

Librarianship Facing A Challenging Future

by Joe Fitzsimmons

Thank you for inviting me to speak on the opportunities and challenges facing libraries. I am pleased to see so many people willing to get up early and confront these important issues. I think it speaks well of our society that so many professionals are committed to providing information that can help people enrich their professional and personal lives. As Liz Bishoff, OCLC's director of member relations, has pointed out, "data is to the Information Age what raw materials were to the Industrial Age. Statistics, technical reports, scholarship, and research are the gold, silver and titanium of the Information Age."

Striving to provide these riches, libraries are, indeed, facing many challenges. Most library systems suffered from the recessionary squeezes of the early '90's, and were forced to cut hours, collections, and staff. Budgets are still tighter than ever. Clearly, a discussion of financial issues alone could fill all our time this morning. Or we could focus solely on the increasingly heavy demands of document delivery, collections management, or library automation.

I'm going to touch on all these topics, but I'm going to focus my remarks on the issue that probably will bring the greatest challenges and opportunities you will face in the next few years: The role or the mission of the library in this age of ubiquitous electronic information and communications technologies.

I recently read about a library using technology to serve a 700-square-mile area of small towns and fishing villages on the southeastern coast of Virginia. A bookmobile from the Eastern Shore Public Library travels the area every two weeks and, by itself, records circulation of about 2,500 check-outs per month.

Using laptop computers and a module developed by Maxcess Library Systems, bookmobile staff members download the main library's patron and circulation files every morning before starting the day's run and then upload data back to the main library system at the end of the day. Besides the traditional automated bookmobile functions of check-out and check-in, the system gives staff members the ability to register new patrons, update current patron records, pay fines, and place holds.

This is an example of how a library can use technology to help position itself for the future, and it is an illustration of the opportunities created by the increasing proliferation of information technologies.

But the digital revolution is also creating major challenges to the role of the library. In fact, it has led some people to believe that libraries are no longer necessary. Just a few months ago, fifteen library assistants were fired from a large law firm on the West coast. The firm's chairman said, "Technology has allowed us to cut back on people." Here's another example: The newest branch of the University of California is opening without a library. Why do we need one, asked the university's president, when electronic resources are omnipresent and easy to use?

I suspect these short-sighted ideas are fueled by hype about the information superhighway in the mass media. The March 1995 cover of *PC Computing* blared "Find Everything! Do Anything! Online." The February issue of *Newsweek* hyped the splendor and spectacle of "Technomania." A reporter for an economic development magazine even had the temerity to call the Internet "the biggest bookmobile in history."

Communications expert James Carey would characterize such bombastic statements as "the rhetoric of the electric sublime."

In his book *Communication as Culture: Essays on Media and Society*, he used that phrase to describe the unfounded excitement with which people have proclaimed the power of technology to improve the world. Throughout American history, he says,—from the telegraph to the Internet—we have mythologized "electrical techniques as the motive force of desired social change, the key to re-creation of a humane community, the means for returning a cherished naturalistic bliss."

Today, many people are predicting that the Internet and the developing information infrastructure will bring about those improvements. For example, a lofty vision of the infrastructure has been put forward by the U.S. Council on Competitiveness. According to the Council, the infrastructure of the 21st century will enable people "to access information and communicate with each other easily, reliably, securely, and cost-effectively in any medium—voice, data, image, or video—anytime, anywhere. This capability will enhance the productivity of work and lead to dramatic improvements in social services, education, and entertainment."

During the first part of this century people were predicting that another

er technology would lead to such dramatic improvements. Can you guess what it was?

It was the telephone system. A recent *Wall Street Journal* article titled "Futuristic Schlock: Internet Hype Ignores History's Ringing Lesson" noted that the telephone was supposed to bring "peace on earth, eliminate Southern accents, revolutionize surgery, stamp out 'heathenism' abroad, and save the farm by making farmers less lonely."

In 1912, a technology pundit predicted that the picture phone would create a "home theater" that would, within two decades, let people dial-up symphonies, presidential speeches, and three-dimensional Shakespearean plays. The cost would be low and the content would be excellent because only the best material would survive. Novels, orchestras, and movie theaters would vanish. The way government operates would be dramatically improved.

