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ABSTRACT

A survey of the status of the federal library community and its involvement with automation was undertaken; the results are summarized in this report. The study sought to define which library operations were susceptible to automation, to describe potentially useful automation techniques and to establish criteria for decisions about automation. Questionnaires were sent to 2104 federal libraries, of which 1012 responded. Major results included the findings that most federal libraries were of small or medium size, but had varied collections and offered many services. The library community favored automation, but recognized that better communication, increased manpower, and strong central support would be needed. A stronger role for the Federal Library Committee (FLC) was indicated and centralized automated networks and standardized program packages for use in federal libraries were seen as desirable. As a consequence of these findings the research team recommended to the FLC the following objectives: 1) the development of generalized system components; 2) the selective development of centralized service; 3) the extension of service to the forgotten public served by federal libraries; 4) the development of standards; and 5) the provision of effective communication mechanisms. (PB)

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FEDERAL LIBRARY COMMITTEE
LIBRARY OF CONGRESS
WASHINGTON, D. C. 20540

AUTOMATION AND THE FEDERAL LIBRARY COMMUNITY:

REPORT ON A SURVEY

by

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June 1973

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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ROTATING MEMBERSHIP, 1971-73—Federal Communications Commission, General Services Administration, National Aeronautics and Space Administration, National Science Foundation, Supreme Court of the United States, Veterans Administration.

OBSERVERS—Office of Management and Budget and Office of Science and Technology of the Executive Office of the President, Library of Congress, Bureau of Libraries and Educational Technology of the Office of Education of the Department of Health, Education, and Welfare.

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ABSTRACT

From June 1970 to July 1971 an intensive investigation was undertaken of the federal library community and its involvement with library automation. The project, initiated by Federal Library Committee's Task Force on Automation of Library Operations, was supported by the U.S. Office of Education and conducted by the System Development Corporation. This report summarizes and abstracts the results of that investigation and highlights the resulting picture drawn of the federal library community. Tables and graphs from the original report and handbook are reproduced in this summary and are referred to the original documents.

BACKGROUND

The Federal Library Committee (FLC) was established in 1965 by the Library of Congress and the (then) Bureau of the Budget to achieve better utilization of library resources and facilities; to help provide more effective planning, development, and operation of federal libraries; and to promote an optimum exchange of experience, skill, and resources. Membership of the Committee includes such libraries as the three National Libraries (Library of Congress, National Library of Medicine, and National Agricultural Library), those of the Departments of State, Treasury, Defense, Justice, Interior, Commerce, Labor, Health, Education and Welfare (HEW), Housing and Urban Development (HUD), and Transportation. The Committee has delegates from such other agencies as the Atomic Energy Commission, National Aeronautics and Space Administration, National Science Foundation, Smithsonian Institution, Veterans Administration--for a total of 21 permanent members from independent agencies, boards, commissions, and committees. In addition, there are official observers and guest observers, appointed from time to time.

To achieve the goals noted above, a Federal Library Committee Secretariat was established. The current Executive Secretary of the FLC is Frank Kurt Cylke.

To accomplish its goals, the Committee selected a Task Force/Subcommittee/Work Group operating method, with emphasis placed upon the acquisition of research grant and contract funds. The Task Forces include those directed toward Acquisition of Library Materials, Education, Physical Facilities, Procurement Procedures, Recruiting, and the Task Force on Automation of Library Operations (TFA).

The Task Force on Automation set out as its goals the following:

1) to review and report on the status of automation activities in federal libraries;

2) to encourage the development, whenever possible, of compatible automated systems;

3) to furnish guidance to federal librarians and administrators on problems of library automation; and

4) to provide liaison in the area of library automation between the federal library community and other segments of the library world.

SURVEY OF THE FEDERAL LIBRARY COMMUNITY

In working toward these goals and objectives, the TFA has undertaken three phases of a total program: First, it conducted a review of the literature on library automation activities, to identify trends and possible gaps in needed research efforts. Next, the Task Force obtained support for a study in depth of the history and development of selected automated systems in federal libraries, with special emphasis on the organizational and administrative factors affecting those systems. Most recently, the TFA served in a technical advisory capacity for the aforementioned investigation and survey of the total federal library community.

PURPOSE AND SCOPE OF THE SURVEY

The survey was designed to accomplish three goals: 1) the definition of what library operations are susceptible to automation, and whether such operations are now being automated or not; 2) the description of automation techniques of potential use in library operations, both techniques now being applied and those of possible interest; and 3) the establishment of criteria for determining the feasibility of automation ("what to automate"), the types of hardware and software available for library automation, and the various factors that should be taken into account in considering library automation.

This study was conducted under the direction of Barbara Evans Markuson. The work involved a questionnaire survey of the entire federal library community except for the three National Libraries. The work also involved the preparation of both a handbook on federal library automation and the report 1/ analyzing

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1/ "Automation and the Federal Library Community," now available as an ERIC report. Copies (#ED 058917) may be obtained from ERIC Document Reproduction Service, P.O. Drawer O, Bethesda, Md. 20014. Hard copy cost is $9.87 and microfiche is $.65. Payment must accompany orders under $10 dollars.

and summarizing the data gathered in the survey itself.

Products of the Study

MASSIVE SURVEY DATA

HANDBOOK OF FEDERAL LIBRARY AUTOMATION
(409 PAGES, 84 ILLUSTRATIONS)

AUTOMATION AND THE FEDERAL LIBRARY COMMUNITY
(298 PAGES, 77 ILLUSTRATIONS)

The listing of federal libraries, Roster of Federal Libraries, 1970, 2/ served as the source of individual libraries to which the survey questionnaires were addressed. The total number of questionnaires sent out was 2,104; 1,012 were returned.

Survey Methodology

QUESTIONNAIRE 1

53 ITEMS

SENT TO 2,104 LIBRARIES

Of the responses received, 964 contained sufficient information to be included in the data base. Some replies showed that the respondents were not libraries, or were not federal agency libraries; others included insufficient data. One librarian apologized for not filling out the questionnaire: her library had just been demolished in the early 1971 Los Angeles-area earthquake! The 964 replies included in the data base were checked against the Roster to confirm that they were indeed representative of the total community surveyed. The only skew apparent was the low percentage of replies from U.S. Information Agency libraries overseas, which perhaps can be explained by the fact that most of these are very small and manned by non-English speaking native staff. Data for USIA libraries were obtained from the USIA Headquarters Library for inclusion in the study.

2/ Roster of Federal Libraries, compiled by Mildred Benton and Singe Ottersen, Washington, D.C.: The George Washington University Medical Center, Biological Sciences Communication Project. October 1970, 282 p.

STATUS OF THE FEDERAL LIBRARY COMMUNITY

A general picture of the federal library community was gleaned from the survey. It shows

Geographic Distribution

°The federal library community is widely dispersed: only 7 percent of the libraries are located in Washington, D.C., and only 60 percent are in the continental U.S. (Fig. 1)

Types of Libraries

°Nearly sixty percent of the respondents described their libraries as special or technical (Fig. 2). However, many federal libraries serve the "forgotten publics" classed by the government itself as disadvantaged, e.g., Indian children and other minority groups, and handicapped and institutionalized persons. In addition, kindergarten children, foreign nationals, students, and the general public are served.

