

INSPEL



1996

Vol. 30

No. 4

Official Organ of the IFLA Division of Special Libraries

INTERNATIONAL JOURNAL OF SPECIAL LIBRARIES
REVUE INTERNATIONALE DES BIBLIOTHEQUES SPECIALISEES
МЕЖДУНАРОДНЫЙ ЖУРНАЛ СПЕЦИАЛЬНЫХ БИБЛИОТЕК
INTERNATIONALE ZEITSCHRIFT FÜR SPEZIALBIBLIOTHEKEN
REVISTA INTERNACIONAL PARA BIBLIOTECAS ESPECIALES

Published in cooperation with the German Special Libraries Association
(Arbeitsgemeinschaft der Spezialbibliotheken - ASpB)

Editorial Board:

Hans-Christoph Hobohm (Editor in chief)

Fachbereich Archiv-Bibliothek-Dokumentation, Fachhochschule Potsdam,
PO-Box 600608, D-14406 Potsdam, Germany.

Tel.: +49 (0)331 580 1514, Fax: +49 (0)331 580 1599; e-mail: Hobohm@FH-Potsdam.de
<http://www.fh-potsdam.de/~IFLA/INSPEL>

Jean-Philippe Accart, ANACT, Centre d'information et de documentation
40-41 quai Fulchiron, F-69005 Lyon, France

Paul Kaegbein, Lehrstuhl für Bibliothekswissenschaft der Universität zu Köln,
Universitätsstr. 33, D-50931 Köln, Germany

Sinikka Koskiala, Helsinki University of Technology Library,
Otaniementie 9, FIN-02150 Espoo, Finland

Wolfrudolf Laux, Bibliothek der Biologischen Bundesanstalt,
Königin Luise-Str. 19, D-14195 Berlin, Germany

David C. McQuillan, University of South Carolina, Thomas Cooper Map Library,
Columbia, SC 29208, USA

Edward J. Valauskas, Internet Mechanics, 5050 South Lake Shore Drive, Suite 3214
Chicago, IL 60615, USA

Jan van der Wateren, National Art Library, Victoria & Albert Museum,
Cromwell Road, London SW7 2RL, United Kingdom

Publisher:

Technische Universität Berlin, Universitätsbibliothek, Abt. Publikationen,
Straße des 17. Juni 135, 10623 Berlin, Germany
Telefon: (030) 314-23980, Fax: (030) 314-24743

Printer:

Offsetdruckerei Gerhard Weinert GmbH, 12099 Berlin, Germany

INSPEL is published quarterly. The annual subscription rate is DM 80,00 plus postage.
All subscription inquiries and orders should be sent to the Publisher. All other
correspondence should be addressed to the Editor.

The contents of this journal are indexed/abstracted in the following: ECONIS (Economics
Information System), IBZ (Internationale Bibliographie der Zeitschriftenliteratur), LISA
(Library and Information Science Abstracts).

© INSPEL and contributors

ISSN 0019-0217

Contents:

Hans-Christoph Hobohm: The Impact of New Technology on Libraries: An Introductory Note.	303	R
Ching-chih Chen: New Tasks and New Opportunities for Libraries in the Digital Environment.	308	AR
Barbara Graham: Integrating New Technology: Research Libraries Enter the Future.	316	AR
Diann Rusch-Feja: New Roles for Librarians in Supporting Researchers in the Social Sciences: The Impact of New Technology.	324	AR
Lu Qisu: The Reform of Library of the Chinese Academy of Social Sciences.	335	
Lu Benfu, Zhou Junlan: Digitization and Networking: The Scheme and Practice of Establishing the CASS Electronic Library.	347	AR
G.W. Kantebeen: Information Services on Social Research and Methodology. The SRM-Documentation Centre.	357	
Annual Index	367	
Instruction to authors	370	

THE IMPACT OF NEW TECHNOLOGY ON LIBRARIES: AN INTRODUCTORY NOTE*

By Hans-Christoph Hobohm

In his inaugural ALIA (Australian Library and Information Association) Library Week Oration¹ delivered 1st May 1996 and entitled „Reading the Future“, Anthony Mason, director of the Australian National Library, described some of the present challenges the libraries are facing. Because of the technical developments they have to provide computer-based facilities for all sorts of new „electronic publications“ and „New Media“ in addition to maintaining infrastructure for print material. Since the computer entered the scene, the new equipment and the special skills required for its use are characterised by a decreasingly short life-time and the constant need for additional staff training and re-allocation of limited resources. Mason then outlines some of the major uncertainties with which librarians now have to deal with today. There is at least the technical uncertainty of the long-term reliability of the new media: nobody really can tell us how long the digitised material will last. And there is the all overshadowing juridical uncertainty of the new situation: which material may be distributed and which electronic text is under special copyright? Mason goes into detail on this specific question because of the current Australian discussion. In fact, the crucial aspects of the current change of the information world are the juridical and ethic questions referring to copyright, information protection and the re-organisation of the information distribution channels.

Another major uncertainty for the Library world is how the users (authors/readers) and the publishing industry will behave in the future. Will the library survive or will other players take its role and functions in the new game²? By observing the newest developments in the information and communication industry you may

¹ <http://www.nla.gov.au/nla/staffpaper/mason.html>

² See my statement „Entering the New Market Place: on the Role of Traditional Social Science Information Providers within the Internet Community“. In: *IFLA Journal*, 21 (1995), S. 26-30

* Paper delivered at the Open Session of the section Social Science Libraries at the 62nd IFLA General Conference in Beijing, 27 August 1996.

discover new forms of activities which are able to replace the library like electronic document delivery services, commercial „Virtual Libraries“ or scientific-community based specialised information servers.

On the other hand we have already seen the birth of these „fluid, dynamic documents“ (Mason) in form of HTML-objects which are constantly self-renewing with the living resources of the Internet and which are deeply questioning the purpose of the traditional library as confined archives of finite elements of knowledge formerly called books.

Even worse: you can hear people talking about „substituting the *librarian*“ by technical devices such as search engines, information agents or knowbots. Although Edward Valauskas appeases us by declaring that „Librarians have been information gatekeepers as long as records have been gathered and preserved“ he shows how different the job of the future librarian will be after the rise of the artificial life in the overall connected information world³. The roles which remain for the „human librarian“ are according to him and his colleagues:

- designing software agents for clients
- designing specialised software agents for the library setting
- cataloguing, distributing and customising software agents
- encouraging the evolution of agents
- contributing to information bases
- working co-operatively with software agents

You all remember: printing as a new technology changed mediaeval libraries from those hegemonic institutions which laid books on chains to public libraries which have the mission to „spread the books“. Will the recent inventions in information processing and especially in telecommunication technology continue in this line of development in making the institution disappear in order to proliferate its content?

You may think that only the latest developments - which can be described by „Internet“ - are questioning the future of the library. However, it is exactly ten years ago that almost the same topic was raised at the IFLA conference in Tokyo. (At the time it was the section on Information Technology which organised the Open Session.) And it was the provocative speech by Pat Molholt („A view from the chip“) which generated a vivid discussion and met with wide approval. We should try to compare her arguments from ten years ago with the current situation

³ See Nardi/O'Day/Valauskas forthcoming.

and ask us if the library community is now prepared to cope with the developments predicted at the time.

She also stated that „the invention of the printing press was a mixed blessing for libraries. (...) So long as books were expensive artefacts libraries were crucial to the preservation and transmission of knowledge“⁴ but with electronic abstracting and indexing services the reader no longer „has to come to the book“. Remember that at that time nearly nobody spoke of „Internet“! Like Anthony Mason she rose the question of *access versus ownership* and described it as a possible solution to the technological evolution of media: „The farther we get into accepting the principle of access over acquisition, the easier it will be to incorporate additional types of information as they become economically viable.“ (16) New cost structures (access costs instead of acquisition costs) and the necessary redistribution of funds was an important question 1986 in Tokyo as well as 1995 in Istanbul⁵. It is not the concept of networked and distributed information which is now at the basis of this discussion but the concept of *multimedia* new at the time. It allows, according to Pat Molholt, rather a subject than medium-based collection policy.

Finally she draws a picture of the new library: „I envision the library of the not too distant future (...) as an information support centre.“ (15) It will be a fast reacting service which is indifferent to location of information and to its form. It will have access to a highly indexed body of information, and will be highly personalised (!). Compared to computer centres the library is defined especially through its user friendliness and a high degree of subject expertise. The central pieces missing 1987 asking for „development work involving intense co-operation“ are:

- indexing
- conversion of print materials to machine-readable-form
- access
- security
- costs

Please judge yourself whether this intense co-operative development work has been accomplished since then. Interestingly enough, she already saw the new role for librarians in the design, implementation, and maintenance of expert systems modelling the reference interview (being the librarian's core knowledge). When she quoted Michael Koenig (member of our section's standing committee

⁴ Molholt 1987, p. 15

⁵ See Line 1996

describing the basic skills of librarians⁶ comparable to systems analysts) an re-defined the librarian as a *knowledge engineer*, Pat Molholt was almost not contradicted.

Only Takayasu Miyakawa rose the question concerning the human factor and asked if librarians were capable to assume the new roles⁷: „Looking around colleagues working with us, I have to confess that it is highly unlikely that the majority of librarians in my generation could become chips in the novel library expert systems. Librarians are inclined to be conservative by nature, and usually express hesitancy and trivial criticism toward such a major change in their jobs.“ This is still a very delicate topic addressing the everlasting question of the image and self-confidence of librarians. But it points also to another crucial aspect which even underlay this problem: did library education curricula change as fast as the technology since 1987? Coming from an educational institution I must confess: we could have done better. But as Pat Molholt already put it: „people change slowly“ and even more so administrations. However, there are improvements as for example in the denomination of library and information schools which sometimes either drop the term „library“ or add „information“ as a new term. But considering the fact that education always takes effect only several years later, it could be too hesitantly.

Looking back we must generally recognise that

- libraries did not change to such an extent: they were automated, they got online catalogues
- only few libraries embraced the new paradigm of the „just in case“-Library
- and some disciplines have taken over the roles of the library and information infrastructure on their own (e.g. physics)

What has been done was mere automation: reflecting on the new technologies and adapting to the new situation has never taken place. The result was that other players in the information business are starting to take over our roles and the ground to be regained is continually increasing. The library has not to change *just for the sake of changing*. It has to adapt to the user habits which have changed as a result of the new technological possibilities. For this reason it has become more important than ever to reconsider some basic notions of librarianship like

⁶ See: Koenig 1983: Librarians being able to: elicit information (in the reference interview)
organise information in retrieval systems
understand the technical aspects of the computer systems

⁷ 1987, p. 24

- the role of the librarian in the international publication market (knowledge engineer or information gatekeeper?)
- the service or product provided (document delivery or information consultancy?)
- the tools for information handling (online catalogue or information agent?)
- the media (static, single use or dynamic, multipurpose use?)
- the activity area (local or international mission?)
- and even the location: (real building or VIRTUAL LIBRARY?)

Perhaps we can look back in another ten years time to complain again that we have known the development but could not react appropriately in time.

References:

Hobohm, Hans-Christoph: Entering the New Market Place: on the Role of Traditional Social Science Information Providers within the Internet Community. *IFLA Journal*, 21 (1995), S. 26-30

Koenig, Michael: Librarians: The Untapped Resource. *Datamation*, 1983, pp. 243-244

Line, Maurice B.: Access versus Ownership: How Real an Alternative Is It? *IFLA Journal*, 22 (1996), pp. 35-41

Mason, Anthony: „Reading the Future“. Inaugural „Australian Library and Information Association“ (ALIA) Library Week Oration delivered at the State Library of New South Wales, 1st May 1996

(available at: <http://www.nla.gov.au/nla/staffpaper/mason.html>)

Miyakawa, Takayasu: Response to pat Molholt's paper on „A View from the Chip“ An Economist's View. *IFLA Journal*, 13 (1987), pp. 23-25

Molholt, Pat: A View from the Chip: The Influence of Information Technologies on Libraries and Librarianship, *IFLA Journal*, 13 (1987), pp. 14-22

Nardi, Bonnie A.; O'Day, Vicki; Valauskas, Edward J.: Rotwang's Children: Information Ecology and the Internet. Paper presented at the 20th Annual Conference of the German Society for Classification, Freiburg, March, 6th - 8th 1996 (proceedings forthcoming: Heidelberg et al.: Springer).

Hans-Christoph Hobohm
 Fachhochschule Potsdam
 Friedrich-Ebert-Str. 4
 D-14467 Potsdam
 Germany

NEW TASKS AND NEW OPPORTUNITIES FOR LIBRARIES IN THE DIGITAL ENVIRONMENT*

By Ching-chieh Chen

Abstract: We are in a most challenging time when technology and our traditional library values are converging. There are many important social, economical, political, and technological issues which we must address to keep our libraries not just surviving but thriving in this new information age.

This speech will first discuss some of the exciting opportunities for libraries in this digital environment with the effective use of cutting-edge multimedia, digital imaging, and communications technologies. Comments will also relate to digital library, global internetworking of information resources, the future of electronic publishing and the effect on the provision of information services.

Years ago, futurists like Toffler predicted the coming of a shrinking global village, and today, we are experiencing the true meaning of such a shrinking globe. Caught in the midst of the digital visual information age, excited in both the great technological potentials and the current development of the global telecommunications networks, it is easy to envision the true "Global Library."

An era of unprecedented change

Since the World War II, we have been in an era of unprecedented technological, social and economic changes. These changes have been particularly dramatic in the past decade. Technologically, the advent of microcomputers, optical discs and other mass storage media, worldwide packet networks and communications technology, digital image technology, computer graphic technology, multimedia technologies, compression technology, etc... have dramatically changed the way we live, think, and communicate with each other, and certainly the way we use and view technologies.

In the last couple of years, the development in communications technology has been so dramatic that we are truly experiencing the power of the open system,

* Paper delivered at the Open Session of the section Social Science Libraries at the 62nd IFLA General Conference in Beijing, 27 August 1996.

Internet. The new technology buzzwords everywhere have been global village, electronic or digital information superhighway, information age, cyberspace, electronic frontier, etc... In addition, communications satellites, global trade and investment, global technology transfer, and jet travel have prompted dramatic social and economical changes as well. These have pushed the national economies into an more integrated world economy. Now, more than ever, as many political barriers removed, we have been able to communicate with each other openly and freely. It is high time for us to further explore the use of new information technologies to initiate, plan, and implement new forms of cooperation in this transient world.

