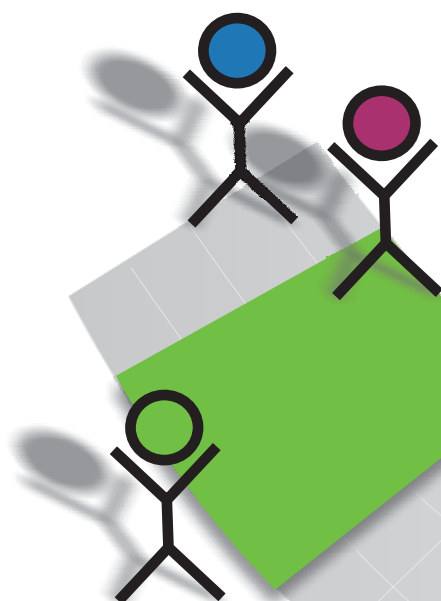


The Library Landscape



The Library¹ Landscape section was the most challenging of the six landscape sections to compile—not surprisingly perhaps, because it is the landscape with which OCLC and its membership are most familiar and it both deserves and will get particular scrutiny with regard to trends. None of us is unaware of the trends outlined below and many, many interesting, thoughtful and scholarly articles have been published on these and other relevant topics.

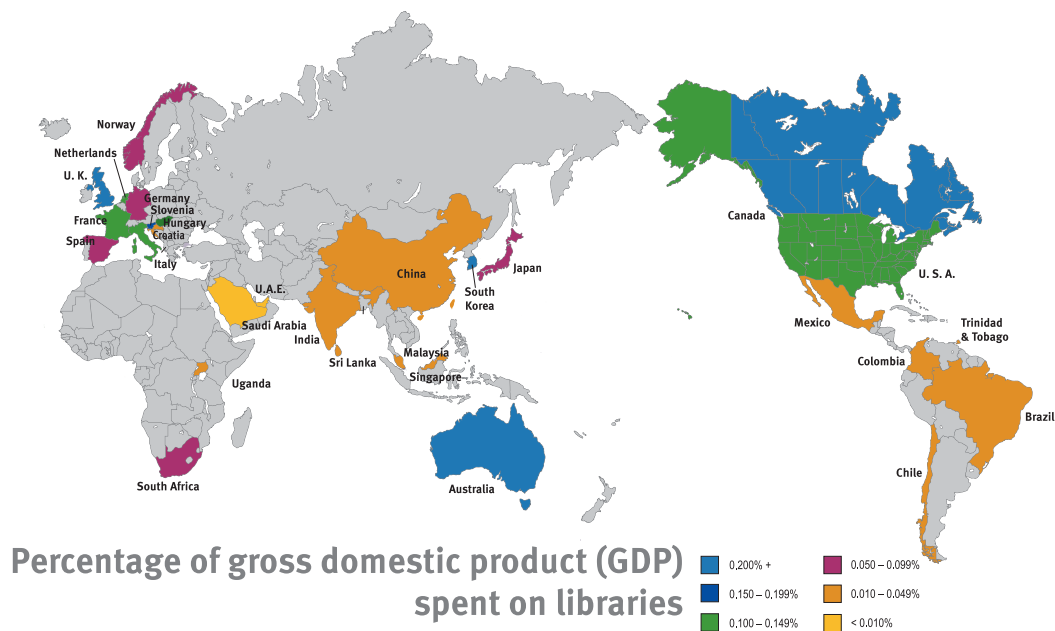
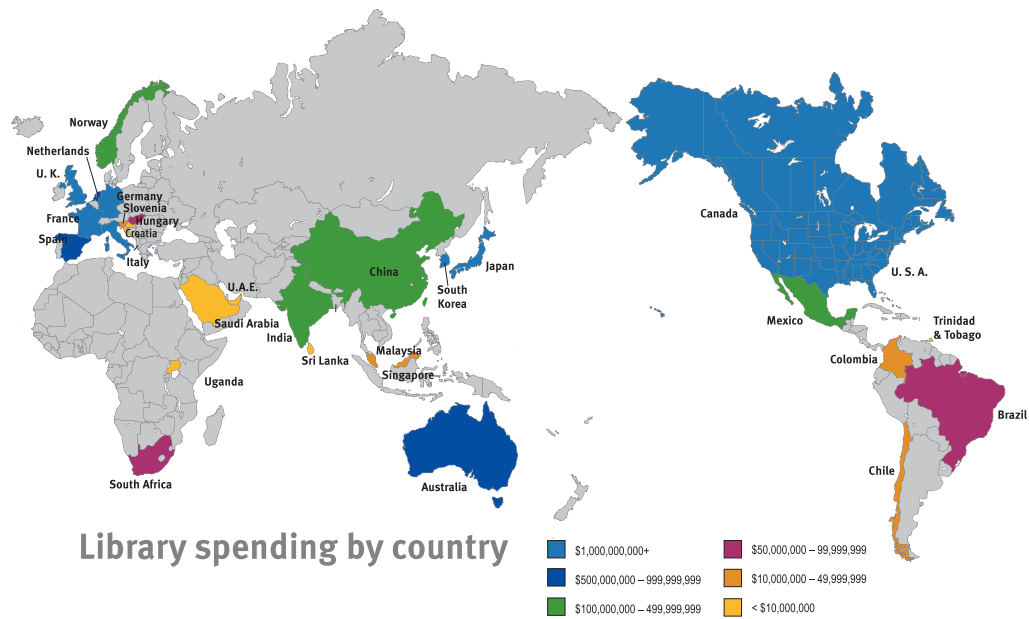
As you read this section reflect not so much on these trends, which may tell you nothing new (think of them as reminders), but on the