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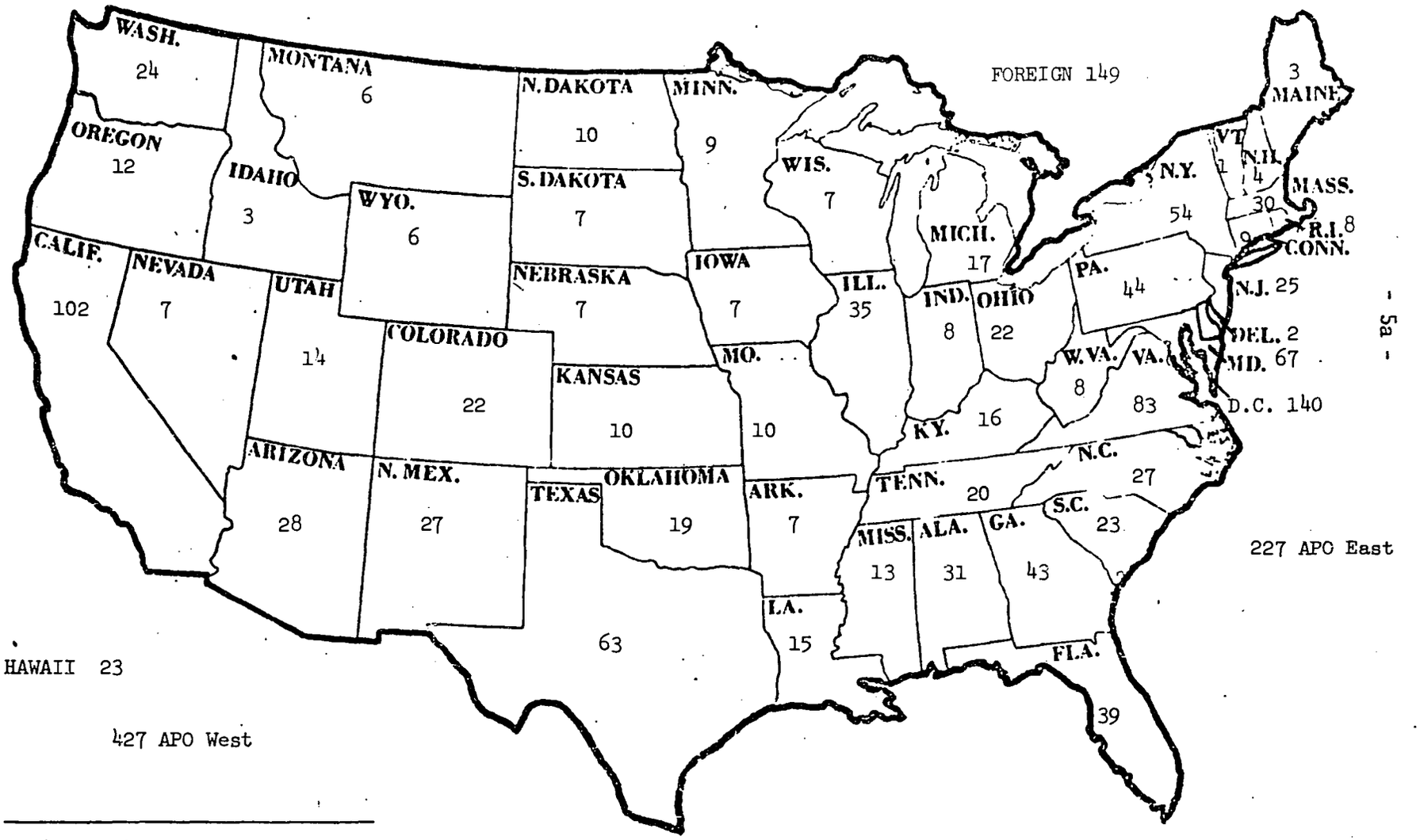
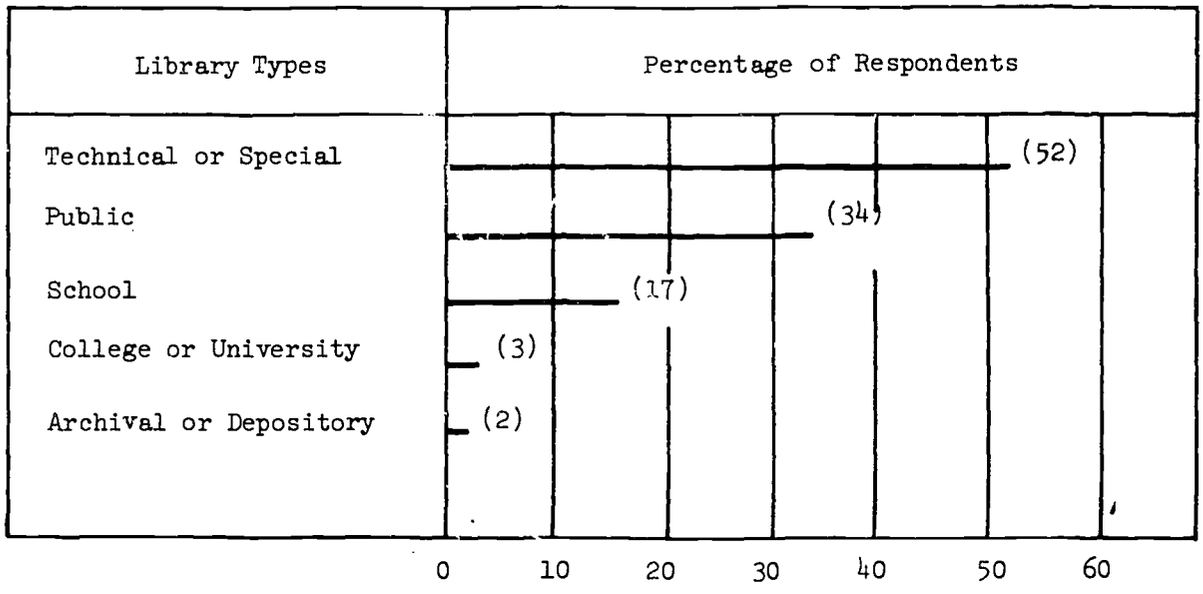
LOCATION OF FEDERAL LIBRARIES, BASED ON ROSTER OF FEDERAL LIBRARIES, 1970 3/



3/ Automation and the Federal Library Community, p. IV-4, Table IV-1,

TYPES OF LIBRARY 4/



4/ Automation and the Federal Library Community, p. IV-5, Figure IV-2.

Size of Libraries

°The vast majority of the libraries are small or medium sized and have fewer than three staff members; 302 responding libraries have only one staff member.

The size of the libraries was determined from a number of factors. For example, the median size of federal library collections is 16,500 total holdings. Books are the predominant type of material among those holdings but there are also some less traditional materials such as audio recordings, maps, and films (Fig. 3).

Budget figures also indicate the size of a library; the median respondent spent less than $27,000 for materials, staff, and equipment in FY 1970. The total budget reported by all respondents is about $60 million dollars, about two-thirds of which is devoted to personnel (Fig. 4).

Considering the heavy labor costs, and the preponderance of small libraries in the federal community, it is obvious that the most effective and efficient use of that labor is necessary to optimize operations and services. The Task Force believes that some amount of automation offers a potential here, either directly in the larger libraries or through cooperative centers and shared services for the smaller ones.

Working with the figures that were submitted in the questionnaire responses and with supplementary budget figures supplied by the three National Libraries, the study team compiled an estimated figure for the federal library budget.

For the first time we have an idea of the total federal expenditures in support of libraries and library services (Fig. 5).

* * * * * * * * *

TYPES OF MATERIALS AND NUMBER OF TITLES HELD 5/

Type of Material	N	Number of Respondents				
		Under 5000	5000-20,000	20,001-50,000	50,001 200,000	Over 200,000
Books	929	280	454	137	46	12
Serials	877	827	34	12	4	
Government documents	603	528	46	14	11	4
Pamphlets and reprints	591	546	36	6	2	1
Phonorecords, tapes, etc.	523	511	11		1	
Maps and charts	520	502	10	.5		3
Technical reports	491	375	57	21	21	17
Internal reports	376	341	22	7	4	2
Pictures	363	345	12	2	3	1
Films	354	344	6	1	2	1

5/ Automation and the Federal Library Community, p. IV-7, Table IV-1.

1970 EXPENDITURES BY CATEGORY FOR ALL RESPONDENTS 6/

Category	N	Total Expenditures	Median	First Quartile	Third Quartile	Range[1]
Materials	825	$15,414.998	$ 6,000	$ 2,925	$12,000	$25-$2,200,000
Personnel	769	37,361,777	20,000	11,000	34,347	1- 2,800,000
Equipment, Supplies	708	2,261,139	757	300	2,000	5- 100,000
Contractual, Services	274	4,023,950	1,200	500	3,525	10- 2,000,000
Other	128	1,578,344	867	435	3,500	10-- 576,500

[1] The ranges shown here have been verified against the actual data given by respondent

6/ Automation and the Federal Library Community, p. IV-10, Table IV-3.

ESTIMATED TOTAL FEDERAL LIBRARY BUDGET[7/]

Low-range: Assumes 2100 libraries plus national libraries.

Category	Number of Libraries	Actual or Estimated Budget
Survey respondents providing budget data	825	$60,640,208
USIA libraries	138	1,848,961*
All other federal libraries	1,139	31,830,100**
Library of Congress	1	57,483,814***
National Library of Medicine	1	20,321,259
National Agricultural Library	1	2,500,000
	Estimated total	174,624,342

High-range: Assumes 2500 libraries plus national libraries.

Estimated total for 2100 libraries and national libraries = 174,624,342

Estimated total for 400 unidentified federal libraries = 10,918,020****

Estimated total 185,542,362

*Only 3 USIA libraries responded to the survey. Total materials and miscellaneous budget for the 138 USIA libraries, supplied by USIA headquarters, was $1,158,961. Most of these libraries are one-staff operations, manned by local nonprofessionals, and are budgeted by individual USIA posts. Total staff budget was estimated by SDC to be $690,000 (at $5,000 average per staff).

