The 2003 OCLC Environmental Scan:

Pattern Recognition

Executive Summary

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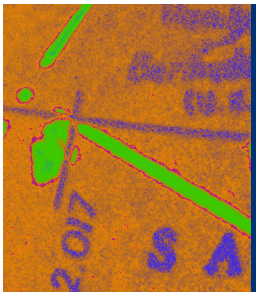
What haven't you noticed lately?

Contents

The full report is available at:

www.oclc.org/membership/escan/summary/



Executive Summary

The OCLC Environmental Scan is a report to the OCLC membership. It seeks to serve as a tour guide and to discern patterns in the landscape that chaos and order inhabit together. The purpose of the report is to identify and describe issues and trends that are impacting and will impact OCLC, libraries, museums, archives and other allied organizations, positively and negatively. The scope of the report is the social, political, economic and technological spheres in which all these organizations and their communities of users operate. It attempts to identify the main patterns in the information landscape and suggest some implications for its future.

Overview

"What we conceive about our business is not sufficient to fully understand all the effects that are actually happening in and around our business…What haven't you noticed lately?"[1]

Change has become a cliché, a worn-out concept that has lost its power to inform. At the same time change continues to be a constant—and, indeed, what would be the alternative?

Nevertheless, we are sure the rapid transformations, particularly in the technological sphere of the public world, are more profound and more frequent than at any other time in humanity's history. Whatever occupation we hold, the day-to-day reality of our workplaces is change. But, "change" is made up of so many events, inventions, ideas, replacements, introductions, alterations and modifications that the complexity of the environment overwhelms vocabulary. We are reduced to clichés, and, in attempting to identify and understand all changes as they affect our environment, become less able to notice what we haven't noticed.

Let us accept, then, that change is profound, accelerating, transforming and unpredictable. And let us also accept that, absent the talents of the Oracle of Delphi, any person or organization is unlikely to be able to make meaningful predictions that are helpful for charting directions for an indefinable future.

An example close to home will suffice: the Arthur D. Little Company wrote a 90-page environmental scan for OCLC and the OCLC Board of Trustees in 2000. There is not one mention of the search phenomenon that profoundly changed the "infosphere" we now occupy. In the subsequent years, Google has become ubiquitous, the major player in search technologies, and often a substitute for a visit to the local library's reference desk.

1. Mark Federman, Chief Strategist, McLuhan Program in Culture and Technology, University of Toronto, *Information Highways Conference 2003,* Keynote Speech delivered March 25, 2003, www.mcluhan.utoronto.ca/EnterpriseAwarenessMcLuhanThinking.pdf.

Trying, then, to grasp the essence of the changes that impact the complex, interrelated organizations that make up the world of OCLC, libraries and allied organizations is like fractal geometry. The closer the analysis, the greater the complexity. The sheer volume of large, significant changes to the environment overwhelms and inertia or endless discourse can be the result.

It might not be overstating the case to say that the Web has become the most significant engine driving changes that impact OCLC and its member and participant institutions. It would be hard to find a person working at OCLC or in a member organization whose professional and personal life has not been changed by the Web.

Whatever the benefits to personal lives, the ubiquity and ever-present nature of the Web and the billions of pages of content available in this matrix of information are both boon and bane. There is a subdued sense of having lost control of what used to be a tidy, well-defined universe evident among those who work in this information environment.

Many are pessimistic, some are optimistic, but one theme persists: The landscape has changed and the maps have not been published yet.

It has become increasingly difficult to characterize and describe the purpose of, and the experience of, using libraries and other allied organizations. The relationships among the information professional, the user and the content have changed and continue to change.

What has not changed is the implicit assumption among most librarians that the order and rationality that libraries represent is necessary and a public good. So there is a persistent and somewhat testy tone to much that is written about the changed information landscape by those in the information community: Why don't "they" get it that libraries and librarians are useful, relevant and important in the age of Google?

The library itself has long been a metaphor for order and rationality. The process of searching for information within a library is done within highly structured systems and information is exposed and knowledge gained as a result of successfully navigating these preexisting structures. Because this is a complicated process, the librarian helps guide and navigate a system where every piece of content has a preordained place.

Simplistically, libraries and archives came into being to provide a central location for hard-to-find, scarce, expensive or unique material. Scarcity of information is the basis for the modern library. In countries where information continues to be scarce, a library's role is still unambiguous. In some countries where access to information is now akin to access to electricity or water, the reason to have freestanding storehouses of a subset of all information is harder to articulate.

In the summer of 2003, OCLC staff conducted interviews with 100 librarians, vendors, archivists and other people operating in the information world, and identified 300 relevant articles and papers. OCLC staff also conducted focus groups with senior citizens, teachers and high school students.

Education, library and technology spending data were collected for 29 countries. These countries represent approximately 60 percent of the world's population and 85 percent of the world's gross domestic product.

Contrast this world with the anarchy of the Web. The Web is free-associating, unrestricted and disorderly. Searching is secondary to finding and the process by which things are found is unimportant. "Collections" are temporary and subjective where a blog entry may be as valuable to the individual as an "unpublished" paper as are six pages of a book made available by Amazon. The individual searches alone without expert help and, not knowing what is undiscovered, is satisfied.