Telecommunications, internet and universal information access

Viewing this situation from the angle of communication, we have passed several "information jumps" -- from speech to writing to printing, and now to wire and wireless communications. The last makes effective communications possible on a continental scale, and is taking us toward a global civilization. As computer technology has evolved, leaders of one computer era have had little success in dominating successive eras (Source: *USA Today*):

- 1960s - Mainframes era dominated by big companies such as Burroughs, Univac, NCR, Control Data, Honeywell and IBM.
- 1970s - Minicomputers era dominated by companies such as Digital Equipment.
- 1980s - PCs era dominated by companies such as Microsoft, Intel, Apple, and Compaq.
- 1990s - Networks era with the Internet connecting computers. The 24-year old co-founder of Netscape, Marc Andreessen could become a leader of next computer age.

During this current networks era, Internet, started in 1969 by the US Defense Department with its humble beginning, once exclusively used by American research scientists and computer specialists for e-mail, group discussion and conduct research, has greatly expanded in the last couple of years and has fast become a supranational global digital information superhighway. This global communications network connects networks of federal, regional, academic, private, and foreign users. It is a network of more than 50,000 networks that form the world-wide web. Its membership doubled in 1993 to more than 15 million users, and currently just Netscape alone, there are more than 55 million users.

Clearly this gigantic open system has offered tremendous opportunities to social sciences information professionals. As computing and telecommunications develop and merge, what lies ahead is another jump toward what might be called universal information access. This would mean that anyone, anywhere, could talk, write, confer with, or send both textual and visual information to anyone else in any part of the world. This means that the concept of the digital "Global Library" is not only conceptually sound, but already technological feasible now. With this kind of universal library, we would have access to global information resources which include the collections of the world's greatest libraries.

New obstacles, new questions and new tasks

On May 18, 1994, on my way to Moscow, I was reading an interesting feature article appearing in the *Wall Street Journal* [Ziegler, 1994] entitled "Building the Highway: New Obstacles, New Solutions." Ziegler stated that the builders of the information highway have created a media sensation with their plans for wiring America or Europe or other parts of the world, but to deliver on their promises they will have to meet challenges of unprecedented complexity and size. These include areas related to data compression and storage, the servers, the conduit, the set-top box, the user interface, and the ordering and billing systems. I can add to these some additional unsolved problems such as intellectual property issues, copyright, and security. Despite of these problems and unsolved issues, some of the skepticism on the hype and reality of our interactive future, one thing is sure. With all the money bumping into this effort, we will have a digital superhighway. Yes, the technologies will be soon available to enable us to link all the global information together to form "The Global Library" for multimedia information delivery. But, are we ready to have our information resources available in digital form so that they can be linked together by utilizing the available technologies? All the products and services which attracted BIG investments in billions and millions of dollars are now related to the delivery of popular, game-like, and entertainment type of products. If so, is this digital *information* superhighway, which we are so much looking for, is more suitable to be called digital *entertainment* highway? To prevent this, information professionals like us need to build our own high-speed quality "cars" to ride on this highway. These are the new tasks. Here, for "high-speed," I mean "digital" or "electronic", and "quality," I mean content-based and knowledge-based, as well as multimedia and not just print-based. Have we begun to think about this and to plan to build this? This is the central question! It is high time for all information professionals, including social sciences librarians, to think seriously on how to work toward that!

Shift toward a global learning-oriented society

With all the unprecedented changes, it should not be surprising that there is an increasing demand for better access to needed global information to enable us to have a bigger picture on the world in which we are living in, a better global view on our environment, our history, our cultures, our economy, our science and technology, etc... Thus, information, has become the key to productivity, and there is a shift toward a knowledge-based learning-oriented "creative society." In this type of society, we are witnessing the following change in emphasis:

- Societal values change from "acquiring" to "learning"
- Growing motivation of individuals for knowledge
- More people learn to use information creatively
- More demand for multimedia information
- More demand for global information

It is clear then that a changing society characterized by continuing technological progress, societal and economic changes will definitely pose new challenges to libraries. It demands our libraries to transcend traditional methods of providing information access within the confines of library's physical structures to providing access to services and global information resources to people at home, in school, at work, or any place so desired by them [Chen. 1994].

The digital global library: reality and challenges

For almost a decade, I have advocated the coming of the digital global library for universal information sharing. With the technological advances and the availability of a wide spread open system, this becomes a reality. Let me share with you briefly the development of such a prototype.

In the last two years, over thirty some national libraries have cooperated with me by providing me with basic information on their libraries, library services and collections, as well as a few selected images of the libraries. In 1994, a photo-CD was created and with the availability of World Wide Web, and the functionalities of the latest web browser, Netscape 2.0 Version and above, a prototype global digital library with instant access to information resources of the world national libraries as well as other major library network resources has been developed. Figure 1 shows a screen of a demonstration of access to information resources of national libraries of 6 countries -- Canada, China, Hungary, Russia, UK, and USA. If USA is selected, then immediately on the left side of the lower screen shows the image icons of the three national libraries of the U.S.A. - Library of Congress, National Library of Medicine, and National Agriculture Library. Then,

if one click on the image icon of Library of Congress, users are immediately welcome to the Library with its picture, and on top of the lower right window, users can choose to either visit the web site of Library of Congress, or use its OPAC or Marvel, or to FTP a known file from the Library, or to use the resources of LC's Digital Library by clicking on the appropriate button. Similarly, if the image icon of National Library of Medicine is chosen, as shown in Figure 2, then immediately NLM's information resources are ready to be used. Information resources of libraries in other countries can also be accessed instantly at a click of the mouse via WWW.

For centuries, major national and academic/research libraries in each country have been store houses of their countries' treasures and rich information resources. But, the contemporary roles of these libraries have to go far beyond those of the store houses. My project demonstrates that each library can be a dynamic and aggressive information provider of both its country's enormously rich information resources, as well as an effective node of global information network which can provide access to all needed global information. Each contributes effectively toward the eventual realization of "The Global Library", in which national and research libraries in the world can be linked together as nodes of the worldwide information network.

In order to assume this role, the integration of new information technology becomes essential. Instead of staying on the early stage of technology applications by simply applying new information technology to traditional functions, processes and procedures, such as cataloging, circulation, OPAC, creating conventional databases, etc..., the libraries need to use the new, exciting technology as a means of changing and/or expanding what they do, not just how they have done it. The multiple convergence of various types of technologies -- with powerful central processing units, versatile and inexpensive micro-processors, very high density storage devices particularly the optical media, facsimile transmission, improved graphics imaging and printing, powerful software development, multimedia applications, wire and wireless communications, etc... -- is enabling us to rethink how people gain access to all types and formats of information in non-traditional ways.

In the current environment, in order to adapt successfully to the technological, social and economical changes, there may be a need to change our keyword from "access" to "selectivity." If our multimedia information resources are available in digital format as alluded earlier, then, in the big ocean of digital information, the most important thing will not be the access of this big ocean, but will be "how to find and retrieve the most relevant from this big ocean." This will be a great

challenge for all information professionals. In addition, what seems critical for adapting to the changes is not so much access to data or information of every sort, but rather a new level of knowledge and wisdom. Clearly, major national and research libraries will be on the front lines of meeting this challenge. Instead of each library worrying about its own development, we need to think of utilizing new information technology to have a new form of cooperation in the broadest sense.

In this kind of environment, the knowledge world is going from a paper culture to an electronic one, and libraries will be deeply affected. In other words, printed information sources, such as books, journals, and archival materials, will not be enough. Digital information sources become essential. That's why more and more libraries are starting to create limitless digital bookshelves.

Conclusion

Despite of potential difficulties, barriers, and challenges, one thing is sure that the technologies and the infrastructure are in place now for us to experiment an universal library. For the first time ever, lack of proper technology is no longer an obstacle. But, technology is not the end in itself rather the means to an end. We should not suffer from the loss of direction caused by preoccupation with technology. As the social sciences librarians speculate on their work in the next millennium, what we they must do is to make sure they can develop a vision for their library's future, and define its role in facing a new frontier. While this digital networks era has offered immense opportunities for social sciences librarians, plenty new tasks are waiting for them as well. This is indeed an exciting time!

References

Chen, Ching-chih, "Information superhighway and the digital global library: Realities and Challenges," *Microcomputers for Information Management*, 11 (3): 143-156 (September 1994).

Ziegler, Bart, "Building the highway: New obstacles, new solutions," *The Wall Street Journal*, pp. B1, B3 (May 18, 1994).

Ching-chih Chen
Graduate School of Library and Information Science
Simmons College,
Boston, MA 02115
USA
e-mail: cchen@vmsvax.simmons.edu

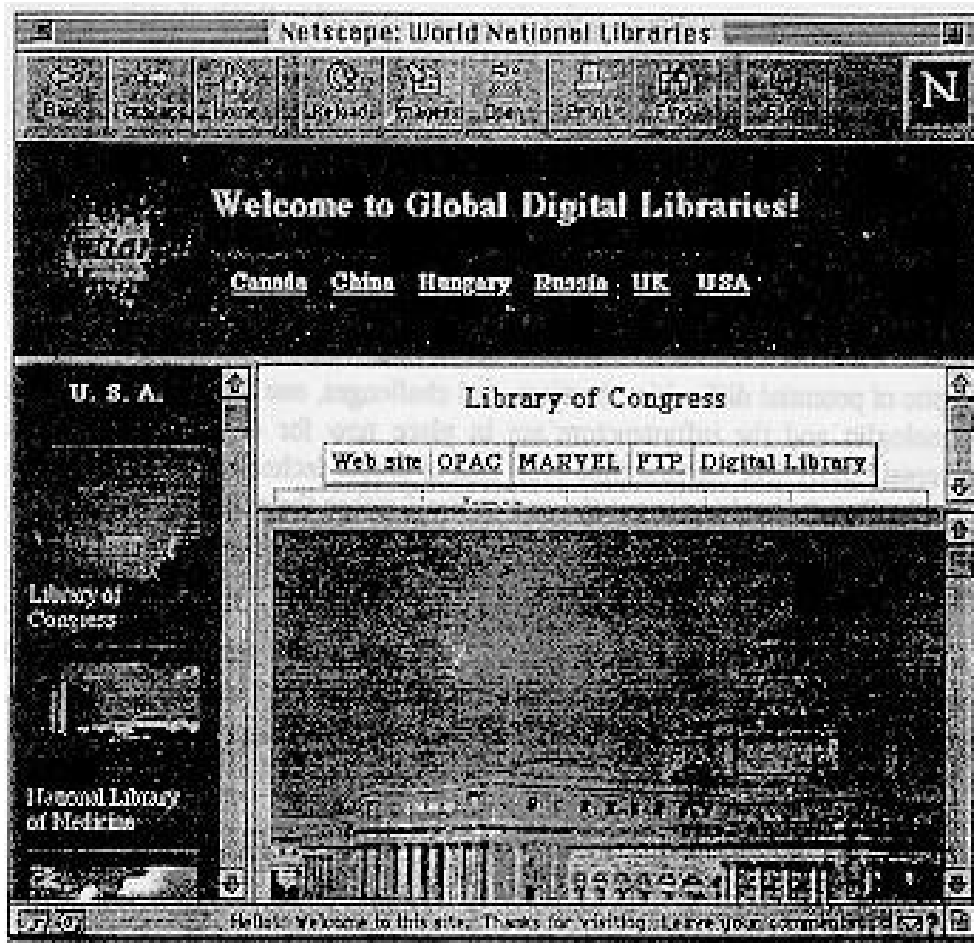


Figure 1. Access to information resources at the Library of Congress

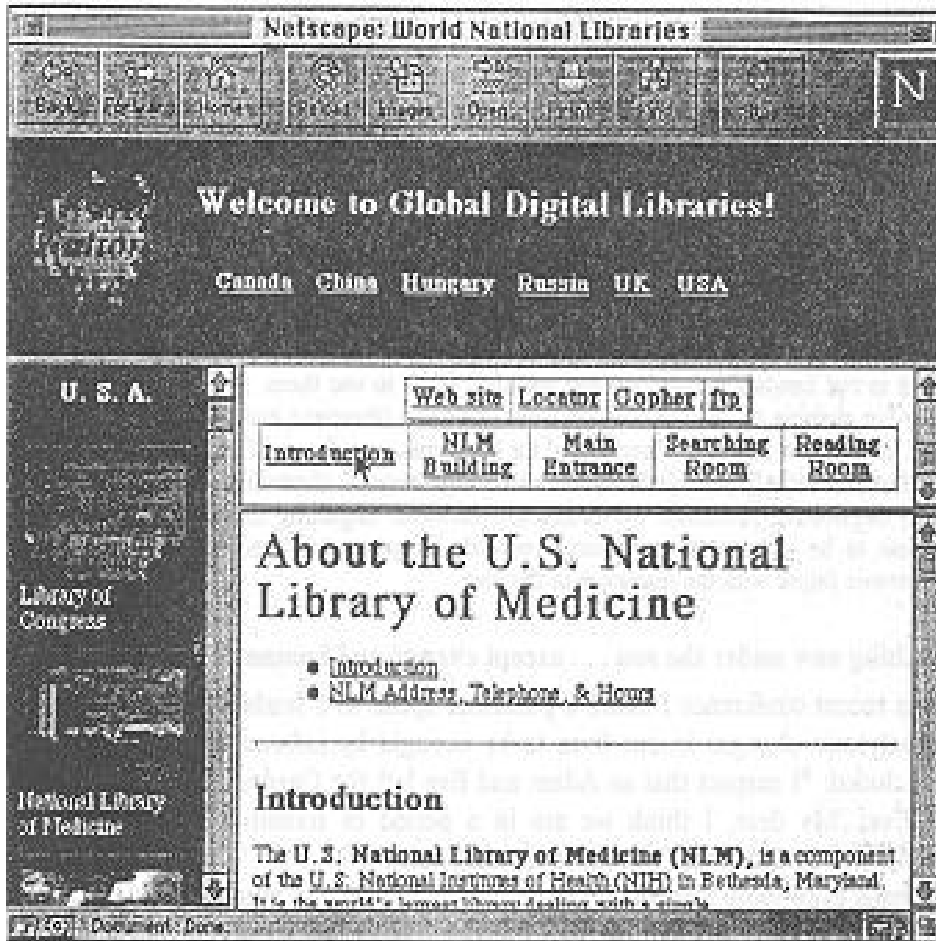


Figure 2. Access to information resources at the US National Library of Medicine

INTEGRATING NEW TECHNOLOGY: RESEARCH LIBRARIES ENTER THE FUTURE*

By Barbara Graham

Abstract: *A new kind of revolution.* In the course of history, libraries and librarians have weathered many historical and social revolutions, but only the digital revolution will alter the way in which we work, define our collections, and serve our constituents. Librarians are familiar with challenges- among them the cost of journals and new books, currency fluctuations, deteriorating materials, and providing efficient intellectual access to collections. What lies ahead is a new generation of challenges, technology-driven, often requiring a steep learning curve. The old challenges remain as pressing as ever, but the tools in our hands are changing and we must learn to use them. Even as we shape tools, they are shaping us. The ongoing dynamic between librarians and information technology will lead to new roles for libraries and for librarians, new forms of collaboration with other institutions including publishers, and more sophisticated electronic and human interfaces with intellectual resources. Nevertheless - however engulfing the electronic future may appear to be - those of us in large research libraries must find ways to integrate the electronic future with the resources of the past.