**Since nonrespondents were largely the smaller libraries, estimate was based on the median for each budget category; for contract and "other" expenditures, estimates were based following the percentage of respondents reporting that category. Estimate includes $6,882,000 for materials, $22,940,000 for staff, $860,709

7/ Automation and the Federal Library Community, p. IV-11, Table IV-4.

for equipment and supplies, $464,400 for contractual services (34 percent of total) and $147,390 for other (15 percent of total).

***The budgets for the three National Libraries are as reported by the libraries to the SDC project team. The LC budget includes only federal funds.

****Based on medians for all budget categories. Includes $2,400,000 for materials, $8,000 for staff, $302,800 for equipment and supplies, $163,200 for contractual services (34 percent of libraries) and $52,020 for other (based on 15 percent of libraries).

Fig. 5

Another indicator of size is staff: the majority of the responding libraries have fewer than three staff members. Typically, the federal library has one librarian who may or may not be a professional and who may or may not have supporting staff. The overall ratio of professional to non-professional staff is 1:1.3, far less than the recommended 1:3-5 ratio. The "other" professionals include such exotic titles as "visual information specialist" and "museum curator," (Fig. 6).

Cooperative Activities

A series of questions in the survey was directed to the subject of cooperative networks, involving more than interlibrary loan and operating outside the parent agency. Only 10 percent of the respondents said that they were involved in such networks. These networks were rather small, involving 10 or fewer libraries, but they covered extensive geographic areas, in some instances, and helped to augment the small staffs and collections already noted (Fig. 7).

However, some agency cooperative groups include fairly large numbers of libraries. For example, the Veterans Administration libraries, of which there are almost 200, receive some centralized services such as cataloging from the Headquarters library.

Most networks do not include both non-federal and federal libraries.

Interlibrary activities other than formally-established networks tend to involve other local libraries rather than more distant ones, even to the extent of more cooperation with local non-governmental libraries than with parent agency libraries outside the immediate area. This pattern held true for all but exchange of materials (Fig. 8). These activities, of course, also serve to augment the library's resources.

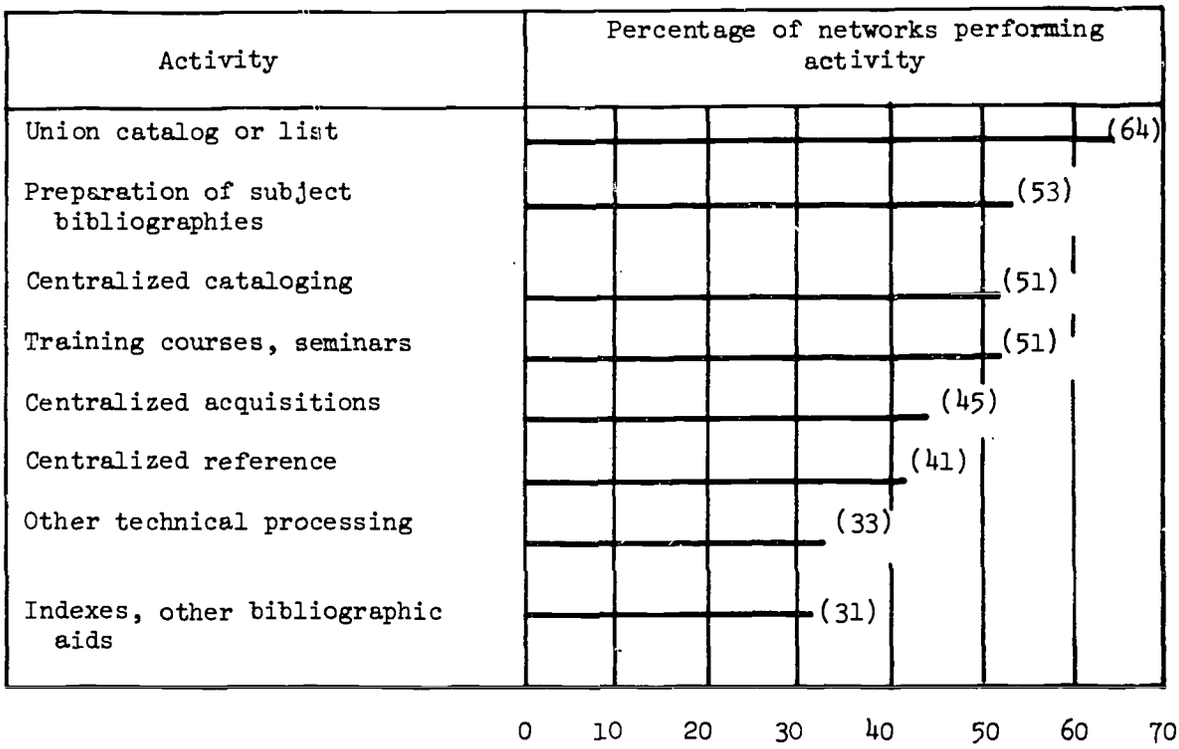
* * * * * * * * *

CURRENT STAFF 8/

Personnel Categories	N	Total Staff	Number of Staff			
			Median	First Quartile	Third Quartile	Range
Professional						
1410 Series	764	1,738.2	1.0	1.0	2.0	0.5-37.0
1412 Series	38	150.5	1.0	1.0	2.0	1.0-88.0
Other	55	166.5	2.0	1.0	3.0	0.5-20.0
Subprofessional	465	1,367.5	1.0	1.0	3.0	0.5-40.0
Clerical	469	1,230.5	1.0	1.0	2.0	0.3-40.0
Contractual	28	80.5	1.0	1.0	2.0	0.5-18.0

8/ Automation and the Federal Library Community, p. IV-13, Table IV-5.

ACTIVITIES PERFORMED OR PLANNED IN NON-AGENCY NETWORKS IN WHICH RESPONDENTS PARTICIPATE 9/



9/ Automation and the Federal Library Community, p. IV-18, Figure IV-3.

RESPONDENTS' INTERACTION WITH OTHER LIBRARIES BY ACTIVITY [10/]

Kind of Library	Number of Respondents Interacting with: Libraries within Local Area	Libraries outside Local Area
INTERLIBRARY LOAN		
Other libraries in own agency	464	417
Other federal libraries	459	384
Non-federal governmental libraries (e.g., state libraries)	375	278
Non-governmental libraries	497	399
PHOTOCOPYING		
Other libraries in own agency	186	190
Other federal libraries	194	173
Non-federal governmental libraries (e.g., state libraries)	134	115
Non-governmental libraries	205	1[illegible]
REFERENCE ASSISTANCE		
Other libraries in own agency	293	230
Other federal libraries	263	186
Non-federal governmental libraries (e.g., state libraries)	181	121
Non-governmental libraries	286	274

10/ Automation and the Federal Library Community, p. IV-20, Table IV-8.

EXCHANGE OF MATERIALS

Other libraries in own agency	281	231
Other federal libraries	186	142
Non-federal governmental libraries (e.g., state libraries)	90	66

Fig. 8

Servicing Patrons' Needs

°To augment local collections, more than 250 respondents access machine readable data bases by mail, on-line terminals, and local computer facilities.

Federal librarians, in spite of the constraints on resources, do a creditable job of serving the needs and requests of their patrons. A relatively high proportion (27 per cent) of the respondents said they use information retrieved from machine-readable data bases to answer some user inquiries (Fig. 9). Sixteen of these respondents have terminals on-line to the data bases, the rest submit written, formatted search requests. Since these are not large libraries, they must be considered in the vanguard in library use of these tools.