The two worlds appear to be incompatible. One represents order, one chaos. The challenge is great for organizations occupying the interstice between these worlds. Let us call the interstice "the twilight zone."

Rod Serling used the term "twilight zone" in the 1950s and 60s to refer to his fictional TV world where things were not as they seemed and strange things happened to ordinary people. And indeed, many information professionals think strange things are happening in their world.

But twilight itself is not inherently strange. The term refers to the light in the sky between full night and sunrise, or the light in the sky between sunset and full night. Light is low and the world seems indistinct. What is familiar in full light loses clarity and is ill-defined. However, the world in all its messy, complicated, rich detail is still there. It is just the lack of light being beamed to human eyeballs that makes the landscape of the perceivable world ill-defined and difficult to navigate.

The purpose of the report is to identify and describe issues and trends that are impacting and will impact OCLC, libraries, museums, archives and other allied organizations, positively and negatively. It attempts to identify the main patterns in the landscape and suggest some implications of this effort at pattern recognition.

The Scan reviews trends in five landscapes: social, economic, technology, research and learning, and library. The first three examine the larger world that libraries and allied organizations inhabit, and it is not until the last landscape that we go back to the library. **We invite you to take a preview of the trends in the following pages**.

The Social Landscape

The Environmental Scan begins with the "information consumer." Without this person, there would be no libraries and no need for OCLC. Three major trends characterize the new information consumer who is comfortable in a virtual world:

- Self-sufficiency
- Satisfaction
- Seamlessness

The information consumer frequently chooses the Web over the library for information resources, despite the librarian's concern about the trustworthiness of the Web resources.

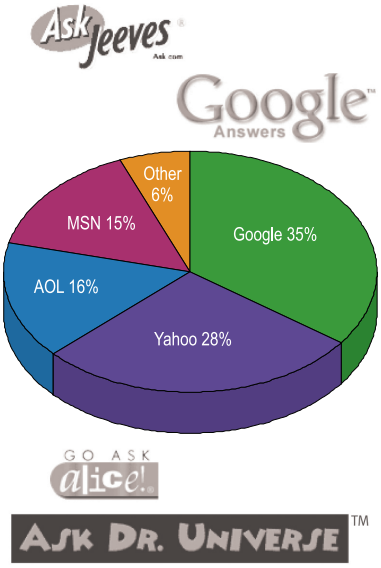
"Users DO know what they're doing!"

Industry Pundit

Self-sufficiency

Banking, shopping, entertainment, research, travel, job-seeking, chatting—pick a category and one theme will ring clear—self-service. People of all age groups are spending more time online doing things for themselves. In less than half a decade, consumers worldwide have become efficient online users. The trend is an increasing comfort with Web-based information and content sources among all age groups.

The information consumer operates in an autonomous way, using search engines as gateways to both facts and answers. "Ask a" services like Google Answers and Ask Jeeves have become self-service alternatives to traditional library reference services.



Web searching technology: share of searches[2]

Satisfaction

Surveys confirm that information consumers are pleased with the results of their online activities. In 2002, for example, Outsell, Inc. studied over 30,000 U.S. Internet information seekers and found that 78 percent of respondents said the open Web provides "most of what they need."

Librarians worry that information found using search engines does not have the credibility and authority of information found in libraries, and that people will not learn basic information seeking skills, and so leave much valuable material undiscovered. Yet most library visitors also bypass the reference desk, boldly setting off to find answers on their own.

The indisputable fact is that information and content on the open Web is far easier and more convenient to find and access than are information and content in physical or virtual libraries. The information consumer types a term into a search box, clicks a button and sees results immediately. The information consumer is satisfied.

2. Danny Sullivan, "Share of Searches: February 2004," SearchEngineWatch.com (numbers provided by comScore Media Metrix), (April 28, 2004), http://searchenginewatch.com/reports/article.php/2156431 and OCLC staff.

"Interactivity is a hallmark of young people's lives. They live in a collaborative world that doesn't exist for adults."

