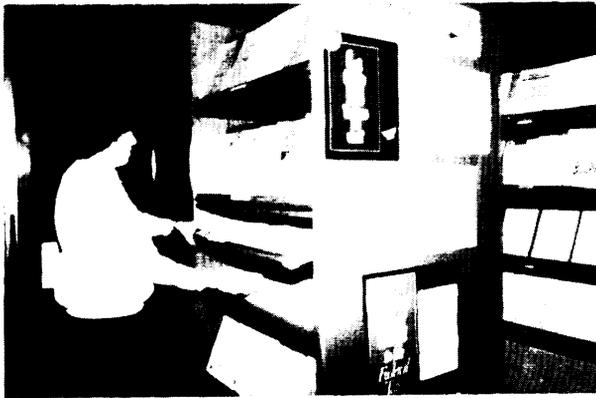


Chapter 6

Information Technologies, Libraries, and the Federal Depository Library Program



Clockwise from top left: library shelving with document collection materials; librarian assisting user at reference desk; librarian assisting user with map collection; and user on an OCLC terminal (photo credits: Documents Center, Robert W. Woodruff Library, Emory University).

CONTENTS

	<i>Page</i>
Summary	127
Introduction	128
Role of Information Technologies in Libraries	131
Use of Specific Technologies	132
Online Database Services	133
Library Communication Networks	134
Electronic Bulletin Boards	135
Optical Disks	136
Facsimile	137
Summary	138
Federal Depository Library Program	138
Origins and Operations of the Depository Library Program	138
Format of Depository Library Materials: Paper v. Microfiche	140
Dissemination of Information in Electronic Format.	142
Online Catalogs	144

Table

<i>Table</i>	<i>Page</i>
6-1. Depository Library Access to Information Technology	133

Information Technologies, Libraries, and the Federal Depository Library Program

SUMMARY

Chapters 6 and 7 explore the role of libraries, and particularly those participating in the U.S. Government Printing Office (GPO) depository library program (DLP), in the dissemination of Federal information to the public.] The program is a cooperative activity between the Federal Government and approximately 1,400 libraries. The government provides copies of government-produced materials free of charge to the libraries; the libraries, in return, provide housing for the documents and access to this information free of charge to their patrons. DLP is a principal avenue of access to government information for the public. It is recognized as one of several guaranteed channels of public access to government information established by Congress in support of our democratic form of government, and serves in part as an "information safety net for members of the public. This safety net is changing because of the increasing use of information technologies by Federal agencies in support of agency programs. This use is influencing the way in which agencies conduct their business, and how citizens access government information.

This chapter examines how libraries employ a variety of information technologies to support their mission of "allowing people to utilize information. First, the chapter reviews the role of libraries in the dissemination of government information in the United States. This is followed by a discussion of key technological trends and applications relevant to libraries in general and to depository libraries in particular. The technologies examined include

microcomputers, online databases, library communication networks, electronic bulletin boards, facsimile, and optical disks. Next, the history of the depository program is briefly reviewed, followed by a description of current dissemination efforts in the Library Programs Service. Three topics concerning access to government information are examined in detail:

- dual format which concerns the distribution of selected materials in paper and microfiche;
- provision of government information in electronic formats to depository libraries through a pilot project program; and
- the development of online catalogs in depository institutions.

The three topics are concerned with meeting the information and format needs of users, while at the same time facing and resolving new financial issues.

OTA has found that depository libraries are increasingly incorporating new technologies in support of user services and operations. The results of the General Accounting Office Survey of Federal Information Users, when compared to earlier depository library data, indicate a strong and growing technology base in depository institutions. For example, 83 percent of those surveyed have access to microcomputers with modems for online access, 95 percent have access to microfiche readers with printers, 41 percent have access to a CD-ROM reader, and 36 percent have access to a mainframe computer facility. The survey also found that these same institutions intend or wish to expand their use of information technologies within the next 3 years to support user information needs. OTA has concluded that information technologies, if appropriately planned and executed, hold the promise of helping to achieve the original goals

¹ In this report, use of the phrase "depository program" refers only to the GPO depository library program.

² M. Turoff and M. Spector, "Libraries and the I replications of Computer Technology, proceedings of the AFIPS National Computer Conference, vol. 45, 1976,

and intent of the depository program through enhanced access to government information.

Information technologies are changing how libraries function and how users seek information. Many libraries are deploying the electronic technologies to become gateways to information with the use of local, State, regional, and national networks and information services—both public and private. The relatively recent, rapid introduction of new information applications, such as full-text online retrieval of networked information services and CD-ROM tools, demonstrates that librarians

and information providers are experimenting with current electronic capabilities and future opportunities in order to meet user information needs. For example, it appears that since government information has been integrated into library collections through online catalogs, use of the information has increased significantly.

While these technologies present the user with different types and levels of access, they also present both the librarian and user with new cost concerns and format decisions.

INTRODUCTION

People need information to perform a variety of daily tasks, to participate in governmental deliberations, to vote, to be effective members of a community, to make business decisions, and more. As the largest collector and disseminator of information in the United States, the Federal Government is responsible for creating and disseminating much of this “information” used by the public. Information reaches the public through a number of formal and informal, complimentary and competitive channels. These range from agency programs with specific dissemination charters to private sector services, and from public interest group efforts and the media to libraries—State and local public libraries, libraries in academic and research institutions, special libraries, and Federal libraries.

Many of these channels are supported by the Federal Government in recognition of the importance of public access to government information. This is a basic tenet of U.S. society and is considered vital to the functioning of our democratic form of government. As stated by Jefferson:

If a nation expects to be ignorant and free in a state of civilization, it expects what never was and never will be . . . if we are to guard against ignorance and remain free, it is the

responsibility of every American to be informed.³

Recognition of the importance of an informed citizenry has been affirmed since the founding of the country, and continues through the enactment of new laws such as the Freedom of Information Act, Government in the Sunshine Act, and the law establishing the DLP. As stated by Senator Lausche during hearings on the Depository Program in 1962:

Although it may sound trite, an intelligent, informed, populace has been, is and will continue to be the fundamental element in the strength of our Nation. Contributing greatly to that intellectual strength is the so-called Government document, designed to disseminate to the American public important information relative to the activities and purposes of its Government.⁴

There is also the understanding that: “equally important is their (the people’s) ability to access all other types of information, informa-

³Letter to Col. Charles Yancey from Thomas Jefferson, July 6, 1816.

⁴U.S. Congress, Committee on Rules and Administration, Subcommittee on the Library, *Depository Libraries, Hearings on S.2029 and H.R. 8141 To Revise the Laws Relating to Depository Libraries*, 87th Cong., 2d session, Mar. 15-16, 1962, p. 25.

tion that has a direct bearing on the quality of life our citizens enjoy.

In addition to democratic and quality of life principles, the DLP serves the business community, which is important to local, State, and national economies. Congress, through the establishment of the DLP, specifically recognized the need for a guaranteed channel of access to government information by citizens, and in Title 44 describes the purpose of the program as an avenue of dissemination of government information free of charge to the public:

The depository library system is a long-established cooperative program between the Federal Government and designated major libraries throughout the United States under which certain classes of Government publications are supplied free of cost to those libraries for the purpose of making such publications more readily accessible to the American public."

The primary mission of the program as set out in the 1977 *Guidelines For the Depository Library System* is: ". . . to make U.S. Government publications easily accessible to the general public and to insure their continued availability in the near future. The *Guidelines* also note that the materials will be forwarded to the participating institutions" without delay," again to insure timely access to information by citizens.⁷ There are two other elements of program mission: use of government documents by the academic/research community; and educational needs and use.

