - b. To non-NASA libraries
 - c. Total books loaned
4. Items of all types loaned
(Include photocopies sent
in lieu of loans):
 - a. To NASA libraries
 - b. To non-NASA libraries
 - c. Total items loaned

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C. Budget data*

1. Total annual library budget allocation

2. Amount allocated for book acquisitions

**3. Average cost per book title for processing. Includes descriptive cataloging; classification; and production of a set of catalog cards, if applicable. (Figure for the current year only.)

4. Average turnaround time for book processing. (Figure for the current year only.)

FISCAL YEARS 1975-80						
1974-75	1975-76	1976-77	1977-78	1978-79	Estimated 1979-80	
\$160,000	\$180,000	\$100,000	\$120,000	\$115,000	\$117,000	
\$15,000	\$17,000	\$20,000	\$30,000	\$25,000	\$26,000	
					\$11,80*	
					\$11.50	
					Approx. 70 min./title	

* Changes reported by
11/16/79 11:50

*If requested budget areas are not in keeping with your library's methods for financial reporting, please provide alternative budget data as recorded by your center.

**A member of the King Research project team will be telephoning to answer any questions and go through the book processing cost data with you.

Overall Note: If possible (and particularly if it expedites responding to this request), please provide a copy of any annual reports from the fiscal years 1975 through 1980. Thank you for your cooperation.

NALNET BOOK SYSTEM COST BENEFIT STUDY

NASA CENTER LIBRARY STATISTICAL DATA

Center Library: John F. Kennedy Space Center Library

Compiled by: M. Konjevich

Telephone #: 305-867-4540

Date compiled: 10-1-1980

FISCAL YEARS 1975-80						
1974-75	1975-76	1976-77	1977-78	1978-79	Estimated 1979-80	
28,343	32,484	32,972	33,520	34,028	33,244	
15,991	16,446	16,931	17,363	16,457	16,686	
981,763	990,443	1,009,645	1,102,780	1,308,250	1,557,256	
623	723	760	603	556	620	
420	346	392	292	198	265	
70,659	71,914	95,780	91,860	101,256	116,000	

A. Collection size

1. Total number of book volumes held
2. Total number of book titles held
3. Total number of volumes or items of all types held (books, journals, reports, microfiche, etc.)
4. Number of book volumes added during fiscal year
5. Number of book titles added during fiscal year
6. Number of volumes or items of all types added during fiscal year.

FISCAL YEARS 1975-80

	1974-75	1975-76	1976-77	78	1978-79	Estimated 1979-80
	26	32	21	24	22	45
	62	80	57	46	69	53
	88	112 *	78	70	91	98
	102	157	118	110	137	135
	320	353	284	270	384 *	385
	422	510	402	380	521	520
	32	29	23	26	25	38
	14	25	15	10	11	5
	46	54	38	36	46	43
	280	304	218	212	276	275
	163	254	148	98	209	295
	443	558	366	310	485	480

B. Interlibrary loan

1. Books borrowed:

- From NASA libraries
- From non-NASA libraries
- Total books borrowed

2. Items of all types borrowed
(Include photocopies received
in lieu of loans):

- From NASA libraries
- From non-NASA libraries
- Total items borrowed

3. Books loaned:

- To NASA libraries
- To non-NASA libraries
- Total books loaned

4. Items of all types loaned
(Include photocopies sent
in lieu of loans):

- To NASA libraries
- To non-NASA libraries
- Total items loaned

* Change reported by M. Konjevic

FISCAL YEARS 1975-80

	1974-75	1975-76	1976-77	1977-78	1978-79	Estimated 1979-80
1. Total annual library budget allocation						
2. Amount allocated for book acquisitions	46,950	61,463	66,000	73,000	100,500	115,000
3. Average cost per book title for processing. Includes descriptive cataloging; classification; and production of a set of catalog cards, if applicable. (Figure for the current year only.)	13,500	20,600	24,000	27,500	26,000	38,000
4. Average turnaround time for book processing. (Figure for the current year only.)						

#2.17 checked 11/20/80
Abner

#2.33 *

1-2 days *

* Reported by
M. Konjovich

C. Budget data*

1. Total annual library budget allocation

2. Amount allocated for book acquisitions

3. Average cost per book title for processing. Includes descriptive cataloging; classification; and production of a set of catalog cards, if applicable. (Figure for the current year only.)

4. Average turnaround time for book processing. (Figure for the current year only.)

*If requested budget areas are not in keeping with your library's methods for financial reporting, please provide alternative budget data as recorded by your center.

*A member of the King Research project team will be telephoning to answer any questions and go through the book processing cost data with you.

Overall Note: If possible (and particularly if it expedites responding to this request), please provide a copy of any annual reports from the fiscal years 1975 through 1980. Thank you for your cooperation.

NALNET BOOK SYSTEM COST BENEFIT STUDY

NASA CENTER LIBRARY STATISTICAL DATA

Center Library: Langley Research Center

Date compiled: November 19, 1980

Compiled by: Jane Hesse

Telephone #:

A. Collection size

1. Total number of book volumes held
2. Total number of book titles held
3. Total number of volumes or items of all types held (books, journals, reports, microfiche, etc.)
4. Number of book volumes added during fiscal year
5. Number of book titles added during fiscal year
6. Number of volumes or items of all types added during fiscal year.

FISCAL YEARS 1975-80						
1974-75	1975-76	1976-77	1977-78	1978-79	Estimated 1979-80	
			61,385	64,638	61,599	
			48,500	49,500	50,001	
					approx. 1,300,000	
			2,512	2,335	3,653	
			2,277	2,049	3,258	

FISCAL YEARS 1975-80

	1974-75	1975-76	1976-77	1977-78	1978-79	Estimated 1979-80
B. Interlibrary loan						
1. Books borrowed:						
a. From NASA libraries				388	465	519
b. From non-NASA libraries				139	194	145
c. Total books borrowed				527	659	662
2. Items of all types borrowed (Include photocopies received in lieu of loans):						
a. From NASA libraries				1158	1107	1194
b. From non-NASA libraries				636	715	745
c. Total items borrowed				1394	1632	1939
3. Books loaned:						
a. To NASA libraries				189	178	262
b. To non-NASA libraries				260	290	346
c. Total books loaned				449	468	608
4. Items of all types loaned (Include photocopies sent in lieu of loans):						
a. To NASA libraries				377	512	568
b. To non-NASA libraries				133	296	350
c. Total items loaned				510	809	918

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1. Total annual library budget allocation

2. Amount allocated for book acquisitions

553. Average cost per book title for processing. Includes descriptive cataloging; classification; and production of a set of catalog cards, if applicable. (Figure for the current year only.)