Director, Public Library

Seamlessness

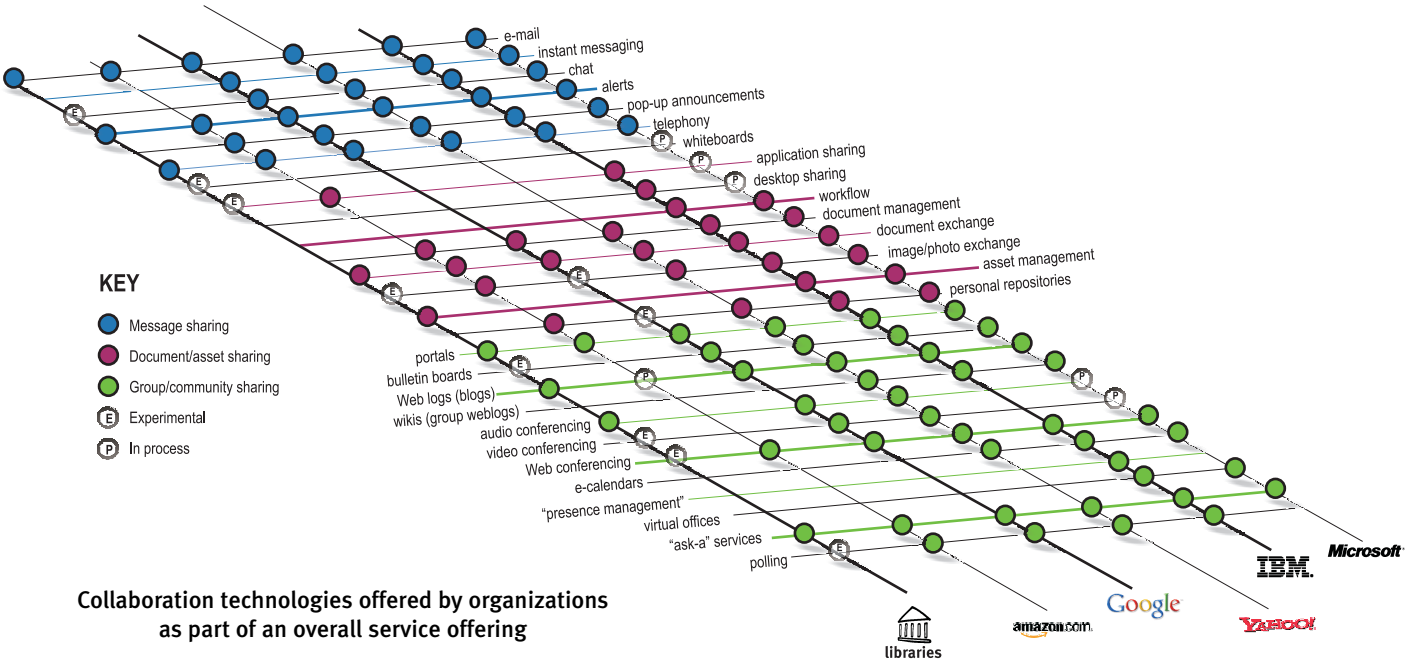
The traditional separation of academic, leisure and work time is fusing into a seamless world aided by nomadic computing devices that support multiple activities. This phenomenon is most marked among young adults. Their world is a seamless "infosphere" where the boundaries of work, play and study are gone, a marked contrast to the compartmentalized lifestyles of their parents.

See "The Anatomy of a Gamer" on page 11 of the complete report for an overview of the seamless world of young adults.

Contrast this seamless world with the one students experience at most libraries. Library environments still cater to an older generation with separate spheres of information, frequently designating different computers for access to library content than the ones used for e-mail and writing papers.

The strong interest in more collaborative, seamless environments has not gone unnoticed by information sector companies, including Amazon, Yahoo! and Google, who are embedding new collaborative technologies in their services. The chart below shows the 'social and information exchange' infrastructure that technology and retail organizations are building into their environments. Libraries, however, are not making use of many of these collaborative technologies.

"Social Software"[3]



Collaboration technologies offered by organizations as part of an overall service offering

3. Please see "Sources" in the Appendices, *The 2003 OCLC Environmental Scan: Pattern Recognition* (full report), www.oclc.org/membership/escan/.

The Economic Landscape

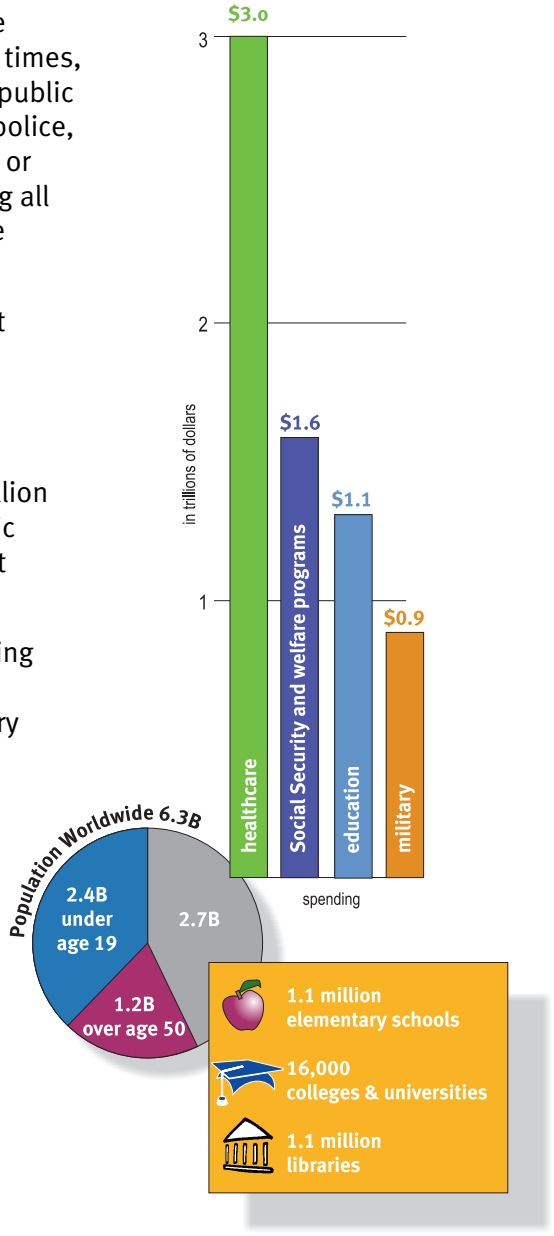
In these early years of the 21st century, many countries face growing demands on services funded centrally. The trends we highlight in the full *Scan* report revolve around a cycle of not enough money for all the programs countries fund from the public purse. In good economic times, "funding the public good" is painless. When funding diminishes, public scrutiny sharpens toward such nonrevenue producing sectors as police, fire, sewers, roads, schools and libraries. Police or sewers? Roads or libraries? One overarching trend is that scarce funds for supporting all the public goods will make for an acrimonious process of resource allocation.