The Office of Management and Budget (OMB) also recognized the importance of the program in Circular A-130 and noted that: "depository libraries provide a kind of information 'safety

⁷Testimony of Joseph Duncan on behalf of the IIA in U.S. Congress, Committee on Government Operations. *Electronic Collection and Dissemination of Information by Federal Agencies: A Policy Overview*. 99th Cong., 2d sess., House Report No. 323, 1986, p. 52.

⁸U.S. Congress, Senate Committee on Rules and Administration, op. cit., footnote 4, p.1.

⁹Depositor Library Council, *Guidelines for the Depository Library System* GPO: (Washington, DC: Oct. 18, 1977). p. 1.

net' to the public, an existing institutional mechanism that guarantees a minimum level of availability of government information to all members of the public," and "the Federal Government shall rely upon the depository library system to provide free citizen access to public information."

There are many classes of government information collected for a variety of purposes, and these are disseminated to the public through the DLP. Some information is referred to as process, core, or basic information such as that found in the *Federal Register* and *Congressional Record*, executive and congressional budgetary information, and the like. This information is recognized as both a product of the operation of government and a necessary element to maintaining an educated and informed citizenry. As noted by members of the Subcommittee on the Library, "Government publications generally serve two main purposes. In the first place they have a functional value in the agency which issues them. Secondly, and often quite as important, they have an educational value which makes their availability to the American public a highly desirable objective. In the course of fulfilling their missions, agencies collect information. Some agencies, such as the Bureau of Census, collect information on the population as their mission; other agencies, such as the Department of Transportation, collect information in order to effect policy and regulation. This same information is then used by a variety of communities—business and industry, academia, and others—for a variety of purposes.

The Federal Government has long recognized the importance of libraries as a channel for disseminating information it has collected. The role of libraries in society, and the unique role of libraries in support of the "public good,

¹⁰Office of Management and Budget, "Management of Federal Information Resources", Circular No. A-130, Dec. 12, 1985, and "Improved Management and Dissemination of Federal Information: Request for Comment," *Federal Register*, vol. 45, June 9, 1980, p. 38462.

¹¹U. S. Congress Committee on Rules and Administration, Senate Report No.1587, 87th Cong., 2d sess., 1962 p. 8.

have been well defined. Libraries perform a number of tasks in our society—'conserving and preserving our cultural heritage,']¹ providing education resources to various publics, and disseminating government information. "The library. . . collects all the knowledge of society, all the information, unedited, un-screened, unrewritten, and instead of broadcasting it to the masses, organizes, and directs that information to the individual. "]² As noted by Curley, "Libraries do not serve merely individual, informational, and recreational interests, but are part of the essential fabric of our society—its fragile cultural and social ecology. '³ Libraries and librarians promote access to all types of information and represent user interests and information needs. A library collection, regardless of format, reflects the information needs of its users, whether they be the local community, academic, research, special interest institution, State, or region.

Today, there are over 8,000 public libraries, 5,000 college and university libraries, 88,000 elementary and secondary school libraries, 2,700 Federal libraries, and 11,000 private and other special libraries in the United States.

This number and diversity are due in large part to Federal Government recognition of the importance of access to information through libraries. Since the founding of the Nation, there has been government support of libraries. The Continental Congress arranged with the Library Company of Philadelphia to receive needed information for its members, and the First Congress of the United States arranged access to the New York Society Library for similar purposes. In April 1800, the Library

of Congress (LOC) was established and is now the largest library in the world. It continues to be the principal library for Congress. In the late 1850s the DLP was established to make congressional and other governmental information more broadly available to the general public. The establishment of a depository library system was further affirmation by Congress of the need for a sound distribution system for government documents through libraries.

In addition, two national libraries were established—the National Library of Medicine (NLM) began in 1836; and the National Agricultural Library (NAL) was created in 1862 with the establishment of the U.S. Department of Agriculture. A variety of other information dissemination mechanisms were subsequently created, expanding the number of avenues for citizens to receive government information—the National Archives in 1943, now known as the National Archives and Record Administration (NARA); the Federal Library Committee in 1965, now known as the Federal Library and Information Center Committee (a cooperative organization of Federal libraries); the National Technical Information Service (NTIS) in 1970 (its predecessor, the Office of Technical Services, was created in 1946); and other Federal depository programs such as the Patent Depository Library Program. In addition, a series of congressional actions led to increased Federal involvement in libraries and, expanded the role of libraries in the provision of information to citizens.

Since the Library Services Act (LSA) was passed in 1956, the relationship between the Federal Government and libraries has expanded markedly. Libraries are one means by which the Federal Government seeks to provide educational resources, services, and opportunities to both a broad populous and to specific segments of society. LSA provided library services to rural areas, and the Higher Education Act of 1957 authorized funds for the purchase of books, periodicals, and other library materials; library training programs; and R&D for new ways to program, process, store, and disseminate information. The Li-

¹"Public good is the concept that the 'good' for society is greater than the well-being of certain individuals within it; see *Libraries, Coalitions and the Public Good*, E.J. Josey, ed., (New York, NY: Neal-Schuman Publishers, Inc., 1987).

²Robert Wedgeworth, "A Library Agenda for the 1980's," in *An Information Agenda for the 1980's*, Carlton C. Rochell, ed., Proceedings of a Colloquium, (Chicago: American Library Association, June 17-18, 1980), p. 94.

³John N. Berry III, "The Public Good: What Is It?" *Libraries, Coalitions and the Public Good*, E.J. Josey, ed., (New York, NY: Neal-Schuman Publishers, Inc. 1987), p. 10.

⁴Arthur Curley, "Towards a Broader Definition of the Public Good," *Libraries, Coalitions, and the Public Good*, E.J. Josey, ed., (New York, NY: Neal-Schuman Publishers, Inc. 1987), p. 36.

brary Services and Construction Act (LSCA) provides services to rural areas and allows funding for facilities' construction, enhancing of interlibrary cooperation, and increased service for physically handicapped, disadvantaged, and bilingual individuals. 11 LSA, the Higher Education Act, and LSCA have enhanced the libraries' ability to serve the general population, and with various government information dissemination programs, serve to strengthen and reinforce the role of libraries in the dissemina-

¹⁴U.S. Congress, House Committee on Education and Labor, Subcommittee on Postsecondary Education, *Hearing on Libraries*, testimony of E.J. Josey, 99th Cong., 2d sess., Apr. 8, 1986, pp. 11-14.

tion of government information. As noted in congressional hearings on the depository library program:

The Government is able to make such information available to the citizenry due in large measure to the splendid cooperation of the American library profession. This is a service to the Nation which its libraries have performed in the past, are presently performing, and are anxious to perform in the future to a greater degree and in a more comprehensive manner.¹³

¹⁵U.S. Congress, Committee on Rules and Administration, op. cit., footnote 4, p. 26.

ROLE OF INFORMATION TECHNOLOGIES IN LIBRARIES

All Libraries employ a variety of information technologies in support of their mission of 'allowing people to utilize information.'" The following section discusses the role of technologies in libraries and reviews a few key information technologies and current applications. Emphasis has been placed on those technologies found in depository institutions.

Although over time the physical form of information has varied from manuscripts to audiovisuals, to online service, and to other technologies, the need of the librarian to access this information for users has remained constant. A library is an institution that acquires, manages, and disseminates information. Moreover, "a library is a bibliographic system regardless of the situation in which it is placed, and the task of the librarian is to bring people and graphic records together in a meaningful relationship that will be beneficial to the user."¹⁶

Information technologies offer libraries opportunities and capabilities for enhancing their current services and for allowing libraries to

better fulfill their missions. As stated by Briscoe et al.:

Technology has already changed the traditional way in which libraries operate, and this trend will continue. The library needs to persist in its role as a knowledge institution—mankind's archive and encyclopedia—while providing the necessary services of an information broker: computer literature searching, information retrieval, and document delivery.¹⁸

As libraries increasingly employ the technologies and expand access to all types and forms of information, the role of the library and information specialist will not diminish. In fact, the current role will likely increase. The advent of "user friendly" software available to users for accessing electronic information systems will increase the number of users in libraries and elsewhere, and at the same time many users will still require information specialists. For example, specialists in government information will: assist users in identifying sources to search, provide users with some assistance in using search technologies, and/or in some cases actually perform the search for users.