Nothing new under the sun . . . except change and human adaptation

At a recent conference I heard a publisher speak to a hushed audience about the cataclysmic changes in our lives to be wrought by information technology. She concluded: "I suspect that as Adam and Eve left the Garden of Eden, Adam said to Eve: 'My dear, I think we are in a period of transition.' You know," the publisher reminded us, "change is nothing new!"

Perhaps even more remarkable than change itself is the human ability to respond by adapting and innovating. The social psychologist Shoshana Zuboff (1988) mused about the impact of social change resulting from technology: "Older sensibilities are lost to a kind of social amnesia, crowded out by our adaptations to the demands of changing times" (p. xi).

Many traditional social constructs.- communities, institutions, and organizations such as libraries.-are now caught in the web of change. We librarians must master the digital future while continuing to meet the responsibilities of our past.

* Paper delivered at the Open Session of the section Social Science Libraries at the 62nd IFLA General Conference in Beijing, 27 August 1996.

In fact, rapid change is not easily imposed on institutions that have evolved slowly, almost organically, with complex hierarchies.

The Harvard Library: strength in pluralism

The Harvard Library is sometimes perceived by those on the outside as a monolith--a seamless, centralized archive. The reality is considerably more pluralistic. The Harvard Library is actually a library system of 90-plus units: a federation of significant scholarly collections, joined by the Harvard name and a commitment to excellence and service, but varying a great deal in how they interpret and carry out those responsibilities. Each of the many specialized collections aims to meet the present and future needs of a particular subset of scholars. This ever-changing and growing constellation of collections offers depth and breadth in a wide array of fields and languages. The Library with its many collections remains the single most important reason that Harvard continues to attract the finest scholars from around the world. In pluralism the Harvard Library has found strength, as each library unit has been free to devise the most effective means to serve its own unique constituency. While the Harvard Library neither is nor can be a model for the rest of the world, its experiences, current projects, and future plans may offer lessons for other libraries.

Decentralization promotes innovation

Research-library users are growing increasingly sophisticated in their use of digital resources. User sophistication leads to demand for new services. Harvard's federation of libraries, if you will, allows flexibility in the face of change. Innovative librarians are often free to experiment. And yet the ability to experiment and learn and innovate is not entirely serendipitous, a mere byproduct of organizational structure. As often happens in institutions with a long history, the Harvard Library is crisscrossed by informal and semi-formal lines of authority. An elaborate committee structure brings together librarians from all of Harvard's faculties to discuss and debate all the issues we face: from the next generation of client-server technology to professional recognition. Every year the makeup of all the committees changes somewhat; different topics rise to prominence; over time, librarians have their chance to be heard on the important issues facing the Library as a whole.

The University Library provides coordination and services

The Harvard Library system also has a formal coordinating body called the University Library, or HUL for short. The name is somewhat confusing, because HUL refers at the same time to the entire library system as well as to the

administrative body that coordinates it. The coordinating body is directed by Professor Sidney Verba, a distinguished political scientist. The University Library follows the principle of maximum local control while providing those services that can best be administered centrally. In fact, each faculty library is financially accountable to the dean of its own faculty, which complicates university-wide planning.

Individual initiative versus coordinated efforts

The University Library, as a central coordinating body charged with determining the course that best serves the overall library system, chooses its tasks with care. The HOLLIS¹ electronic catalog, now including over 6 million titles² and growing rapidly, is its most prominent service. As the library collections continue to grow beyond the capacity of library buildings to hold them, the offsite Harvard Depository has risen to international prominence as an aggressive preservation environment and a possible center for digital services in the future. The Harvard University Library Preservation Center has grown rapidly over the last decade as a programmatic response to deteriorating paper-based collections and the acquisition of increasingly ephemeral media.

As in many contemporary and decentralized organizations, the question of when to encourage individual actors to take the initiative and when to make decisions at the center is a critical factor in the University Library's long-term effectiveness and therefore success. Experimentation works well in this environment, but it is difficult to impose innovation. Even central decisions often require local consensus to be implemented effectively. For example, coordinated acquisition offerings do not correlate well with a decentralized federation.

A vision of the digital future

Despite the obstacles, the University Library has begun to frame a vision of the digital future. This future will include

- an electronic infrastructure integrated efficiently with the traditional print collections;
- more cooperative and collaborative efforts with other institutions and with the private sector;
- negotiations with producers and vendors of electronic information for

¹ HOLLIS is the acronym for the Harvard OnLine Library Information System

² The Harvard University Library system now holds over 13 million volumes and pamphlets exclusive of electronic, manuscript, and other special collections.

University-wide access to electronic resources, including access to archives of the materials;

- ownership of or access in perpetuity to master files of materials mined from the collections by electronic publishers;
- a commitment to preserving and archiving materials in electronic form--particularly those that we create ourselves--and the ability to refresh and migrate electronic materials as needed;
- enhanced electronic intellectual access (including both indexing and abstracting) to the vast and multi-disciplinary paper collections.

There are many possible paths to follow, but large research libraries like Harvard have compelling reasons to identify those we must follow to fulfill our mission. The key is useful and efficient information access. Without useful intellectual access, the value of the vast holdings of our libraries is diminished; but by exploiting new technologies judiciously, we hope to pyramid our intellectual capital.

At the recent Harvard College Library conference titled *Finding Common Ground: Creating a Library of the Future Without Diminishing the Library of the Past*, Clifford Lynch defined new territory for the library of the future. He argued that the Library's role should be to ensure the integrity of intellectual discussion for our new information-based global cultures. He described the challenge and burdens of archiving data as the "price for facilitating intellectual discourse." Lynch and others also discussed the Library's role in "quality filtering." As with print information, not all electronic information produced will be collected. By performing their traditional function of selection, research libraries will add value to the information culture.

Building the digital library, brick by virtual brick

Few if any of Harvard's librarians believe that the fully digital library will be a reality in our lifetimes. However, this is not to say progress in that direction is not being made. Within Harvard's mosaic of libraries, several initiatives exemplify the growing momentum. The projects listed below are a sample of those underway. They reflect a synergy among various Library concerns. For instance, preservation issues may prompt microfilming or digitization of texts, but the final product also enhances intellectual access. This is especially true when Harvard's local resources are uploaded to the great national library databases. In these cases, solving a local problem also benefits the world of scholarship. Access is also enhanced by substituting facsimiles for direct access to vulnerable materials that may be housed off-site in an ideal storage environment. Other projects create professional assessment tools or guides for the field. These timely collaborative

efforts demonstrate the value of inter- and intra-institutional cooperation. They realign organizations along new lines of mutual interest and need.

- First and foremost is the current Recon Project (short for "retrospective conversion"), a massive effort to place practically the entire Harvard Library (manual) catalog online in HOLLIS. The millions of records on HOLLIS represent the vast holdings of all Harvard's libraries, including film, images, print books, archival collections, and journals. It is already used to request books from our remote storage depository. Perhaps one day the material will also be delivered electronically. The expected completion date of the Recon project is December 1996. In addition, over 325,000 records of Chinese, Japanese, and Korean (CJK) bibliographic records in Roman alphabets and the vernacular will be converted to machine-readable form in the next five years. The records will be available in OCLC and RLIN and eventually the vernacular form will also be available in HOLLIS.

- The JSTOR or Journal Storage Project is a cooperative effort begun at another university. Funded through the W. Andrew Mellon Foundation, the backfiles of 10 core historical journals are being made available through the HOLLIS catalog.

- The Periodicals Contents Index is of particular interest to social scientists and humanists. This is a multifaceted example of a cooperative commercial venture to offer article- and issue-level access to hundreds of ceased and unindexed journals. Both the CD-ROM and magnetic tape editions are now available through the publisher. This immediate and efficient form of access has allowed the Library to free valuable shelf space in Cambridge by removing some of these volumes to remote storage 30 miles away while continuing to provide subject searching capability to scholars.

- The Environmental Sciences Library, a new interfaculty initiative, is a virtual effort at its best. It represents cooperation and resource-sharing among several different science and social-science disciplines at Harvard, technological innovation, and electronic links to the real world being studied.

- The visual database of Israeli posters created by the Judaica Division of Harvard's Widener Library is an elegant and efficient solution to the thorny preservation, access, and storage problems posed by a collection of well over 55,000 large posters. The posters themselves have been moved offsite to storage at the Harvard Depository.

- The Harvard Map Collection, after recent acquisitions of advanced and innovative software, has become a focal point on campus for scholars interested in Geodetic Information Systems. These include faculty from the Graduate Schools

of Design and Public Health, in addition to faculty in several departments within the Faculty of Arts & Sciences.

- Recently, through federal funding, an archive of the renowned 19th-century architect Henry Hobson Richardson was conserved and reproduced on microfilm. Intellectual control of and access to the digital files were established during filming. The database is searchable by visual attributes and is primed to merge with digital images should funding be secured to digitize the microfilm.

- The Harvard College Library appointed an Electronic Texts Librarian in Widener Library's Research Services division. This position has the primary goals of providing access to and making effective use of Widener's developing collection of electronic texts in the humanities.

- The Finding Aids Project is another example of inter-institutional collaboration to improve research access to special collections and archives. The effort to digitize finding aids by converting the manual record to electronic form will link these tools to bibliographic records and provide sophisticated and valuable information to national databases.

- The Digital White Paper. Recently several senior librarians at Harvard collaborated on a guide to selecting materials for digitization. Focusing on the key considerations as they are currently understood, the paper provides an overview of the technological, economic, organizational, and legal issues to be decided when preparing a project.

Digitization: the key to stewardship?

Books that crumble cannot be read; resources that are not easily located will not be used. Digitization is in its infancy as a preservation medium, but its promise is unmistakable. Digital information is reproducible and distributable. Considerable intellectual value can be added by linking one piece or bit of information to another.

At the same time digitization raises new problems. There is the overwhelming issue of archiving electronic information. For all their sophistication and potential, digital products are often less efficient than books. Most books are portable and require no energy source, no hardware, no software interface. Editions vary but are generally intelligible by readers. On the other hand, hardware, software, searching tools, and vocabularies change. Data that was viable a year ago may be difficult to retrieve and decipher today. Technology, for all its promise, offers a perplexing new set of issues.

Conclusion

As Zuboff notes, "Technology makes the world a new place" (*In the Age of the Smart Machine*, p. 388). At Harvard, the landscape will change but the Library's fundamental mission will remain the same. According to Sidney Verba, Director of the University Library and a leading social scientist,

There is no simple formula for [accomplishing our mission]. Nor will we get there with a single overarching grand plan. Technology is changing too rapidly and in unexpected directions for that. Rather we must address the problems with many plans and with flexibility.... We cannot control change but we can help to shape change—if we are actively engaged. And we learn by doing. If we are active in [new] developments ... we will be ready to take advantage of the emerging technologies. (S. Verba, *Harvard University Library Annual Report 1994-1995*, p. 8)

At Harvard, collection development and management, preservation, and public service librarians, as well as catalogers and systems analysts are assembling what may be called *integrated collections*—including the traditional print resources of the past but with an eye to the future. At Harvard's recent conference *Finding Common Ground*, Walter Crawford of the Research Libraries Group pointed out that "People and their preferences do matter. Just because it is possible to communicate digitally does not mean that it will become the only way. Digital collections enrich libraries but do not make them digital libraries." Somewhat freed of old biases in terms of format, but with the same critical sense of what constitutes quality, selectors and public service staff are actively shaping a scholarly future of mixed media. Librarians will continue to mediate between information and scholars by seeking ways to add value to new intellectual tools, creating new relationships among materials, and choosing appropriate ways to preserve what came before.

Looking to the future also means looking beyond our own library walls. Cooperation is no longer a choice; it is a necessity. Research libraries will seek to realize more efficiencies and will be ever more conscious of the organizational and social contexts within which they must operate.

As research libraries enter the future, we must strive to be like the Roman god Janus, with one face turned to the past and one to the future.

References

Verba, Sidney. Annual Report of the Harvard University Library 1994-1995. Harvard University Library.

Zuboff, Shoshana. In the Age of the Smart Machine: The Future of Work and Power. New York: Basic Books, Inc. 1988.

Barbara S. Graham
Harvard University Library
Wadsworth House
Cambridge, Massachusetts 02138
USA
barbara_graham@harvard.edu

NEW ROLES FOR LIBRARIANS IN SUPPORTING RESEARCHERS IN THE SOCIAL SCIENCES: THE IMPACT OF NEW TECHNOLOGY*

By Diann Rusch-Feja

Abstract: The use of new technology in social science libraries ranges from extensive use of CD-ROMs and CD-ROM networks, development of databases and production of CD-ROM products, integration of networked information sources into the library's offerings and creating the institution's presence in the World Wide Web, as well as incorporating other network information resource discovery tools into daily library work. These activities not only entail detailed knowledge of database structures and computer use in the field (computer literacy), but also often lead to becoming networking specialists within the home institution, information brokers and systems designers. These new roles often entail developing solutions to overcome platform incompatibilities between various operating systems (PC, Macintosh, UNIX, etc.), making the library OPAC accessible via the Internet, creating a WEB-presence for the home institution on the Internet, providing value-added services to compile and structure relevant accession points in the Internet for specialist areas (subject-oriented clearinghouse principle), developing retrieval mechanisms, and assembling training materials to support the researchers in their use of these new information sources. Since the scope of the information sources available has now expanded greatly to include statistics and other demographic data, data archives, directories and/or overviews of relevant software programs for evaluation, assessment and development of data collecting instruments, etc., new services can be established for both internal and external use. This paper gives an overview of the basic competencies for fulfilling these new roles, and certain new activities for social science librarians and information workers are delineated.

Introduction

Because the structure and content of the social sciences and their information collections are closely interrelated with the social systems of the country itself (i.e., educational system, societal structures, parliamentary and legal system, social services), the organization and representation of the content, including its verbal description, is often very individual. Certain international similarities can be distinguished - which can also in part be attributed to the impact of new technology in both the field itself and in information work. But the high

* Paper delivered at the Open Session of the section Social Science Libraries at the 62nd IFLA General Conference in Beijing, 27 August 1996.

proportion of both content and linguistic individuality remains. With the increased use of the Internet, national or linguistic limitations present subject-oriented challenges to the social sciences librarian. These affect not only the methods and instruments used for information retrieval and acquisition, but also the development of value-added services which can place appropriate information in the correct context and provide targeted information in a vastly expanding field. Certain internationalism is prevalent in some subject areas of the social sciences (i.e., psychology), but in general, few technological innovations are able to bridge the individual sociological differences. With the increase of multilingual sources (i.e., sources in the native language as well as in English), greater chances for correlations will be achieved, but as yet these aspects have not yet achieved "break through" status. The primary impact of new technology in the social science libraries is thus in the realm of expanded access to a wider variety of international sources based on access via the Internet on a fairly up-to-date basis. This impact requires network skills, new methods of information retrieval and presentation (or brokering), and often involves the librarian in creating and designing new systems applications to facilitate adequate information services.