In the full report, we look at how libraries are funded and how that funding is allocated.

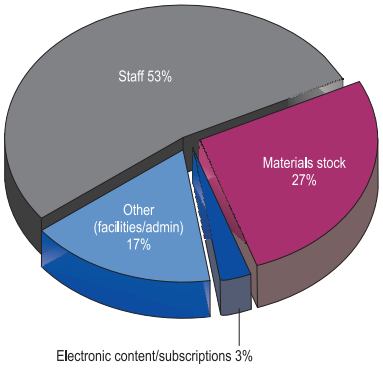
Worldwide education and library spending

In 2001, the 29 countries covered in *The Scan* spent about $1.1 trillion on education, roughly 4.1 percent of their collective gross domestic product (GDP). Library spending for the 29 countries totaled about $29 billion in 2000, 75 percent of that in only five countries.

Most of the countries that rank in the top ten for education spending also rank in the top ten for library spending. However, there is no worldwide reporting standard for library expenditures; some library spending could be included in a country's total educational expenditures.



The public and public goods[3]



Uses of library funds worldwide[3]

Library funds—sources and uses

On average, funding comes from three primary sources: public funding (87 percent) received from central or local governments; user fees (about 4.5 percent); and other miscellaneous sources (about 8.5 percent) including grants, donations and interest earned.

Allocation of library funds across the countries covered in *The Scan* showed striking similarities. On average, these countries spent 53 percent of annual operating funds on staff; 27 percent on print material stock; 17 percent on facilities and administration; and 3 percent on electronic content and electronic subscriptions. Interestingly, automation-poor and automation-rich countries spend similar amounts on staffing.

As library funding contracts or remains static (while materials costs increase), staffing and materials budgets receive increased scrutiny from funding agencies and library administrators, creating both challenges and opportunities. The need to reduce costs while the expectations of users increase will significantly impact library services.

The higher education and government sectors have tracked their return on investment (ROI) for many years, expressing, for example, the value of a college education to the individual and to society at large. Libraries and allied organizations have not documented, in any organized way, the economic good they provide. But renewed interest in the power and ROI of shared library infrastructures is driving libraries to collaborate in new ways. Along with a shift to privatization of public services such as libraries there has been an increasing emphasis on assessment and accountability, though these are not new societal expectations. Trends suggest that for libraries, this means finding their place in the larger network of learning resources that includes museums, public broadcasting and community organizations that are part of a knowledge-based society. Creating shared efficiencies and improved ROI for stakeholders will be a key directive for library management in the years ahead.

"Libraries may have to stop thinking about their collections as their primary asset."

Industry Pundit

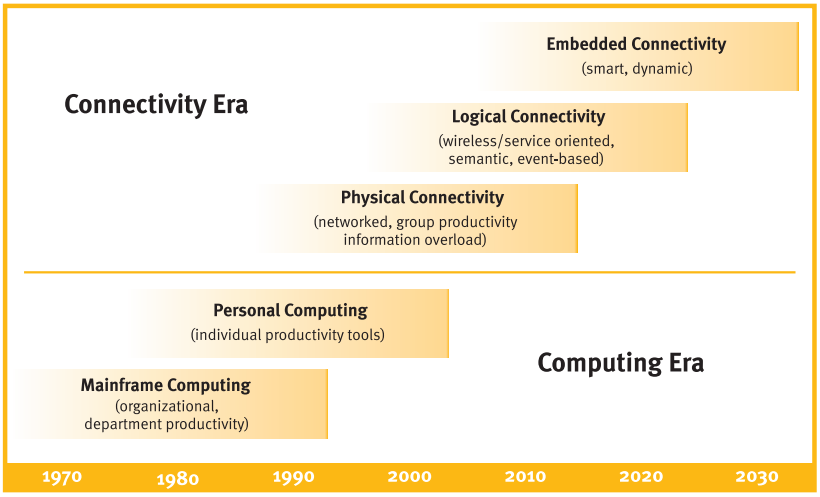
The Technology Landscape

Patterns surfacing in the technology and information architecture landscape suggest we are headed into a period of change that may be as significant as the shift from mainframe architectures to client/server architectures in the 1980s. Using sophisticated messaging, open-source solutions and new security protocols, data processing and information exchange will become tightly connected to business processes, facilitating new kinds of collaboration, partnering and outsourcing relationships.