4. Average turnaround time for book processing. (Figure for the current year only.)

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*If requested budget areas are not in keeping with your library's methods for financial reporting, please provide alternative budget data as recorded by your center.

**A member of the King Research project team will be telephoning to answer any questions and go through the book processing cost data with you.

Overall Note: If possible (and particularly if it expedites responding to this request), please provide a copy of any annual reports from the fiscal years 1975 through 1980. Thank you for your cooperation.

NALNET BOOK SYSTEM COST BENEFIT STUDY

NASA CENTER LIBRARY STATISTICAL DATA

Center Library: Lewis Research Center Library

Date compiled: 10/9/80

Compiled by: Deborah Morris

Telephone #: (216) 433-4000,
Ext. 419

FISCAL YEARS 1975-80

1974-75	1975-76	1976-77	1977-78	1978-79	Estimated 1979-80
53,300	55,968	58,232	60,727	62,854	64,651
21,000	22,900	24,500	25,700	26,946	28,093
993,922	1,069,007	1,130,012	1,190,713	1,245,200	1,301,381
2,375	3,168	2,564	2,525	2,427	2,097
1,235	1,892	1,556	1,253	1,246	1,147
51,430	76,779	61,305	60,731	54,857	56,411

A. Collection size

1. Total number of book volumes held
2. Total number of book titles held
3. Total number of volumes or items of all types held (books, journals, reports, microfiche, ~~etc.~~)
4. Number of book volumes added during fiscal year
5. Number of book titles added during fiscal year
6. Number of volumes or items of all types added during fiscal year.

FISCAL YEARS 1975-80

	1974-75	1975-76	1976-77	1977-78	1978-79	Estimated 1979-80
Statistics not taken as separate items					59	49
- included in statistics for					80	42
2a, 2b, and 2c					139	91
195		342	376	510	589	517
1721		1905	1572	1576	1456	1428
1916		2247	1948	2086	2045	1945
Statistics not taken as separate items					57	93
- included in statistics for 4c					13	16
					70	109
Statistics included in 4c --		276	270	322	332	481
		23	87	204	225	263
229		299	357	526	557	744

B. Interlibrary loan

1. Books borrowed:

- From NASA Libraries
- From non-NASA Libraries
- Total books borrowed

2. Items of all types borrowed (Include photocopies received in lieu of loans):

- From NASA Libraries
- From non-NASA Libraries
- Total items borrowed

3. Books loaned:

- To NASA Libraries
- To non-NASA Libraries
- Total books loaned

4. Items of all types loaned (Include photocopies sent in lieu of loans):

- To NASA Libraries
- To non-NASA Libraries
- Total items loaned

*Does not include supplies, equipment, maintenance, binding contract, salaries

FISCAL YEARS 1975-80 *					
1974-75	15 months due to change in fiscal year 1975-76*	1976-77	1977-78	1978-79	Estimated 1979-80
208,000	273,000	245,000	256,000	326,860	404,650
43,000	63,000	58,000	41,000	54,000	75,000
					\$12,500 (as of 10/1/80)
					169,997 (current cost)
					2 hrs - RECON creation available
					5 hrs - Original cataloging req'd.

C. Budget data*

1. Total annual library budget allocation -
2. Amount allocated for book acquisitions
- **3. Average cost per book title for processing. Includes descriptive cataloging; classification; and production of a set of catalog cards, if applicable. (Figure for the current year only.)

4. Average turnaround time for book processing. (Figure for the current year only.)

*If requested budget areas are not in keeping with your library's methods for financial reporting, please provide alternative budget data as recorded by your center.

**A member of the King Research project team will be telephoning to answer any questions and go through the book processing cost data with you.

Overall Note: If possible (and particularly if it expedites responding to this request), please provide a copy of any annual reports from the fiscal years 1975 through 1980. Thank you for your cooperation.

NALNET BOOK SYSTEM COST BENEFIT STUDY

NASA CENTER LIBRARY STATISTICAL DATA

Center Library: MANASSAS LIBRARY Telephone #: 202-271-1880
 Date compiled: 10-11-80 Compiled by: DALE

FISCAL YEARS 1975-80						Estimated 1979-80
1974-75	1975-76	1976-77	1977-78	1978-79		
						3600
						2500
						114750
						250
						250
11912	112070	111686	112042	11250		116,500

A. Collection size

1. Total number of book volumes held
2. Total number of book titles held
3. Total number of volumes or items of all types held (books, journals, reports, microfiche, etc.)
4. Number of book volumes added during fiscal year
5. Number of book titles added during fiscal year
6. Number of volumes or items of all types added during fiscal year.

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B. Interlibrary loan

1. Books borrowed:

7. From NASA libraries

b. From non-NASA libraries

c. Total books borrowed

2. Items of all types borrowed
(Include photocopies received
in lieu of loans):

a. From NASA Libraries

b. From non-NASA libraries

c. Total items borrowed

3. Books loaned:

7. To NASA Libraries

h. To non-NASA libraries

c. Total books loaned

4. Items of all types loaned
(Include photocopies sent
in lieu of loans):

7. To NASA Libraries

b. To non-NASA libraries

c. Total items loaned

[illegible]

C. Budget data*

1. Total annual library budget allocation *RSIC*
2. Amount allocated for book acquisitions *RSIC*
3. Average cost per book title for processing. Includes descriptive cataloging, classification; and production of a set of catalog cards, if applicable. (Figure for the current year only.) *RSIC*

4. Average turnaround time for book processing. (Figure for the current year only.)

FISCAL YEARS 1975-80					
1974-75	1975-76	1976-77	1977-78	1978-79	Estimated 1979-80
					<i>1709,000</i>
					<i>\$138,000</i>
					<i>pg 410</i>
					<i>Per title</i>
					<i>3-5 day</i>

*If requested budget areas are not in keeping with your library's methods for financial reporting, please provide alternative budget data as recorded by your center.

**A member of the King Research project team will be telephoning to answer any questions and go through the book processing cost data with you.

Overall Note: If possible (and particularly if it expedites responding to this request), please provide a copy of any annual reports from the fiscal years 1975 through 1980.

Thank you for your cooperation.