¹⁶Turoff and Spector, op. cit., 1976.

¹⁷Pauline Wilson, *A Community Elite and the Public Library: The Uses of Information in Leadership* (Westport, CT: 1977), p. xii.

¹⁸P. Briscoe, et al., "Ashurbanipal's Enduring Archetype: Thoughts on the Library's Role in the Future," *College and Research Libraries*, March 1986, pp. 121-126.

These same technologies, by integrating government information into the full library collection, will increase both the use of government information and the use of the total resources of the library and other local, State, regional, and national information resources.

Information technologies are not "new" to libraries. A broad range of technologies have been employed by them for years and have affected all aspects of library operations and services. In fact, it has been noted that: "Almost every function carried out in a library has been altered to some extent by electronics, computerization, and telecommunications. Software is available for most aspects of library operations: circulation, inventory, acquisitions, periodicals, cataloging, and reserves. The use of technologies for information user services has resulted in the formation of library networks, and has spurred the development of national databases, thus allowing faster and more efficient access to information."²⁰ "The changes brought about by advances in technology have been so extensive that it is difficult to assess their total effect, but it is clear that libraries are in a stage of fundamental transformation. "²¹ Generally, library automation refers to systems and technologies that provide improved access to resources within a library, whereas information automation refers to systems and technologies that provide access to resources outside the library.

A growing range of information technologies are regularly employed in all types of libraries, though the cost of some of these needed technologies is still prohibitive for many libraries, due to fiscal constraints.²² Library funding comes from a number of sources, including State, local, and Federal governments, all of which have experienced reduced revenues.

²⁰Barbara Moran, *Academic Libraries, The Changing Knowledge Centers of Colleges and Universities* (Washington, DC: Clearinghouse on Higher Education, 1984) p. i.

²¹U.S. Congress, Office of Technology Assessment, *Information Technology and Its Impact on American Education* (Washington, DC: U.S. Government Printing Office, November 1982) p. 238.

²² Moran, op. cit., footnote 19.

²³For those institutions unable to afford a "new" technology, the user's access to desired information may be limited as some information is not available in more than one format.

This, in turn, has affected libraries and their ability to purchase new systems.

These technologies and technological applications are merely machines or processes for distributing information—the content does not vary, though one can do more and different things with information in electronic form than in paper form. As noted by the Commission on Freedom and Equality of Access to Information:

... the new technology not only gives potential users quicker and more convenient access to wider bodies of information, including instantly current information, than can be provided by print alone; it also gives the user a new kind of ability to search through and manipulate the information, and in effect to create new information by the selection, combination, and arrangement of data. Moreover, the user can alter the data in a kind of two-way transaction.²³

A variety of technologies are found in depository libraries, though not always in the documents collection. The amount or types of technologies available reflect, in some respects, the parent institution. Twenty-three percent of the depository libraries are public libraries, 55 percent are academic research institutions, 7 percent are Federal libraries, 11 percent are law school libraries, and 4 percent are special institutional affiliations such as special libraries and historical societies.

Use of Specific Technologies

In a 1984 survey of depository libraries, the Ad Hoc Committee on Depository Library Access to Federal Automated Databases (appointed by the Joint Committee on Printing [JCP]) concluded that:

... there is a wide array of computer equipment already in place in depository libraries or their parent institutions, and that many of the libraries regularly make use of time-sharing services for searching databases, both Government and non-Government.

²⁴ American Library Association, Commission on Freedom and Equality of Access to Information, *Freedom and Equality of Access to Information* (Chicago, IL: 1986), p. 31.

²⁵U.S. Congress, Joint Committee on Printing, *Provision of Federal Government Publications in Electronic Format to De-*

(continued on next page)

Since that survey, more depositories have adopted information technologies.²⁵ As indicated in the GAO Survey of Federal Information Users, for the 403 responding of the 451 depositories surveyed, libraries were equipped as shown in Table 6-1.

Depository libraries employ one or more of the following technologies and/or technological applications: microcomputers, online data services (bibliographic, numeric and others), networks such as OCLC (Online College Library Center) and RLIN (Research Libraries Information Network), automated information systems, electronic bulletin boards, optical disk technologies such as videodisk and CD-ROM, facsimile, and microfiche and related equipment. (A discussion of microfiche can be found in a following section on the format of materials in the depository library program.) These are the primary technologies and technological applications in use today and those most likely to be found in libraries within the next 5 to 10 years.

In a 1984 survey, over 5,000 public libraries, 1,600 academic libraries, and more than 7,000 special libraries were using microcomputers for a variety of information automation and li-

brary automation tasks. In addition, there were over 140,000 microcomputers in elementary and high school libraries. Recent survey data, including the GAO Survey of Federal Information Users, indicate further growth and purchases by libraries. A recent survey discovered that the mean expenditure spent on library automation per library over the past 5 years was \$38,000. As in the 1984 survey, word-processing software continues to be the most popular software, followed by software for database management purposes and statistical uses in academic, public, and special libraries. School libraries prefer word processing as well, though statistical, database, inventory, graphics, and spreadsheet software are also used in these institutions. PC's are employed in support of administration, cataloging, and reference purposes the majority of the time.²⁶

Online Database Services

Online database services, such as DIALOG, BRS, and other computerized retrieval systems, cover a wide array of continually expanding subject areas. Each database is a compilation of textual, statistical, and/or bibliographic information. Bibliographic and referral databases are sometimes called reference databases, whereas numeric and textual-numeric databases are called source databases. In 1979-80 there were 400 databases, 221 database producers, and 59 online services available. By 1987, there were 3,169 databases, 1,494 database producers, and 486 online services.²⁷ These services allow rapid access to information sources, can integrate information for the user, permit libraries greater flexibility in a choice of format, and provide access to previously unavailable information. Use of these services also allows the library to be less dependent on paper or hard-copy indexing materials. These services are a primary means of accessing certain types of government information not found elsewhere (e. g., government

(continued from previous page)

pository Libraries, Report of the Ad Hoc Committee on Depository Library Access to Federal Automated Databases (Washington DC: U.S. Government Printing Office, 1984) p. 3.

²⁵Discussions with Joseph McClane, Chief Library Inspection Team, LPS, and Mark Scully, Director, Library Programs Service, U.S. Government Printing Office. Dec. 8, 1986.

Table 6-1.—Depository Library Access to Information Technology

Technology	Number of Libraries with Equipment
Microcomputer without modem	283
Microcomputer with modem for online access	337
Microfiche reader without printer	352
Microfiche reader with printer	384
CD-ROM reader	169
Videodisk player	72
Mainframe computer	149

SOURCE GAO Federal Information User Survey, 1988

²⁶Survey data from Cahners Research, September 1986, and "Table 1," *Library Journal*, November 1986, p. LC8.

²⁷Cuadra Associations, *Directory of Online Databases* (New York, NY: 1986) vol.7, No. 3, p. v.

information found only in an online format, such as some Bureau of the Census data).

Online bibliographic services usually require a trained searcher to search the databases effectively, and also to limit search time and associated costs. A number of vendors and institutions, such as NLM and academic institutions, have introduced user-friendly software that may reduce both the need for trained searchers and the costs of online searching.