Thus, new technology is causing the role of the librarian to be partially redefined as network specialist, information broker, and systems designer, to mention only a few professional directions. Each of these professional directions incorporates segments of the neighboring information professions and demonstrate the nebulous metamorphosis which the librarian profession is passing through, especially with regard to the technical medium in which libraries and librarians are now functioning. In essence, an overall intensification of specialization both in the technological aspects of information retrieval work, as well as stronger subject-oriented competencies and evaluative abilities are being demanded of information professionals. Furthermore these aspects should be also be included both in the restructuring of the training and education of librarians, as well as in in-service continuing education to meet the changing technological demands at the workplace.

The fact that the librarian is no longer only responsible for obtaining information to stock a well-organized library for the research institution and creating access to key information sources in external hosts is nothing new. *How* the librarian, however, is fulfilling his or her tasks of information retrieval and presentation *is* changing with the impact of new technology. The use of new technology in social science libraries began with CD-ROMs, expanded to building up CD-ROM networks, and in some institutions to the development of databases and production of the institution's own CD-ROM products. Now, new technology, namely the Internet protocol, enables the integration of networked information sources even

from different platforms into the library's offerings. This means not only using the Internet as a reference tool, but also providing reliable and relevant access to key locations in the Internet for the researchers in a presentation form that will be most useful to them. Furthermore, it also means creating and designing the library's and often also the parent institution's presence in the World Wide Web through concentrated information presentation and conversion of the library OPAC and other product databases to a form compatible with Internet technology and Internet user expectations. To examine these new roles for the social sciences librarian, first an overview of the basic competencies needed to fulfill these new roles will be discussed, then some of these new activities for social science librarians and information workers will be described, including examples of such activities as they existed in March 1996. Finally, certain implications for the librarians and information workers in the social sciences in view of expanding impact of new technology in this field will be discussed.

Basic Competencies for the New Roles of Librarians in Social Sciences Libraries and Information Centers

The impact of new technology is a cumulative process and requires cumulative acquisition of computer and information structuring competencies in order to manage new technology changes. Computer literacy is no longer a new topic, but has become a prerequisite for all special librarians. Required knowledge of databases has now surpassed knowing the retrieval language and database structure of several frequently used subject-oriented online or CD-ROM databases to include new aspects, such as special traits of individual retrieval components from different hosts for the same database, differences between online and CD-ROM databases or between various versions of the same CD-ROM-database, or basic knowledge of the institution's OPAC.

Required knowledge of database structures has expanded to include various types of structures and formats required for downloading into the researchers' own literature databases, modifying the library OPAC or producing new databases for CD-ROM production, etc. Furthermore, with respect to the impact of the currently greatest instrument of new technology, the Internet, knowledge of database structures extends from using Telnet connections to access remote library catalogs using a wide variety of access and retrieval structures, to the implementation of existing databases into Internet-compatible databases by using WAIS, Harvester, Excite, and other front-end indexing and retrieval programs, or by converting the entire database into a Z39.50, a Hyper-G or similar database which can be

searched directly by Internet users.¹ Hence, knowledge of databases has not only expanded "horizontally" to include a wider variety of database structures, but also "vertically" (somewhat like an inverted pyramid) to include meta-database and automated indexing features which extract information on a controlled or non-controlled basis for search and retrieve purposes.²

Aspects of networking technology have expanded similarly in a cumulative manner. In many institutions without any prior data processing infrastructure, the library was often the instigator for networking the researchers' computers with the library catalog. In other institutions with well-developed computer services and existing network structures, efforts to automate the library had to either comply with existing operating systems (in order to take full advantage of the network opportunities) or build up a parallel, but distinctly separate library services network. This requires knowledge of various operating systems (PC, Macintosh, UNIX, VMS, MSW etc.) and their incompatibilities, as well as of various network limitations. After establishing the appropriate network connecting one or more library services with the researchers' desktop computers or workstations, new aspects of network technology to include access to networked information sources must be taken into account. Knowledge of various operating systems and of the functioning of various library services software (retrieval software for connecting to external hosts, networked CD-ROMS, library databases, etc.) is necessary to solve individual users' problems with memory space, accessibility and customized downloading.

In addition, the new role of the librarian as network specialist within the home institution may involve finding solutions to alleviate platform incompatibilities between various operating systems (PC, Macintosh, UNIX, etc.), as well as creating new networked services for both internal and external use. Depending on the prior or current infrastructure of computer experts in the research institute environment, this may mean anything from individual assessment of disc space needed by various resident programs, advice regarding maintenance and simultaneous use of various programs while also maintaining connections to CD-

¹ For elaboration on making library OPACs available sometimes with extensive active links out of the library catalog, see Hans-Joachim Waetjen: Hypertextbasierte OPAC's im World Wide Web. Presentation at Weiter auf dem Weg zur virtuellen Bibliothek! Bibliotheken nutzen das Internet. Erste INETBIB-Tagung in der Universitätsbibliothek Dortmund vom 11.-13. Maerz 1996} (in press).

² Hans-Joachim Waetjen: Mensch oder Maschine? - Auswahl und Erschließung von Informationsressourcen im Internet. Presentation at the Workshop "Internet-basierte Informationssysteme der Bibliotheken" 15.-17. Januar 1996, Zentrum für interdisziplinäre Forschung, Bielefeld, Germany (<http://web.urz.uni-heidelberg.de/AndereOrg/DFG/workshop/waetjen/index.html>) ; Traugott Koch: Suchmaschinen im Internet (<http://www.ub2.lu.se/tk/demos/DO9603-manus.html>).

ROM-networks, external hosts and information services which rely on various other operating systems. Or it may mean offering multiple versions of the same services (CD-ROMs, library OPAC) for the various operating systems platforms (PC, Mac, UNIX etc.) with the detailed daily or hourly updating required. Or it may turn the librarian into a jack-of-all-trades for downloading, import and export of all sorts of data (not just library-related) into all sorts of target data evaluation structures, making the librarian well-known more for his or her networking, data and information processing skills than for his or her role as librarian. This, however, also belongs to the service orientation of the library or information center and solidifies the librarian's status and indispensability within the research institute structures - especially in an era of down-sizing. These competencies are not particular only to social science librarians, but - as opposed to other academic fields where networked information sources have long been in use - are "coming of age" and gaining in importance as the researchers in these areas are moving to greater reliance on such sources (as opposed to the more technology-friendly and technology dominated natural sciences and mathematical fields).

Even within a research environment where computer resources are very sophisticated and computer specialists are available, the librarian who is thoroughly versed in both the technical and the information possibilities is more in demand for customizing individual work station environment to the researchers' needs than often the computer specialist who has limited knowledge of information retrieval methodology and sources.

Libraries in research institutions which have attained network stability and desktop access for every researcher to the library catalog and other library services provide an important service which enhances the status and technological advantage of the library for the researchers. Nevertheless, precisely because of this expanded information infrastructure for the researcher, the basic function of the library as information center is now being challenged by the mere fact that the networked access to Internet and other networked information sources often provide the means to bypass the library in the processes of information location, retrieval, and acquisition. To persuade users to take advantage of the information provision services of the library or information center, value-added services, greater familiarity with document delivery services, and adequate research support mechanisms offering more than the already available information sources and which are appropriate to the researchers' needs must be developed. Such new, value-added services offer the researchers time-saving, content-relevant and timeliness (currentness) advantages over their own information seeking activities in the Internet.

The impact of new technology also requires the same kind of cumulative growth in the content level which is evidenced by the pressures on the special librarian or subject specialist to enhance his subject knowledge as well as his technological capabilities. Not only is new technology pervading the research work in the social sciences as in most other fields (though perhaps to a less dramatically overwhelming degree), but also the social sciences are very visible within the new information sources being made available through enhanced technology. This increased exposure to the social sciences, however, brings additional problems of incompatibility when directly comparing or even verbally describing social systems of various countries.³ The problems begin at the linguistic level of verbal descriptors. This can extend from difficulties in the translation or description of the terms and their meaning.⁴ But they don't stop there. Because the structure and content of the social sciences and their information collections are closely interrelated with the social systems of the country itself (educational system, societal structures, parliamentary and legal system, social services structures, etc.), the organization and representation of the content often remains very individual, distinctly non-international and sometimes even contradictory. Certain international similarities can be distinguished - which can also in part be attributed to the impact of new technology in both the field itself and in information work. But the high proportion of both content and linguistic individuality remains and with the greater use of the Internet presents subject-oriented challenges to the librarian. This affects not only the methods and instruments used for information retrieval and acquisition, but also the development of value-added services which can place appropriate information in the correct context and also provide targeted information in a vastly expanding field. Thus, the role of the librarian is evolving to network specialist, information broker, and systems designer, to mention only a few directions. In essence, an overall intensification of specialization both in the technological aspects of library and information retrieval work, as well as stronger subject-oriented competencies and evaluative abilities are being demanded of the information professionals

Because the structure and content of the social sciences and their information collections are closely interrelated with the social systems of the country itself

³ See Peter Wagner, Bjoern Wittrock (1991): States, Institutions, and Discourses: A Comparative Perspective on the Structuration of the Social Sciences. In: Discourses on Society, The Shaping of the Social Science Disciplines. Vol. XV. Eds. Peter Wagner, Bjoern Wittrock, Richard Whitley. Dordrecht etc.: Kluwer, 1991, pp. 331-357; see also "World Sociology: From National to Global Sociology" Schweizer Zeitschrift für Soziologie 22 (1996): 11-24.

⁴ Compare, for example, the meanings of the German "Kindergarten" and "Vorschule" to the American "kindergarden" and "pre-school" in context of the educational and social structures in which they are imbedded.

(educational system, societal structures, parliamentary and legal system, social services structures), the organization and representation of the content including its verbal description is often very individual. Certain international similarities can be distinguished - which can also in part be attributed to the impact of new technology in both the field itself and in information work. But the high proportion of both content and linguistic individuality remains and with the greater use of the Internet presents subject-oriented challenges to the librarian. This affects not only the methods and instruments used for information retrieval and acquisition, but also the development of value-added services which can place appropriate information in the correct context and also provide targeted information in a vastly expanding field.

Activities for Social Science Librarians and Information Workers

As a result of the integration of networking technology, the librarian may be called upon to create new networked services for both internal and external use. These can include making current contents services available (both from external sources or based on internal journal holdings), making the library OPAC networkable for access via the Internet, contributing to the creation of a WEB-presence of the home institution on the Internet, providing value-added services to select, compile and structure relevant accession points in the Internet for the researchers' specialism (subject-oriented Internet clearinghouse principle⁵, and developing search mechanisms and training materials to support the researchers in their use of these new information sources (statistics and other demographic data, access to data archives, directories and/or overviews of relevant software programs for evaluation, assessment and development of data collecting instruments).

⁵ Such clearinghouses for subject-oriented Internet resources have been compiled in Resource Guides at the University of Michigan (<http://www.sils.umich.edu/chhome/>), by the WWW Virtual Library of the Australian National University (<http://www.anu.edu.au/>), in the BUBL Subject Tree (<http://www.bubl.ac.uk/>), and specifically for the social sciences in English-language areas by SOSIG (<http://www.sosig.uk>). A comprehensive description of the clearinghouse methodology can be found in Diann Rusch-Feja: Ein Clearinghouse-Konzept fuer Fachinformation aus dem Internet, oder wie man aus dem Chaos sinnvolle Informationsvermittlung betreibt. *ABI-Technik* 16(2) (1996) (in press), also soon to be translated into English for publication. See also Diann Rusch-Feja: Structuring Subject Information Sources in the Internet. In: *Wissen elektronischen Netzwerken*. Oldenburg: Bibliotheks- und Informationssystem der Universität Oldenburg, 1995, pp. 99-132. A detailed analysis of the various forms of clearinghouses and similar compilations and indices of Internet subject resources can be found in Diann Rusch-Feja: Clearinghouses als Vermittlungsstellen für Fachinformation im Internet. In: *Weiter auf dem Weg zur virtuellen Bibliothek! Bibliotheken nutzen das Internet. Erste INETBIB-Tagung in der Universitätsbibliothek Dortmund vom 11.-13. März 1996*. Dortmund: Universitätsbibliothek, 1996, pp. 50-66.

In addition, new technology is introducing functions belonging to systems design into the librarian profession. Beyond the systems design for integrating automated library and information systems into the library work routine, new emphasis is now being placed on innovating value-added services based on new technology and which can be integrated into the existing electronic environment. These include creation of meta-databases for both print and digitally-based information sources for retrieval purposes at different user levels, integrating Web-oriented quality management software such as link-checkers, security systems to protect externally offered servers and internal information, adapting Z 39.50 or other automated indexing and retrieval "robots" to make the library database available on the Internet, etc. Most of these are new functions, however, which are not specific to social sciences librarians and extend across the librarians profession regardless of thematic concentration of the library, but are most often found in specialized libraries.

The librarian as information broker must be able to not only find the literature via database references, but he must also be able to find it first, estimate its value, adequately and promptly estimate the user's needs in terms of document delivery conditions and select an appropriate supplier.⁶ Establishing new criteria for determining information quality is a further new aspect of the information broker and the process of information brokering.

The entire field of scholarly publishing will take on new contours. Electronic publishing of research results and scholarly works will also take place via the networks, affecting both library work routines in the periodicals section as well as subscription modes, rates, and a new market for individual articles.⁷ Librarians will be involved in developing adequate down-loading facilities for e-journals for their users. Archiving techniques will no doubt become a joint venture between journal publishers and libraries. New types of billing (pay as you go) and licensing contracts will have to be negotiated. Various versions of journal articles will necessitate varied indexing and cataloging procedures and may change the face (and usage procedures) of library catalogs considerably. And librarians may be involved in the graphic and textual preparation of the electronic publications, becoming themselves Web-publishers.

⁶ See also Frank B. Oliver: Great Expectations: The Impact of New Technology on Information Access and Delivery. In: Electronic Documents and Information: From Preservation to Access, Eds. Ahmed H. Helal, Joachim W. Weiss. Publications of Essen University Library, 20. Essen: Universitätsbibliothek Essen, 1996, pp. 5-20.