NALRET BOOK SYSTEM COST BENEFIT STUDY

NASA CENTER LIBRARY STATISTICAL DATA

Center Library: National Space Technology Laboratories (NSTL)

Date compiled: 10.2.80 Compiled by: Katharine R. Wallace Telephone #: (601) 683-3244 FTS 444-3244

A. Collection size

1. Total number of book volumes held
2. Total number of book titles held
3. Total number of volumes or items of all types held (books, journals, reports, microfiche, etc.)
4. Number of book volumes added during fiscal year
5. Number of book titles added during fiscal year
6. Number of volumes or items of all types added during fiscal year.

this does not include depository items from NASA

FISCAL YEARS 1975-80						Estimated 1979-80
1974-75	1975-76	1976-77	1977-78	1978-79		
				9912		9884*
				17,049		17,099
				56		65
				66		85

* Calculated materials were deleted during mid FY80

B. Interlibrary loan

1. Books borrowed:

1. From NASA Libraries

b. From non-NASA libraries

c. Total books borrowed

2. Items of all types borrowed
(Include photocopies received
in lieu of loans):

a. From NASA Libraries

b. From non-NASA libraries

c. Total items borrowed

3. Books loaned:

a. To NASA Libraries

b. To non-NASA libraries

c. Total books loaned

4. Items of all types loaned
(Include photocopies sent
in lieu of loans):

a. To NASA libraries

b. To non-NASA libraries

c. Total items loaned

FISCAL YEARS 1975-80					
1974-75	1975-76	1976-77	1977-78	1978-79	Estimated 1979-80
X	X	X	X	X	X
X	X	X	X	X	X
				50 est.	100 est.
				250 est.	500 est.
				300 est.	600 est.
X	X	X	X	X	X
				1,400 est.	1,400 est.
				500 est.	1,000 est.
			actual →	1943	2400
X	X	X	X	X	X
				0	1
				6	10
				6	11
X	X	X	X	X	X
				14	26
				0	0
				14	26

4. Average turnaround time for book processing.
(Figure for the current year only.)

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FISCAL YEARS 1975-80					
1974-75	1975-76	1976-77	1977-78	1978-79	Estimated 1979-80
			\$40,000	\$43,000	\$44,000
			NA	NA	NA
					50¢ \$24.00 * \$7.00 *(1-1)
					cf hrs day *

* Change reported by Katherine Wallace

*If requested budget areas are not in keeping with your library's methods for financial reporting, please provide alternative budget data as recorded by your center. The contractor breaks the budget into Labor Material and ODC (other direct cost). Material includes books, journals, supply, deposit accounts etc.

**A member of the King Research project team will be telephoning to answer any questions and go through the book processing cost data with you.

Overall Note: If possible (and particularly if it expedites responding to this request), please provide a copy of any annual reports from the fiscal years 1975 through 1980. Thank you for your cooperation.

NALNET BOOK SYSTEM COST BENEFIT STUDY

NASA CENTER LIBRARY STATISTICAL DATA

Center Library: NASA, Wallops Flight Center, Wallops Island, VA

Date compiled: October 14, 1980

Compiled by:

Telephone #: 804-824-3411, Ext. 389
or 540

A. Collection size

1. Total number of book volumes held

2. Total number of book titles held

3. Total number of volumes or items of all types held (books, journals, reports, microfiche, etc.)

4. Number of book volumes added during fiscal year

5. Number of book titles added during fiscal year

6. Number of volumes or items of all types added during fiscal year.

FISCAL YEARS 1975-80						
1974-75	1975-76	1976-77	1977-78	1978-79	Estimated 1979-80	
21,019	20,212	20,363	20,709	20,789	20,767	
19,969	19,202	19,345	19,674	19,749	19,729	
744,327	568,731	565,581	592,000	619,532	652,104	
913	494	511	438	409	389	
826	404	470	411	364	370	
36,746	34,184	26,830	26,520	26,795	33,980	

FISCAL YEARS 1975-80

[illegible]

B. Interlibrary loan

1. Books borrowed:

- | | |
|----|-------------------------|
| a. | From NASA libraries |
| b. | From non-NASA libraries |
| c. | Total books borrowed |

(1) 2. Items of all types borrowed
(Include photocopies received
in lieu of loans):

- | | From NASA libraries | From non-NASA libraries | Total items borrowed & loaned |
|----|---------------------|-------------------------|-------------------------------|
| a. | | | |
| b. | | | |
| c. | | | |

3. Books loaned:

- | | |
|----|-----------------------|
| a. | To NASA libraries |
| b. | To non-NASA libraries |
| c. | Total books loaned |

4. Items of all types loaned (Include photocopies sent in lieu of loans):

- | | |
|----|-----------------------|
| a. | To NASA libraries |
| b. | To non-NASA libraries |
| c. | Total items loaned |

(1) Our Statistics are not broken down in this manner. Only total photocopies.

* AIAM monographs borrowed.

+ Total () adds AIM to others.

4. Average turnaround time for book processing.
(Figure for the current year only.)

* Reported by Jane Foster

Overall Note: If possible (and particularly if it expedites responding to this request), please provide a copy of any annual reports from the fiscal years 1975 through 1980. Thank you for your cooperation.

APPENDIX D

DETAILED COST DATA FOR ALTERNATIVE SYSTEMS

OCLC	C-2
RLIN	C-5
Blackwell/North America	C-9

OCLC COSTS VIA FLC

Cost Element	Unit Cost
<u>On-Line System Processes</u>	
A. First-Time Use (Does not include telecommunications, terminal lease and service)	\$1.36 per use
B. Reclassification Project	\$.70 per use
C. Serial Check-In (Per issue checked in)	\$.039 per issue
D. Inter-Library Loan	\$.95 per request
E. First-Time Update	\$1.36 per use
F. Public Service Searches (Search key search)	\$.026 per search
Maximum charge per terminal per year	\$2,679 maximum per terminal per year
G. Acquisitions	\$ 1.40 per order
H. Retrospective Conversion	
First-Time-Updates - Prime time	\$.60 per use
First-Time-Updates-Non-Prime time	\$.05 per use
<u>Computer Production Products</u>	
I. Catalog Cards	\$.042 per card
J. Acquisitions Printed Products	\$.08 per page
K. Accessions listings:	
140 items or less	\$14.00 minimum
141 items or more	\$.10 per item
Changes in selected items	\$30.00 per change
L. OCLC-MARC Distribution Service:	
Sample Tape	\$70.00
Cost of tape, handling & delivery	
Standard 1600 C.P.I.	\$25.00 per tape
Option 800 CPI	\$30.00 per tape
Copying charge per record:	
1-1,000 Logical Records	\$.04 per record
1,001-5,000 Logical Records	\$.013 per record
5,001-50,000 Logical Records	\$.005 per record
over 50,000 Logical Records	\$.001 per record

