

GROWING OUR COMMUNICATIONS FUTURE: Access — Not Just Wires

by Karen Coyle

I have to admit that I'm really sick and tired of the Information Highway. I feel like I've already heard so much about it that it must be here and gone already, yet there is no sign of it. This is truly a piece of federal vaporware.

I am a librarian, and it's especially strange to have dedicated much of your life to the careful tending of our current information infrastructure, our libraries, only to wake up one morning to find that the entire economy of the nation depends on making information commercially viable. There's an element of Twilight Zone about this because libraries are probably our most underfunded and underappreciated of institutions, with the possible exception of day care centers.

It's clear to me that the information highway isn't much about information. It's about trying to find a new basis for our economy. I'm pretty sure I'm not going to like the way information is treated in that economy. We know what kind of information sells, and what doesn't. So I see our future as being a mix of highly expensive economic reports and cheap online versions of the *National Inquirer*. Not a pretty picture.

This is a discussion on "access." But I am not going to talk about access from the usual point-of-view of physical or electronic access to the FutureNet. Instead I am going to talk about intellectual access to materials and the quality of our information infrastructure, with the emphasis on "information." Information is a social good and part of our "social responsibility" is that we must take this resource seriously.

From the early days of our being a species conscious of its own history, some part of society has had the role of preserving this history: priests,

learned scholars, archivists. Information was valued, valued enough to be denied to some members of society, and to possess information was to be part of the ritual of belonging to an elite.

So, I find it particularly puzzling that, as we move into this new "information age," our efforts are focused on the machinery of the information system, while the electronic information itself is being treated like just so much more flotsam and jetsam. This is not a democratization of information, but a devaluation of information.

On the Internet, many electronic information sources that we are declaring worthy of "universal access" are administered by part-time volunteers, graduate students who do eventually graduate, or network hobbyists. Resources come and go without notice, or languish after an initial effort and rapidly become out of date. Few network information resources have specific and reliable funding for the future. As a telecommunications system the Internet is both modern and mature; as an information system the Internet is an amateur operation.

Commercial information resources, of course, are only interested in information that provides revenue. This immediately eliminates the entire cultural heritage of poetry, playwriting, and theological thought, among others.

If we value our intellectual heritage, and if we truly believe that access to information (and that broader concept, knowledge) is a valid social goal, we have to take our information resources seriously. Now I know that libraries aren't perfect institutions. They tend to be somewhat slow-moving and conservative in their embrace of new technologies; and some seem more bent on hoarding than disseminating information. But what we call "modern librarianship" has over a century of experience in being the tender of this society's information resources. And in the process of developing and managing that resource, the library profession has understood its responsibilities in both a social and historical context. Drawing on that experience, I am going to give you a short lesson on social responsibilities in an information society.

Here are some of our social responsibilities in relation to information:

- Collection
- Selection

Progressive Librarian #14

- Preservation
- Organization
- Dissemination

Collection

It is not enough to passively gather in whatever information comes your way, like a spider waiting on its web. Information collection is an activity, and an intelligent activity. It is important to collect and collocate information units that support, complement and even contradict each other. A collection has a purpose and a context; it says something about the information and it says something about the gatherer of that information. It is not random, because information itself is not random, and humans do not produce information in a random fashion.

Too many Internet sites today are a terrible hodge-podge, with little intellectual purpose behind their holdings. It isn't surprising that visitors to these sites have a hard time seeing the value of the information contained therein. Commercial systems, on the other hand, have no incentive to provide an intellectual balance that might "confuse" its user.

In all of the many papers that have come out of discussion of the National Information Infrastructure, it is interesting that there is no mention of collecting information: there is no Library of Congress or National Archive of the electronic information world. So in the whole elaborate scheme, no one is responsible for the collection of information.

Selection

Not all information is equal. This doesn't mean that some of it should be thrown away, though inevitably there is some waste in the information world. And this is not in support of censorship. But there's a difference between a piece on nuclear physics by a Nobel laureate and a physics diorama entered into a science fair by an 8-year-old. And there's a difference between alpha release .03 and beta 1.2 of a software package. If we can't differentiate between these, our intellectual future looks grim indeed.

Certain sources become known for their general reliability, their timeliness, etc. We have to make these judgments because the sheer quantity of

information is too large for us to spend our time with lesser works when we haven't yet encountered the greats.

This kind of selection needs to be done with an understanding of a discipline and understanding of the users of a body of knowledge. The process of selection overlaps with our concept of education, where members of our society are directed to a particular body of knowledge that we hold to be key to our understanding of the world.