You could hear echoes of these predictions at a recent American Freedom Foundation summit on "Cyberspace and the American Dream." One participant said that the Internet—by allowing anybody to share information with anyone else—has made anachronisms of both television and an irretrievable "clueless government."

Another participant said that because marketing and distributing products on the Internet costs almost nothing, "only the good stuff will survive."

You have to look far and wide for more realistic views. You can find one in a brief article published among the hype in *Newsweek's* Technomania issue. Reporter Cliff Stoll said, "Lacking editors, reviewers or critics, the Internet has become a wasteland of unfiltered data. You don't know what's worth reading...hundreds of files show up, and it takes fifteen minutes to unravel them—one's a biography written by an eighth grader, the second is a computer game that doesn't work, and the third is an image of a London monument. None answers my question..."

Of course, the telephone did bring improvements to society, and today's information and communication technologies will too. But when people need real answers to real questions, where should they turn?

They should turn to you, the information professional.

There **is** an information revolution taking place. Let me repeat that: There is an information revolution taking place. I have given lectures on how it is creating a third industrial revolution. But it is not a revolution that makes the library an anachronism. **Just the opposite:** It makes the library more important now than any other time in history, and you are going to be able to play a leading important role in it.

Technology cannot meet the world's information needs without your help. Even the editor of ONLINE magazine, Nancy Garman, has pointed out that online is not enough. "It just isn't," she says, "not the Internet, not all our fancy, expensive commercial services, and certainly not the popular consumer services...The Internet may be the 4-wheel drive of the online world, popular and fun, but it is also the cause of, not the solution to, the current information explosion."

The solution is the knowledge and skill of the librarian. Garman notes that "few know and understand the 'how and why' of information as well as information professionals. They understand how it is put together, where it comes from, why it might or might not be valid, when to question it, and where to look for more. They have the big picture when it comes to information.

The information explosion demands the expertise of information professionals—to know when to go online and when other resources should be brought to bear."

Providing this expertise is the role of the library of the future. As I said before, it will bring you the greatest opportunities. You will have the chance to help people understand that electronic information technologies such as online networks, bookmobile technologies, and CD-ROMs are—like traditional paper-and microform-based resources—a set of tools you have mastered.

An article in *The Washington Post* reported on how librarians around the country are providing guidance to new media and electronic content. It said "libraries in places as small as Morrisville [New York] and as big as New York City are joining the information revolution with ardent enthusiasm. They speak of their social responsibility to provide on-line access for the millions that will never have a home computer. They note that no one is better equipped to guide people through this rapidly expanding sea of data than professionals like themselves. And finally, if

pressed, they mention their own need to avoid technological obsolescence.”

When Morrisville Public Library Director Beverly Choltco-Devlin secured a grant that provided a computer and an Internet connection, library use jumped twenty-five percent. Furthermore, she says that she believes that the new library services have saved lives—literally. The examples she cited included a young woman whose boyfriend was diagnosed with advanced melanoma. She was able to research the disease and become his advocate. A pregnant woman was able to become more informed about sudden infant death syndrome, which had killed her first child. An elderly man discovered that the medication he was taking was causing an inflammation. An adult survivor of child abuse found an electronic support group. An avid ham radio operator who is going deaf has been able to communicate with other ham radio operators by e-mail.

Clearly, the use of the Internet to meet those types of information and communication needs is growing. A survey last year by the National Commission on Libraries and Information Science found that 16.1 percent of the country’s 9,000 public libraries offered some form of **public Internet access**. Another survey of 369 public libraries serving populations of 100,000 or more found that 23.3 percent offered direct access for patrons. Those numbers don’t sound that high, but George Needham, executive director of the ALA’s Public Library Association, has noted that if you had done the survey two years ago, the number of libraries offering Internet access would have been very low. “The number is growing exponentially,” he said.

One of the first public libraries to set up a page on the World Wide Web was the St. Joseph County Public Library in South Bend, Indiana. According to Don Napoli, the library’s director, “The Internet is going to become the medium for transmitting or providing information in almost every field you can think of, but you’ll still need a public entity that acts for the community in providing access. That’s the library.”