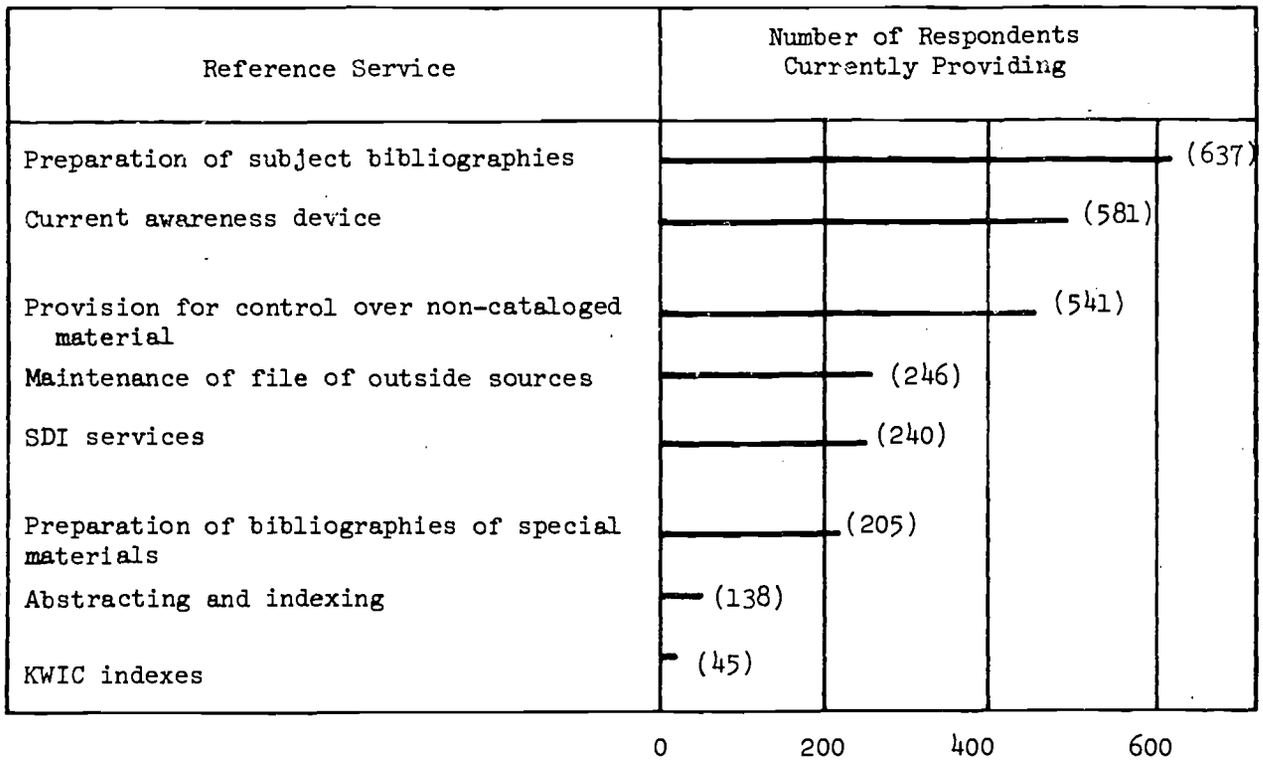
NUMBER OF RESPONDENTS USING NON-LOCAL DATA BASES

Data Base	Number of Respondents
MEDLARS	139
DDC	122
NASA RECON	53
Current Contents (ISI)	52
Chemical Abstracts	33
Engineering Index	30
Biological Abstracts	28
MARC	22
ERIC	16
AIM-TWX	12

Fig. 9

11/ Automation and the Federal Library Community, p. IV-37, Table IV-14.

REFERENCE SERVICE PROVIDED BY FEDERAL LIBRARIES 12/



12/ Automation and the Federal Library Community, p. IV-39, Figure IV-8.

FEDERAL LIBRARY AUTOMATION ACTIVITIES

°Only a few of the 2100 federal libraries have attempted to automate: a total of 59 libraries reported operational and planned systems.

Of the 964 respondents included in the initial survey, 133 libraries indicated some involvement with automation programs. These libraries then received a second questionnaire--or set of questionnaires--designed to elicit details about the development and operation of specific automated library functions. The sections of the questionnaire covered Acquisitions, Cataloging, Circulation, Serials, and other Automated Functions. A first general section was sent to all of the 133 libraries to record their experiences in introducing automation; of the other questionnaire sections, the libraries received only those for which they had reported automation programs.

SURVEY METHODOLOGY

QUESTIONNAIRES

°6 SECTIONS, CONTAINING 13 TO 33 ITEMS
°68% RESPONSE

Ninety-one libraries responded; of these, 59 actually had operational or definitely planned automation projects. Some of the others use automated systems maintained elsewhere and could not supply details of operation, maintenance, and the like.

The tabulation of answers from these questionnaires by location shows that the greatest number of automated libraries--19--are in the Washington, D.C. area but these still constitute only a third of the total number. The only library overseas to report automation activity is a media center in Japan serving 30 U.S. Air Force dependent schools (Fig. 11).

When tabulated according to agency, the information showed that over one-half (57 percent) of the current automation activity is occurring in DOD libraries; however, these 33 libraries are only 2 percent of all DOD libraries, some 1,411 in number. On the other hand, the five automated AEC libraries represent about 38 percent of the 13 libraries in the Commission.

Types of Functions Automated

Most of the libraries with automation programs have addressed more than one library function: the 59 libraries reported a total of 115 operational systems (Fig. 12).

The following figures (Fig. 13-16) show the types and numbers of functions and subfunctions automated. The types of applications illustrate the emphasis on systems related to user services (cataloging, reference services) as opposed to housekeeping operations. One-half of the libraries reported automation of one or two applications, but two libraries reported six and seven respectively.

GENERAL CHARACTERISTICS OF AUTOMATED LIBRARIES [13/]

1. LOCATIONS

U.S.-Based (57)						Foreign-Based (1)	
California	4	Mississippi	1	Oregon	1	Japan	1
Colorado	4	Missouri	3	Pennsylvania	1		
Florida	1	New Mexico	1	Rhode Island	1		
Georgia	1	New Jersey	1	South Carolina	1		
Kansas	1	New York	2	Tennessee	3		
Illinois	1	North Carolina	1	Texas	1		
Maryland	1	North Dakota	1	Virginia	3		
Massachusetts	2	Oklahoma	2	Washington, D.C. Metropolitan area	19		

2. AGENCIES

Executive Branch		Independent Agencies	
Executive Office of the President			
Office of Economic Opportunity	1	Smithsonian Institution	1
		Atomic Energy Commission	5
		Civil Service Commission	1
Executive Departments		Federal Deposit Insurance Corporation	1
Agriculture	1	National Aeronautics and Space Administration	2
Commerce	1		

13/ Automation and the Federal Library Committee, p. III-7, Table III-1.

Executive Departments Contd.		Independent Agencies Contd.	
Defense	2	Tennessee Valley Authority	1
Air Force	4		
Army	14		
Navy	13		
Health, Education, and Welfare	4		
Housing and Urban Development	1		
Interior	5		
Transportation	1		

3. TYPE OF LIBRARY

Technical, special (including medical) or research library	51
College or university library	4
Public, general reading or recreation library	2
School (elementary or secondary) library	1

Fig. 11

AUTOMATED FUNCTIONS BY NUMBER OF LIBRARIES[14/] AND BY NUMBER OF OPERATIONS SYSTEMS

Applications	Number of Libraries Reporting Projects	Number of Operational Systems
Acquisitions	10	7
Cataloging	32	27
Circulation	18	13
Serials	31	25
Information Retrieval	18	14
Bibliographic Publications	13	10
Selective Dissemination of Information	12	7
Abstracting and Indexing	4	3
Indexes to Special Collections	9	6
Others	3	3

Fig. 12

14/ Automation and the Federal Library Community, p. III-8, Table III-2.

FUNCTIONS PERFORMED BY FEDERAL LIBRARY AUTOMATED ACQUISITION SYSTEMS 15/

Total respondents=10.

Application
Maintains fund encumbrancing and accounting (11)*
Provides listings of all items on order (10)
Handles subscription renewals for journals and periodicals (8)
Provides retrieval access to order and/or in-process file on more than one field (8)
Provides statistical analysis of acquisition activity (8)
Produces control cards or forms for monitoring technical processing cycle (8)
Prepares order forms from machine-readable input (6)
Generates claims for items not received (6)
Provides output for use in cataloging (6)
Provides announcement of new accessions (6)
Provides selective dissemination of information notices (3)
Maintains library membership file (3)
Automatically assigns orders to vendors (2)
Provides want files for materials out of print (2)
Provides statistical analysis of vendor performance (2)
Other (one each)
Obtains order information from MARC tapes (planned)
Maintains exchange partner file (planned)
Provides requestor arrival notices (planned)
Uses MARC to aid in book selection (planned)
Provides bindery information control
Provides Union List reporting

* Includes functions and subfunctions automated by respondents.

Fig. 13

15/ Guidelines for Library Automation, p. 99, Figure II-30.

FUNCTIONS PERFORMED BY FEDERAL LIBRARY AUTOMATED CATALOG SYSTEMS 16/

Total respondents=32.