Pricing policies for online services vary. Some services charge a monthly fee (e.g. \$200 per month), as well as connect time ranging from \$4.00 to \$45.00 per hour and system use charges ranging from \$.03 to \$.90 per unit of computer processing time. There may also be disk storage costs incurred with certain services. Prices of online services are most commonly based on hourly connect charges in addition to telecommunication costs for access to the network. These connect charges range from \$15 to \$300 per hour. If offline printing occurs, the user will typically pay per citation or page." Online services are reexamining connect-time pricing due, in part, to the increase in transmission speeds. With the increase in transmission speeds (from 110 bps to 300 bps in the 1970's to up to 2,400 bps or higher today), users can perform more in-depth searches, download, or print in a more cost-effective manner. NLM and Mead Data Central have revised their pricing schedules to account for this shift. For example, NLM now has a lower connect fee, and charges according to the characters transmitted and the work performed on a given search by the NLM computer.

A number of Federal agencies produce databases consisting of original statistical information. Agencies such as the Bureau of Census provide computer tapes of their information, sometimes, in lieu of the paper format. Use of these numeric databases allows the librarian to both provide the needed information to the patron directly and be able to manipulate the

data to the extent desired. In general, the GAO Survey of Federal Information Users found that depository institutions use online services primarily for bibliographic and statistical information. Regular library use of many of the Federally generated databases available through commercial vendors is limited because of the relatively high costs. Online systems, such as DIALOG and BRS, have introduced new services for "after hours" users that can substantially reduce the costs of online searching, if a library can accommodate requisite scheduling changes.

Library Communication Networks

Two or more libraries may form communication networks utilizing information technologies to enhance the exchange of materials, information, or other services. The formation of local, State, regional, and national networks has significantly altered the operation of libraries. There are several types of networks—bibliographic utility, regional service organizations, and others (which include State-wide publicly funded networks, local or geographically concentrated multi-institutional networks, and sub-regional subject-oriented networks). AMIGOS, SOLINET, CLASS, and the like are regional service networks that facilitate the expansion of the bibliographic utility. Although bibliographic utilities began as a means for libraries to reduce costs of cataloging, their primary function today is for sharing of resources. One example of a bibliographic utility is OCLC, a major computer-based cooperative network with over 7,900 members and employed by all types of libraries nationally and internationally. The OCLC network assists librarians in acquiring and cataloging materials, ordering custom-printed catalog cards, initiating interlibrary loan, locating materials in member libraries, and gaining access to other databases. More and more depository libraries are using the OCLC database for reference purposes to assist in searching for government documents. The GPO Library Division catalogs government documents into

* Ibid., pp. v-vi.

OCLC where they can be searched by member institutions.

These networks are undergoing changes in their structure and functions. Areas affected include autonomy for members, changes in the telecommunication infrastructure, decentralized versus centralized control, the development of more integrated systems for libraries that permit less reliance on the utility and greater emphasis on local resource sharing, and finally, the debate concerning ownership of data found in the shared cataloging databases. As a result of network changes, libraries are being changed as well.¹⁹⁾

Automated information systems are those that assist the librarian in performing specific library tasks such as circulation, inventory, acquisitions, cataloging, administration, budgeting, personnel, and more. Many depository libraries use OCLC to perform many of these tasks because they lack access to other dedicated systems or necessary software. An example of an automated information system at NLM is DOCLINE. This is the Library's automated interlibrary loan request and referral system that automatically routes an interlibrary local request through the Regional Medical Library Network. Requests for titles found in SE RLINE, the Library's online database of approximately 66,000 serial titles, are also automatically routed, based on the holdings of SE RHOLD, NLM National Biomedical *Serials* Holding database, which contains the holdings of 2,276 libraries.

Electronic Bulletin Boards

Libraries are employing electronic bulletin boards in support of library operations such as interlibrary loan (ILL), resource-sharing functions, and for access to current informa-

tion located elsewhere. The Wisconsin Interlibrary Service (WILS) network is one example of the growing use of bulletin boards in libraries. The WILS network is used by over one-half of the 55 member libraries, a combination of public library systems and State library resource centers, in the Wisconsin library system. WILS can handle over 90,000 requests a year. Users note the following advantages:

- it is inexpensive and, in fact, is less costly than the previous system;
- it offers increased speed of communication;
- many members had the necessary equipment (microcomputers and modems) and, therefore, it did not require special equipment or hardware purchases;
- it has the capability to store and track the requests in a database;
- it reduces the amount of paper used to support the ILL system; and
- it enhances microcomputer use by library staff.³¹

Libraries are also subscribing to bulletin boards containing government information. These boards contain timely information produced by agencies. For example, the SRS Remote Bulletin Board System (RBBS) of the National Science Foundation contains information on financial and human resources for science and engineering activities. Also included is information concerning current studies of the Foundation, announcements of available publications, and comprehensive statistical tabulations. Specific data contained within the file include: "Federal Funds for Research and Development," "Scientific and Engineering Expenditures at Universities," "Employment and Demographic Characteristics: U.S. Scientists and Engineers," and "International Comparisons of Science and Technology Data, among others."³² The GAO

¹⁹⁾Because GPO has been inputting to OCLC since July 1976, a limited amount of retrospective searching is possible, though it has been extensively noted that these early GPO cataloging records contain numerous errors.

¹⁹⁾ Moran, op. cit., footnote 19.

³¹⁾Cathy Moore, "Do-It-Yourself Automation: Interloan Bulletin Boards," *Library Journal*, vol. 112, no. 18, Nov. 1, 1987.

³²⁾National Science Foundation, "Remote Access to Science Resources Studies Data", 1987.

Survey of Federal Information Users found a minimal use of electronic bulletin boards by those surveyed. The predominant library use was for press releases and statistical data.

Optical Disks

In a 1985 survey by Link Resources Corp., 7.6 percent of the libraries contacted had one or more videodisks or CD-ROMs. Sixty-five percent of those responding forecast a purchase of optical disk technology by 1990.³³ The GAO Survey of Federal Information Users found that 169 of the 403 depository library respondents had access to a CD-ROM player. Libraries are adopting optical disk technologies for both operational or technical services purposes and for reference services. In fact, the ". . . library and information communities are at the forefront of testing the various optical media-videodisk, CD-ROM, and optical digital disk—in digital data publishing and storage applications. These technologies can provide improved access to a variety of information tools and sources, are a means of preserving important documents and information, and appear to be popular with users.

Optical disk technologies include videodisks, compact audio disks, CD-ROMs, optical digital disks, and others. This discussion will focus on videodisks and CD-ROMs. With regard to videodisks, the very large storage capacity and the ability to carry both video and audio information, are the two key characteristics that make videodisks attractive technologies for libraries. There are a number of types of videodisks with different capabilities. The laser optical videodisk is the most accepted technology. One indication of wider acceptance of this technology is the recent drop in the price of products as more data files are introduced and competition increases.³⁵

The MINI MARC produced by Library Systems and Services is an example of a technical

³³Judy McQueen and Richard W. Boss, *Videodisk and Optical Disk Technologies and Their Applications in Libraries, 1986 Update* (Chicago, IL: American Library Association, 1986), p. 105.

³⁴*Ibid.*, p. 3.

³⁵*Ibid.*, pp. 9-36.

service application in videodisk format. The MINI MARC cataloging system is published on two videodisks containing over 2.1 million Library of Congress MARC records—1.5 million MARC records on 52,900 video frames on the first disk, and over 600,000 MARC records on 27,000 frames and 17,000 video frames of index data on the second.³⁶ The videodisk is updated twice a month. ALDE (Applied Laser Disk Efficiencies) Publishing produces the *United States Code* (USC) and the *Code of Federal Regulations* (CFR) using digitally encoded videodisks. These materials are available on disk and can be broken out into specific areas of Titles of Interest. For example, Title 26 (tax code) of the CFR is available annually with monthly updates.³⁷ Another example is IAC'S Government Publications Index on videodisk, which indexes the Monthly Catalog from 1978 to the present with monthly updates.