OCLC COSTS (cont'd)

Cost Element	Unit Cost
<u>Computer Production Products (cont.)</u>	
Changes in MARC Distribution Profile	\$50.00
Billing Frequency Charge:	
Weekly	\$ 3.00 per period
Bi-weekly	\$ 7.00 per period
Monthly	\$20.00 per period
Quarterly	\$75.00 per period
Semi-annually	\$200.00 per period
<u>Other OCLC, Inc. Products</u>	
M. OCLC Display Terminal:	
Terminal Purchase Price (includes freight, installation, one standard cable, and 90-day warranty)	\$3,700.00 per terminal
N. Terminal Maintenance Service (Per Separate Agreement) (Monthly charge, unlimited calls)	\$33.00 per month
O. Billable Service call	\$350.00
P. Cables--Data Set & Chaining (purchased in addition to cable furnished with terminal):	
20 feet	\$21.00 per cable
30 feet	\$23.00 per cable
60 feet	\$30.00 per cable
Special Length Cables	-
Q. Terminal Non-Maintenance Service Charges	\$100.00
Baud Rate Change	\$100.00
Terminal - Installation	\$100.00
- Removal	\$100.00
Relocation - within Same Campus	\$200.00
to Different Campus	\$100.00
Readdress	\$100.00
Replacement	-
Certification	
R. Processing of Catalog Profile & Pack Definition Table (Profile Set-Up and Changes)	\$34.00 per hour

OCLC COSTS (cont'd)

Cost Element	Unit Cost
<u>Telecommunications</u>	
S. Access to OCLC System via Tymnet:	
Annual Subscription Fee per Tymnet password	\$24.00
Connect charge (per connect hour) (300 Baud) (\$.133 per minute)	\$ 8.00 per con. hour
T. Access to OCLC System via Lease Line:	
Modem installation	\$142.25 (one time)
AT&T/GSA standard combined charge	\$150.00 per modem per month
Modem move:	
On-premise	\$ 71.25 per move
Off-premise	\$142.25 per move
<u>FEDLINK Services</u>	
U. Labels:	
University Products Labels	\$ 30.55 per 1,000 label sets
V. MARC Serials Editing Guide	
Single copies	\$9.00 each
Subscription to updating service	\$15.00 annual updating (12 issues)
<u>FEDLINK Administrative Services</u>	
W. FEDLINK Administrative fee	10% of <u>Sub-Total, Services on page 5</u>
X. New Agency Commitment Fee (one time fee)	\$2,500/new agency
Y. Staff training fee (Two day sessions)	\$100.00 per day includes FEDLINK staff travel
Z. AACR2 Training fee	\$75.00 per person

RLIN COSTS

Rates for Services from the Research Libraries Information Network
Effective October 1, 1980

SCHEDULE C-1: SHARED CATALOGING SERVICES, page 1 (excluding Retrospective Conversion)

		1980-81	
		Full	Discounted
		Rate	Rate -- 8%
		----	-----
CATALOGING SERVICES (per title)			
(1) Original - to standard		no charge	
(2) Original - not to standard	\$ 1.65	\$ 1.52	
(3) Copy - upgraded to standard	1.45	1.33	
(4) Copy - not upgraded	1.85	1.70	
(5) Added copies/volumes		no charge	
ASSOCIATED SERVICES			
(1) Catalog cards			
(per card via UPS or pick-up)	0.044	0.0404	
(per card via UPS air)	0.0442	0.0406	
(2) Catalog transaction records			
on tape (per tape)	44.00	40.48	
	plus 0.055	0.0506	
	per each trans. over		
	500 per tape		
(3) Standing search requests			
(per month for each)	0.09	0.0828	
(4) Standing search reports (per form)	0.06	0.0552	
(5) Test tapes (per tape)	50.00	none	
CENTRAL RLG STAFF SERVICES			
(1) Cataloging start-up fees:			
(a) line-by-line mode use		please inquire	
(b) full-face mode use		actual expenses	
(2) Accounts added after initial			
start-up (per account)	28.00		
(3) Catalog card profiles (per hour)	35.00		
(4) Additional training and			
consulting (per day,			
by arrangement)	300.00 plus expenses		
(5) Loading machine-readable			
records into RLIN data base:			
(a) RLIN/MARC format (per record)	0.15		
(b) Other formats	by arrangement		

RLIN COSTS

SCHEDULE C-3:

SHARED RESOURCES PROGRAM SERVICES FOR RLG MEMBERS, page 1

		1980-81	
		Full Rate ----	Discounted Rate -- 8% -----
BOOKS AND NON-BOOKS SEARCHING			
per connect hour:		\$ 15.50	\$ 14.26
OR			
per month up to 60 CPU (central processing unit) seconds:		110.00	101.20
	plus	1.30	1.196
	per second over 60 CPU seconds		
AVERY INDEX TO ARCHITECTURAL PERIODICALS SEARCHING			
basic connect rate (above), plus		20.00	none
	per connect hour		
MESSAGE SYSTEM SERVICES			
(1) ILL requests (per each sent)		0.60	0.55
CENTRAL RLG STAFF SERVICES			
(1) Start-up fee		actual expenses	

SCHEDULE C-4:

RETROSPECTIVE CONVERSION SERVICES FOR RLG MEMBERS, page 1

		1980-81	
		Full Rate ----	Discounted Rate -- 8% -----
RETROSPECTIVE CONVERSION SERVICES (per title)			
(1) To level 1 standard		no charge	
(2) To level x standard	\$	0.55	\$ 0.51
(3) To level w standard		0.55	0.51
(4) To level z standard		1.85	1.70

SCHEDULE C-5: SEARCH-ONLY SERVICES, page 1

FLC service charges would be added
if this service chosen via the
government-negotiated contract.