Application

Prints lists and bibliographies (19)
Prints book catalogs (17)
Maintains subject heading/thesaurus files (16)
Maintains shelflist or other inventory control (16)
Edits and formats local input (15)
Performs information retrieval from catalog data base (14)
Prints catalog cards (13)
Maintains name authority files (9)
Provides statistical analyses of the catalog or items in collection (8)
Provides KWIC or other keyword indexed (7)
Prints abstract and index listings (7)
Prints or punches book cards (6)
Provides statistical analysis of use of subject heading/thesaurus terms (5)
Cumulates a MARC II or other outside data base (5)
Searches MARC II or other data base (5)
Provides statistical analysis of cataloging operations (4)
Prints spine labels, pocket labels (4)
Obtains input record from MARC II or other outside data base (2)
Selectively disseminates information from data base (2)
Edits and modifies outside records for local use (2)
Maintains report number authority file (1)

Fig. 14

16/ Guidelines for Library Automation, p. 78, Figure II-22.

FUNCTIONS PERFORMED BY FEDERAL LIBRARY AUTOMATED CIRCULATION SYSTEMS 17/

Total respondents=18.

Application

Printing of overdue notices (13)
Control of requests for reserves, special routing, etc. (12)
Charging and discharging (12)
Listings of items in circulation (11)
Listings of items circulated to certain borrowers or types of borrowers (11)
Maintenance of machine-readable borrower files with addresses, locations, etc. (10)
Renewals (9)
Statistical analysis of circulation operations (5)
Statistical analysis of items circulated (5)
Control of loan period, i.e., automatic assignments for certain categories of materials or types of borrowers (5)
Automatic routing of current journals (4)
Accounting for replacement charges for lost or damaged items (2)
Listings of newly returned items (1)
Quarterly listing of documents by borrower (1)

Fig. 15

17/ Guidelines for Library Automation, p. 132, Figure II-43.

FUNCTIONS PERFORMED BY FEDERAL LIBRARY AUTOMATED SERIALS SYSTEMS 18/

Total respondents=31.

Application

Maintains holdings records for all or most titles (17)
Maintains subscription renewal control (17)
Maintains vendor or source address file (16)
Provides listings of serial titles without complete holdings statement (16)
Provides cross references (15)
Provides listings of serial titles with complete holdings statement (13)
Provides renewal list for agency staff selection and general collection (13)
Provides special listings of serial holdings by subject, language, location, etc. (12)
Maintains fund accounting for records in machine-readable form (11)
Provides machine generated orders to vendors (10)
Provides control over receipt and check-in of each incoming serial issue (7)
Provides claim notices (7)
Reports when serials are ready for binding (6)
Provides pre-punched arrival cards for check-in of current issues (6)
Provides various statistical analyses of serial operations (6)
Provides various statistical analyses of serial collection (5)
Maintains list of library memberships to organizations (5)

Scope of system: Incorporates holdings records for dead titles (12)
Provides information on where given title is abstracted or indexed (5)
Maintains holdings records for current titles only (2)
Maintains partial holdings records for all or most titles (1)
Maintains partial holdings records for current titles only (1)
Maintains partial holdings records for non-current titles (1)

Fig. 16

18/ Guidelines for Library Automation, p. 115, Figure II-35.

In addition, the computer is used for information retrieval, the publishing of bibliographies for SDI, and for abstracting and indexing. These functions, although less popular, are significant enough to mention.

Resources of Libraries Automated

°Most of the automation efforts have been in comparatively large and well-supported libraries.

Although the libraries with automation programs are among the most advantaged federal libraries, none of them has resources comparable to large public and university libraries. At the lower end of the spectrum (1st quarter) the libraries have total budgets of less than $75,000 a year, have one professional librarian, and fewer than 37,000 total holdings. This indicates that automation is being done even in small libraries (Fig. 17).

The overwhelming majority of respondents from all the libraries, however, reported that local resources are inadequate to support automation, and they are very much in favor of the idea of centralized automation support and services. One can see this clearer in comparing the automated libraries to the non-automated libraries. The median for the size of collections for automated libraries was 142,500, as opposed to 15,900 for non-automated (Fig. 18).

In analyzing the budgets of the libraries we see that the median for the amount spent on books in automated libraries is $42,500, in contrast to $5,800 in non-automated libraries. There is also a significant difference in personnel costs, $138,250 as opposed to $19,000 (Fig. 19).

* * * * * * * * *

RESOURCES[19/]

BUDGET (Total for 56 libraries: $18,792,584)

Median	$176,500
1st Quartile	74,500
3rd Quartile	464,000
Range	$10,000-1,765,000

STAFF

	Median	1st Quartile	3rd Quartile	Range
Professional				
1410 [N-53]	4.0	1.0	9.0	1-53
1412 [N-14]	2.0	1.0	3.5	1-4
Other [N-43]	2.0	1.3	5.5	1-57
Subprofessional [N-43]	6.0	3.0	10.6	1-46
Clerical [N-35]	4.0	2.0	7.0	.5-33

HOLDINGS

	Median	1st Quartile	3rd Quartile	Range
Total Collections [N-56]	150,000	37,700	367,000	2500-750,000
Estimated Percent in Microform [N-42]	5%	1%	25%	1%-80%

Fig. 17

19/ Automation and the Federal Library Community, p. III-10, Table III-3.

COMPARISON OF HOLDINGS FOR AUTOMATED AND NONAUTOMATED LIBRARIES 20/

Holdings	Median	First Quartile	Third Quartile	Range
Size of total collections				
Automated libraries (N-56)	142,500	37,700	350,000	2,500-750,000
Nonautomated libraries (N-877)	15,951	8,362	30,000	10-10,000,000
Percent of total holdings in microform				
Automated libraries (N-42)	5	1	25	0-80
Nonautomated libraries (N-187)	2	1	10	1-97

Fig. 18

20/ Automation and the Federal Library Community, p. V-3, Table V-1.

BUDGET COMPARISONS FOR AUTOMATED AND NONAUTOMATED LIBRARIES BY BUDGET CATEGORY 21/

Budget Categories	Budget Totals			
	Median	First Quartile	Third Quartile	Range
Books and non-book materials				
Automated libraries (N-47)	42,500	7,875	110,700	550- 289,000
Nonautomated libraries (N-776)	5,800	2,511	11,000	25- 375,000
Personnel, full and part-time				
Automated libraries (N-47)	138,250	54,780	256,750	7,000-1,600,000
Nonautomated libraries (N-720)	19,000	10,400	30,000	1-1,508,000
Equipment and supplies				
Automated libraries (N-33)	5,600	925	17,875	50- 89,740
Nonautomated libraries (N-657)	600	273	1,915	5- 100,000
Contractual services				
Automated libraries (N-29)	14,500	3,700	34,000	160- 220,000
Nonautomated libraries (N-249)	1,027	458	2,523	10-2,000,000

AVERAGE TOTAL BUDGET, AUTOMATED LIBRARIES (N-56 1/) $335,580

AVERAGE TOTAL BUDGET, NONAUTOMATED LIBRARIES (N-769) . . . . . $ 80,156

1/ There were 56 respondents with operational or near-operational systems, but not all respondents answered all budget categories above.

21/ Automation and the Federal Library Community, p. V-4, Table V-2.

Standards

°Use of existing library and information standards was very infrequent; most systems were developed without reference to other automated systems--federal or otherwise--and very few have ever been described, in print or in oral communication, to either the federal or non-federal library community.

Most systems recorded were developed to meet the specific libraries' requirements only.

DEVELOPMENT OF SPECIFICATIONS BY NUMBER OF AUTOMATED LIBRARIES AND TYPE OF APPLICATION 22/

Specifications for This System Were Developed:	Acquisitions	Cataloging	Circulation	Serials
To meet my library's requirements only	11	19	17	19
To meet requirements specified by my local or parent agency	0	4	1	1
To meet the requirements of some other government agency	0	0	0	0
To meet the requirements of one or more libraries, but not as a joint effort	0	2	0	4
As a joint effort with one or more other federal or non-federal libraries	0	0	0	1

Fig. 20

22/ Automation and the Federal Library Community, p. III-12, Table III-4.

Most of the survey respondents reported that, in planning their system, they did little in the way of analysis of other systems. Only about a third reported that they had ever carried out a system analysis or developed design specifications for the system. Respondents were asked about the depth of analysis made prior to systems development; 32 made in-depth studies, 35 made none. This omission may be explained by lack of staff and funds, or by existing familiarity with operations.

COMPREHENSIVENESS OF SYSTEM DESIGN[23/]

System Developed	Acquisitions	Cataloging	Circulation	Serials
As part of an existing comprehensive automated system for this library	0	1	1	0
As part of planned comprehensive system	8	7	5	6
As a stand-alone system	3	13	9	15

Fig. 21

Most of the respondents indicated that, while their approach to automation had been to develop and implement separate unrelated projects for one or more library functions, they would not choose this approach now. In fact they would advise against it: 28 recommend that libraries have an overall plan and implement one step at a time, 16 advised the development of integrated systems and only 4 recommended automation of unrelated projects.