And librarians can enhance their traditional function of information gatekeeper and navigator to include the role of cyberspace navigator.

Let’s explore cyberspace for a moment. Let’s jump from the nitty-gritty details of meeting day-to-day information needs to the broader area of information science or information theory.

Consider the characteristics of cyberspace. The term has been used so loosely in the national media that it has lost any precise meaning it may have ever had, but let's try to pin it down. One communications theorist calls it "the space of interactive computational possibilities, where computers and their contents are available to users of any participating computers, anywhere." Another theorist defines it as "a globally networked, computer-sustained, computer-accessed, and computer-generated, multi-dimensional, artificial reality." Wow!

Perhaps one of the best descriptions comes from Michael Bauwens, a winner of the European Special Librarian of the Year award and the founder of Cybrarian Inc., an information consulting firm. He has identified three cyberspace levels or phases of emergence:

Level one is simply the mental map we have of the digital landscape when we are using computers to find information. Anyone with access to a PC and a modem can participate in level one cyberspace.

Level two involved actively communicating with a machine or another human being through a computerized system. E-mail and computer bulletin boards are examples of level two.

Level three is characterized by global networks and multi-sensorial, sometimes even three-dimensional experiences. When we attain level three, we have entered a virtual environment that usually is parallel to a physical environment.

So how do these levels affect libraries? Bauwens notes that the **first level** of cyberspace corresponds to the first phase of library automation, which usually includes electronic access via an online public access catalog.

A library enters **level two** when it offers access to electronic collections of citations and then provides the delivery of real documents. Many libraries are now offering access to this level. I've seen evidence of this first-hand because I've seen record numbers of orders placed at UMI's InfoStore—a document delivery service that can provide copies of articles in the company's internal collection of more than 15,000 journals and newspapers. The InfoStore also can provide other types of documents such as patents, standards, conference proceedings, government releases, and technical reports.

UMI also has joined several other organizations to make citations to scholarly information available through electronic channels. The Digital Dissertations Project, an initiative of the Coalition for Networked Information, involves UMI, Virginia Tech, Cornell University, and Pennsylvania State University. The goal is to maximize the benefits of digital and network technologies while preserving the integrity of the scholarly record. The project will build on the existing infrastructure of OPACs, local area network, and networks in general. Ultimately, the project will simplify the dissertation process for graduate schools and give researchers the academic information they need, when they need it, and in their choice of formats.

A library enters the **third level** of cyberspace when it offers electronic access to virtual collections of information consisting of full-text electronic documents. Many libraries have entered this level through in-house systems that link abstract-and-index databases with images of articles stored on CD-ROM. In a printed publication, the text, graphics, and page layouts work together to provide communication value to the reader, but that value usually is lost when the document is translated into an electronic format. To preserve the communication, value, full-image databases contain bit-mapped “electronic photographs” of documents.

Linked to high-speed networks, full-image databases provide simultaneous, round-the-clock searching, which is facilitated by using a comprehensive abstract-and-index file to serve as a “front-end” to an image collection. To print a document, output is sent to laser printers and fax machines.

UMI’s ProQuest PowerPages is an example of an image-based document delivery solution. It provides automated delivery from one or more of UMI’s full-image databases, which contain copyright-cleared images of articles from thousands of general-reference, business, academic, and engineering titles. Updated monthly, the images are faithful reproductions of the originals—complete with charts, photos, tables, diagrams, and other graphics.

ProQuest PowerPages combines the image databases with sophisticated document delivery technologies such as a specially designed 240-disc capacity jukebox that houses the CD-ROM collection. Multi-site capability is possible because PowerPages can link abstract-and-index databases mounted on a mainframe with the image collections.

The system provides local-and wide-area-network access as well as several delivery options, including the ability to receive complete images of articles on in-house laser printers or remote fax machines.

In addition to CD-ROM, networks, and fax machines, there is an older imaging technology that has been updated to play an important role in many document delivery systems: microform. It can now be combined with a library's microform reader-printers and fax machines or linked to new equipment that digitizes microform images and transmits them over networks automatically.