⁷ See also Hermann Leskien: The Impact of Electronic Publishing on Library Services. In: Electronic Documents and Information: From Preservation to Access, Eds. Ahmed H. Helal, Joachim W. Weiss. Publications of Essen University Library, 20. Essen: Universitätsbibliothek Essen, 1996, pp. 141-148.

Thus far in the scientific community, evaluation of print sources were based on the journal impact factor of the journal in which the article appeared, the frequency and time-span of citations of individual articles, and often contextual information such as inclusion in a thematic issue of a journal, solicited or non-solicited article, length of time between article submission and its publication or between publication date and first citations. Whereas print literature in the English language for major journals in a field were covered by inclusion in Science Citation Index, Social Science Citation Index or Arts and Humanities Index, sources which appear simultaneously in print and electronic journals or solely in an E-journal will either not be fully represented by this process or even completely left out. New systems for establishing "use" and "citation" statistics will have to be developed, as well as new evaluation systems to deal with these in perspective with traditional scientometric citation analyses.

Furthermore, from a systems point of view, the impact of new technology has been to introduce a huge wave of down-sizing in libraries and information centers. As a result, new ways of evaluating services, sustaining important services with fewer staff and resources, and even developing new services to meet new needs of researchers and other users are more and more common in the librarian's professional life. Social sciences libraries are also most often affected, because their environment and object of study is imbedded in social structures which respond rapidly to the economic developments which are directly affected by the integration of new technology (i.e., reduction of jobs, elimination of redundancy in routine jobs or procedural transitions, etc.). Furthermore, social sciences researchers will be relying more and more on sources which formerly belonged to the category "official publications". In particular, these sources are more readily available, often electronically (on CD-ROMs, in Web-Sites, etc.), and free of charge.

Systems design approaches may be helpful in producing routine queries using adequate search engines or other indexing mechanisms in order to obtain the newest documents on the topic being dealt with or to check the validity of links on a clearinghouse resource page. Thus, a systematic design and continuous expansion of profiling techniques depending on the medium (Web, CD-ROMs, online hosts) and incorporating information from several mediums will be necessary to provide adequate coverage and up-to-date information. Here, librarians may find the market of services offered by network organizations useful, or they may find it more useful, depending on the complexity of the profile requirements, to develop current awareness services for themselves and their researchers.

Last but not least, the librarian and information professionals must often be network specialists. In addition to just knowing how to hook up the various technology into the network, the depth and variation of networking knowledge is expanding daily. This includes not only the physical networking technology to connect computers, workstations and peripherals with the central institutional computer, with CD-ROM and other physical information servers at the institutional level and also the integration of various computer technology (PC, Macintosh, UNIX, etc.) within an institutional network. It also includes the networking technology of the Internet Protocol (TCP-IP) and various other aspects of virtual connections with the world wide network of information sources in the Internet and other related networks. In smaller institutions, the librarian may be required to set up or maintain the World Wide Web server, produce HTML-pages both for the library and the institution itself, and set up Internet services such as training sessions, trouble-shooting, and specialized services.

Implications for Librarians and Information Workers in the Social Sciences in view of the Expanding Impact of New Technology

The impact of new technology has only begun to be felt - especially in social sciences libraries. Information resources from the Internet offer greater currency on social problems and background issues which will influence the content of the library's collection policy and require inclusion of electronic journals, current awareness services, document delivery and even ephemeral information from the Internet in reference and information services. Librarians and information workers will have to be familiar with key Internet resources and even provide their own. Clearinghouse services, whereby Internet sources targeted to the needs of the library clientele are selected, compiled, structured, and presented in a HTML-resource page in the institutions server with active links to the URL or to a proxy server, will augment daily reference work. Librarians will help train researchers to use the Internet and its resources, so that in essence, the clearinghouse resource pages will be a joint project with feedback and additions from the researchers, molding it for their particular use. Book orders, interlibrary loan, electronic document delivery, etc., in fact, almost all service aspects of library work, will necessitate knowledge of networking, of key resources, of the cost-benefit proportion of various external services. New electronic resources, such as statistical data, data archives, institutional information, etc., will become more relevant in the library's offerings. Direct support of the research and activities of the parent institution through these new services will contribute to increasing esteem of the library and to building new productive partnerships with researchers dependent on current, focused subject-oriented information.

Conclusion

Thus, the role of the librarian is evolving to network specialist, information broker, and systems designer, to mention only a few directions. In essence, an overall intensification of specialization both in the technological aspects of library and information retrieval work, as well as stronger subject-oriented competencies and evaluative abilities are being demanded of the information professionals and should be taken into considering both in the training and education of librarians as well as in in-service continuing education to meet the changing technological demands at the workplace.

Further Literature

Building Partnerships: Computing and Library Professionals. The Proceedings of Library Solutions Institute No. 3, Chicago, Illinois, May 12-14, 1994. Eds. Anne G. Lipow, Sheila D. Creth. Berkeley, San Carlos, California: Library Solutions Press, 1995.

Wissenschaftliche Information im elektronischen Zeitalter. Stand und Erfordernisse. Bericht der Sachverständigenkommission Elektronische Fachinformation (EFI) an den Hochschulen in Bayern. Bayerisches Staatsministerium für Unterricht, Kultur, Wissenschaft und Kunst. [Munich: Bavarian State Ministry of Teaching, Culture, Science and Art], 1995.

Dr. Diann Rusch-Feja
Library and Research Documentation
Max Planck Institute for Human Development and
Education
Lentzeallee 94
D-14195 Berlin
Germany

THE REFORM OF THE LIBRARY OF THE CHINESE ACADEMY OF SOCIAL SCIENCES*

By Lu Qisu

Abstract: The Library of the Chinese Academy of Social Sciences (CASS), composed of the academy library and 16 branch libraries has acquired 5.14 million volumes and currently has a staff of 400. The original closed management system as well as the financial problem caused by the soaring prices of books and serials in recent years has made the library find itself in a tight corner. Now it has been reforming its management system and has already won initial success, resulting in breaking basically the past closed state of 34 research institute libraries, each of which formed its own system, and saving a huge amount of money which helps strengthen the vitality of the library. At the moment, the library is deepening its reform in the operational mechanism and automation construction in a bid to turn the library within the shortest time into a social science documentation and information institute which will realize the scientific management, networking in structure, modernization in means and socialization in function and also establish extensive relations of exchange and cooperation with the foreign counterparts.

The library of the Chinese Academy of Social Sciences (CASS) is a national research library with long history, largest scale and richest collection in the system of social sciences in China. In fact, the CASS library is a library system because it consists of the academy library and 16 branch libraries. The CASS library system with a staff of near 400 comprises a stock of 5.14 million volumes. Its aim is to provide about 3600 scientific researchers in 32 research institutes with documentation and information services.

Experiencing the initial stage in the 1950s and the 1960s and the development stage in the 1970s and the 1980s, the library system began to fall into dire straits in the 1990s. To meet the challenges of the New Situation, it is now carrying out a reform. The consolidation of the former Center for Documentation and Information and the 14 institute libraries in the main building of the academy to form the academy library in January 1995 was just the outcome of this reform. At present, the library is conducting in-depth reform on such aspects as management

* Paper delivered at the workshop of the IFLA section Social Science Libraries at Renmin University Beijing, August, 29th 1996 (slightly abridged by the editor).

system, operation mechanism and the construction of automation. Although there exist many problems and difficulties, the direction of reform is irreversible.

The Initial Stage and development

The CASS was established in 1977. Its predecessor was the Department of Philosophy and Social Sciences of the Chinese Academy of Sciences (CASS), under which were altogether 17 research institutes. Each institute set up its own division of books and reference materials at the beginning of its establishment. After the establishment of the CASS, with the institutes growing gradually from the original 17 to 32, the divisions of books and reference materials were increased to 34 correspondingly. The institutes which set up the divisions of books and reference materials as early as 1950 were the Institute of Linguistics, the Institute of Archaeology and the Institute of Modern History. The Institute of Asia-Pacific Studies was the latest one which set up the division in 1988. For most of the institutes, the same kind of divisions were established one after another in the years between the 1950s and the 1970s. These divisions developed gradually into the institute libraries at the end of the 1980s.

At the beginning of the founding of the People's Republic of China, everything which was previously left undone needed to be done. The New China was faced with an arduous task in the establishment and development of its social science undertaking. At the time, to create the research means which were most essential to social scientists, the researchers, and even the leaders of the institutes together with the staff of books and references materials did everything possible to collect books, archives, and other documents and materials which were valuable to research. With their joint efforts, the division of books and reference materials were formed.

The sources of documents held at the various divisions were very limited then. Some of the documents were taken over from the former Central Research Institute or other academic institutes or schools. For instance, the division of the Institute of Economics took over a collection 70,000 volumes from the former Central Research Institution and the division of the Institute of Archaeology received a collection of 40,000 volumes from the former Beijing Research Institute. Some of them were brought from the liberated areas. The collection of the division of the Institute of Modern History included the publications in the liberated areas before the founding of the New China, such as the early translations of Marx's and Lenin's works, separate editions and selected works of Mao Zedong as well as periodicals and newspapers published in the liberated areas. Most of the holdings were built up bit by bit through long years by the staff

and scientific researchers. For example, the vast collection of 0.7 million volumes held by the division of the Institute of History records the great concern and contributions of the old generation of historians like Mr. Guo Moruo, Mr. Hou Wailu, Mr. Yen Da and Mr. Xun Deji. From the 1950s to the mid-1960s, these old experts were once the leaders of the research institute. So they designated the experts or scholars of great attainment for the collection of materials with the staff of books and reference materials. They had overcome one difficulty after another. They went to the second-hand book markets in Beijing, Shanghai, Nanjing, Hangzhou and Xi'an, and even went deep among the people to collect and purchase various kinds of ancient books. Even during the three-year period of difficulties in economy in the early 1960s, this kind of work didn't stop. The „contracts and documents of Huizhou area“, a rare treasure which had been almost disposed as „waste paper“ was purchased just because Mr. Xun Deji insisted on purchasing it. The division of the Institute of Literature (it is now called library) has made its holding reach over 0.4 million volumes after more than thirty years of efforts under the conditions of limited resources of budget and staff, following the holding principle of „putting emphasis on specialized collection and seeking completeness under the premise of better quality collection“ raised by Mr. He Qifang, a famous writer and the director of the institute.

In the 1950s and the 1960s, under the Department of Philosophy and Social Sciences, only a few research institutes were set up in some traditional disciplines, with not many scientific researchers and quite a few well-trained staff of books and reference materials. Each division of books and reference materials had its own mode of management. Its bookfund came from the funds of the research institute it is subordinated to and it purchased books, periodicals and newspapers only according to the need of its own institute. In common words, the characteristics of these divisions can be generalized as „small library with complete holdings“. However, this „small library with complete holdings“ once played an important role under the historical conditions at that time. First, the enthusiasm of scientific researchers and staff of various institutes were fully aroused. They collected materials everywhere according to the need of the development of academic disciplines and built up quickly their own „specialized“ libraries; second, the quality of collections was raised under the guidance of experts and with the expert's participation in this work; third, the quality of the staff was enhanced rapidly with the help of the experts; fourth, these divisions served scientific researchers well.

Just because of the above advantages, the academy didn't consider establishing a unified academy library in 1977 when the CASS was established. Instead, the

newly established institutes, set up their own libraries by still taking the pattern of „small library with complete holdings“ used in the 1950s. At that time, the institutes new and old, in traditional disciplines and newly-emerging disciplines purchased as many Chinese and foreign books, periodicals and newspapers as possible by taking the advantage of annually growing bookfunds and lower prices of books. During the 10 years from the establishment of the CASS to the end of the 1980s, the institute libraries developed rapidly in step with the development of academic disciplines.

The Status Quo and Difficult Position

After over 30 years of working hard and with perseverance, the CASS library has now developed into a library with an extensive collection and relatively complete service functions. Among its collection of over 5 million volumes, 75.000 volumes in 6461 titles are the precious and rare books, and 550,000 volumes in 19.000 titles are thread-bound ancient books. Besides, the paper back Chinese books total 2.73 million volumes, while the foreign books in nearly 50 languages stand at about 1.06 million volumes. It has also collected a total of 515,000 bound volume newspapers and periodicals in Chinese and foreign languages and 220,000 volumes of materials as well. The above covers all the fields in philosophy, social sciences and the humanities. According to major subject areas, there are:

	volumes (mio)	% of total
philosophy and religious	0.36	7
political science and law	0.41	8
sociology and national studies	0.48	9,5
economics	0.80	15,5
literature and linguistics	0.97	19
historical science	1.49	29
regional studies	0.43	8.5
newly-emerging disciplines and others	0.20	3

In the said major subject areas, the collections in the traditional disciplines such as literature, historical science, philosophy and economics as well as national religious are the richest and have the highest quality. Among them, there are 40 uniques, such as „A Dream of Red Mansions“ (Cheng Weiyan’s first version and the hand-written copy in the year of Qianlong, and „Comments on the Book of Changes in the Late Ming Dynasty and Early Ching Dynasty“ by Fang Yi zhi.

Another main feature of the library's collections worth mentioning are the „experts libraries“ and „Special collection library“. The former includes the „Gu Jigang Library containing 45,000 copies of valuable books donated by Mr. Gu Jigang, the late famous historian, the „Three Old Experts Library“ containing about 30,000 copies of thread-bound ancient books and over 1200 items of various epigraphs and rubbings presented by Mr. Hou Wailu, Mr. Xun Deji and Mr. Xie Guozhen, the famous historians“, and the „Oshima Kiyoshi Library“ containing more than 10,000 books presented by Mr. Oshima Kiyoshi, a famous Japanese economist. The latter includes „Library of Contracts and Documents of Huizhou Area and Dun huang Historical Materials“ and „Library of Chinese Social Science Dissertations and Theses“. The materials in these „libraries“ are highly-specialized and have no duplicate copies. Many of them are unique copies in the world. Some of them are of the matchless special collection.

The CASS library system now has 80 book stacks, 5 computer rooms and 52 reading rooms with a total of 1200 seats for readers, including Comprehensive Reading Room, Periodical Reading Room, Reference Reading Room and Special Collection Reading Room. For some larger institute libraries with a collection of 0.2 million volumes or so, the last three reading rooms are usually set up. For some institute libraries, there are also reading rooms for audio-visual materials. As of now, every library still aims its service primarily at meeting the needs of the academy's scientific researchers and at the same time also provides free or paid service to the scholars outside the academy according to circumstances. Much of the stock in libraries is kept on open shelves for reading or borrowing. But the valuable books and materials are in closed access.