CD-ROM, an optical storage device, "uses the differential reflection of light from a mirror-like disk surface as a means of reading information."⁸ The following factors make CD-ROMS increasingly popular, particularly in libraries and for database creators:

- storage capacity,
 - durability and stability,
 - cost compared to magnetic tape and microfiche,
 - fixed searching costs,
 - the ability of users to perform the searches themselves without a trained librarian to assist, and
- size and compactness of the disk.

Despite a lack of common information access and retrieval standards, an increasing number of vendors are introducing database services on CD-ROM.

Use of a CD-ROM usually requires an interactive system consisting of a microcomputer, a ROM disk, and a disk drive. Reference ma-

³⁶*Ibid.*, p. 115.

³⁷*Ibid.*, p. 127.

⁸Donald Case and Robert Powers, *Optical Disk Publication of Databases: A Review of Applications for Academic Libraries*, (Washington, DC: Council of Library Resources, 1986), p. 4.

terials and large textual or statistical databases are ideal candidates for the CD-ROM format in some libraries and information centers. Reference materials are especially well suited to CD-ROM because they save shelf space and do not require frequent updating.

Books in Print and *Ulrich Periodicals Directory* are now available from R.R. Bowker in CD-ROM format. In a joint venture with Online Computer Systems Inc. who developed the search software, the *Books in Print Plus* service includes all of the multivolume *BIP*, the *Subject Guide to BIP*, *BIP Supplement*, *Forthcoming Books* and *Subject Guide to Forthcoming Books*, in addition to names and addresses of book publishers. This is contained on one disk. *Ulrich Plus* on CD-ROM includes 68,000 periodicals, in alphabetical order by title, in 557 subject categories.

Online databases are also available on CD-ROMS. The primary advantage of having these databases on disk is that the user may sit at a terminal for any length of time and not incur high connect charges. This allows the untrained user to perform his/her own search. This user-oriented characteristic of CD-ROM explains some of the technology's popularity. In fact, many libraries find the need to place a time limit on the workstations due to the popularity of using these disk files. AGRICOLA, the database compiled by NAL containing citations on agriculture and related topics, is available on CD-ROM from \$950 annually with a quarterly update. Another government-generated database, ERIC (Educational Resources Information Center), is also available from \$1,750 with quarterly updates. The acceptance by users of the CD-ROM technology has been rapid, and as a consequence, vendors are quickly responding through the introduction of new products.

The Library Corporation markets Library of Congress (LOC) MARC databases in disk format. The BiblioFile Catalog Production System contains over one million Library of Congress MARC records on four disks. The user can search, edit, create, and save MARC records, display the catalog card image, print

cards, transmit records, and more. Brodart markets the *Le Pac: Government Documents Option* on CD-ROM. This service also uses GPO/LOC MARC records, and provides a public access catalog of about 230,000 titles of depository and nondepository titles from 1976 to the present on an annual subscription basis with bi-monthly updates. Auto-Graphics GDCS also produces a government documents catalog on CD-ROM with monthly cumulated updates.

There are a number of other factors to be considered by libraries as this technology is introduced. CD-ROMs cannot be updated unless a new disk is mastered. Therefore CD-ROMS are not practical for time-sensitive data, Access time to CD-ROMs varies, and this may limit the number of users able to use the system concurrently. Different databases require different access software and indexing structures. The use of different search and retrieval software packages by vendors results in difficulty for librarians when "putting up" a new disk. This requires additional expertise and training on the part of the libraries. Finally, a microcomputer or PC and a CD-ROM reader are necessary, and this may represent additional expense to the library. However, many libraries already have or will be purchasing microcomputers.

Facsimile

Facsimile is the transmission of printed information (e.g., a letter, order form, interlibrary loan request) from one locale to another by encoding the printed materials into digitized form. The information is converted (or decoded) back to its original form once it is received. Current generation digital facsimile machines are able to transmit one to three sheets of 8 1/2 by 11-inch paper per minute. This is a substantial improvement over analog machines that were only able to transit one page every 6 to 7 minutes. Facsimile machines are a very quick method of relaying information between libraries. The NLM facsimile program is an example of how this technology is currently used. NLM and a number of medical libraries are par-

ticipating in an interlibrary loan program whereby NLM will send up to 20 pages of library material to a member library in support of emergency patient care. A small amount of information is relayed quickly—this is not a printing-on-demand program for lengthy documents. The project is limited to emergency medical care for a number of reasons: a broader project could overwhelm the NLM interlibrary loan staff, the cost could be prohibitive, and the majority of requests are satisfied by the regular interlibrary loan program. Another example is the use of facsimile machines by GPO field offices. Field offices send notices of printing requisitions via facsimile to the GPO Library and GPO Sales Program. The GPO Library and Sales Programs select items to be included in their respective programs and advise the field offices via facsimile of the items and number of additional copies to be printed.

Summary

In summary, information technologies individually and collectively are changing the nature of access to government documents via libraries and have the capability to improve access to government information. They can

provide timely and accurate information to library users in a variety of formats and for various purposes. For instance, as noted earlier, surveys show that all types of libraries are purchasing microcomputers in increasing numbers for a variety of purposes. The GAO survey demonstrates the growing technology base in depository libraries and how new technologies such as CD-ROM are becoming more widely accepted and used.

Most importantly, information technologies permit access to a much greater range of information and resources, including government information through vendor (profit and not-for-profit) services. New types of Federal information resources, such as statistical/numeric databases from the Bureau of the Census, are now online and available to libraries through the use of information technologies and vendors. Newer technologies such as CD-ROM are moving quickly from the marketplace to libraries as producers place more and more services in a CD-ROM format. Libraries are experimenting and employing these technologies in support of their operations, which, in turn, permits the user greater access to needed information.

FEDERAL DEPOSITORY LIBRARY PROGRAM

In 1813, Congress established a system for the distribution of congressional literature, and this system developed into the depository library program—a significant avenue for dissemination of government information to the public. The program has experienced a number of changes since its inception, and is still changing as participating libraries and managers of the program at GPO debate how to best serve the users of the depository system. The following section provides a brief description of the origins of the program and its operations. This is followed by a discussion of three specific topics: 1) dual format distribution (paper and microfiche), 2) the dissemination of information in electronic format, and online catalogs.

Origins and Operations of the Depository Library Program

There are approximately 1,400 Federal depository libraries in the United States and related territories. These libraries provide Federal publications without charge to the general public. This program is the primary avenue or “safety net” for dissemination of government information to the general public.

The DLP originated in 1813 when a resolution was passed authorizing the printing of additional copies of congressional literature for distribution to State governments and legislatures. The following year, the American An-

“Office of Management and Budget, op. cit., footnote 8.

tiquarian Society became the first depository library. Responsibility for the distribution of materials shifted among a number of government agencies prior to resting with GPO. Congressional resolutions in 1857 and 1858 affirmed the distribution of congressional materials to institutions such as libraries and colleges, and Members of Congress designated organizations within their districts as depository institutions. In 1895, a new printing act was passed, incorporating the old legislation and placing responsibility for bibliographic control efforts, distribution, marketing of public documents, and the DLP in the office of the Superintendent of Documents at GPO.¹⁰ This legislation also specified that certain (not internal, confidential, or administrative) executive materials were to be included in the depository program. In addition, the act called for a catalog to be published each month listing government documents published the previous month. A number of other points in the legislation were central to the DLP-attaining status as a depository library could be gained either through congressional designation or through legal designation; and the Superintendent of Documents could now "investigate" depository libraries and evaluate their holdings vis-a-vis the program. It was not until 1923 that depository libraries were able to select those government documents most appropriate to their clientele. 1.