Many experts say the combination of new standards, distributed software and a worldwide Internet infrastructure will create a profoundly new technology architecture landscape within the next five years. We explore four aspects of this landscape that will impact information creation, dissemination and management.

"We are entering an era where we are rapidly changing how we look at Information Technology (IT). For the first time, we are putting the focus on the 'I' and not the 'T.'"

Industry Pundit



Source: Gartner Research, 2003

Bringing structure to unstructured data

There are increased investments in technologies and standards that allow organizations to bring structure to unstructured and uncataloged data such as historical photographs, research notes, audio clips and other riches hidden in library collections.

Two dominant technical and structural approaches to the challenge of unstructured data have emerged: a reliance on search technologies and a trend toward automated data categorization.

Searching has become an international pastime. Finding, however, can be a daunting task. The "killer app" solution is "search." Search (or search alone) is not the long-term answer to superior information discovery. It is simply the best tool we have today.

Automatic data categorization may address the void, enabling the smarter "find." Data characterization techniques that library science has utilized for decades are becoming important outside the information management community.

"We need to sustain the open connectivity—the linking among people, organizations, data and ideas—that drives the growth and diversity of the Web."

Industry Pundit

Distributed, component based software

There a move away from monolithic, hard-to-maintain masses of application software code toward smaller components that communicate with one another to complete particular tasks. Services and information will be available on more devices and at distributed points of service. One of the dominant enabling technologies is Web services.

Web services are commonly used processes delivered over the Web. Using Web services, small software modules located anywhere on the Web are able to interact with each other using standard protocols, making it possible to quickly link together computer systems across organizations worldwide.

Librarians and information providers must think about how to deploy Web services for their users.

A move to open-source software

The move to lower cost, open-source software will enable organizations to bring solutions and services to market faster and cheaper. Many in the IT community feel that although open-source applications have not yet fully matured, they believe the applications are mature enough to include as key parts of their IT strategies.

Faced with budget constraints and increased spending on security infrastructure, the open-source movement will allow organizations that cannot wait for funding to get started on IT initiatives. This will likely mean an even faster rate of new technology introductions.

It is not a coincidence that many of the developers participating in the open-source arena are the same young people for whom a collaborative, seamless gaming environment is part of their social landscape.

"The technology I want most is a PDA device that contains all the information I need to do my work."

High School Student

Security, authentication and Digital Rights Management (DRM)

Moving intellectual property around in virtual forms and formats is creating enormous challenges for authors, publishers and information providers. We don't have to look any farther than the music industry to see the dramatic changes that new access models can have on distribution of intellectual property. How each individual component of secure rights management, security, authentication and DRM, will develop independently is still unclear. What is clear is that all the key players in the information supply chain—content owners, software developers, hardware vendors, wireless and network providers, and the e-commerce infrastructure and payments companies—are making substantial investments in both the technology and standards of secure rights management.

Hype or Hope

Which technologies have captured the attention of the information consumer? What tools are being adopted today and which technologies are not ready for prime time? See pages 47–50 in the full report for some ideas and discussion.

The Research and Learning Landscape

Trends in this landscape cover not only the institutions engaged in formal research and learning, but also the research and learning practices of individuals. All forms of research and learning activities have an effect on libraries and allied organizations.

Proliferation of e-learning

E-learning has a presence in most large corporations and in an ever-increasing number of college and university courses. Course management systems such as WebCT and Blackboard allow for the creation of a virtual classroom where faculty and students can interact and post curriculum-related material.

E-learning is also the term used to describe corporate or work-based e-learning. Companies purchase e-learning for workers for many of the same reasons that individuals take university courses online: travel time is reduced, infrastructure costs are low, delivery is platform-independent and learning anywhere and anytime is enabled. And e-learning is big business. E-learning companies are earning millions of dollars annually.

"Centrally stored materials that can be repurposed might be sensible."

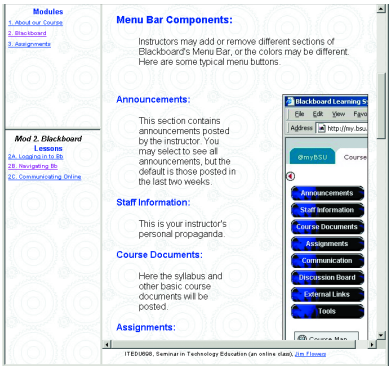
Academic Librarian

Lifelong learning in the community

The emergence of learning as an important political agenda has challenged libraries, museums and related organizations to show that they make a difference, that they add value, that they are central to educational and civic missions. This is a common international theme, played out in different social and political contexts.

Human or intellectual capital—the knowledge that comes from education, training, on-the-job experience and workplace-based e-learning—is central to sustaining personal and organizational advantage. The global network is enabling interest communities to collaborate in real time on a planetary scale. At the same time, there is a resurgence of interest in regional and local identities as the world is recast as a network of regions and cities, as a sense of community and belonging becomes more important.

Libraries and other allied organizations of all types seek to build the relationships and provide the services that create value to their communities, and which corroborate their role as trusted hubs of community and learning.