Preservation

How much of what is on the Net today will exist in any form ten years from now? And can we put any measure to what we lose if we do not preserve things systematically? If we can't preserve it all, at least in one safely archived copy, are we going to make decisions about preservation, or will we leave it up to a kind of information Darwinism? As we know, the true value of some information may not be immediately known, and some ideas gain in value over time.

The commercial world, of course, will preserve only that which sells best.

Organization

This is an area where the current Net has some of its most visible problems, as we have all struggled through myriad gopher menus, ftp sites, and web pages looking for something that we know is there but cannot find.

There is no ideal organization of information, but no organization is no ideal either. The organization that exists today in terms of finding tools is an attempt to impose order over an unorganized body. The human mind in its information seeking behavior is a much more complex question than can be answered with a keyword search in an unorganized information universe. When we were limited to card catalogs and the placement of physical items on shelves, we essentially had to choose only one way to organize our information. Computer systems should allow us to create a multiplicity of organization schemes for the same information, from traditional classification, that relies on hierarchies and categories, to faceted schemes, relevance ranking and feedback, etc.

Unfortunately, documents do not define themselves. The idea of doing

WAIS-type keyword searching on the vast store of textual documents on the Internet is a folly. Years of study of term frequency, co-occurrence and other statistical techniques have proven that keyword searching is a passable solution for some disciplines with highly specific vocabularies and nearly useless in all others. And, of course, the real trick is to match the vocabulary of the seeker of information with that of the information resource. Keyword searching not only doesn't take into account different terms for the same concepts, it doesn't take into account materials in other languages or different user levels (i.e. searching for children will probably need to be different than searching done by adults, and libraries actually use different subject access schemes for childrens' materials). And non-textual items (software, graphics, sound) do not respond at all to keyword searching.

There is no magical, effortless way to create an organization for information. Today the best tools are a clearly defined classification scheme and a human indexer. At least a classification scheme or indexing scheme gives the searcher a chance to develop a rational strategy for searching.

The importance of organizational tools cannot be overstated. What it all comes down to is that if we can't find the information we need, it doesn't matter if it exists or not. If we don't find it, we don't encounter it, then it isn't information. There are undoubtedly millions of bytes of files on the Net that for all practical purposes are non-existent.

My biggest fear in relation to the Information Highway is that intellectual organization and access will be provided by the commercial world as a value-added service. So the materials will exist, even at an affordable price, but it will cost real money to make use of the tools that will make it possible for you to find the information you need. If we don't provide these finding tools as part of the public resource, then we aren't providing the information to the public.

Dissemination

There's a lot of talk about the "electronic library." Actually, there's a lot written about the electronic library, and probably much of it ends up on paper. Most of us agree that for anything longer than a one-screen email message, we'd much rather read documents off a paper page than off a screen. While we can hope that screen technologies will eventually produce

something that truly substitutes for paper, this isn't true today. So what happens with all of those electronic works that we're so eager to store and make available? Do we reverse the industrial revolution and return printing of documents to a cottage industry taking place in homes, offices and libraries?

Many people talk about their concerns for the "last mile" — for the delivery of information into every home. I'm concerned about the last yard. We can easily move information from one computer to another, but how do we get it from the computer to the human being in the proper format? Not all information is suited to electronic use. Think of the auto repair manuals that you drag under the car and drip oil on. Think of children's books, with their drool-proof pages.

Even the Library of Congress has announced that they are undertaking a huge project to digitize 5 million items from their collection. Then what? How do they think we are going to make use of those materials?

There are times when I can only conclude that we have been gripped by some strange madness. I have fantasies of kidnapping the entire membership of the administration's IITF committees and tying them down in front of 14" screens with really bad flicker and forcing them to read the whole of Project Gutenberg's electronic copy of *Moby Dick*. Maybe then we'd get some concern about the last yard.

So, where does this leave us?

- no amount of wiring will give us universal access;
- just adding more files and computers to gopherspace, webspace and FTP-space will not give us better access;
- commercial information systems can be expected to be — commercial .

Growing Our Communications Future

Let me take you into the future — the year is 2015. The Universal Network, or Unet, has been operating for about ten years. Everyone (well, nearly everyone) has access to high-speed, global communications. They also have access to digital television, huge libraries of information, and a gazillion chat groups where conversation runs to: what are *you* wearing tonight?