The Federal Depository Act of 1962 revised the previous legislation by:

- . increasing the number of possible depository libraries;
- establishing a system of regional libraries (two per State), which were to maintain a permanent collection and provide inter-library loan and reference services;
- providing for the transfer of certain documents within New York and Wisconsin to either the New York State Library or

to the State Historical Society of Wisconsin;

- expanding the variety of government documents available for distribution; and
- establishing a reporting mechanism to ascertain the libraries' condition (the Biennial Survey became the reporting vehicle).

There have been two changes to the 1962 Federal Depository Act. The highest appellate court of each State became exempt from the requirement of public access in 1972, and law schools were eligible to become depositories under the law designation in 1975. This legislation has expanded the total number of libraries in the program, since some of those law libraries already participating became members under the "law" designation thus allowing for new participants under the separate congressional designation. Another effect has been a substantial increase in law schools participating in the depository program; almost one-half of the new depositories between 1976 and 1985 were accredited law schools. The appointment of librarians and knowledgeable individuals to a Depository Library Council began in 1972 in an effort to assist the Public Printer and the Superintendent of Documents.³

One description of the Library Programs Service is that of a "production shop." From this perspective, its purpose is to act as a transfer agent of government documents from Federal agencies to the member depositories. By law (as stipulated in Title 44, all documents produced by an agency that are not confidential, not for internal use, or not concerned with national security belong in the depository program. In fiscal year 1986, 66,367 titles or 27 million copies of government documents were distributed to depository libraries. GPO staff state that the workload of the program has remained relatively constant for sev-

¹⁰The *General Printing Act of 1895*, ch. 23, 28 Stat 601 (codified as amended in scattered Sections 44 [J. S.C.]).

¹¹Peter Herson, Charles McClure, and Gary Purcell, *GPO Depository Library Program A Descriptive Analysis* (Norwood, N.J.: Ablex Publishing Corp., 1985), pp. 5-8.

¹²*ibid.*, pp. 5-8.

¹³Herson, McClure, and Purcell, *op. cit.*, footnote 42, p. 14. An earlier Council was formed in the 1960's.

¹⁴Discussion with Mark Scully, Director, Library Programs Service, and Donald Fossedal, Superintendent of Documents, U. S. Government Printing Office, Dec. 8, 1986.

eral years. GPO staff estimate that an additional 5 percent of the 66,000 titles or about 3000 titles are fugitive documents—those belonging in the program but not included by the agencies.⁴⁵

The operating cost of managing the depository program is provided by the GPO in the annual budget. In fiscal year 1987, the budget for the depository program was \$19.7 million, and the fiscal year 1988 estimate is \$20.2 million. DLP is managed by the Superintendent of Documents. The principal mission of this office is to “distribute government documents, and information about them for the three branches of government.”⁴⁶ The DLP is managed directly by the Library Programs Service (LPS), within the Office of the Superintendent of Documents. The Joint Committee on Printing (JCP) oversees the policies and overall direction of the program.

Until recently, the *Gu.i”deLines for the Depository Library System* recommended that libraries (other than regionals that receive one copy of all documents distributed) select a minimum of 25 percent of available documents, and approximately 50 percent of the depositories select no more than 25 percent of the available government documents. It is predicted that “. . . the U.S. Government Printing Office will distribute approximately 20,000 paper documents and 43,000 on microfiche each year.”⁴⁷ For those libraries selecting the minimum number of government documents, this represents approximately 15,000 documents per year—requiring an enormous investment in space, collection maintenance, and staff time by participating libraries. GPO,

⁴⁵Fugitive documents continue to be a problem for the program, although members of the Library Programs Service believe the number is declining. However, it has been noted by members of the depository library community that the number of fugitive documents is increasing, at the same time that the number of materials in the depository library program is decreasing.

⁴⁶Government Printing Office, *Government Printing Office, Superintendent of Documents Description, Draft*, (GPO, 1986), p. 1.

⁴⁷Donald Case and Kathleen Welden, “Distribution of Government Publications to Depository Libraries by Optical Disk,” *Government Publications Review*, vol. 13, 1986, p. 314.

through a legislative branch appropriation, is responsible for the cost of distributing these materials to member institutions if GPO prints the documents. If another agency prints documents on its own premises or elsewhere, that agency is then responsible for the cost of printing copies for depository distribution, with GPO bearing the distribution costs.

Over the past several years LPS, the Depository Library Council, and members of the depository library community have debated the availability of government information in different formats in the depository library program. There are two debates regarding format—the dual format debate that concerns materials distributed in paper and microfiche with libraries selecting either format; and the debate about inclusion of government electronic information products in the program. Both debates are concerned with *meeting user preferences* on format, with the costs of providing these products, and with ensuring access to government information regardless of format. The focus of both debates is the *accessibility* of the information and *availability* of the information.

Format of Depository Library Materials: Paper v. Microfiche

Materials sent to depository library participants are either in paper format, microfiche, or a combination of both (although only regionals can receive a title in both formats). Beginning in the early 1970s, the JCP and GPO began to explore the advantages and disadvantages of instituting a microfiche publishing program for depository materials. In 1977, following a number of library surveys and committee evaluation efforts, the JCP gave permission to GPO to begin conversion of selected depository materials to a microfiche format to effect cost savings for the program and for participating libraries. Private information providers objected to this practice at the time because it was their stated position that the library community was already well served by private sector firms. At issue was the difference in the scope and amount of materials to

be offered by GPO in contrast to those available from the private sector. Members of this community, as represented by the Information Industry Association (IIA), believed that provision of free microfiche to depository institutions would undermine their business, and voiced concerns that the Federal Government would be the "sole" information provider to libraries and other users of Federal information.

Since that time, the LPS has adopted a policy of providing more and more documents in microfiche format, primarily for financial reasons. Reduced production and postage costs of microfiche, compared to paper, allow savings for the program. Many libraries have adopted microfiche to both achieve greater access to a broader range of government materials and reduce their maintenance costs. Housing of paper can be quite costly. In turn, use of microfiche has reduced the financial burden on GPO. In the spring of 1986, 54 percent of the materials sent by GPO to member institutions were in microfiche, and the number is increasing. By December of 1986, 61.2 percent of the materials were in microfiche.¹⁰ In addition, a number of agencies send their microfiche materials directly to library participants, based on interagency agreements resulting in a more decentralized operation. The Department of Energy sends copies of microfiche concerned with technical R&D information directly to participating depository institutions, and the U.S. Geological Service (USGS) ships cartographic microfiche materials for themselves and the Defense Mapping Agency (DMA). The Equal Employment Opportunity Commission (EEOC) also provides agency decisions in microfiche to depositories via its contractor, IHS. EEOC pays the production costs and is responsible for sending out the materials; GPO reimburses the EEOC for postage costs.

There is a continuing debate between the LPS, member institutions, and the JCP over what proportion of materials and which mate-

rials will remain in hard copy. In August 1983, the Superintendent of Documents issued SOD 13, a list of criteria for determining which documents were more appropriate in microfiche or paper format. Criteria include physical characteristics (color, size, etc.), timeliness, audience, frequency and type of use, savings in space, historical significance, and reference value. This directive recognized that certain documents are more suited to either paper or microfiche and some documents to both formats. Depository librarians also recognize that some conversion to microfiche is helpful in order to reduce program costs, save space in participating libraries, and make more information available to the public. The Depository Library Council and the Public Printer continue to work together to identify materials that can be converted to microfiche and those that must remain in dual format (that is, distributed in both paper and microfiche). The JCP passed a resolution on April 9, 1987 supporting choice of format for depository institutions.