To help libraries and information centers offer comprehensive document delivery services, UMI has developed a system that will enhance any type or size library's mix of in-house technologies. Called ProQuest Direct, it is a revolutionary client-server system that provides access to virtually all of UMI's electronic holdings—including databases of abstracts, ASCII fulltext, and bit-mapped full-image articles (at present, more than nine million page images). It is available from a central system at UMI's headquarters in Ann Arbor, Michigan. Launched just a few weeks ago, it is the first system to allow researchers in remote settings to dial into and search a vast collection of information, view actual article images, and then select the ones they would like to print on their laser printers.

Libraries around the country are exploring and investing in such systems to help position themselves for the future but there are many other things libraries can do that will help accomplish this. Let me offer some ideas.

First, promote your services as much as possible. **Market** the library as THE guide to the information age. Use guerrilla marketing tactics if necessary. Print and distribute brochures and booklets. Set up a speakers bureau, and take on public speaking engagements at community meetings, corporate events, and school functions such as career days and job fairs. Anywhere people will let you talk is where you want to be speaking.

Second, build community support. You already have expertise in this area because of your bookmobile services. By getting out into the community, you've increased your visibility and let the community know you care about meeting their information needs. Build on this image. Look for support and funding in unlikely places. The San Antonio Public Library does an annual telethon. Last year it raised \$137,000. The library in

Billings, Montana got a \$150,000 grant from Wendy's fast food chain. Libraries in California are getting four free high-speed data lines for a year from Pacific Bell.

A third way to position yourself for the future is to emphasize the importance of content. Promote the library as an advocate for information consumers—an advocate that will point out the most valuable databases, the best Internet sites, and the most important reference works whether they're online or on paper or whatever.

Of course, this has always been part of your job, but it's especially important because of today's information glut, and because the hype surrounding the information highway has focused on the properties of the pavement. Now it's time to take our eyes off the road and look more closely at our destinations. In other words, technological advances, near advances, and pipe dreams grab headlines, but the real focus should be on the content of our digital information resources regardless of the technology used to get to them.

We are already seeing the beginning of a backlash against the uselessness of some electronic information.

In a January issue of *Interactive Age*, writers predicted that the World Wide Web soon will "suffer a critical backlash as 'gee-whiz' gives way to 'gee what's the big deal.'" The magazine noted that early Web sites have been similar to early CD-ROMs: Just as the first-generation of CD-ROMs gave us 'shovelware' (in which you pack a whole bunch of stuff into 600 megabytes of disk space and call it a product), the first generation of home pages has given us 'brochureware' (in which you take a company's promotional literature and add a few hot-links).

That's just one example of information seekers' growing discontent with content. More and more we are seeing people question the value of the information they are accessing through digital channels. In an article published in *Information Today*, Bell & Howell President and Chief Operating Officer Jim Roemer listed the "intense scrutiny of the content of electronic information sources" as one of the most important trends affecting the information industry. "With an abundance of sources from which to choose," he said, "people will focus less on the technological means to accessing information and more on the quality of the information itself. Both librarians and end users will increasingly question the dependability of digital data. Specifically, they will ask, 'Who compiles

it?’ ‘What is its original source?’ ‘When is it updated?’ ‘Where do I turn for help searching it?’ and ‘How will it solve my information needs?’”

Paula Hane, editor of *DATABASE* magazine, insists that her reporters answer those questions for the journal’s readership, which primarily consists of librarians and other informational professionals. With so many sources floating around cyberspace, she says, we cannot take for granted where digital data is coming from and how it is produced. Moreover, consumers themselves are increasingly questioning the value of digital data. In the lead to his article “The Search for Real Information,” published in the consumer magazine *Online Access*, Larry Krumenaker asks: “Not into online chat? Want more than games and shopping? Where can you turn to find real content and true information online?”

Again, the answer is not technology. The answer is you. We need to get the message across that people should rely on your expertise.

A final way to position your library for the future—and this is very important—is to teach information literacy, or as one seminar company calls it, “driver’s education for the information highway.”

It involves more than just teaching computer skills. The essence of information literacy is the ability to distill meaning from information.