The development and processing of secondary documents is another important task of the CASS library system. For a long time, the staff have compiled various kinds of special bibliographies, title lists, indexes, abstracts and compilations of reference materials to support scientific research. Some staff members also have undertaken academic researches and done the work like the translating, editing and processing of materials. At present, there are 5 retrieval journals, which are published and issued openly every year, 88 special bibliographies, title lists and indexes for internal use and 52 compilations of reference materials. Among them, the serial retrieval publications which enjoy higher reputation are „A Collection of Titles of Social Sciences Literature in China“, „Abstracts of Chinese Social Science Dissertations and Theses“, „CASS Union Catalog of New Foreign Books“, and „The Index of Social Sciences Papers in Foreign Countries“. The special retrieval publications include „CASS Union Catalog of Foreign Reference Tools“, „A Guide to Reference Tools relating to Economics“, „A Handbook for the Retrieval of Laws and Regulations in the UK, America, Russia, Japan and

France“, „Catalog of the Materials concerning ‘A Dream of Red Mansions’, „A Guide to the Documents concerning Ceramics in China“, „Index of Papers and Materials on World General History“ (1949-1984), „The Essential Bibliography on the Documents concerning China’s Modern History, Published Abroad“, „Social Sciences Reference Catalog“, „Index of Papers and Materials concerning Nationalities Studies“, „Index of Papers on Linguistics in China“, „Compilation of the Documents on the Issue of Nationalities in the Former Soviet Union“, „The Bibliographic and Indexing Database on the Issue of the Former Soviet Union and East Europe Since 1949“ (Chinese version), „The Chinese Bibliography on African Studies (1900-1990)“, „Index and Bibliography on the Chinese Papers and Materials concerning the Issue of Latin America in the 40 years after the World War II (1945-1985)“, „Chronicle of Events in Latin America“, „Chronicle of Events on the Relationship between China and the Countries in South Asia“, „Bibliography on American Studies“, „Special Materials, concerning the Adjustment of Japan’s Economic Structure“, and „Reference Bibliography on West European Studies“. The aforesaid publications have authoritativeness recognized generally within the system of the Social Science information Services in China.

The above-mentioned professional work like collection development, and the development and processing of documents are all conducted tightly around the direction of offering specialized service to social science research in a bid to build the CASS library system into a special centre for books and reference materials covering all the fields in the social sciences in China and one of the important centres for social science documentation and information in the world. Besides, the CASS library system is making preparations actively for the establishment of resource-sharing network linking first with the corresponding research institutions outside the CASS in China and with those in the advanced countries in the world. To this end, the CASS library system has already laid an initial foundation in the preparations of both materials and staff.

The aforementioned shows that the CASS library system has achieved great progress in the past 30 years. However, its closed management pattern of „small library with complete holdings“ is a very backward one instead of the modernized, unified and scientific one. As the institute libraries usually choose their professional orientation according to the traditional orientation of the institutes which they belong to, the weak points and draw backs in the operational mechanism of the library system itself have been revealed obviously day by day.

1. The increasingly serious chaotic situation of document management results from the decentralized management of the library system. As every library has not

used the unified classification system for books and materials, there are as many as 10 kinds of classification systems for books. It is even worse for the classification systems for materials. Therefore, it is very difficult for the CASS library system to produce a union catalog reflecting the complete collection of the academy and to make scientific researchers enjoy resource sharing.

2. The heavy duplications in acquisition have caused serious waste of staff, material resources and financial resources, thus leading to the difficulty in optimizing the structure of collections. For instance, the Institute of National Minorities Literature had purchased 5000 copies of books on the characters of national minorities and because of the need of research, it also purchased a large batch of Chinese books (about 25,000 copies), which, however, the Institute of Literature had already held in its library. But because the two institute libraries belong respectively to the different institutes, the duplicate purchase could not be avoided. The same is almost true for the situation of the Institute of Economics and its related Institutes like the Institute of Industrial Economics, the Institute of Rural Development, the Institute of Financial, Trade, and Materials Economics. As a result, there are a large number of duplicate copies in the academy's collections.

3. Since there haven't been a set of rules and regulations on the standardization of document-management, which every library must abide by, to realize the automation of documentation and the modernization of service means is also a difficult thing. After entering the 1980s, modernized means with the computer technology as its symbol have been gradually applied in libraries' work. But under the decentralized management system, each library can only make its own plan for the technological application, and organize and implement it under the environment of its single library, which will not only cause greater waste of staff, material resources and financial resources but make the automation of the CASS library system impossible.

4. It is impossible to realize grouping of staff and to raise the service level of libraries. Among the present staff, over 80% of them have obtained education at or above the college level. The staff with the background of library science account for 32,5% and the staff with the background of foreign languages account for 20%. Such a knowledge structure of staff could have satisfied the requirement of library management if optimal grouping had been conducted, followed by necessary training. But, due to the closed management of staff, they cannot be deployed reasonably. Some libraries don't have one professional in library science and even have no undergraduates, while some libraries have so many, which not only has caused the great waste of talent, but influenced directly the overall

service level of the CASS library system. The above weak points and drawbacks have made the CASS library system lose the ability to meet an emergency. Therefore, under the shock of the new situation both at home and abroad, the CASS Library system has soon fallen into a crisis.

First, after entering the 1990s, with the construction of the information highway undertaken in the advanced countries, the demand of the CASS library system on high level modernized means for access to information is much more urgent than anytime before. The institutes specialized in the studies of international issues, such as the Institute of World Economics and Politics, the Institute of Asian Pacific Studies, the Institute of American Studies, the Institute of Japanese Studies, as well as the Institute of East European and Central Asian Studies not only need the information provided by the academy's libraries, but need to know in time the information and materials held in the corresponding research institutes in foreign countries. This demands that the CASS library system should break the „self-closing“ management system and forge link with foreign countries through networks. One of the trends in the development of social sciences is that there will be more and more frontier disciplines and newly emerging disciplines and the trends of mutual infiltration between disciplines will become increasingly obvious. If the management pattern of „small library with complete holdings“, used in the 1950s and the 1960s will be adopted continuously to meet the needs of scientific research, the bookfund will increase several times, and even dozens of times, which any social science research institutes can not afford.

Especially, the continuous spiral book price rising both at home and abroad and zero-increase from the mid-1980s to 1993 to libraries' funds (standing at 5 million yuan or so) caused the big reducing for the documents' stock. This problem was exacerbated by the annual growth rate of imported books' prices rising from 30% to 55% due to the great increase of exchange rates, resulting from the integration of China's financial market and the international financial market in 1993-1994. Under such a situation, the storage amount of publications of various institutes has decreased year after year. Instead of development, every library has shrunked seriously. From the state of the former Centre for Documentation and Information, which had the largest bookfund compared to other institute libraries, we can see the general situation of the sharp decrease of annual intake.

The State of Acquisition at the former Centre for Documentation and Information (1986-1993)

Year	Foreign Serials	Chinese Serials	Foreign Books	Chinese Books
1986	1.600 titles	600 titles	5.000 volumes	6.000 volumes
1989	1.300 titles	500 titles	3.000 volumes	5.000 volumes
1992	800 titles	400 titles	600 volumes	800 volumes
1993	400 titles	400 titles	...200 volumes	300 volumes

The above shows that under the restriction of bookfund, the collection development of the CASS library system has shrunk so seriously that the library system is facing the problem of survival. By 1993, the acquisition of books and periodicals fell to the lowest point in history. Assuming that the 1993's additions of foreign periodicals will remain unchanged in 1994, the fund would grow to 6.74 million yuan or so, which means that the whole budget for books and serials will increase by 2.4 million yuan. If the factor of price rise of Chinese books and periodicals is considered, the total book fund of the academy would increase by 3 million yuan, which could not be obtained from the state at all. The shock of shortage of funds has made all the contradictions in the original management system of the CASS library system intensified all of a sudden. On one hand, there is a shortage of fund, on the other hand, there is serious waste caused by the „small library with complete holdings“. On one hand, it is urgent to develop a computer network, on the other hand, the self-closing management system hinders the development of the network. Under such a situation, the CASS library system is forced to carry out the reform of its system.

Reform and Prospects

To turn the above-mentioned severe situation, the leaders of the CASS were determined to conduct the reform of its library system. So at the CASS working conference held in February 1994, it was decided that the present library system should be reformed and the academy library established. Considering the actual conditions that there were lack of adequate facilities and limited funds and many doubts were in the minds of some scientific researchers, the academy's leaders decided that the reform should follow the principle of „meticulous design, safe operation, stable transit and better service“. „Meticulous design“ means formulating a feasible plan for reform. „Safe operation“ means doing well the ideological work and organizational work in every aspect in the course of the implementation of the plan in order to bring as little influence as possible on scientific research. „Stable transit“ means carrying out reform orderly and by stages. We should both have confidence in reform and consider the actual

conditions to avoid fulfilling the plan in one step. „Better Service“ means promoting promoting reform by raising the quality of service.

To strengthen the leadership of the reform and implement the plan for reform, a leading group, a coordination team and an office for library reform were set up separately. On the basis of a large number of investigations and repeated proofs as well as broadly heeding the opinions of the masses, the office for library reform drew up 6 plans for implementation including „The plan for Forming the Academy Library“ (draft), „The plan for Implementing the Unified Acquisition Programme“, „The Plan for the Reform of Unified Cataloging Work“, The Plan for Picking up the New and Weeding out the Old from the Holdings“, „The Plan for the layout of Specialized Book Stacks“, The Plan for Circulation and Reading“, „The Plan for Automatic Technology Support for the Formation of the Academy Library“. After several modifications, these plans were approved by the leaders of the academy at the end of September 1994.

In the early December, 1994, all the staff members chosen from the various institute libraries went to the academy library to report for duty, thus formally establishing the academy library, made up of the former Centre for Documentation and Information and 14 institute libraries in the main building of the academy with 16 branch libraries outside the main building. From now on, the whole bookfund has been under the control of the academy library and the acquisition and cataloging unified in the CASS library system. The branch libraries which are relatively independent of the academy library and temporarily under various jurisdictions are moving toward the specialized ones. But their use of funds and the management of library procedures like acquisition, cataloging and circulation are subjected to the academy library. In this way, the establishment of the academy library has basically broken the „small library with complete holdings“ closed management system which has been adopted for many years making the CASS library system embark on the orbit of scientific management.

To realize the modernized management is another important project in the course of reforming the old system and forming the academy library. As early as 1989, Mr. Hu Sheng, the President of the CASS pointed out: „The libraries abroad have already forgotten links through networks and catalogs and can be accessed worldwide, but our academy even hasn't an unified classification system and a set of union catalogues. It is a 'disgrace'. In this reform, with the determination of wiping out the 'disgrace', the staff have spared no efforts to undertake the construction of automation with limited financial and material resources. They have established the platform of a microcomputer-based local network and set up 20 working stations and purchased the advanced system softwares including the 5

modules: acquisition, cataloging, circulation, serial control and public access catalog, and other facilities as well.

The opening of 6 reading rooms and the various specialized book stacks on January 3rd, 1995, marked the beginning of the operational stage in the reform of the CASS library system. The first several months of actual work proved that this reform was correct and had achieved obvious results.

Owing to the unified acquisition and cataloging of books and periodicals at the whole academy, the problems of duplications in acquisition and waste of funds which existed for many years have been solved more or less. In the case of the acquisition of foreign newspapers and periodicals in various libraries in 1994, the original titles were 2468, among which 434 were duplicate with duplicate rate of 17.6%. After the unified book acquisition, some duplicate publications and those with low frequency of use were weeded out and 186 titles of much-needed newspapers and periodicals were added. As a result, a fund of 864,000 yuan RMB was saved. The saved money, a considerable figure has poured vigour into the increasingly shrinking system.

Because of the unified management of bookfunds, a greater part of the funds can be allotted to the key disciplines and newly-emerging disciplines. As far as the Institute of Sociology was concerned, the titles of foreign newspapers and periodicals concerning sociology have jumped from 38 before the reform to 71 after the reform, which could not be done in the times of financial stringency without the reform.

In the course of the formation of the academy library, the original staff were redeployed and the working posts of some staff members adjusted too. According to every one's special skill and the requirement of posts, new combination of work was arranged. The system of „determining post and personnel allocation“ was implemented and the best was selected for the key posts. In this way, the optimized combination was realized in the various departments like acquisition, cataloging, circulation and automatic technology. Originally, there were 110 staff members in the 14 institute libraries in the main building of the academy. But only 72 went to their posts. The 38 reduced staff members accounted for 34,5 of the original total members. After the optimized combination, many employees have been made redundant, but the quality of service raised.

The merger of 14 institute libraries has provided favourable conditions for the operation of localcomputer networks. Now, the departments of acquisition, cataloging, reading and holding are all busy with debugging their own modules and will soon establish links to each other through local network.

The reform is now deepening. Although some good results have been achieved, the problems brought by the old system have not been solved completely. As there has been no library building as of yet, the 16 branch libraries outside the main building of the academy can not be completely under the unified management. The drawbacks resulting from „small library with complete holdings“ management system can not be overcome completely at once, which means that it is difficult to avoid the duplication in acquisition within a short period of time. The most urgent and critical thing to do now is to realize the automated management in libraries as soon as possible. To this end, the available financial and material resources must be amassed and the technical training of staff strengthened. In addition, the data standards of collections held at 12 specialized book stacks must be unified in order to make preparations for the early stage project of data input in an effort to lay foundations for attaining the overall goal of reform, that is, building the academy library into a comprehensive social science documentation and information institution which will realize the scientific management, networking in structure, modernization in means, and socialization in function, and also establish extensive relations of exchange and cooperation with the foreign counterparts.

Lu Qisu
Zhong Wanyi
CASS
Jianguomennei Dajie 5 Hao
Beijing
China

DIGITIZING AND NETWORKING: THE SCHEME AND PRACTICE OF ESTABLISHING THE CASS ELECTRONIC LIBRARY*

By Lu Benfu, Zhou Junlan

Abstract: Digitization and networking are two crucial steps in a transition from traditional to electronic library. This paper presents the tentative ideas and practices of the library of the Chinese Academy of Social Sciences (CASS) in this line. As to the digitization, it first analyses the CASS information resources, focusing on the characteristics of disciplines, types of media and distribution of language varieties, and then presents an overall plan on digitization and the concrete steps to be implemented as well as the possible technical problems to be met in the course of digitization. Concerning the networking, this paper first identifies the model of information exchange of CASS, based on which it designs the overall objectives and schemes for establishing the CASS electronic network and also draws a logical structural diagram of the electronic network.

China Academy of Social Sciences (CASS) is located in Beijing. It is granted by the Chinese government. Its researches are mainly conducted on the national social sciences schedule in recent years. Some enterprises, organizations and individuals entrust it with research work. At present, some 5,000 faculties work in over 32 professional research institutes which including economics, law, sociology, trade, religion, philosophy, literature, nationality problem and international relation, etc.