It took a good long while to get the Unet up and running. The main problem was how to pay for high-bandwidth wiring for the nation's homes. The government didn't want to foot the bill, that's for sure. Some folks even thought that it could all be done with ISDN, until the World Wide Web came along and made ISDN look like a drippy faucet rather than a fire hose.

The trick was to get consumers to pay for the installation of a network that they hadn't seen yet. The obvious solution of starting off with an all-pornography network wasn't going to sit well with middle America. The religious right proposed LordNet, with prayers available in increments of \$1, \$25 and \$100, depending on their desired return. This, however, didn't catch on.

The big irony was that at the beginning of the Net, when it was still the Internet, no one had figured out how to make money off it. Even though hardcopy money had long ceased to be the primary exchange of value, and most money was being transported as streams of ones and zeroes, people were floundering on the implementation of electronic Net cash. To make matters worse, Net cash was tied up in the encryption debate, so the same technology that would make the Net a neat, taxable revenue source was also what was going to turn it into a seething mass of criminal activity.

Fortunately, this was resolved in the year 2000. A horde of programmers hired in 1998 to resolve the "millennium problem" (that is, all of the millions of lines of code in existence that couldn't handle dates that began with anything but "one-nine") found themselves unemployed in January of the year 2000, and set themselves to developing a program that could encrypt numbers, but not letters. Thus, transactions could be sent that maintained the alphabetic portion of their message, but securely scrambled credit card numbers and Net cash.

The Internet, back in the 80's and 90's, had mainly offered dull government documents, the inept writings of graduate students and the professors they wished to become, and the sexual fantasies of 18-22 year old virgins. The new Unet is now a riot of entertaining and desirable fare. Big boys, like Disney and Time/Warner/Turner put out snippets of their films and have enticed viewers to upgrade their connection to digital movie quality. News programs have truly found their place on the Net, offering up-to-the-second views of events happening all over the world, perfectly selected for your

interests. One only has to look at the difference between the dreary network news of latter half of the 1900's and today's selection of individualized multimedia offerings to see how our lives have improved. It's amazing that we made it this far as a society when each evening we were presented with such depressing stories of war, crime and death. Today, you never have to encounter stories you don't want to hear.

Online shopping allows 3-D views of products and virtual walk-throughs of vacation paradises.

It's not all commercialism though — the Unet is quite dedicated to public service. For example, in 2012 a highly advanced tracking system was installed that would allow you to know the precise moment that the city bus would arrive at your bus-stop. And highway metering systems make it possible for commuters to choose the best moment to enter the flow on their way to work. The bus tracking system, however, failed to make enough money to pay for itself, so it was rightly concluded that people didn't need bus information or else they would have been willing to pay for it. This service was eliminated in 2014, but the highway metering is a great success, and is being expanded to major thoroughfares in the larger cities.

What makes the Unet such a perfect system is that the success of a product can be measured in precise increments. Each second of each day the producers know exactly how many viewers they have. They can weed out not only unpopular programs or resources, but even the unpopular portions of popular products and replace them with sure-fire audience grabbers. And they can tell immediately if their information is being viewed by the audience they want to reach: no use advertising a BMW to households with an annual income less than the price of the car, or sending stock market information to people without bank accounts.

Even the government is playing the game. The "Cost Recovery Act of 2007" required each government agency to bring in revenue based on its information offerings. So in Congress, copies of bills are available for a small fee. Ten percent of the revenue from a bill goes to the party of the sponsor of the bill, and five percent goes directly to the office budget of the sponsor. The remainder helps pay for general running of the Congress, such as the gourmet cafeteria, the Congressional health plan and, of course, their official email accounts.

Being a clever bunch, the Congress-critters have been able to re-align their politics toward revenue development. Popular bills are...well, very popular, and a good, juicy bill can turn around a flagging party. Today, no one would be caught dead writing a bill entitled "Act to Extend Yam Surplus to American Samoa" or "Intrastate Truck Transportation Technical Correction Act of 2006." Bills that sell best are those that appeal to large interest groups, especially those with money and the time to lobby. Seniors with pensions are doing quite well and a number of bills have been passed in their favor. Of course, other groups, like children and the unemployed, have pretty much fallen off the Congressional map. You can't expect the Congress to represent people who don't contribute to the government.

Essentially, everything on the Unet is now making money. And consumers are upgrading their equipment and their online connections almost faster than companies can lay the fiber or role out the new products. Thanks to the Unet, the average credit card unpaid balance has risen 300%. The Unet is a success, and the economy is safe.