Learning objects[4]

The changing patterns of research and learning in higher education

As part of a university or college, the academic library is not an end in itself. It supports research, learning and scholarship and has always had to adapt as research and learning behaviors change. In the current network environment, this change is uneven and poses great challenges for libraries.

4. Learning objects courtesy of Dr. Jim Flowers, Department of Industry & Technology, Ball State University.

"Libraries need to be proactive about e-learning and not wait to be approached as a partner."

Academic Librarian

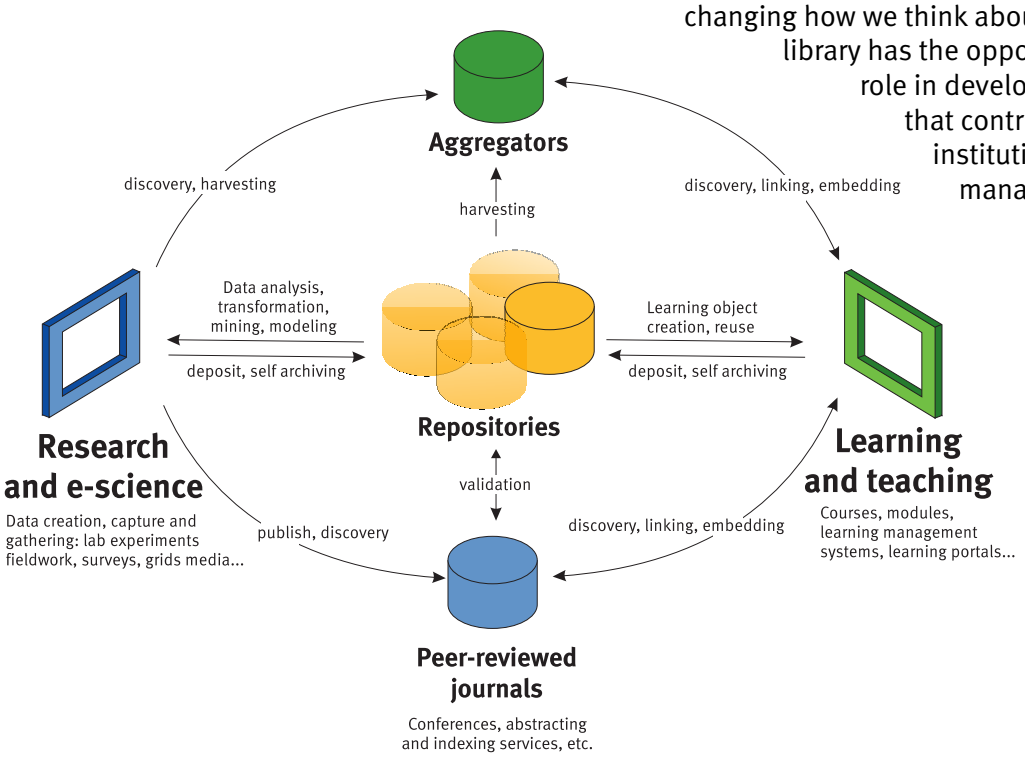
There is a move to integration among systems that support learning, research and administration, and a corresponding interest in campus architectures, repository and portal frameworks, and in common services such as authentication and authorization. This is changing the way faculty and students access, create and use information resources and is creating new support challenges.

The underlying challenges and opportunities involve the social and institutional changes necessary to effect the transition from traditional support for scholarship to the digital, distributed, seamless environments that will be necessary in the future. Consequently, coordinated management and disclosure of digital assets of institutions—learning objects, data sets, e-prints, theses, dissertations and so on—will be necessary. Currently, there are no settled patterns or standards.

As well, the outputs of digital scholarship are often in complex and nonstandard forms. The academic community will need to develop a better understanding of ways in which scholarship and learning activities are created, used, reused and preserved in the digital environment.

The institutional repository movement is sometimes connected with an "open access" discussion. Open access is concerned with better and broader access to research and learning outputs. More specifically, it is interested in reducing economic barriers to such access.

It is clear that a new ecology and a new economy for scholarly materials are being formed. In the past, the flow of research and learning outputs traveled through formal, linear publishing mechanisms. We are seeing the emergence of a variety of repository frameworks, metadata aggregation services, and richer content interconnection and repurposing that are changing how we think about data and its uses. The library has the opportunity to take a leadership role in developing policies and programs that contribute to a coherent, institution-wide knowledge management system.



Scholarly information flow—2003

The Library Landscape[5]

This section was the most challenging landscape to compile because it is the most familiar and so it is more difficult to recognize the major patterns threading their way through the fabric of the shared infosphere. Only the contrast between or among the trends identified in *The Environmental Scan* will lead to pattern recognition in our most familiar landscape. In this section we focus on issues, challenges and opportunities in the Library Landscape as expressed by the people OCLC interviewed.

See pages 69–96 of the full report for the insights from the 100 interviews done for *The Scan*.

Social trends

Staffing

In not so many years, a huge amount of collective experience and knowledge will be gone from cataloging departments and reference desks as the Baby Boom library staff retire.

- Libraries should reallocate positions to **newer kinds of jobs**: digital scholarship and open-source projects, for example.
- Collectively, we feel the need to do everything ourselves. **We need to get over this**.