According to Charles McClure, Professor at the School of Information Studies at Syracuse University, information literacy occurs when four other types of literacy overlap:

- Traditional literacy—The ability to read and write. This is basic literacy, but I believe it also is the most important. Today forty percent of high school graduates cannot read even at the fourth-grade level. At least a third of the U.S. population has difficulty coping with common reading tasks. According to the U.S. Department of Education, more than three-fourths of young adults cannot summarize the main argument from a newspaper editorial or use a bus schedule. Despite the scope of the problem, illiteracy rarely has been discussed in relation to the digital revolution or the information superhighway. This needs to change. Literacy experts should be invited into board rooms, and the companies building the information infrastructure should be focusing less on movies on demand or five hundred

television channels and more on systems that advance the development of reading and writing skills.

- **Computer literacy**—The ability to perform basic tasks on a computer such as using word processing software, creating simple documents through desktop publishing applications, and manipulating data in a spreadsheet.
- **Media literacy**—The ability to understand meanings in a culture made up of images, words and sounds. A person who is media literate can decode, analyze, evaluate, and create both electronic and print media.
- **Network literacy**—The ability to use computer networks such as the Internet to find and analyze information. A person who is network literate can combine networked information with other information and, according to McClure, use it “to analyze and resolve both work-related and personal decisions and obtain services that will enhance their overall quality of life.”

The combination of these literacies is information literacy, and we need to develop creative ways of promoting it. As McClure says, “Probably the most important challenge for exploiting information in a networked environment is extending our horizons of what is possible and developing new visions.”

The vision I have been advocating includes widespread use of information technology guided by librarians. But to make this vision come true, we need to promote widespread training, and we need information systems and services created by the pull of public demand instead of the push of technology.

Dr. Michael G. Elasmr, a professor at Boston University, has studied the human factor in computer-based communication and information technology. He identified several reasons people stop using technology after they have been introduced to it. One is that they find the technology doesn't provide useful or interesting information. Another is they find it too difficult to navigate, or they feel they lack sufficient training to use the full capability of the system. Yet another possible reason is that they feel “technostress”—apprehension toward technology.

To move toward the type of training that would address the issues raised by both Elasmar and McClure, I would like to propose a model for a national training agenda. Instruction in information technology should include the following components:

- Hardware evaluation guidelines—Basic information on computers, modems and CD-ROM drives.
- Understanding networks—How to use LANs, WANs, commercial online services, and the Internet.
- Navigation skills—Strategies for moving around the information highway.
- Content evaluation—All information seekers should be trained to question the quality of electronic resources. They should be taught to ask “Where does the data come from?” “How current is it?” “How is it collected?” “Who provides value-added services such as editing, indexing, and abstracting?” and “Is it comprehensive?”
- Information manipulation—Strategies for understanding information, combining it with other information, and using it in real-life situations.

I am not proposing another federal hand-out program. Think of it as an “info-fair” featuring subjects that would fire the imaginations of both parents and their children.

The good news is that we are starting to see a variety of organizations teaching information literacy concepts. Many colleges and universities now offer Internet and other online training not only to their undergraduates but also to the general public through continuing education classes. Several public schools also are installing as much information technology as their budgets allow and training grades K-12 on the importance of information skills.

But much work still needs to be done. Through collaboration, everyone involved in the digital revolution can meet the challenge of promoting information literacy. Traditional print publishers can work with electronic information companies like UMI to develop high-quality content areas. Information companies can work with librarians to develop resources that offer the feature and benefits important to researchers. Librarians can

work with technology providers to develop systems that address human factors and serve simultaneous users across a campus or throughout a city.

And Friends of Libraries groups can work with information professionals as well as local and regional governments to help supply the resources needed to build the on-ramps and side streets of the information highway.

And we all can become educators. Each of us probably has extensive knowledge in at least one of the literacy areas: reading, writing, media, computers, or networks. If we each share our knowledge—through book-mobiles, classrooms, journal articles, one-on-one training, or anywhere we can find people who want to learn—the result will be the spread of information literacy and, ultimately, a significant, satisfying, and successful mission for the library of the future.

Joe Fitzsimmons is former President of University Microfilms International.