23/ Automation and the Federal Library Community, p. III-13, Table III-5.

Hardware

°Most automation projects were accomplished through cooperation between the library and local agency staff, and used local agency equipment. (Here local means the agency to which the library belongs.)

About three-fourth of the libraries with automation projects have computer-based systems. In most cases, the equipment belongs to the local agency. Two libraries reported using the parent agency's computer equipment; one, commercial and university-owned computers; and one, another federal library's computer. In each application area except cataloging, the majority of the systems were developed from the beginning as computer-based systems. In contrast, a significant number of cataloging systems began as punched-card systems and were later replaced by computer-based systems.

°A wide range of computer makes and models was used in the various library applications (Fig. 22).

COMPUTERS USED BY RESPONDENTS[24/]

Burroughs B3500
CDC 160A, 3300, 3800, 6400, 6600, 6700
Digital Corporation PDP-8 and PDP-10
GE 225, 427, 635
Honeywell 200, 800, 800/200, 1250
IBM 7030, 7090, 7094, 1401, 1410, 360 Series, 360/20, 360/30, 360/40, 360/50-75, 360/67, 360/91
MANIAC
RCA 70/45, 70/456, Spectra 70/301, 301
UNIVAC 418, 490, 1005, 1106, 1107, 1108
XDS 940

Fig. 22

24/ Automation and the Federal Library Community, p. III-15, Figure III-3.

Management Factors

The first part of the questionnaire (the general section) asked respondents to explore the general management factors that influenced them most in arriving at a decision to automate functions in their libraries. Responses indicate that the factor most influential was the need to improve services. Other important factors include the need to improve control of operations, the availability of computer equipment and staff, and the support of both staff and supervisors. The responses indicate that the decision to automate is consistent with the overall objective of any library or information service: to provide the best, most efficient services to the users. (Fig. 23).

Problems

In the hopes of finding guidance to future users of automation a question regarding problems was placed in the questionnaire. Respondents were also asked to rank various underlying factors contributing to the problems encountered in system implementation in the categories of staffing, analysis, design and programming, equipment, and management. The following tables (Fig. 24-25) are the result:

* * * * * * * * *

IMPORTANCE OF FACTORS IN
DECISION TO AUTOMATE 25/

Factors	Number of Responses: Major Factor	Minor Factor	Of No Importance
Volume of activity	35	17	3
Availability of equipment	42	13	1
Availability of systems analysts	37	11	5
Interest and support within library	29	23	3
Interest and support of immediate supervisor	36	18	3
Availability of computer programs developed elsewhere	5	18	26
Need to improve service	47	6	3
Need to improve control of operations	44	9	2
Availability of funds	22	20	10
Knowledge that similar automation programs had been successfully implemented elsewhere	21	20	14
Automation requested by management	14	13	25
Automation within library consistent with overall agency plans	15	18	18

Fig. 23

25/ Automation and the Federal Library Community, p. III-49, Table III-22.

RANKING OF FACTORS CONTRIBUTING
TO IMPLEMENTATION PROBLEMS 26/

Factors	Ranking by Respondents					
	1	2	3	4	5	6-8
Staffing:						
Library staff's lack of experience with automation	15	12	5	5	1	0
System analyst's and programmer's lack of experience with library procedures	15	12	5	3	2	0
Changes in systems or programming staff during the project	4	6	6	3	1	1
Changes in project management staff during the project	1	3	1	0	3	3
Changes in library staff during the project	7	4	6	3	1	0
Changes in agency administrative staff during the project	1	2	3	0	0	2
Difficulties with computer center personnel not following instructions for library projects	4	3	4	2	2	2
Analysis, Design and Programming:						
Insufficient effort expended on systems analysis and design before programming began	5	9	1	1	0	0
Pilot tests or simulations did not reflect actual working conditions	2	2	3	1	1	0
No pilot tests or simulations were conducted	2	2	2	1	2	0
System designers and/or programmers did not understand our requirements	8	5	3	0	0	0
System documentation, including manuals for input and computer operation, was not detailed enough	12	4	1	1	0	0
Attempt to pattern our system after one developed elsewhere created problems	2	0	2	1	1	2

Fig. 24

26/ Automation and the Federal Library Community, p. III-56-57, Table III-25.

RANKING OF FACTORS CONTRIBUTING
TO IMPLEMENTATION PROBLEMS (contd.)

Factors	Ranking by Respondents					
	1	2	3	4	5	6-8
Equipment:						
Changes made in computer or other hardware during project	8	6	4	1	1	0
Low priority for computer time prevented or delayed system debugging	5	10	6	0	0	0
Allocation and scheduling of computer time not suitable to our needs	3	2	3	2	0	0
Library not allowed to obtain own input equipment	9	1	0	1	4	0
Available equipment not entirely satisfactory for library needs	7	4	1	2	1	0
Management:						
Budget cuts made during project	3	4	0	1	1	0
Year to year funding hampered project planning and management	5	0	2	1	1	0
Lack of funds prohibited pilot testing	0	1	0	1	0	1
Lack of funds prohibited doing enough detailed design prior to implementation	1	1	1	0	0	1
Inadequate planning for project management and control	3	2	3	0	1	0

Fig. 24 (contd.)

RANKING OF FACTORS CONTRIBUTING
TO IMPLEMENTATION PROBLEMS (contd.)

Factors	Ranking by Respondents					
	1	2	3	4	5	6-8
Management: (contd.)						
Inadequate preliminary planning of automation project	7	1	1	2	0	0
Requests for Proposals or Quotes Were not specific enough	0	1	1	0	0	1
Library management not given choice in contractor selection	1	1	1	0	0	1

Fig. 24 (contd.)

* * * * * * * * *

RANKING OF PROBLEM AREAS
IN SYSTEM OPERATION 27/

Problem Area	Ranking by Respondents						
	1	2	3	4	5	6	7-14
Data input formats	10	5	4	3	1	0	6
Data input procedures	10	9	6	5	0	0	4
Error control procedures	8	12	1	5	2	2	3
File maintenance and security	3	3	4	0	5	1	6
Output formats	6	2	4	3	3	2	4
Data processing requirements	3	3	2	0	0	2	6
Sequence of work flow	0	2	2	2	2	3	7
Utilization of output products	0	1	0	3	1	0	9
Interface between automated system and manual operations automated	1	5	6	2	2	0	5
Transition from manual to computer operation	4	3	5	2	2	2	3
Back-up routines when computer unavailable	3	0	0	1	3	1	6
Provision for handling increased system loads	1	1	0	2	2	2	8
Provision for add-on of additional computer operations	1	0	2	2	1	2	7

Fig. 25

27/ Automation and the Federal Library Community, p. III-58, Table III-26.

In addition respondents submitted additional comments they thought might be helpful. These included: 28/

Staffing Factors

In-house staff was too small
Too many organizations working on a relatively small project
Librarians only were used
Time for staff to work on the project was limited
Difficulty in obtaining personnel to fill vacancies
Low priority in use of personnel

Analysis, Design and Programming Factors

Personnel changes
Insufficient documentation
Lack of adequate funding and management support
Underestimated cost for updating library catalogs
Communication problems due to the physical distance between contractor and library

Equipment Factors

Limited equipment
Photocomposition equipment unavailable but needed

Management Factors

Change in program direction
Lack of more skilled people
Prevention of long-range planning and development of automation due to frequent changes of military supervisors
During early phase, insufficient library participation due to heavy workload

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28/ Automation and the Federal Library Community, p. III-54.

Attitudes

> °The federal librarians hold a strong positive attitude toward library automation; nevertheless, they do not rate automation per se above such critical needs as better budgeting, increased staff and space, and improved user services.

In developing the survey questionnaires, a number of questions were included dealing with attitudes toward automation, centralized services, participation in networks, standard program packages, and cooperative arrangements.

The results of the attitudes questions are extremely interesting. They show, among other things, a strong tendency on the part of the librarians to be realistic about automation and a desire on their part for the Federal Library Committee to provide them with more support in the planning stages (Fig. 26).

* * * * * * * * *

ATTITUDES REGARDING AUTOMATION[29/]

STATEMENT	Agree Strongly	Agree	Disagree	Disagree Strongly
Automation of some library operations is inevitable	399	423	51	8
Because federal libraries are often different from other libraries, federal libraries probably would not be able to use automated systems developed in non-federal libraries.	32	171	514	111
Library automation will probably reduce operating costs.	79	369	343	61
Library automation will probably reduce size of staff.	37	199	539	79
The cost for automating is too high for the average federal library to bear by itself.	213	481	115	11
Centralized planning is a necessity if more than a few federal libraries become automated.	250	513	56	3
Many libraries are not in favor of library automation.	45	410	300	13
Library automation will help improve service to users.	189	520	95	12
Library automation will allow computer people to take over libraries.	6	31	623	163

Fig. 26

29/ Automation and the Federal Library Community, p. 28-29, Appendix.