OK, all of this sounds a bit silly, doesn't it? But it's all based to some degree on reality.

The Clinton administration did promise us a National Information Infrastructure in its 1994 NII platform. That same platform made it perfectly clear that this upgrade to our telecommunications system would not be created with federal money, but would be left to a competitive marketplace. The government's role would be to eliminate regulations that hindered the commercial development of these new technologies. It would also need to strengthen domestic copyright laws to prevent piracy and protect the integrity of intellectual property. In other words, make it possible for the information society to become the information economy.

But this information economy could have a greater impact on our society than we are anticipating. To begin with, while most people are focusing their concern on how we will wire-up our nation's homes, few people are looking at what the market economy will do to the actual information availability, not to mention content and quality. There is very little commercial incentive to provide information to low income or minority segments of our society — the profit margin is just too low. So we are more likely to have information that benefits car owners than public transit users. And we have already seen that government is moving toward a revenue model for

its information, where information gathered and organized with our tax dollars is sold back to us at money-making rates.

Yet, the administration's NII plan promised us the following:

- universal access;
- seamless, interactive, user-driven operation of the NII (not a Turner/Disney platform);
- a system that will ensure that the immense reservoir of government information is available to the public easily and equitably.

This is already in contradiction with what's happening today, much less in the future.

The Clinton administration is responding to a particular problem – economic decline and a flagging marketplace. Information industry is expected to bring us out of this "recession." Social good is not part of the package, unless it comes about as a by-product of the economic growth. A good example of this is the recently proposed change to the copyright laws. This law is being amended to give additional protection to intellectual property in the electronic world, which is considered necessary for the online marketplace. But in doing so, it also essentially eliminates the possibility of free lending of electronic works. When members of the Department of Commerce task force that proposed the rulings were faced with the accusation that this could practically eliminate the public library as we know it in the digital future, they replied, "Saving the public libraries was not in our charge."

I'm not trying to imply that the commercial marketplace is evil. I am saying that it has primary interests other than those of free speech and democracy and it would be even unnatural for us to expect it to put these before profit. There are profound moral questions that arise relating to communication and these will not be answered by a free-market. Like the effect of copyright laws on free access to information in libraries, we might find that what seems like a straightforward decision has great implications for non-market aspects of our society.

It isn't just a matter of laying new wire and moving into new markets. Communication is the very stuff of society. It's what we have built our

civilization on. If you look at the social role of telecommunications system, rather than its technology or its market, you can come up with a set of requirements. I'll lay out some examples here:

- The telecommunications system should be equally available to all (universal access); rural as well as urban; poor as well as rich; for persons with disabilities; of different ages, and with differences in language skills. It is only under this condition that we can even strive for some semblance of democracy, because this communications system will probably be an important part of how people participate in political and social debate in the future.
- It should foster diversity of information and communication equal to the diversity in our society. This means having information that relates to a community, however that is defined (it can be geographical — a town or neighborhood or parish; a community of interest — knitters to poetry enthusiasts). Since many communities are too small to be a viable commercial market, the best way to accomplish this is to make it possible for communities to provide their own information. They know what it is, they know the audience, they may be the only ones who care.
- Communication over this technology should be protected by the first amendment (free speech). This means that we must have public space, not further privatization of our means of communication.
- It must be possible for all users of the system to be providers of content as well as recipients (true interactivity). This is the "freedom of the press only relates to those who own the press" cliché. But it's also the question of "interactivity" — where some define the ability to click on a "yes" or "no" button on the screen as interactive, I think interactive means being able to alter the content and provide new content.
- The system must be based on an open access model, where all resources are available regardless of their originating system (open access) — otherwise we'll end up with information Boznias, with information enclaves that can't cross borders

What I'm talking about here are moral decisions. And there is room to make them. The technology itself is very flexible. If we lose freedoms because we

haven't grown a communications system that supports them, it will be extremely hard to recover those freedoms in the future, especially since any negotiation would have to go over the very telecomm systems that may be denying free speech. No, we have to build it in from the beginning, like a kind of Bill of Rights for the cyber-future. Rather than letting the technology determine what culture we can have, we need to decide what culture we want the technology to support. And that means we've got to do it now, before this technology is in place.

NOTE: This is a talk given at the seminar on the Ethics of the Internet, sponsored by the University of California Extension and the School of Information Management and Studies, Berkeley, Nov. 18, 1995 ©Karen Coyle, 1995