*Sustainability is
only possible
through
collaboration.*

gaps or synergies you notice that relate to the other landscapes. An early reader of one of the landscapes remarked “But there’s nothing new here. I know all this stuff already.” And the response was a gentle, “But isn’t that the problem?” If we do see the patterns of our own landscape, what has been done to address the challenges?

And so, familiarity with this landscape may mean it is actually more difficult to recognize the overarching trends—the major patterns threading their way through the fabric—because we are so familiar with each of the trends highlighted, as well as all those not mentioned. It is, perhaps, only the contrast between or the relationships among these trends to other trends identified in the environmental scan that will lead to pattern recognition.

1. “Library” is used here as shorthand for libraries, archives, museums and historical societies.



Country library spending

| Country | Library Spending (Millions) | % GDP on Libraries | Country | Library Spending (Millions) | % GDP on Libraries | Country | Library Spending (Millions) | % GDP on Libraries |
|----------------|-----------------------------|--------------------|--------------|-----------------------------|--------------------|-------------------|-----------------------------|--------------------|
| United States | \$ 11,951 | 0.11% | Spain | \$ 531 | 0.08% | Malaysia | \$ 28 | 0.03% |
| Japan | \$ 3,247 | 0.08% | China | \$ 218 | 0.02% | Colombia | \$ 16 | 0.02% |
| United Kingdom | \$ 3,221 | 0.21% | Norway | \$ 179 | 0.09% | Chile | \$ 13 | 0.02% |
| Italy | \$ 1,599 | 0.14% | Mexico | \$ 104 | 0.02% | Croatia | \$ 8 | 0.04% |
| France | \$ 1,591 | 0.11% | India | \$ 103 | 0.02% | Saudi Arabia | \$ 7 | 0.00% |
| South Korea | \$ 1,507 | 0.32% | Brazil | \$ 90 | 0.02% | Sri Lanka | \$ 3 | 0.02% |
| Canada | \$ 1,447 | 0.20% | Singapore | \$ 70 | 0.08% | Trinidad & Tobago | \$ 3 | 0.03% |
| Germany | \$ 1,353 | 0.07% | South Africa | \$ 68 | 0.06% | U.A.E. | \$ 3 | 0.00% |
| Australia | \$ 834 | 0.20% | Hungary | \$ 64 | 0.10% | Uganda | \$ 1 | 0.01% |
| Netherlands | \$ 536 | 0.13% | Slovenia | \$ 35 | 0.17% | | | |

Source: Various including LibEcon, UNESCO, *World Encyclopedia of Library and Information Services* and estimates for certain countries.

It is worth repeating from the quote at the beginning of this landscape scan: “Our accumulation of and intense focus on our knowledge controls what we believe. And, what we believe controls what we are able to see. What haven’t you noticed lately?”²

This section is structured slightly differently from the other sections. It is divided into two subsections: The Social Landscape and The Technology Landscape. The subsection titles deliberately use the titles from earlier sections that are, in a sense, the larger frameworks of the library environments. The social and technology landscapes within the library landscape cannot exist independently of the larger ones and are—or should be—informed by trends in them.

The Social Landscape focuses on the people, content and issues that make up the Library Landscape.

The Technology Landscape focuses on the hardware, software and infrastructures that make up the Library Landscape.