Compared with natural science, the researches of social science are more dependent upon information and documents, so the information and intellectual density is high in CASS, and the home and abroad communication is frequent. Accordingly, the documents on social sciences are in a rich collection, even documents of some disciplines hold a lead in China. The research results are information products too, e.g. monograph, thesis, research report. CASS library is responsible for information receiving and literature collection, and information outputs are processed by publishers and distributors.

CASS decides to develop the traditional library into an electronic library, that is,

* Paper delivered at the Open Session of the section Social Science Libraries at the 62nd IFLA General Conference in Beijing, 27 August 1996.

information communication is carried out by electronic network. Some schedules were formulated, part of them have already been implemented. This plan embraces two aspects:

- Digitizing: transforming library's documents and information to computer readable form.
- Networking: receiving and delivering digital information through electronic network.

The following is an overview of the experiences made in implementing digitizing and networking in the CASS.

1. Characteristics of information resources.

As a research organization on national level, CASS processes relatively rich information resources, holding over 5,000 thousand volumes of books and 2,000 journals. To digitize such a gigantic library collection, its characteristics must be understood:

(1) Discipline distribution of information resources

From the discipline point of view, CASS' information resources basically cover all disciplines of philosophy, social science and human science, which is shown in the following table:

Discipline	Quantity (10000 vol.)	Percentage
Total	506	100
History	149	29
Literature & Linguistics	97	19
Economics	77	15
Sociology & Ethnology	48	9.5
Foreign Research	43	8.5
Politics & Law	41	8
Philosophy & Religion	36	7
Others	20	4

Resource: The Document and Information Center of CASS (1992)

(2) Media types of information resources.

On the whole, traditional text is the main medium type of CASS information resources, however, information collections on other types are tending to expand, like video-audio documents, microfiches, CD-ROMs, machine-readable databases, etc. Other specific types include maps, pictures, famous drawing, etc.

The composition of media types is demonstrated by the following table:

Medium Type	Amount (unit: 10,000 vol.)	Proportion
Total	506	100
Ancient Books	62.5	12.27
Books & Periodicals	425	73.6
Non-book Materials	22	9.81
Others		4.31

Source: The Document and Information Center of CASS(1992)

(3) Language distribution of information resources.

Because of the wide range of CASS's research work, there are many different languages used. Chinese and ancient Chinese has undoubtedly the largest proportion, in addition to it, there are more than ten kinds of languages of Chinese minorities, such as the Zang language, the Meng language, the Thai language etc. Concerning non-Chinese languages besides the large ones such as English, Japanese, Russian, German etc. there are Korean, Serb, Spanish, Italian, Brahma, Swedish - in total 10 different languages to be found.

2. Digitizing of information resources

According to the above statistical analyses, we can find that: wide academic ranging, variety of language, complicated medium are the characteristics of the information resources in CASS. Digitizing these information resources is undoubtedly a hard work, so it should be done in order of importance and urgency, in light of different media characteristics and information contents.

In practice, we have made the following rules of procedure: at first, we should think over our economics supporting ability. At present we cannot make more than one investment in a time, so the work must be done period by period. The second step is resource sharing. If external institutions already have relevant

digitized information products, then we do not need do the same work. The third is the „ripe technology rule“. We only can with one item for which the digitizing technologies are ripe, otherwise we can shall leave it for later.

(1) The overall plan of digitizing

Our final target is digitizing all kinds of information resources: texts, audio, videos, maps, pictures, tables and statistical data, to be able to finally build the electronical library, but at the moment the CASS library maintains unclear schedules. The overall plan is divided into three periods: The short-term work is developing and building the specialized databases which CASS and other departments are in great need of; the middle term work is digitizing the information resources which are only owned by our library, because the work can just be done by us; the last period work is purchasing directly digitized information products in China as well as abroad which will digitize the whole library holdings. The order of digitization work is:

- a) The information which our research mostly needs, such as the CASS library collection catalogue, library's periodicals holdings.
- b) The information which is used in international communications. The reform in China has been taken for more than ten years, the economy has developed at high speed, and great successes have been achieved, at the same time, works on economics, law and so on in these periods can be surely used for reference for the developing countries.
- c) The China ancient books and national minority's documents in CASS.

(2) Specific plan of digitizing

On the base of above rules, a whole set of specific plans has been made by our academy, and has been taken into practice. These are:

- a) Building machine readable catalogue databases of all the books hold in CASS. This is the focal point of our digitizing work, which will convert all catalogues into standard machine-readable MARC form. This concerns about 500 million volumes (not including ancient books). At present there are 20 thousand MARC data, and we are planning to finish converting the whole data of our academy in five years.
- b) Building machine-readable catalogue databases of the complete periodical's holdings in CASS. This is similar to the first one, the difference is that the

databases include not only periodicals catalogues, but also subject information on the periodicals contents. In order to save library storage space, all the obsolete periodicals will be made to microfilms, this will also be done in five years.

c) Building databases of specialized documents. This is mainly used for international communication. At present, our academy has built specialized economic document databases. The databases has collected the papers which were published in the chief economical periodicals in China in the last five years. The contents include resources, subjects, abstracts etc.. Another plan is to build a full-text database on law which was issued in recent years. The database is mainly about the law concerning foreign affairs or foreign nationalities, it therefore can serve for foreign businessmen, and foreign scholars.

d) Building multimedia databases of China ancient books. The contents include: the rare books in our academy, the original handwritings of historical famous persons, archaeological pictures and so on. At present the database of rare text books has been started, other multimedia databases such as original handwritings are being planned.

e) Building factual databases. The research in social science has the tendency of developing from qualitative analysis to quantitative analysis. Therefore, we are preparing to digitize the factual tool books in our academy, in order to meet varying needs.

(3) The relative technology problem of digitizing

In line with our practice, we are facing the following difficulties when we digitize information resources:

a) The problems which the MARC are already known. Machine-readable catalogues all come from LC-MARC and include CN-MARC made in China. Since the formatting is based on the computer technology of that time, now to some extent the MARC form is backward , the typical show is: cumbersome field-setting, duplicated contents. Although in theory different kinds of MARC records can be interchanged, it is difficult in practice.

b) The difficulty for choosing multi-language software platform. There hasn't been a good multi-language software platform which is compatible with Chinese, western languages, Japanese , Russian and so on. So it is easy to make mistakes. Though the international standard on large character groups has been officially issued, the relevant operating system has not been set out, so that there still

remains a problem to be solved. On the other hand, the Chinese minority languages have no relevant computer processing software.

c) The difficulty in building multimedia databases. At present the multimedia technology can not settle the digitizing problem of Chinese calligraphy and painting. Even if it had been settled, the retrieval would be difficult.

3. Information communication models

Information communication models state two ways of communication. Indirect communication is meant when information is spread in the form of documents. Direct information exchange means that research fellows obtain information directly in ways of engaging in advanced studies, attending academic discussions, and so on, and information spread by lectures, academic discussions, etc.

(1) The size and distribution of document flow

According to the latest statistics in 1994, more than 20,000 Chinese books, 4,000 books in foreign languages, 4,000 Chinese journals and 2,000 journals in foreign languages are being added to the collection of the Academy every year. The information of all these documents can occupy 500M computer storage space. There are two forms of documents input: one is purchasing, this is the main way to increase the information resource; the other is exchange or donation. The Academy keeps exchange relations with about 400 book- and document-agencies abroad, and exchanges about 1,000 books and journals every year, the total number of volumes is more than 10,000.

Abundant information resources present plentiful reference materials for the research fellows, create a good environment, and so the research findings of the Academy are rich. The research findings are mainly published in the following forms: treatises, academic dissertations, research reports, learned materials, translations, translation texts, reference books and software, etc. Accounting in word, the proportions of the findings in every forms can be found in the following table:

Type of Research Findings	Number of Word (10,000)	Percent Distribution
Total	55071.1	100
Learned Material	9464.5	26.79
Treatise	8497	24.05
Reference book	7351	20.08
Academic Dissertation	3708	10.21
Teaching Material and Popular Reading	2999	8.49
Translation	1211.6	3.43
Research Report	674	1.91
General Article	376	1.06

Source: Statistical year report of CASS(1992)

The information listed above can occupy 200M computer storage space.

(2) The forms of direct information communication

In CASS, direct information exchange still is active, and the forms are varied, mainly including scholars' reciprocal visiting, holding workshops, engaging in advanced studies, giving lectures, and so on. Much of lately information can be obtained by setting up relations with relative institutes home and abroad, and scholars' researching, discussing academic problems with general character.

The following table reflects the state of the scholars' international interchange:

<i>Forms</i>	<i>Number of Go Abroad</i>		<i>Number of Visitor</i>	
	1991	1992	1991	1992
Total	578	710	978	783
Academic Visit	235	241	365	297
Co-research	73	63	34	52
Lecturing	12	11	21	15
Advanced Studies	70	70	35	7
Bilateral Workshops	31	63	53	187
International Meeting	107	140	352	93
Working Visit	29	24	91	101
Other	21	98	20	31

Source: Statistical year report of CASS(1992)

The direct information exchange is effective, but it is greatly limited by many objective conditions.

(3) Table of academic network

CASS mainly keeps academic relations with the following institutes:

Inter-national	Research Institutes of UN	Embassy	Societies & Associations	The Press Offices	
National	Government Offices	Ministries & Commissions	Societies & Associations	Universities	The Press Editorial Offices
Local	Local Government Offices	Local Academies of Social Sciences	Local Universities		

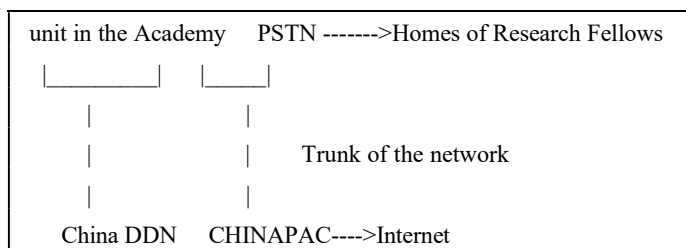
4. The objective and the plan of setting up the electronic network

From the information exchange models we have discussed above, we know that both information input and output are frequent in CASS. The electronic network is just the imitation of these models to satisfy the needs of information input and output.

(1) Objective & structural drawing

The objective of the electronic networks: transparent information sharing in CASS; domestic information acquisition and retrieval through electronic network; direct connection with international or domestic scholars of the same occupation; international; and domestic users' direct using of CASS's information resources and information products. In practical working, we have drawn up a plan for setting up the electronic network in stages.

Logical structure drawing:



(2) Plan & moves

First, setting up the CASS Scientific research information management network. There are three parts of business on the network:

a) Scientific research business

This is mainly for managing research projects, scientific research programs and research findings, the most important of all is the research findings management system, which will help gathering the findings of every year step by step;

b) Information business

Here is intended to store all the information resources (books, periodicals) in the CASS library and in every unit in computer network and to present retrieval service to internal users at any time.

c) Management business

It mainly indicates the office automation for storage of all kinds of administration information in the network in order to improve the management level of all the Academy.

Network technology design: according to information traffic, geographical information distribution and the frequency of use, the CASS DDN uses circle arboraceous topological structure. The trunk of the network uses optical fibers, and the information transmission ratio is 100M bps.

Working state: The CASS DDN has been carried out for one year, the computer network of the Academy library is established, office automation DDN is also completed, the trunk of the network is estimated to get through in 1996.

Second, extending the network into the research fellows' homes . Now many research fellows of CASS begin to write with another kind of pen-computer. It's estimated that the percentage of the families having computers can reach 20%--30%. Otherwise, most of families have installed telephone, so that the terminal users have the basic conditions to connect with the network. Using the public telephone network and modem, we plan to connect most families' computers with network in the next 3 or 5 years, and achieve three goals: terminal users' retrieving information of library at any time; direct connection with international and domestic scholars of the same occupation; adding their research findings to the network. Now, the library network has had only the ability to take in a few terminal users.

Third, to connect the network with the global Internet. At the end of 1994, Chinese Ministry of Posts & Telecommunications started CHINADDN & CHINAPAC, and reached an agreement with Sprint Comp. of America that CHINAPAC & CHINADDN can directly connect with the global Internet by using the route offered by the company. Within the next few years, we also plan to apply for a special DDN route from Beijing Telegraph Office - the institute managing the Internet in Beijing - and to start our own Scientific Research Information Network, to connect it with Internet, and at last to realize information sharing.

Lu Benfu and Zhou Junlan
Chinese Academy of Social Sciences
Beijing, 100732
China

**INFORMATION SERVICES ON SOCIAL RESEARCH AND
METHODOLOGY
THE SRM-DOCUMENTATION CENTRE**

By G.W. Kantebeen

Introduction

The Social Research Methodology Documentation Centre* (SRM) at the Erasmus University Rotterdam, is engaged in the registration and documentation of literature on social research methodology, statistical analysis and computer programming.

A comprehensive overview of this scientific subject area is difficult to achieve. The continuous flow of publications buries researchers and students in the social sciences. New methodological topics or developments are raised in the various social science disciplines, such as sociology, psychology, social psychology, political science, anthropology or history; interesting methodological information is often interweaved in the reports of applied research projects. Therefore the main goal of SRM can be formulated as follows: SRM intends to inform social scientists, researchers, and students on what is going on in the field of research methodology, statistical analysis and computer programming in the social and behavioral sciences.

Since 1970, a team of social scientists at the Erasmus University Rotterdam, compiled a bibliographic database on social research methodology. During these years, a list of about 100 periodicals, as well as readers, books, research reports, proceedings, etc. are selected and screened "cover to cover". With the help of the SRM-Thesaurus relevant publications are selected, indexed and abstracted; the documentation is limited to the English, German, French, and Dutch literature. The database composed in this way, contains now about 40.000 literature references, mostly provided with an abstract. Annually, some 3.000 new references are added.

* The Social Research Methodology Documentation Centre (SRM):
SRM homepage: <http://www.eur.nl/ub/srm>
E-mail: info@srm.eur.nl

The SRM-Database is of interest to:

- Professors and their students across the social and behavioral disciplines.
- Social science researchers in designing a research project, in their choice of methods and analysis techniques, and in the use of computer software.
- Social scientists and methodological experts. With the help of the SRM-Database, meta analyses, and trendreports or "state of the art" publications can be conducted, and specific bibliographies are easy to compile.

The SRM-Thesaurus

In order to provide an effective selection and documentation of methodological literature, a hierarchically structured scheme for classification was designed in 1974. Recently the complete new and updated "Thesaurus of Social Research Methodology" (SRM-Thesaurus)* has been published.