Dual format documents are the most heavily used titles in the majority of depository libraries, and "are the fundamental records of Government."¹¹ Secondly, it is important that libraries receive dual format items such as the *Federal Register* in a timely fashion so that users can respond to proposed regulations within a 30- or 60-day timeframe. The delay resulting from conversion from paper to microfiche format and subsequent shipment can sometimes make a timely response impossible. Third, the format of some key documents, such as the *Code of Federal Regulations*, does not lend itself to use in the microfiche format. Given the high usage of key documents, the need for receiving these documents in a timely fashion, and ease of access to information contained in the paper documents versus microfiche, it is understandable why a paper format is preferred.

Library use of microfiche has a number of advantages and disadvantages. On the plus

¹⁰Discussion with Mark Scully, Director, Library Programs Services, GPO Dec. 8, 1986.

¹¹Conversation with Judy Myers, University of Houston Library. June 17, 1987.

side, microfiche is an enormous space saver; consequently, more government information can be made available at the depository. Small colleges and public libraries in particular benefit from the distribution of government materials in microfiche, and access is improved since many of these institutions otherwise could not afford to store the materials. The use of microfiche also permits libraries to retain more information for longer periods of time or permanently. It is projected that, "... libraries that accept all depository publications distributed over the next 20 years will require an estimated 7,500 linear feet of hard copy storage and 2,500 linear feet of microfiche storage.

However, microfiche also has disadvantages. Librarians are finding that patrons prefer paper to microfiche as there are:

...problems with viewing and reproduction equipment (that) have resulted in user complaints of eye strain and unsatisfactory paper copies.⁵¹

The cost to the patron is at least double when duplicating pages from microfiche, compared to copying paper documents, and the range of costs to the library for the purchase of a microfiche reader/printer from Kodak, for example, is between \$1,500 and \$5,000, plus maintenance fees. Also, there are added difficulties in the organization and bibliographic control of fiche.⁵² Another consideration is that conversion of a document to microfiche by GPO adds 4 to 8 additional months to the processing time prior to the document being shipped out. GPO has stated that time-sensitive materials will not be included in the microfiche program due to this extra delay.⁵³

The dual format issue exacerbates two somewhat competing and contradictory philosophies of the depository library program. To many, the GPO program is simply one that

transfers materials from the government to participating institutions. To others, the program is one that provides timely and informative government materials to citizens in support of the principle of public access. To those adhering to the access philosophy, the adoption of microfiche as the predominant format negates both the accessibility and timeliness objectives of the program.⁵⁴ Dissatisfaction with the microfiche format by library patrons and the added delay of conversion from hard copy to microfiche are cited as critical factors."

An added difficulty in resolving the dual format distribution debate is the poor but improving relationship between the managers of the DLP and members of the depository library community. There has been some improvement in the relationship since the LPS began upgrading the quality of the GPO cataloging tapes, the inspection program, and pertinent training programs and seminars, among other areas. On the other hand, GPO's failure to resolve problems with its microfiche contractor has exacerbated its relationship with depository libraries.

Dissemination of Information in Electronic Format

Microfiche and hard copy materials are the only formats employed to date by GPO in the transfer of government information to depository institutions (except for the planned shipment of the Bureau of the Census CD-ROM "Test Disk No. 2" to the depositories).⁵⁶

GPO is currently reformulating agency policies with respect to electronic dissemination in the depository program. Prior agency decisions to withhold electronic information from

⁵⁴IIA supports the continuation of the dual format programs because it recognizes the need for items used more heavily to be available in paper due to ease of access, patron preference, and timeliness.

⁵⁵Discussions and meetings, GODORT, American Library Association Midwinter Meeting, Jan. 16-19, 1987, Chicago, IL.

⁵⁶GPO has agreed to "ride" the Census "Test Disk No. 2" order and ship copies of this CD-ROM to all depository institutions. The Census of Agriculture for 1982 and the Census of Retail Trade by Zip Code will be included on this disk.

⁵⁰Case and Welden, op. cit., footnote 45, p. 315.

⁵¹Ibid.

⁵²Discussions at the Depository Library Council Meeting, Oct. 15-17, 1986.

⁵³Discussion with Mark Scully, op. cit., footnote 45. An LPS microfiche contractor has defaulted on the contract, causing extensive delays in the creation and distribution of microfiche to the depositories.

the program were based on a GPO interpretation of previous legislation concerning the depository program, specifically section 1901 of the 1962 Depository Act. The opinion by former GPO general counsel Garrett Brown determined GPO policy:

... the Depository Library Act [of 1962] does not direct [the] Superintendent of Documents make published documents available in all possible formats to the libraries. It was the intent of Congress that only printed publications would be made available to depositories.³¹

(GPO now supports the position that, while it cannot require agencies to submit electronic products for distribution through the depository system, agencies may voluntarily submit electronic products to GPO. Also, those electronic products available in paper or microfiche format can be disseminated to depositories in electronic format since these materials have already been "published.")

The recent plan to distribute a Bureau of the Census CD-ROM to depositories prompted the Public Printer to request approval from the JCP and clarification of the Committee's views concerning dissemination of government information in electronic formats to depositories. In a March 25, 1988 letter to the Public Printer, Congressman Frank Annunzio, Chairman of the JCP, affirmed both the Committee's support of the Census project and the position that the GPO's authority as required by Title 44, United States Code, extended to the "production and distribution of Government publications in these new formats. (");

GPO and the JCP recently developed a research plan that identifies selected electronic data files as products for depository distribution. This plan was approved by the JCP on June 29, 1988. The demonstrations involve a combination of online and CD-ROM govern-

ment data files. The Subcommittee on Legislative of the House Committee on Appropriations supported dissemination in CD-ROM formats in the fiscal year 1989 Legislative Branch Appropriation Bill and requested a copy of the GPO-JCP plan. In addition, the Committee noted that online access and other formats (excepting CD-ROM) may require additional funding, and requested that GPO submit any future electronic dissemination plans to the Subcommittee on Legislative.

The JCP position on the dissemination of government information in electronic form resulted in part from the deliberations of the Ad Hoc Committee on Depository Library Access to Federal Automated Databases. The Committee's efforts were based on a request from the JCP to: "... evaluate the feasibility and desirability of providing access to Federal Government information in electronic formats to depository libraries." The Ad Hoc Committee has considered a variety of formats, databases, and institutional arrangements for the provision of agency information for the past A years.")

This advisor committee intended to recommend to Members of the JCP certain agency databases for depository distribution in online or CD-ROM format to test electronic dissemination to depositories. These recommendations were to be based, in part, on proposals made by each agency to the JCP. As of December 1986, 16 proposals were received by the JCP from Federal agencies hoping to participate in the pilot program.³² These proposals ranged from provision of 4 possible databases from the U.S. Geological Survey—the Geologic Map Index, the Library System Catalog, the Mineral Resources Data System, and the Selected Water Resources Abstracts—to 3 databases from the Department of the Treasury—

³¹ U.S. Congress, Joint Committee on Printing, *Provision of Federal Government Publications in Electronic Format to Depository Libraries*. Report of the Ad Hoc Committee on Depository Library Access to Federal Automated Databases (Washington, DC: U.S. Government Printing Office, 1984), pp. 112-113.

³² Letter from the Honorable Frank Annunzio, Chairman, Joint Committee on Printing to the Honorable Ralph Kennickell, J. r., the Public Printer, Mar. 25, 1988.

³³ U.S. Congress, Committee on Appropriations, *Legislative Appropriations Bill, 1989 Report to accompany H. R. 4587, Report No. 100-621*, 100th Cong., 2d session, 1988.

³⁴ The Ad Hoc Committee is composed of individuals from government agencies and representatives of pertinent associations.

³⁵ The JCP is still receiving new pilot project proposals from Federal agencies interested in providing electronic products to depository members.

the Financial Management Database, the Internal Revenue Bulletin, and the Taxpayer Information Publications.