1980-81

Full Rate ----	Discounted Rate -- 8% -----
----------------------	-----------------------------------

BOOKS AND NON-BOOKS SEARCHING

per connect hour (2-hour
minimum per month)*

\$ 40.00	\$36.80
----------	---------

AVERY INDEX TO ARCHITECTURAL PERIODICALS SEARCHING

basic connect rate (above), plus

20.00	none
per connect hour	

CENTRAL RLG STAFF SERVICES

(1) Start-up fee

150.00

(2) Accounts added after

initial start-up (per account)

28.00

SCHEDULE C-6: INSTRUCTIONAL SERVICES, page 1

1980-81

Full Rate ----	Discounted Rate -- 8% -----
----------------------	-----------------------------------

BOOKS AND NON-BOOKS ACCESS IN "DEMO" MODE

per connect hour (2-hour
minimum per month)*

\$ 15.50	\$ 14.26
----------	----------

AVERY INDEX TO ARCHITECTURAL PERIODICALS ACCESS IN "DEMO" MODE

Basic connect rate (above), plus

20.00	none
per connect hour	

CENTRAL RLG STAFF SERVICES

(1) Start-up fee

150.00

(2) Accounts added after

initial start-up (per account)

28.00

RLIN COSTS

SCHEDULE C-7: COMMUNICATIONS, HARDWARE, MAINTENANCE, page 1

		1980-81	
		Full Rate -----	Discounted Rate -- 8% -----
COMMUNICATIONS			
(1) Full-face mode service over leased lines (per month per terminal)	\$190.00		\$175.00
(2) Line-by-line mode service:			
(a) over TYMNET lines			
(per hour at 30 cps)	11.00		10.12
(per hour at 120 cps)	13.00		11.96
(b) over leased lines and modems (rental paid direct per month)	55.00		50.60
CENTRAL RLG STAFF COMMUNICATIONS SERVICES			
(1) Leased line drop (per installation or move to new location)	300.00		none
(2) Asynchronous line (per installation or per move to new location)	140.00 or 70.00		none
HARDWARE			
(1) RLG 90 terminal	3950.00		none
(2) RLG 40 terminal	2495.00		none
(3) Printer-to-terminal cable	50.00		none
	up to 50 feet plus 1.00 per foot over 50 feet		
MAINTENANCE			
(1) RLG 90 terminal (per terminal per month)	60.00		55.20
(2) RLG 40 terminal (per terminal per month)	35.00		32.20
INSTALLATION			
(1) RLG 90 and RLG 40 terminals:			
(a) single terminal	110.00		none
(b) additional terminals at the same time (per added unit)	60.00		none

SHELF LIST CONVERSION SERVICE TO FEDLINK

I Fixed Costs

A. Subscription to Title Index:

	<u>Year 1</u>	<u>Thereafter</u>
Copy 1	\$ 720.00	\$ 680.00
Copy 2	400.00	400.00

B. OPTION

Special programming service to convert alien databases to MARC and prepare jobstreams (on a time and materials basis) -- per man hour -----

\$ 25.00
\$2000.00

Minimum billing -----

C. OPTION

Special product layouts/formats/sorts for in-process file control (on a time and materials basis) -- per man hour -----

\$ 25.00
800.00

Minimum billing -----

B/NA COSTS VIA FLC

II Variable Costs

A. Conversion Service (MARC record and main entry card)

	<u>BNAMARC</u>	<u>B/NA Keying</u> <u>UKMARC</u>	<u>All Other</u>	<u>Library Keying</u> <u>UKMARC</u>	<u>All Other</u>
1. Select MARC -					
a. by LCCN/ISBN -----	\$.85	\$.55	\$.45	\$.35	\$.25
b. Library locates BNACN -----	.77	.47	.37	.35	.25
c. B/NA locates BNACN -----	1.40	1.10	1.00		
d. Input variations -					
1) 1st change -----	.50	.50	.50	N/C	N/C
2) each additional -----	.10	.10	.10	N/C	N/C
2. Convert library biblio to MARC -----	\$ 2.00				.50

3. OPTIONS - In process file control:

- a. Film library shelf list (will be quoted; estimate 10¢/card)
- b. Maintain I/P file ----- \$.25 .25
- c. Matching to Library shelf list (will be quoted)

N/C N/C

/continued...

Shelf List Conversion Service to FEDLINK Page 2

II B. Post Editing

	B/NA Keyed	Library Keyed
1. Library requested field updates -----	\$.20	\$ 50
		Per batch -----
2. B/NA required field updates -----	\$.20	N/C
3. <u>OPTION</u> - Convert library authority records-----	\$ 1.25	\$.50
4. Authority Control Service and COM output for MARC database built at P/NA -- per FTU -----		.18¢
		per SSY -----
		.07¢

C. Product Generation

1. Print new main card in shelf list order and copy MARC record to
Library database during conversion (See III.A.)

2. Edit listings -

- a. Proof list in BNACN order -----
- b. Sorted proof list -----
- c. Heading edit lists -----

3. Film output for ID ROM 3 (See main pricing schedule)

4. Photocomposition (will be quoted)

5. Reels of computer tape ----- \$ 15.00/reel

D. Order processing for Library-keyed input -

1. Per OCR line scanned ----- 2¢
2. Per tape read ----- N/C

Computer + Paper or Fiche

1¢/record+ 10¢/pp. / 12¢/ff.
2¢/record+ 10¢/pp. / 12¢/ff.
2¢/record+ 10¢/pp. / 12¢/ff.

B/NA COSTS (cont'd)

CONVERSION SERVICE FOR TAPE PROCESSING

III

Sample Costing: Convert 100,000 titles to MARC, estimate 80% found at B/NA, edit with 10,000 Library NAC records, apply SAC by LSH/8; assume library is on LC classification and uses LC copy as is when given; assume 40% of collection is pre-1968.

Library Keys

B/NA Keys
Turnkey Co-op

		B/NA Keys		Library Keys	
		Turnkey	Co-op	Turnkey	Co-op
A.	Title Index Subscription -----	N/A	\$ 720	\$	720
B.	Conversion				
1.	Select MARC				
	.4 (100,000) LOWARC/LCCN -----	\$ 18,000	18,000	\$	10,000
	.2 (100,000) LOWARC/TI -----	20,000	7,400		5,000
	.05 (100,000) BNMARC/LCCN -----	7,000	4,250		1,250
	.15 (100,000) BNMARC/TI -----	21,000	11,550		3,750
	.1 (100,000) Sale with Vary -----	5,000	5,000		N/C
2.	Convert to MARC				
	.2 (100,000) -----	\$ 40,000	\$ 40,000	\$	10,000
3.	In-Process File Control -----	10,000			
	Filming -----	25,000			
4.	OCR Processing				
	.8 (100,000) @ 2¢ -----			\$	1,600
	.2 (100,000) 5 @ 2¢ -----				2,000
		\$ 146,000	\$ 86,200	\$	33,500
C.	Post Editing				
1.	Field Updates				
	Library source - 2,000, 2 batches -----	\$ 400	\$ 400	\$	100
	B/NA source/B/NA keyed - 1,000 -----	200	200		200
	OCR processing - 2,000 @ 2¢ -----				40
	OPTION: Convert 10,000 NAC				
	Authority Control and 1st COM -----	12,500	12,500		5,000
	Copy edited database on tape - 3 reels tape @ \$15 -----	18,000	18,000		18,000
		45	45		45
		\$ 177,145	\$ 118,065	\$	57,705