The SRM-Thesaurus is a hierarchical classification of categories as well as a structured vocabulary of standardized terms that have been arranged by subject in a logical order rather than in an alphabetical order. In this system, indexing terms or keywords are called "descriptors" and connected terms (mainly synonyms) are referred to as "unauthorized terms". The interrelations between descriptors are indicated by means of "related terms". Together the SRM-Thesaurus comprises of an integrated and cohesive body of 1164 descriptors and 1795 unauthorized terms, arranged in 292 categories.

The advantages of such a classification system are many. It provides both specific search terms (descriptors) and generic points of access (categories), and promotes standardization and efficiency of search procedures.

The structure of the Thesaurus divides the field of social research methodology into twelve headings:

- A. Methodology of the Social Sciences
- B. Research Methodology. Research Design
- C. Types of Research
- D. Selection of Research Units
- E. Data Collection
- F. Measurement and Scaling Methods
- G. Statistical Theory and Tests

* The Thesaurus of Social Research Methodology/ M. van Logchem, G.W. Kantebeen, A.H. Reenders and J.M.A Hoogenboom. - Rotterdam: SRM-Documentation Centre, 1996. - 295 p. - ISBN 90-800520-8-6.

- H. Multivariate Analysis
- K. Data Processing and Interpretation
- L. Reliability and Validity
- M. Organization & Application of Research
- N. Information Sources

Broadly speaking, the sequence of these headings is based upon the successive stages of a research project in practice. Topics, relevant for all phases of a research project (L, M and N) are categorized at the end of the classification-scheme. These twelve headings are divided into juxtaposed and hierarchically categories and subcategories. From these premises, more precise concepts are derived in agreement with logical relationships and theoretical considerations. The lowest level of this hierarchical system is filled with terms (descriptors and unauthorized terms) reflecting specific methods and techniques used in social science research; the descriptors are used as index terms for the indexing and retrieval of the literature.

The SRM-Thesaurus is integrated into the retrieval software of the SRM-Database, as an instrument for the storage and retrieval of bibliographic information, helping to make searches systematic and comprehensive. The SRM-Thesaurus is also available in a printed (unbounded) version and will be updated annually to take into account new terms and concepts in social research methodology.

SRM-Information Services

SRM-Bulletin: Information on Social Research Methodology: New literature references are regularly published in a printed form in the "SRM-Bulletins". This highly current information quarterly, informs about recent published literature with a minimum of delay.

As a quick service new titles and abstracts are effectively indexed on author(s) and on subject(s); for over 1164 standardized terms it is possible to check the treatment of subjects in the literature.

SRM-Search Services: Specific searches can be carried out upon request, in which SRM staff members acting as intermediaries, help with the translation of problems into descriptors of the Thesaurus, and the designing of a search profile. An SDI service, as a more continuous form of information services can be provided as well.

Also a thematic bibliography in specific sub-field can be compiled on request for the supporting of conferences, workshops, seminars, etc.

*Sage Publications/SRM Database on CD-ROM**: The SRM-Database on CD-ROM is a product of professional partnership between the SRM-Documentation Centre and Sage Publications, the leading international publisher of social science methodology.

The CD-ROM is entitled "Sage Publications/SRM Database of Social Research Methodology". Updated every six months (March and September), this CD-ROM gives a cumulative access to the SRM-Database and to the latest research and publications in the field of social research methodology.

An easy-to-use interface facilitates complete bibliographic search options, as well as systematic subject searching by means of the Thesaurus structure. A free text retrieval option performs refined searches in a fraction of the time taken by a conventional library search.

With the unique and powerful Thesaurus, specific searches can be structured with the help of "broader and narrower terms" relations, and with the "see also" and "used for" references.

All available search options can be used in combination with each other, and the easy-to-use interface means virtually no training needed.

For more information and evaluation copies: market@sagepub.co.uk

*SRM-Helpdesk***: The team of information specialists of SRM are acting as intermediaries on request for information and help with the designing of search profiles. Helpdesk facilities are also available for more technical support, for instance with the installation of the CD-ROM and the use of the various functions or the user interface of the CD-ROM.

Contact the SRM-Helpdesk, e-mail address: helpdesk@srm.eur.nl

SRM-Site for Research, Methodology and Statistics for the Social and Behavioral Sciences***

Thanks to the information technology and network facilities, scientific communication and information are carried out more and more electronically. For the individual researchers it is hardly possible to keep informed on the enormous supply of electronic information and on all the current developments in the virtual

* Sage Publications/SRM Database of Social Research Methodology/ SRM-Documentation Centre. - Rotterdam: SRM-Documentation Centre, Erasmus University.
ISBN Stand Alone Version: ISBN 07619-0090-X.
ISBN Network Version: ISBN 07619-0091-8.

** SRM-Helpdesk: helpdesk@srm.eur.nl

*** SRM-Site for Research, Methodology and Statistics in the Social and Behavioral Sciences:
<http://www.eur.nl/ub/srm/srmsite>

world. For those reasons SRM enlarge its traditional tasks as a bibliographic information provider by means of a new www-service; the SRM-Site for Research, Methodology and Statistics for the Social, and Behavioral Sciences.

We intend to create one special address on the Internet for electronic and bibliographic information in such a way that brings together all relevant information on social research methodology. With the SRM-Site, various kinds of information can be gathered, selected and registered as far as it is of interest for methodologists, students, and social researchers in practice.

The retrieval system for the SRM-Site is designed by SRM in cooperation with the Directorate of Information Systems and Information Technology of the Erasmus University Rotterdam. For the data-entry and the database they have used Dataperfect 2.3. Freewais-sf (structured fields) has been used for the indexing, and the retrieval-system is based on SFgate 4.0. Both packages have been developed by the Department of Computer Science of the University of Dortmund, and are available as public domain.

In correspondence with our earlier experience in bibliographic information retrieval, we have tried to design an authorized and classified retrieval system for the Site with easy and user-friendly search procedures. Besides primary information, the SRM-Site will also supply pointers to other electronic information resources on the Internet.

As a starting point for the design of this system we have taken the user's needs and their requests for information as leading ideas. In fact two basic questions, can be asked: First of all: "What kind of information do you want?" and second: "What subject(s) are you looking for?". SRM is very familiar with the last question: while we handled these subject queries for more than 25 years in the bibliographic database. Led by our experience and the availability of the SRM-Thesaurus, we compiled a Subject-Index for the SRM-Site. This Subject-Index is based on the headings of the SRM-Thesaurus following the successive stages of a research project. Within the same structure we selected 139 leading and commonly used descriptors of the Thesaurus as authorized keywords for the Subject-Index.

In the past, SRM had only to deal with these subject queries in providing bibliographic information. But the extensive growth of electronic information, not only in quantity but also in diversity, requires a completion to this traditional way of subject-indexing. So, in addition to the Subject-Index, a distinction between the various types of electronic information can be made.

Therefore we constructed the Information-Index, in which all kinds of electronic information, related to the process of knowledge development and knowledge dissemination are categorized as follows:

1. General Information Resources
2. Researchers Forums, Meetings, Calls and Projects
3. Research Centers, Data Archives and Documentation Centers
4. Teaching Research Methodology and Statistics
5. Literature Information on Research Methodology and Statistics
6. Software for Social Science Research

Within this Index we have specified 25 authorized keywords, based on the distinctive kinds of electronic information available on the Internet.

In the SRM-Site we enclosed four different search options, based on the two already mentioned leading questions: "What kind of information do you want?", being the basis of the Information-Index, and "What subjects are you looking for?", categorized in the Subject-Index. Both indexes can be used as "stand alone" search options. Within one index more keywords can be selected in one search; in this case the Boolean operator is standard "OR". A combination of keywords from the Subject-Index as well as from the Information-Index is also possible. The Boolean operator is standard "And" in this case. Besides these two search-options, an "Alphabetical List of Terms" of all the keywords from the Subject-Index and from the Information-Index (together 164), is added as the third retrieval option. Finally a "Free Text" option completes the retrieval system.

"Free Text" includes searching in all fields of the records (names, electronic addresses, keywords, and annotation).

The information-specialists of SRM have traced many electronic information resources in the last 6 months. After contemplating discussion lists, announcements, newsletters, advertisements, etc., many electronic resources and their Internet addresses were registered and checked on their accessibility.

First of all, when we checked their access, it seemed that about 50 % of the mentioned addresses were incorrect or not operational. We checked them further in all kinds of search engines, like Netsearch on Netscape, and Alta Vista; so we could correct 30 % of the data.

That means, that about 20 % of the selected information sources could not be traced or doesn't exist anymore!

In the beginning stage, the SRM-Site contains now \pm 200 operational linked references to electronic information resources, all of them carefully indexed and mostly with a brief annotation.

At this moment, as far as it concerns the subject-indexing of these resources, only the more general concepts of the Subject-Index have been used, like the keywords "methodology of the social sciences", "research methods", "statistical analysis", "qualitative research", and several types of "applied research", such as "public opinion research", "marketing research" or "action research". But we suppose, that with the fast growing expansion of electronic publications, it will be necessary to use also the more precise concepts of the Subject-Index as well.

Quality Control:

Thanks to the developments in information technology the growth of worldwide communication is expanded immensely. The Internet, started as a worldwide scientific communication network between universities, is overflowed now with commercial information, fuzzy messages, and other rubbish and the need for authorized information and for quality control becomes more and more urgent. For this reason, we wish to provide a professional and controlled electronic information-service with the SRM-Site.

Quality of information will be guaranteed by SRM by using the following procedures:

- First of all, selection of the electronic information is based on the methodological relevance, according to the criteria that have been developed through the years for the selection of bibliographic information in the SRM-Database.
- The development of a classification-instrument at first, before the selection of the resources, permits a very specific and accurate indexing and retrieval of the electronic information sources.
- The Subject-Index for the Site is deduced from the SRM-Thesaurus, and follows the same authorized structure of main categories and concepts.
- The selected information will be added with keywords and with a short annotation.
- Each address is carefully checked on its accuracy and its real access on the Internet.

Upto now the main focus was pointed at the selection of electronic resources and the linkages to other homepages and e-mail addresses. But in the future, we will extend the service of the SRM-Site as provider of electronic publications as well.

In this way, the Site will function also as a Clearinghouse, offering "one virtual market-place for the demand and supply of electronic publications on social research methodology and statistics". Thanks to the Subject-Index, a precise selection, storage and retrieval can be guaranteed, even with the expected growing supply of electronic publications in the future. With the SRM-Site and the forthcoming service as Clearinghouse, SRM will complete the scientific information services from printed bulletins and CD-ROMS to an advanced intermediary for electronic information on the World Wide Web.

Subject-Index for Social Research, Methodology and Statistics

- | | |
|---|--|
| <p>Methodology of the social sciences
 Philosophy of the social sciences
 Logical reasoning
 Theory formation
 Theory testing
 Theory and research
 Methodological approaches</p> | <p>Policy research
 Forecasting research
 Evaluation research
 Educational research
 Ecological research/area research
 Demographic research
 Anthropological research
 Organizational research
 Group research
 Family research
 Behavioral research
 Psychological research</p> |
| <p>2 ResearchMethodology/Research Design
 Research methods
 Research design
 Formulation of problems
 Formulation of hypotheses
 Conceptualization
 Facet design
 Selection of indicators
 Formation of category system</p> | <p>4. Selection of Research Units/Sampling
 Sampling
 Sampling theory
 Sample size
 Sample design
 Census
 Nonresponse</p> |
| <p>3. Types of Research/Applied Research
 Qualitative research
 Quantitative research
 Types of research
 Exploratory research
 Descriptive research
 Hypothesis testing research
 Explanatory research
 Comparative research
 Longitudinal research
 Research strategies
 Field research
 Action research
 Survey research
 Case study/life history
 Applied research
 Public opinion research
 Political research/election polls
 Marketing research
 Mass communication research</p> | <p>5. Data Collection
 Data collection techniques
 Content analysis
 Secondary analysis
 Meta analysis
 Observation
 Questionnaire
 Mail survey
 Interviewing
 Types of interview
 Qualitative interview
 Unstandardized interview
 Standardized interview
 Group interview
 Telephone interview
 Computerized interview
 Interview situation</p> |

- Interviewers
 - Respondents
 - Responses
- 6. Measurement and Scaling Methods**
 - Measurement
 - Measurement theory
 - Levels of measurement
 - Measurement models
 - Rating
 - Scaling techniques
 - Unidimensional scaling/item scaling
 - Multidimensional scaling
 - Latent structure analysis
 - Latent trait models
 - Test theory
 - Item response theory
 - Test construction
 - 7. Statistical Analysis, Theory and Tests**
 - Statistical analysis
 - Statistical theory
 - Probability theory
 - Statistical inference
 - Estimation
 - Hypothesis testing
 - Data
 - Presentation of data
 - Graphical presentation
 - Summary measures
 - Statistical tests
 - Univariate tests
 - Multivariate tests
 - 8. Multivariate Analysis and Models**
 - Multivariate analysis
 - Measures of association
 - Measures of agreement
 - Regression analysis
 - Analysis of variance
 - Analysis of covariance
 - Factor analysis
 - Discriminant analysis
 - Panel analysis
 - Cohort analysis
 - Time series analysis
 - Cluster analysis
 - Correspondence analysis
 - Models
 - Linear models
 - Nonlinear models
 - Latent variable models
 - Structural equation models
 - Causal models
 - Process models
 - Markov models
 - Discrete models
 - Log-linear models
 - 9. Data Processing and Interpretation**
 - Data processing
 - Coding
 - Data interpretation
 - Elaboration
 - Levels of analysis
 - Individual analysis
 - Relational analysis
 - Group analysis
 - Multi-level analysis
 - 10. Reliability and Validity**
 - Errors
 - Reliability, theory and testing
 - Validity, theory and testing
 - 11. Organization & Application of Research**
 - Research management and organization
 - Research policy
 - Quality of research
 - Research ethics
 - Application of research
- Information-Index for Social Research, Methodology and Statistics**
- 1. General Information Resources**
 - 2. Research Forums, Meetings, Calls and Projects**
 - Researchers
 - Researchers associates
 - Special interest groups
 - Newsletters
 - Discussion lists
 - Meetings
 - Calls/projects
 - 3. Research Centers, Data-Archives and Documentation Centres**
 - Research centers
 - Data-archives/Data services
 - Documentation centers
 - 4. Teaching Research Methodology and Statistics**
 - Teaching research methodology

Courses/Summerschools
Course materials/Courseware
Manuals/Guides

5. Literature information on Research

Methodology and Statistics

Libraries/Virtual library servers
Bibliographic databases
Document delivery services
Electronic publications

Publishers
Books/New titles
Periodicals
Grey literature

6. Software for Social Science Research

Computer packages/Software
New Programs
Software information services

TruusKantebeen
srm-documentation centre
Erasmus University Rotterdam
P.O. Box 1738
3000 DR Rotterdam
The Netherlands