One goal of the pilot and demonstration projects was to permit depository institutions access to some agency data not previously available or data that were lost once converted to an electronic format. It would also open up the depository program to government information in electronic form. The JCP passed a resolution on April 9, 1987, accepting the recommendations of the Ad Hoc Committee in principle and "urged" GPO to initiate pilot projects.

Despite the April 9, 1987 resolution, a fiscal year 1987 funding request of \$800,000 for the initial round of pilot projects was deferred by the Appropriations Committees of both the House and Senate. GPO did create the Information Technology Program within LPS, with internal funds, to prepare the depository program for electronic projects, gather information on Federal agency electronic programs, and assist internal LPS operations.

The introduction of electronic formats to the depository library program has been characterized as:

... an opportunity to make Government information useful and more timely, and, ... an opportunity to achieve a higher level of service to constituents.⁶²

This proposal has been endorsed by the American Library Association, Special Library Association, American Association of Law Libraries, Association of Research Libraries, National Coordinating Committee for the Promotion of History, Medical Library Association, Cartographic Users Advisory Council, and others representing thousands of libraries around the country. Many depository librarians also view the pilot projects as a chance to test a variety of electronic formats, and discover which one or combination of technologies and formats (electronic, paper, and microfiche) are appropriate for different kinds information. Finally, provision of information in an elec-

tronic format is seen as a continuation of the current multi-tiered approach to disseminating government information: provision of information directly to the individual by government, provision of information via the private sector through a number of services, and provision of information through the GPO document sales program and the DLP. This three-tiered approach recognizes that there are both different markets and different users for this information, and that these three modes of delivery are not necessarily competitive and, in many respects, are complementary.

Some database producers and services object to the inclusion of electronic formats in the depository program as proposed in the pilot project program. The private sector position is represented, in part, by the Information Industry Association (11A), a trade association with over 450 members from the publishing and information sectors of the economy. These businesses employ information technologies to supply users, both public and private, with all types of information. The 11A has argued that provision of government information in electronic format via depository libraries, as proposed in the pilot project program, would compete with existing private sector online services, and that, if electronic formats are included in the depository program, they should be provided by private vendors. The Association has further stated that the depository program should comply with OMB Circular A-130 (though the legislative and judicial branches of government are not legally subject to A-130), and that the goals of the depository program should be developed and reviewed in much greater detail. Some members of the 11A also contend that, if government information in electronic format is disseminated through the depository program, private vendors will be unable to compete fairly and will suffer adverse economic consequences.

Online Catalogs

Some government information is available to depository libraries in electronic formats through a number of private and not-for-profit

⁶²Discussions, American Library Association Midwinter Meeting, Chicago, Ill., Jan. 16-19, 1987.

database and vendor services, such as DIALOG, BRS, and OCLC, and the number of these services is growing. The majority of the depository libraries have access to at least one of the database systems, such as DIALOG or BRS, and the majority are also planning future online catalogs." Since 1976, LPS use of OCLC allows depository institutions and others to search OCLC and other online services for government documents for cataloging purposes, for downloading into library catalogs, and as a limited reference tool.

LPS is the "center of authority" for the cataloging of Federal documents (employing accepted Anglo-American cataloging rules [AACR2]), and is responsible for producing original cataloging records of Federal documents in a timely fashion. Once cataloged at GPO, the record is available online immediately. Each week, OCLC sends the computer tapes to GPO where they are consolidated by the GPO Data System Service. Four computer tapes are again consolidated to produce the *Monthly Catalog of the United States Government Publications*. These GPO MARC tapes can be purchased from GPO and the Library of Congress by commercial firms and libraries.

As more and more libraries adopt information technologies, the promise of online catalogs is particularly appealing for government document collections. It has been noted that, "three developments seem to have had the widest impact on the overall effects of automation in academic libraries: the growth and development of bibliographic utilities, the changes brought about in information retrieval by the use of online databases, and the more recent development of online public access catalogs."⁶⁵ The 1981 Depository Library Biennial Statistical Summary found that only 70 depository libraries (or 6 percent of all depository libraries) catalog all government documents received, while 666 depositories (or 56 percent) catalog less than one-tenth of items selected. It has been noted that:

"Conversation with Joseph McClane, Chief, Library Inspection Team, Library Programs Service, U. S. Government Printing Office, November 1986.

⁶⁵Moran, op. cit., footnote 19, p. 8.

... the resources required to catalog items and to maintain card catalogs in even a moderate-sized institution are so extensive that libraries have frequently chosen not to catalog documents in order to contain these costs."⁶⁶

Whereas previously the combination of traditionally understaffed and low-budget document departments could not afford the enormous cost of cataloging the materials, new technologies now allow many to catalog both new and retrospective documents.

There are a number of commercial services available to libraries for cataloging of government documents, including retrospective materials. For example, Marcive and Brodart provide machine-readable tape, a microfiche catalog, or catalog card set records to depository libraries. The library identifies by a GPO item number those documents requiring a record, and the vendors will supply the record in the desired format. Vendors are also providing this service for retrospective government documents. This type of service presents the participating institution with new opportunities for creating online catalogs of Federal documents, as these tapes can be loaded into a library's local online catalog."

Some GPO cataloging records, particularly from July 1976 to 1984 (when GPO began to include corrections made during the *Monthly & Catalog* production process), contain errors that have not been corrected." GPO does not generate retrospective corrections on the OCLC tapes for users, unlike the Library of Congress and other Federal library institutions. The added expense to a library of iden-

⁶⁵Roseann Bowerman and Susan Cady, "Government Publications in an Online Catalog: A Feasibility Study," *Government Publications*, December 1984, p. 331.

⁶⁶Conversation with Judy Myers, op. cit., footnote 50.

⁶⁷For more information, see: Judy E. Myers, "The Government Printing Office Cataloging Records: Opportunities and Problems," *Government Information Quarterly* 2 (1985), pp. 27-56; Bowerman and Cady, op. cit., footnote 65; Mary Sue Stephenson and Gary Purcell, "Current and Future Direction of Automation Activities for U.S. Government Depository Collections," *Government Information Quarterly* 3 (1986), pp. 191-199; and Margaret Johnston Powell, Deborah Smith, and Ellen Conrad, "The Use of OCLC for Cataloging U.S. Government Publications, A Feasibility Study," *Government Publications Review* (1987), pp. 61-76.

tifying and correcting a record is quite high—almost \$4.50 per corrected record versus \$1.40 per high-quality record such as those produced today. For example, it would cost about \$495,000 to examine, identify, and correct the 110,000 GPO cataloging records at the University of Houston in order to include these records in the online catalog. Error-free, the cost of inclusion in the online catalog would be substantially reduced to \$154,000⁶⁸

At those depositories where online catalogs are being created and/or catalog records are being generated, government documents are becoming more accessible as cataloging records are now integrated into the main catalog, and “. . . usage rates are going Up. As early as 1984, Trinity University noted a 300

⁶⁸Ibid, Judy E. Myers.

⁶⁹Discussions, American Library Association Midwinter Meeting, Jan. 16-19, 1987. There are materials that are still not accessible through the program; GPO does not catalog all materials it distributes, such as the DOE materials, and there are no plans for creating machine-readable records for those depository materials that predate 1976.

percent increase in documents usage once records were included in the circulation system.⁷⁰

In conclusion, the availability of retrospective GPO cataloging tapes and private and not-for-profit vendor services, combined with the increasing number of technologies in depository institutions, permits these institutions to catalog their government documents in a more cost-effective manner. This, in turn, increases access by patrons to government documents. In addition, it also allows these libraries to consider machine-readable catalogs. The advent of online catalogs in libraries in the next 5 to 10 years will revolutionize government document collections, as they will allow subject access to these materials by users utilizing electronic capabilities, and integrate the government information into the rest of the library collection.

⁷⁰Bowerman and Cady, *op. cit.*, footnote 65, p. 341.