Per copy of COM fiche @ 176 fiche - \$21/set

B/NA COSTS (cont'd)

APPENDIX E

SUPPORTING COSTS FOR TABLE 10

NOTE 1

22. Local shelflist

Blackwell/North America cost estimates

a. Film library shelf list @ \$0.10/card

<u>Library</u>	<u>Number of Titles Held</u>	
1. Ames	46,721	
2. Dryden	4,262	
3. Goddard	36,711	
4. Headquarters	18,229	Mean among respondents =
5. JPL	NR	24,876 titles or average
6. Johnson	40,000	cost of \$2,487.60 to film
7. Kennedy	16,686	library shelf list.
8. Langley	50,001	
9. Lewis	28,093	
10. Marshall	3,320	
11. NSTL	9,884	
12. Wallops	19,729	

The further step of matching the filmed document against the actual shelflist was an item to be assessed and quoted by B/NA.

NOTE 2

2. Local catalog on COM.

Cost to process a record	\$0.006
Average number of titles in NASA catalog	24,876
Lines of output/record	7
Lines of output/fiche	16,000
Cost per master fiche	\$4.90
Cost per fiche copy	\$0.25

Processing costs + $\$0.006 \times 24,876 = \149.26

No. of output lines = $24,876 \times 7 = 174,132$ lines

No. of fiche required = $174,132 \div 16,000 = 11$

Cost per master fiche = $\$4.90 \times 11 = \53.90

Cost to make five copies = $\$0.25 \times 11 \times 5 = \13.75

Estimated cost to make average local COM catalog = \$216.91

(From Wiederkehr, 1980)

NOTE 3

2e. Union accessions list

OCLC charges for accessions listings:

140 items or less	\$14.00 minimum
141 items or more	\$.10 per item

Based on NASA FY80 new titles acquired data, the NASA libraries are adding an average of 500 titles to the Union holdings every two weeks (12,972 titles + 26 weeks).

500 items @ \$.10/item = \$50.00

There would also be the cost to load the 120 titles cataloged by Ames using RLIN into the OCLC data base for continued processing or
 $120 \times \$1.36 \text{ FTU} = \163.20

Total estimated cost = \$213.20

NOTE 4

2f. Local accessions list

The biweekly range of newly acquired titles per NASA library, according to FY80 data is:

Total number of titles processed in FY1980 = 12,972

<u>Library</u>	<u>Number of Titles Processed</u>	<u>Biweekly Additions</u>
1. Ames	3,128	120
2. Dryden	170	7
3. Goddard	1,699	65
4. Headquarters	280	11
5. JPL	1,640	63
6. Johnson	700	27
7. Kennedy	265	10
8. Langley	3,258	125
9. Lewis	1,147	44
10. Marshall	250	10
11. NSTL	65	3
12. Wallops	370	14

Total added via OCLC (Libraries #2-12) = 379 titles ÷ 11 =
35 titles/local accessions list or \$14.00 (minimum charge).

NOTE 5

2g. NASA accessions tapes

- 1) Biweekly additions of 11 NASA libraries = $380 \times \$0.04/\text{record}$
for OCLC copying charge = \$15.20
- 2) RLIN catalog transaction records on tape = \$44.00 (when n records \leq 500)
- 3) OCLC 1600 BPI tape cost and handling/delivery = \$25.00

Total estimate = \$84.20

NOTE 6

2i. Union book on COM

Cost to process a record	\$0.006
Records in NASA Union catalog	121,350
Lines of output/record	7
Lines of output/fiche	16,000
Cost per master fiche	\$4.90
Cost per fiche copy	\$0.25

Processing costs = $\$0.006 \times 121,350 = \728.10

No. of lines of output = $121,350 \times 7 = 849,450$ output lines

No. of fiche required = $849,450 \div 16,000 = 53$

Cost per master fiche = $\$4.90 \times 53 = \259.70

Cost to make twelve copies = $\$0.25 \times 53 \times 12 = \159.00

Estimated cost for Union Book Catalog on COM distributed to the
12 NASA libraries = \$1,146.80

APPENDIX F
PROJECTED CATALOGING ACTIVITY

Projections of levels of cataloging activity through FY 1985 were based upon trends established from FY1975 to FY 1980 statistics for the number of book titles added each year gathered from each of the Center libraries.

The FY1975 to FY1980 statistics were graphed for each Center library (see Table 11), and extended into the future.

Seven of the twelve NASA libraries experienced a downward trend during FY1975 to FY1980 and now appear to be leveling off. Four libraries, Ames, Goddard, Headquarters, and Kennedy, have experienced severe enough downward trends during FY1975 to FY1980 that projections for FY1981 to FY1985 are for continued decline. The Jet Propulsion Laboratory is the only library which is projected to increase the number of book titles added per year during FY1971 to FY1985.

The whole reflects the sum of its parts in Table 11, which is a graph of the total number of book titles added by all 12 NASA libraries per year from FY1975 to FY1980 with projections from FY 1981 to FY1985. A severe downward trend is evident from the 17,400 titles added in FY 1976 to 13,000 titles added in FY1980. A continuing decline is projected through FY1985, to 11,800 titles.

The decline in number of book titles added per year could be attributed to several factors:

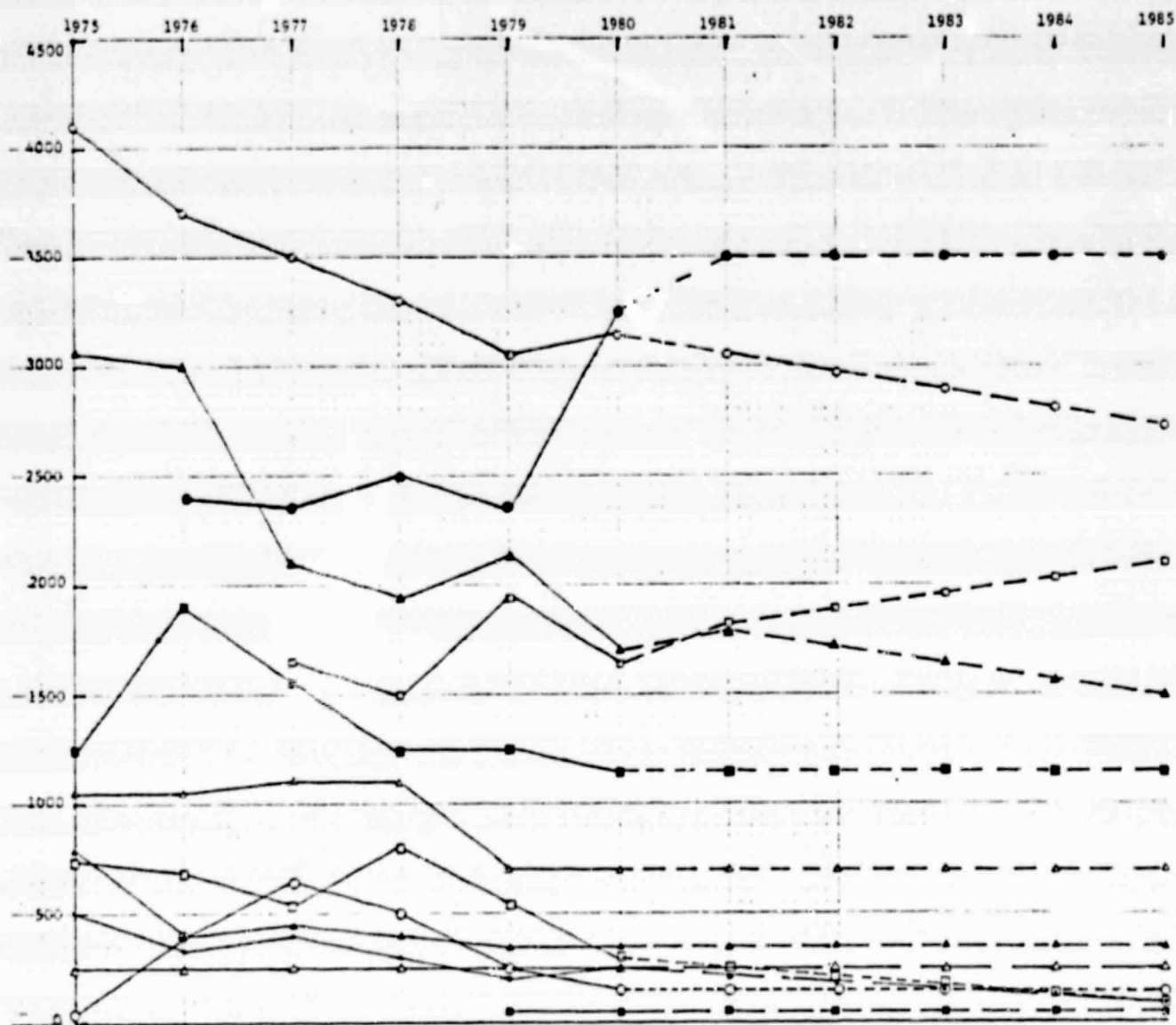
- a. The declining real (corrected for inflation) NASA budget,
- b. A shift to more report and journal literature,
- c. More dependence on ILL.

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TABLE 11. REPORTED AND PROJECTED BOOK CATALOGING ACTIVITY
BY CENTER LIBRARY: 1975-1985

Center Library	Reported number of book titles cataloged yearly					Projected number of book titles cataloged yearly					
	FY1975	FY1976	FY1977	FY1978	FY1979	FY1980	FY1981	FY1982	FY1983	FY1984	FY1985
Ames	4,119	3,676	3,511	3,309	3,050	3,128	3,050	2,975	2,900	2,800	2,725
Dryden	56	401	647	490	242	170	150	150	150	150	150
Goddard	3,031	2,096	2,120	1,970	2,147	1,699	1,800	1,725	1,650	1,550	1,475
Headquarters	822	702	552	821	540	280	250	225	200	175	150
Jet Propulsion Laboratory	--	4,200	1,600	1,500	1,967	1,640	1,825	1,900	1,975	2,050	2,125
Johnson	1,050	1,000	1,100	1,100	700	700	700	700	700	700	700
Kennedy	420	346	392	292	198	265	225	200	175	150	125
Langley	--	2,400	2,338*	2,277	2,069	3,258	3,500	3,500	3,500	3,500	3,500
Lewis	1,235	1,892	1,556	1,253	1,246	1,147	1,150	1,150	1,150	1,150	1,150
Marshall	250*	200	250*	500	250*	250	250	250	250	250	250
National Space Technology Labs.	65*	65*	65*	65*	56	65	65	65	65	65	65
Wallops	826	404	470	411	364	370	350	350	350	350	350
Total	--	17,385	14,661	13,988	12,829	12,972	13,315	13,190	13,065	12,890	12,765

*Estimates due to unreported data by Center Libraries or Headquarters.



Key:

○ Ames
▲ Goddard
● Langley
□ JPL
■ Lewis
▲ Johnson

▲ Wallops
□ Headquarters
● Kennedy
▲ Marshall
○ Dryden
■ NSTL

— Reported number of book titles cataloged yearly by Center libraries.
--- Projected number of book titles cataloged yearly.

Figure 3. Reported and Projected Book Cataloging Activity by Center Library: 1975-1985