STATEMENT	Agree Strongly	Agree	Disagree	Disagree Strongly
Each federal library is so unique that a centralized automated system or network is not desirable.	21	140	551	81
The Federal Library Committee should provide more support to individual federal libraries in automation planning.	82	530	103	7
Being part of an automated system would enhance the prestige of the federal librarian.	47	348	320	25
Most federal librarians are reasonably well informed about automation programs in other federal libraries.	6	161	554	74
Reporting on developments among libraries within the same agency is generally good, i.e., we know what is going on.	76	421	255	58
Reporting on developments between libraries in different agencies is generally good.	42	304	395	64
More mechanism should be developed to promote better exchange of information between federal libraries.	163	585	45	5

Fig. 26 (contd.)

* * * * * * * * *

THE HANDBOOK

The data reported up to this point are contained in full detail in one of the survey project's reports, "Automation and the Federal Library Community." In addition to graphic representations of the survey results, the complete figures collected from all the questionnaires returned and tabulated are contained in the report's appendix.

The companion document to the survey report prepared for the FLC was a handbook for librarians titled "Guidelines for Library Automation." 30/ This book contains a wealth of aids, guides and information for the librarian considering or involved in automation. Included are guidelines for: a feasibility study, use of a contractor, definition of system goals, file analysis, systems analysis, hardware analysis. A sample guideline is shown in Fig. 27.

30/ "Guidelines for Library Automation," published by System Development Corporation of Santa Monica, California, $12.75 ($10.00 to federal agencies). Inquiries for copies should be directed to FLC, Library of Congress, Washington, D.C. 20540 or to System Development Corporation, Santa Monica, California 90406.

GUIDELINES FOR INITIAL DEFINITION OF SYSTEM
GOALS AND SAMPLE AREAS OF CONSIDERATION 31/

1. Major problems with the present operations include:

   °Inaccurate or inadequate bibliographic record
   °Time-consuming procedures
   °Inadequate service to research staff
   °Categories of materials without bibliographic control
   °Etc.

2. Major objectives of the new system include:
   Broad objectives:
   °Improved user services
   °Improved file management
   °Improved time response to inquiries
   °Improved coverage of incoming materials
   °Etc.
   Specific objectives:
   °Improved search capabilities
   °Cataloging of incoming materials within 10 days of receipt
   °Production of a weekly announcement list
   °Development of user search profiles
   °Etc.

3. Define the scope of the new system, in terms of:

   °Materials to be included
   °Major procedures to be included
   °Currency; e.g., only current materials, or current and retrospective
   °Files access to be provided
   °Etc.

4. Technical features to be incorporated include:

   °On-line access
   °Computer-independent program language
   °Self-charging circulation terminal
   °Computer-output-to-microfilm catalog file
   °Etc.

5. Describe interface of system with future automated functions.

Fig. 27

31/ Guidelines for Library Automation, p. 27, Figure II-5.

6. The project will be implemented by:

°Local staff
°Contractors
°Both

The handbook also considers the specific functions of the library: cataloging, acquisition, serials, circulation, reference and bibliographic services and administration. Each function has been carefully divided into subfunctions with those subfunctions susceptible to automation noted with asterisks. The subfunctions of the acquisition function are shown in Fig. 28.

* * * * * * * * *

ACQUISITION FUNCTIONS[32/]

AC1. Establishment and Surveillance of Policies and Procedures

- AC1a. Policy development
- AC1b. Maintenance of procedure manuals
- AC1c. User feedback analysis
- AC1d. Performance analysis*
- AC1e. Establishment of procurement sources (vendor files, blanket order agreements, etc.)
- AC1f. Interlibrary cooperation

AC2. Fund Control

- AC2a. Allocation of fund allotments
- AC2b. Fund encumbering*
- AC2c. Invoice clearing
- AC2d. Voucher preparation

AC3. Materials Selection

- AC3a. Review of, and selection from, notices of potential items*
- AC3b. Preparation of purchase requests
- AC3c. Approval of purchase requests
- AC3d. Identification of desiderata materials

AC4. Order Preparation and Control

- AC4a. Screening and distribution of purchase requests
- AC4b. Searching and completion of bibliographic order data*
- AC4c. Vendor and fund assignment*
- AC4d. Order approval
- AC4e. Order form preparation and file control--monographs, serials, gift and exchange, etc.

AC5. Materials Handling

- AC5a. Material sorting and distribution
- AC5b. Routing*
- AC5c. Control of item through processing*

AC6. Receipt processing--monographs, serials, etc.

- AC6a. Item verification

Fig. 28

32/ Guidelines for Library Automation, p. 97-98, Figure II-29.

AC6. Receipt Processing--Monographs, Serials, etc.(contd.)

AC6b. Invoice verification
AC6c. Claiming*

AC7. File Input and Maintenance

AC7a. Record input preparation and revision*
AC7b. Error correction*
AC7c. Transaction control: additions and deletions*
AC7d. Use of data from outside source*

AC8. Output Generation, Dissemination and Reporting

AC8a. Preparation of order forms, cancellations, claims*
AC8b. Printing of lists of items on order*
AC8c. Output of change or control cards*
AC8d. Preparation of preliminary catalog copy*
AC8e. Preparation of accessions lists*
AC8f. Dissemination of order lists, dealer catalogs, SDI notices, etc.*
AC8g. Dissemination of products

AC9. Gift, Exchange, Membership, Vendors, and Other Sources

AC9a. Control of gift sources
AC9b. Control of exchange partners*
AC9c. Control of memberships*
AC9d. Control of vendor agreements*
AC9e. Maintenance of vendor and other source files

AC10. Reference and Retrieval

AC10a. File searching*
AC10b. Retrieval of items in process

AC11. Processing Records from Outside Sources

AC11a. Selection of records identified for purchase*
AC11b. Selection of records for potential interest*
AC11c. Processing and maintenance of outside data base*
AC11d. Modification of records for local use
AC11e. Dissemination of hardcopy records*
AC11f. Analysis of subject coverage*

Fig. 28 (contd.)

In addition, the handbook contains case histories of the 59 operational and planned systems reported in the second stage of the survey (see page 16). To provide the librarian with as much guidance as possible, indexes are included referencing the actual system descriptions. A typical use of the handbook might be as follows: A small library whose big problem is acquisition and cataloging of technical reports may have access to the agency computer, a CDC 6600. The librarian checks the indexes of the handbook for type of application, for types of materials, and for computer type. He is quickly able to discern which of the system profiles is of interest to him. After studying the pertinent profiles, the librarian might wish to contact the persons responsible for the systems, to find out additional facts and experiences not included in the profile descriptions. Samples of the indexes are shown in Fig. 29-33.

* * * * * * * * *

TYPES OF APPLICATIONS* 33/

1. Abstracting and Indexing--operational systems

*Bonneville Power Administration Library (42)
*Bureau of Health Profession, Manpower Training, and Education, (BHNE Library) (37)
*Defense Logistics Studies Information Exchange (18)
*Naval Ordnance Laboratory Library (28)
*Naval Ship System Command Technical Library (32)

2. Abstracting and Indexing--in planning, design, or programming stages

*Fleet Computer Programming Center, Technical Publications Library (25)

3. Acquisitions--operational systems

*Army Institute for Military Assistance, Library (15)
*Atomic Energy Commission, Argonne National Laboratory Library Services Department (48)
District I Media Center (9)
*National Institutes of Health (NIH) Library (39)
*Natural Resources Library (45)
*Picatinny Arsenal Library, Scientific and Technical Information Branch (22)
*Smithsonian Institution General Library System (57)

4. Acquisitions--in planning, design, or programming stages

*Air Force Cambridge Research Laboratory (8)
*Atomic Energy Commission Headquarters Library (50)
*NASA Goddard Space Flight Center Library (55)

5. Bibliographic Publications--operational systems

*Army Institute for Military Assistance, Library (15)
*Army War College Library (17)
*Atomic Energy Commission, Argonne National Laboratory Library Services Department (48)
*Atomic Energy Commission, Los Alamos Scientific Laboratory (51)

*Computer-based systems are asterisked; others include EAM or microform retrieval systems.

Fig. 29

33/ Guidelines for Library Automation, p. 295.