New roles

Among the many new roles that libraries are assuming is the role of library as community center. Not just warehouses of content, they are social assembly places, participating in their larger communities. It makes a great

"Serving you better, seeing you less—that's our motto!"

Public Library Director

"The technology is the easy part—many tools exist today. The difficult task is to change the cultural and political barriers that exist on campus."

Academic Librarian

5. "Library" is used here as shorthand for libraries, archives, museums and historical societies.

deal of sense for libraries to look for new, broader service opportunities within their communities.

- Mass-market materials are increasingly **avoiding traditional distribution channels such as the library**.
- **Access is a form of sustainability**. Content that can be accessed is valued and is more likely to be sustained by the community.

Accommodating users

"Big bookstores are excellent at merchandising the reading experience. Most libraries were designed for materials management."

Director, Public Library

It is still the case that most library users must go virtually or physically to the library. Library content and services are rarely pushed to the user.

- We need to stop looking at things from a library point-of-view and **focus on the user's view**.
- Librarians cannot change user behavior and so **need to meet the user**.

Traditional versus nontraditional content

Social, economic, technological and learning issues make content management for libraries and allied organizations enormously challenging. But, all artifacts of cultures must be curated, preserved and made accessible.

- Being collection-centric is old-fashioned; **content is no longer king—context is**.
- Creation of copy cataloging is not a sustainable model—there is less and less need for **human-generated cataloging** and less ability to pay for it.

Preservation and persistence

Issues related to persistence and preservation are a subset of the issues of content management and are very difficult.

- **Digital preservation has to be a national issue**—it will never work on an institution-by-institution basis.
- There is no more substance behind "digital preservation" than there was behind "print preservation." **There's no money for any type of preservation**.

Funding and accountability

Funding to libraries, museums, historical societies and other institutions reliant on the public purse may continue to decline in the short term. Longer term, these agencies may have to compete for a share of public funding, potentially resulting in new forms of collaboration.

- Technology issues are not difficult. Funding is.
- The **public won't support** endeavors they can't see.

"Sustainability is only possible through collaboration."

Public Library Director

Collaboration

The really significant advances and the most meaningful and lasting solutions in the Library Landscape have been cooperative ones.

- We **need way more collaboration** among museums, libraries and historical societies to present coherent collections.
- Local history collections are not all that unique. The material is elsewhere—local historical society, university library, state library—and so **inventories must be done** before expensive digitization projects are done.

Technology trends

In this section we refer to the hardware, software and infrastructures that make up the Library Landscape. Long dominated by the integrated library system, we are seeing a move to a more plural library systems environment.

"New applications of technology will enable libraries to shift from their traditional emphasis on the packages of data to furnishing [...] information to individuals when and where they need it."

Fred Kilgour, 1981

An increasingly interconnected environment

The library systems environment is becoming more densely interconnected. This is the result of four main areas of pressure. The first area of pressure is the diversity and number of systems that information organizations have. The second pressure is the growing trend toward group resource sharing arrangements at various levels. The third pressure is relatively new, but will become more important over time. This is the need to interact with other systems' environments. Finally, library applications increasingly need to interact with "common services"—services that are delivered enterprise-wide. All of these complex systems need to be interoperable.

"There's a disconnect between libraries and consumer-oriented information management tools."

Industry Pundit

Network services and architectures

As the environment becomes more complex, we are seeing a movement away from application "stovepipes" towards a decomposition of applications, so that they can be recombined to meet emerging needs more flexibly. Think of this as repurposing for architectures. What this perspective shows are the following types of services: presentation services that are responsible for accepting user input and rendering system outputs; application services responsible for managing transactions between components; content repositories of data and metadata; and common services that are potentially shared by several applications. The various components need to "click." This then raises the question of ensuring an appropriate standards framework to make this happen.

New standards

There are two main areas of standards development. Repository and content standards are emerging to manage digital objects. Of note are OAIS (Open Archival Information System), preservation metadata, content packaging, content exchange and metadata that support operations on objects. Secondly, applications standards are being developed in the areas of cross-searching, harvesting, resolution and specialized library transaction applications such as NCIP and ISO ILL.

Universal access to information

In common with other communities, the library community initially developed a range of domain-specific approaches. Also in common with other communities it is examining those approaches in light of wider developments. Four are of special interest: the Semantic Web, Web services, grid computing and Wi-Fi. All of these, in one sense or another, attempt to address the less-than-seamless Internet-accessible world.

Summary

Libraries are used to handling semantically dense, richly structured data. A major challenge will be to handle more unstructured data. Libraries need to find ways of leveraging their investment in structured approaches in relation to large amounts of unstructured materials on the Web that are being generated by research and learning activities. Collectively, however, we do not seem to have made many of the changes to our landscape that the brightest among us have been advocating for, on behalf of our larger communities. One result? Information Consumer is hanging out at the Information Mall with Google.