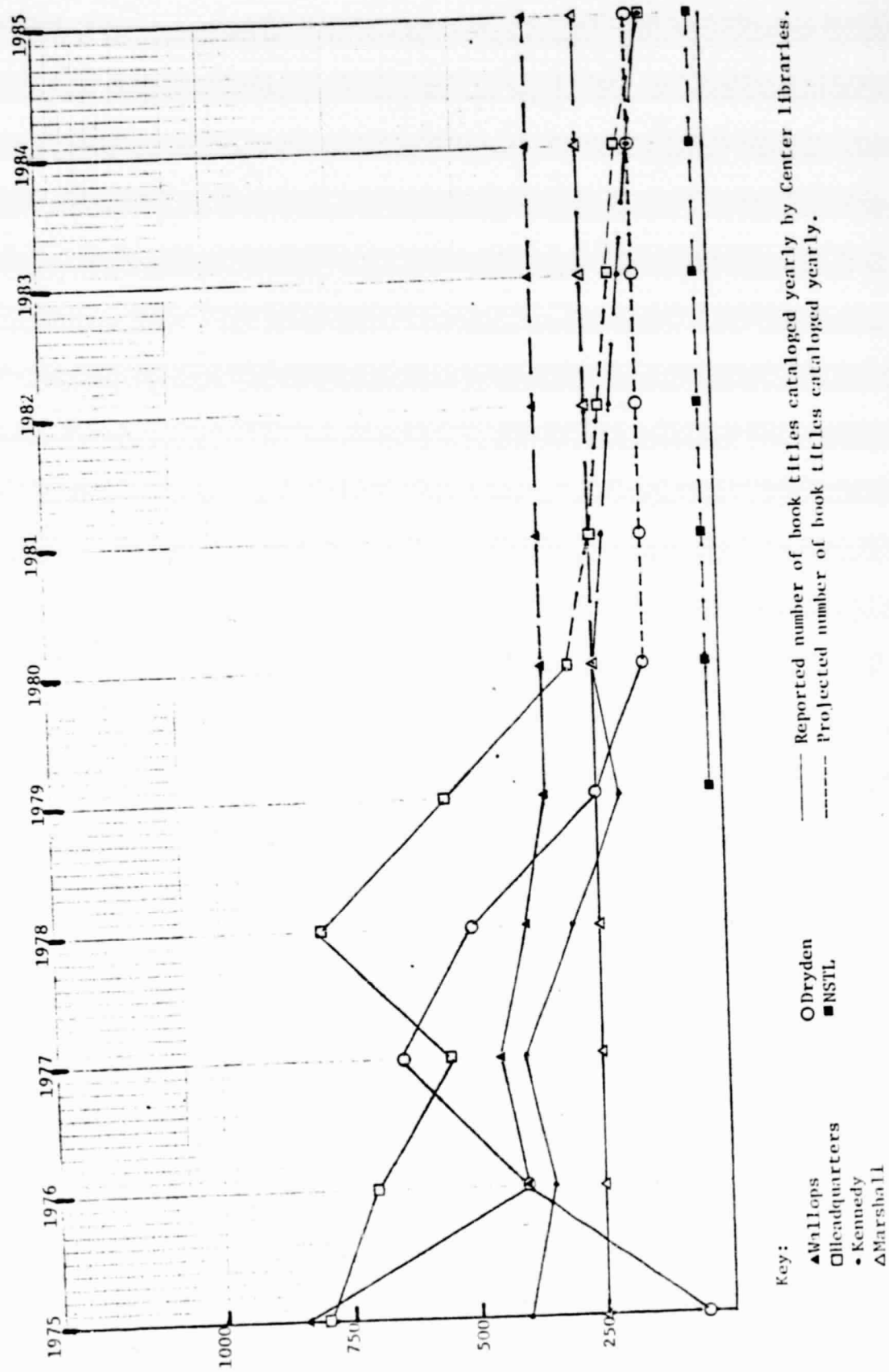
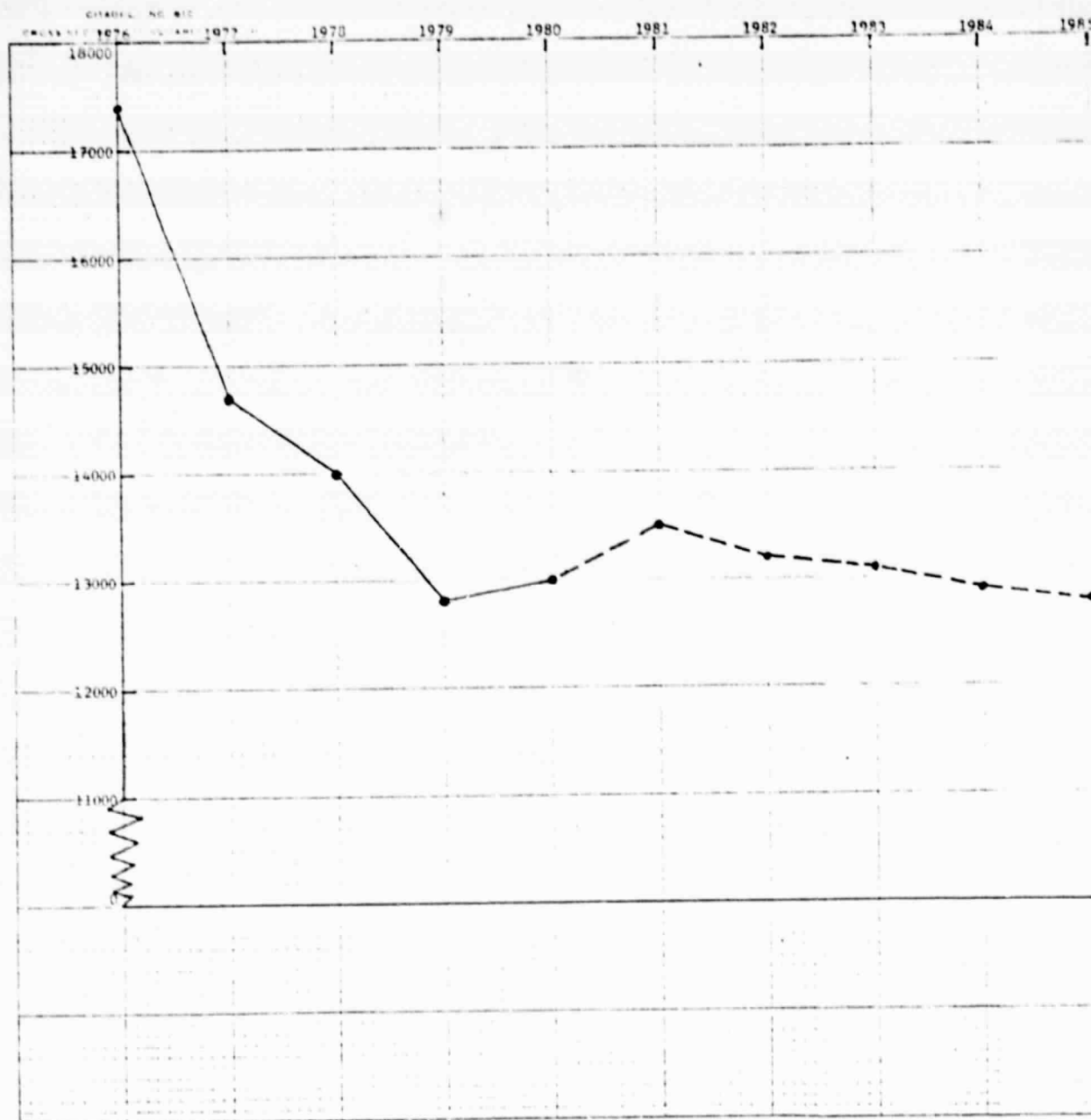


Figure 4. Reported and Projected Book Cataloging Activity of the Six Smallest Center Libraries: 1975-1985

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Key:

- Reported number of book titles cataloged yearly
- Projected number of book titles cataloged yearly

Figure 5. Total Reported and Projected Book Cataloging Activity by the NASA Network: 1976-1985