TYPES OF MATERIALS*[34/]

1. Acquisitions

   a. Audiovisual materials

      District I Media Center (9)

   b. Maps

      *Natural Resources Library (45)

   c. Microforms

      *National Institutes of Health (NIH) Library (39)
      *National Resources Library (45)
      *Smithsonian Institution General Library System (57)

   d. Monographic Government Documents

      *Air Force Cambridge Research Laboratory (8)
      *Army Institute for Military Assistance, Library (15)
      *National Institutes of Health (NIH) Library (39)
      *Natural Resources Library (45)
      *Smithsonian Institution General Library System (57)

   e. Monographic Technical Reports (and in Series)

      *Air Force Cambridge Research Laboratory (8)
      *Army Institute for Military Assistance, Library (15)
      *National Institutes of Health (NIH) Library (39)
      *Natural Resources Library (45)
      *Smithsonian Institution General Library System (57)

   f. Monographs

      *Air Force Cambridge Research Laboratory (8)
      *Army Institution for Military Assistance, Library (15)
       District I Media Center (9)
      *NASA Goddard Space Flight Center Library (55)

---

* Computer-based systems are asterisked, others include EAM or Microform retrieval systems.

Fig. 30

34/ Guidelines for Library Automation, p. 301.

TYPES OF SYSTEMS[35/]

1. Computer-based Systems

a. Burroughs

B3500
Air Force Academy Library (6)
Defense Atomic Support Agency (DASA) Technical Library (4)

b. CDC (Control Data Corporation)

160A
Atomic Energy Commission, Oak Ridge National Laboratory Library (52)

3300
Naval Underwater System Center Library (34)

3800
Boulder Laboratories Library, National Oceanic and Atmospheric Administration (3)
Naval Research Laboratory Technical Library (31)

6400
Naval Ordnance Laboratory Library (28)
PSW Literature Services, Pacific Southwest Forest and Range Experiment Station (2)

6600
Air Force Cambridge Research Laboratory (8)
PSW Literature Services, Pacific Southwest Forest and Range Experiment Station (2)

6700
Naval Ship Systems Command Technical Library (32)

c. Digital Corporation

PDP-8
Atomic Energy Commission, Division of Technical Information Extension Documentation Center (49)

Fig. 31

35/ Guidelines for Library Automation, p. 308.

SYSTEMS WITH SPECIAL FEATURES[36/]

1. Computer Output-to-Microfilm (COM)

NASA Manned Spacecraft Center Library (56)
National Security Agency Library (5)

2. KWIC Indexes

Atomic Energy Commission, Division of Technical Information Extension Documentation Center (49)
Atomic Energy Commission, Los Alamos Scientific Laboratory (51)
Atomic Energy Commission, Oak Ridge National Laboratory Library (52)
Army Security Agency Training Center and School, Technical Information Center (16)
Department of Housing and Urban Development (41)
Harry Diamond Laboratory Library (19)
NASA Goddard Space Flight Center Library (55)
Naval Weapons Laboratory, Technical Library (35)

3. On-line Systems

Air Force Cambridge Research Laboratory (8)
Atomic Energy Commission, Division of Technical Information Extension Documentation Center (49)
Bureau of Health Profession, Manpower Training, and Education, BHNE Library (37)
Defense Logistics Studies Information Exchange (18)
Military Academy Library (20)
NASA Manned Spacecraft Center Library (56)
National Institutes of Health (NIH) Library (39)
Naval Postgraduate School Library (29)
Naval Undersea R&D Center, Technical Library Division (33)

4. Optical Character Readers (OCR)

Boulder Laboratories Library National Oceanic and Atmospheric Administration (3)
National Security Agency Library (5)
Naval Ship Systems Command Technical Library (32)

5. Outside Data Bases

a. Chemical Abstracts
Atomic Energy Commission, Argonne National Laboratory Library Services Department (48)

Fig. 32

36/ Guidelines for Library Automation, p. 313.

PROFILE CHART FOR AUTOMATED ACQUISITIONS SYSTEMS 37/

LIBRARY CODE	MAJOR OPERATIONS					NO. OF TITLES HANDELED	EAM SYSTEM	COMPUTERS USED	OTHER APPLICATIONS ARE AUTOMATED
	Auto. Prep. Of Order Forms	Fund Accounting	Claiming	Accession List Prep.	Subscrip. Renewal				
Operational Systems									
9				X		10,000	X		X
15	X			X		2,500		UNIVAC 1005	X
22					X	1,000		IBM 360/40	X
39	X	X	X			4,500		1) IBM 360/65 2) IBM 360/50	X
45	X	X	X	X	X	25,000		1) IBM 360/65 2) IBM 360/20	X
48	X	X	X			5,600		IBM 360/30	X
57	X	X			X	6,000		Honeywell 1250	X
Systems in Planning & Design Stage									
8	X	X	X	X				CDC 6600	X
55	X	X	X	X	X	4,800			X

37/ Guidelines for Library Automation, p. 316.

Additional resource material has been provided, including information on machine readable data bases, utilization of microforms, input and output hardware, and a short bibliography of library automation.

RECOMMENDATIONS

The study, then, showed that the vast majority of the libraries in the federal library community are small or medium-sized but they hold a great variety of materials and attempt to provide a broad range of services. The community holds a strong positive attitude toward library automation, though communication about federal library automation projects is poor. We recognize that present library manpower is not sufficient to mount a major automation effort within the community. If service is to be improved in the smaller federal libraries, there must be central support for automation.

Through the survey the community expressed its preferences for more centralized automation planning, a stronger role for the Federal Library Committee in supporting local automation planning as it occurs, centralized automated federal library networks or service centers, and standardized program packages for use in federal libraries. Based on these findings, the study team proposed several alternative methods for accomplishing federal library automation. The team recommended to the Federal Library Committee these major objectives:

°Development of generalized system components
°Selective development of centralized services
°Extension of service to the "forgotten public" served by federal libraries
°Development of standards
°Provision of effective communication mechanisms.

In the opinion of the team, the underfinanced state of libraries and the strong expressions of need for centralized support suggest that the central planning effort for federal libraries should set standards, make decisions, and work toward directed goals for the entire community. Since the Federal Library Committee, through its task force structure, already is charged with responsibility to achieve better utilization of library resources and facilities and to provide more effective planning, development, and operation of federal libraries, it is the natural locus for federal library community coordinated action, and provides an appropriate organizational

framework for any proposed effort.

The results of this study provide a solid base of information for support of action by the federal library community, whose vital interests require the maximum possible continuity of effort.

ADDENDUM

Realizing the importance of its deliberations and decisions, the FLC Task Force on Automation has studied the recommendations made by the SDC team and is developing a proposed program of further action in support of the effective automation of federal libraries. This program has three main thrusts, which reflect the research priorities of the TFA for improved federal library services: training and education in automation, a reference file on federal library automation, and guidance on problem of library automation.

1) Training and Education in Automation

The Task Force sponsored and conducted a Workshop on Techniques of Analysis and Evaluation for Library Automation in April, 1972. The purpose of this workshop, and any future such workshops, is to introduce the attendees to the concepts of systems analysis and of preliminary evaluation which should precede any decision even to consider automation of library functions. In the opinion of the Task Force, this kind of course will fill a gap and prepare librarians for further study in more detail of the fundamentals of automated systems.

In addition, the TFA has been working in a consulting capacity with the Civil Service Commission's ADP Management Training Center in Washington aiding the development of a series of seminars on library automation and workshops in cataloging, acquisition, serial control and circulation control. This service can provide the opportunity for further, more detailed study as suggested above.

2) Reference File on Federal Library Automation

The case histories prepared by the SDC team on operational automated systems in the federal sector can form the basis of a file to be used for reference and referral, as an aid to communication among librarians contemplating automation and those with experience

in the area. The file of case histories is being added to the machine-based file of the National Referral Center at the Library of Congress. The TFA will be responsible for input of the initial data, maintenance and updating of the file, and effective use of the information contained therein.

3) Guidance on Problems of Library Automation

The Task Force has set as one of its objectives to furnish guidance to federal librarians and administrators on problems of library automation. This function will take a number of forms, including study of the technical and administrative feasibility of the concept of a centralized service operation for federal libraries; detailed analysis of existing programs and systems for library automation now operating in federal libraries, with a view to defining the transferability and compatibility of such programs and services; and the coordination of FLC activities with those of other federal information groups in specific areas of automation, such as interactive computer systems.

The FLC Task Force on Automation believes that careful planning and development of research and study programs, plus close attention to coordination and cooperation with similar programs, will contribute to the effective and efficient improvement of federal library and information services.