Future Frameworks

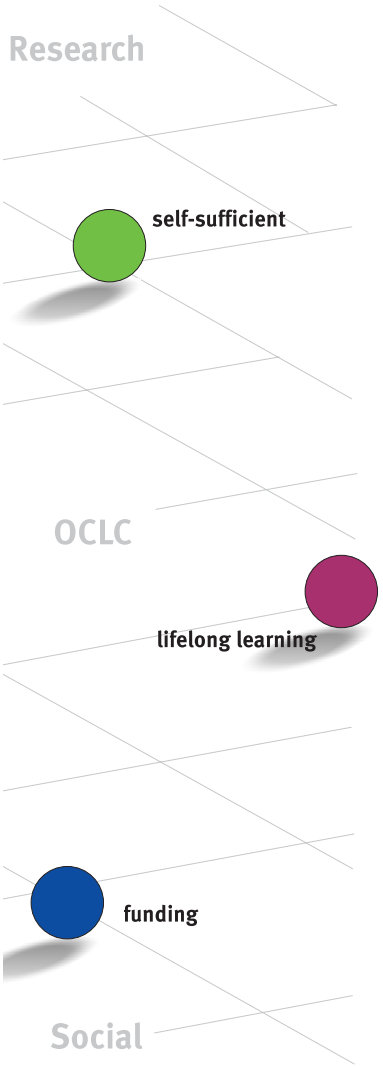
What patterns were discerned in the tour through the twilight zone? We identified trends in five landscapes and there may be few that surprise readers, but the purpose of *The Scan* was to surface trends and issues that, told as a whole story, might lead us to notice some aspect of a familiar trend we did not notice before.

Three patterns in the fabric of information and knowledge management stand out among many. One is a decrease in guided access to content. Second, there is a trend to disaggregation not just of content but also of services, technology, economics and institutions. The third pattern is that of collaboration: gaming, open-source software, Web conferencing, blogging, instant messaging, learning objects and "hack fests" are all forms of collaboration, enabled by technology. The three trends have deep implications for all the organizational areas of libraries and allied organizations. Read more about these patterns on pages 98–101 in the full report.

What might these three patterns suggest for the future? We argue that the only way to answer this question is to re-view the landscape using the lens of the consumer. How do users view the library in their personal infosphere? Just how much mind share the library holds is fuzzy. Perhaps the goal of libraries might be invisibility, in the sense that the service is ubiquitous and fully integrated into the infosphere. After all, technology and services are most welcome in our lives when we do not have to devote much thought to them. We press a switch and light comes or goes.

How can OCLC and other organizations collaborate with libraries to effect changes that bring the collective wealth of libraries to the attention and desktop of the information consumer? The challenges inherent should not be viewed as threatening but as an opportunity for renewal and participation. We have to embrace the opportunity of the changed landscape, not reconstitute the old landscape in a new space. What if we collectively built an infosphere rich in content and context that was easy to use, ubiquitous and integrated, woven into the fabric of people's lives? How do we take information, information sources and our expertise to the user, rather than make the user come to our spheres? **Libraries and allied organizations do not exist separately from their communities**.

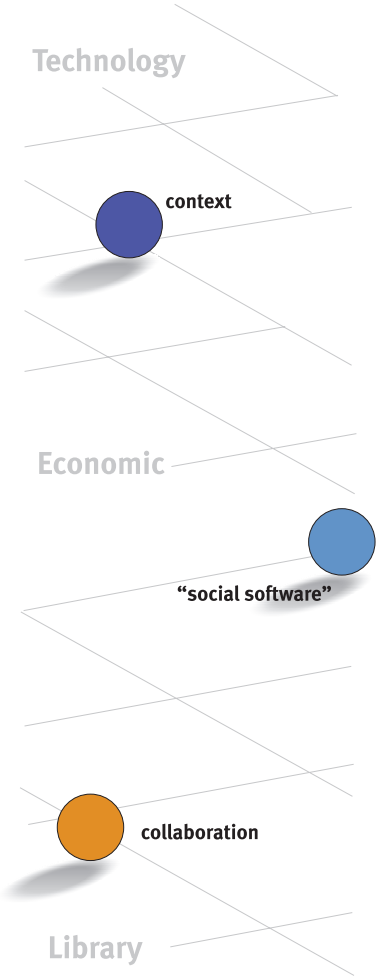
It is time to reestablish our preeminence in search and retrieval, information and knowledge management, metadata creation and collaboration. Collaboration has built the foundations of modern librarianship and must form the foundation of the new "infosphere" in which libraries and allied organizations marry technology with collaboration to deliver services to the information consumer.



Information on the Web is fragmented; disaggregation of content splits it further. Seamless computing may expose even more content to Information Consumer. Few institutions outside of libraries have the ability to put the pieces of the puzzle back together or build the trails for navigation, but it is critical that the right questions be asked.

The question is not what should be digitized and preserved. The question is not what role the library will play in the institutional repository. The question is not MARC or METS or MODS. The question is not how will retiring librarians be replaced.

The real question is: How do we together, as a community, move our trusted circle closer to information consumers at the level of *their* need?



This executive summary skims the surface of a wealth of interesting and pertinent trend information contained in *The 2003 OCLC Environmental Scan*. For a more complete understanding of the trends that are shaping the future of libraries and librarianship, you are encouraged to read the full report. Order a print copy in English or Spanish or read it online in English: **www.oclc.org/membership/escan/summary/**.

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