The Social Landscape

Primary research informs this subsection of the scan. OCLC staff interviewed almost 100 people in a wide variety of institutions, organizations and positions to gather information and opinions for this section.³

The framework of the interviews was set using the Collections Grid developed by Lorcan Dempsey and Eric Childress of OCLC Research, and a series of questions that was sent to each interviewee prior to the actual conversations.⁴ Some interviews were conducted in person, but most were done by telephone. Not all interviews followed the structure suggested by the questions, and some interviewees did not want to answer the OCLC questions but wanted to talk about other issues. As a result, unexpectedly, the transcripts of the conversations contained material relevant to all

2. Federman, “Enterprise Awareness.”

3. Please see “People Consulted” on pp. 127–31.

4. Please see the “Collections Grid” and the questions on pp. 125–26.

sections in this report. All of the interviews yielded a huge amount of interesting and insightful comments on the real, day-to-day issues facing information professionals working in libraries, archives, historical societies, museums, and allied organizations and companies. It is worth noting that the people interviewed are almost all Baby Boomers (born from 1946–1964) and as such, their points-of-view are of people probably in the last third of their professional careers.

It is here in this social landscape that the information gathered during the interview process is best represented, although it has been used throughout the report as well. The narrative is informed by the thoughtful insights of the information professionals interviewed, and the bullet points represent paraphrased remarks from the interviewees. There were divergent views expressed about what needs to be done, who is responsible for activities and projects, and no consensus evident. There was however one central unifying theme to almost all of the interviews: this is the twilight zone. For the Baby Boomer generation of information professionals at least, clarity of purpose has blurred.

Major trends

- **Staffing**
- **New roles**
- **Accommodating users**
- **Traditional versus nontraditional content**
- **Preservation and persistence**
- **Funding and accountability**
- **Collaboration**

Staffing

Much has been written and spoken about the demographics of librarianship in the past few years. Some of it has had the tone of a Chicken Little story: the sky is falling. As the Baby Boomer librarians and paraprofessionals move through their careers like a bulge in a well-fed snake⁵ they worry about the apparent vacuum left by their imminent retirements. Certainly, in not so many years, a huge amount of collective experience and knowledge will be gone from cataloging departments and reference desks. At the other end of the age scale, there are not enough young librarians entering the profession to replace the retirees. Professions evolve and need to evolve and the changing demographics of this landscape will provide serious challenges to institutions. At the same time, there are and will be opportunities to restructure and change. And as we saw in the Economic Landscape, libraries worldwide continue to spend a great deal of their financial resources on staffing. Library staffing shortages could allow libraries to reorganize more

5. The Editor acknowledges this image comes from Samuel Rothstein, one of her professors at UBC.

easily and hire specific and new skill sets. As they always have, young staff lend a great deal of energy and enthusiasm to their workplaces.

Here are some key points about **staffing** made by people OCLC interviewed:

- Early adoption of innovations means a need for positions filled by highly trained staff who often cost more than “regular” staff.
- A lot of staff will retire soon but the upside to this is being able to hire staff more comfortable with **e-material and virtual services**.
- Too much staff time and effort is spent on trying to **organize free Web content**. Why do we need to do this?
- It’s hard to get older staff to **consider acquiring “unpublished” material**.
- Libraries should reallocate positions to newer kinds of jobs: **digital scholarship**, open-source projects, etc.
- More and more library directors are **not librarians or academic staff**—does this matter?
- Young librarians may be more willing to design systems that **meet users where they are** rather than the way it is now—we want the users to come to us.
- Librarians aren’t rewarded for **risk-taking**—the organization favors the status quo.
- Succession planning? None.
- **We’re well aware of trends and issues** but many staff are not truly willing to change the ways they do things.

*There’s so much
going on...
I want to
do it all!*

*Serving you
better, seeing
you less.*



Anatomy of a Gen X librarian: “Energized and excited”**Profile:**

Female, age 28
Librarian, Communications Studies

Education:

B.A. History—University of Idaho,
MLIS University of Washington

Learning style:

Learns by doing, not by “seat” learning

Favorite pastimes:

Antiquing
Reading

The Generation X librarians have been part of the workforce for a few years and are an energetic and ambitious group. At 28, this Gen X librarian describes herself as “energized and excited.” In her interview with OCLC, she said “There’s so much going on, so many unconnected and different initiatives—and I want to do all of them!” In her opinion, funding reductions to libraries won’t stop projects. It’ll just be a bit harder to get them funded and more grants will have to be applied for. “But,” she said, “We weren’t trained how to do this at library school and maybe we should have been. Seeking alternative sources of funding is a necessary part of my job, and it takes a lot of time. And the amounts awarded are often so small I sometimes think it would be faster and easier just to pay for something myself.” This altruistic and do-it-yourself approach is typical of people younger than 30. “Libraries should pool their money and share the wealth.”

She believes that libraries of all types have to collaborate to market their joint services and make sure their collections complement, not overlap. “When I do bibliographic instruction, I tell my students to go to the public library, for example, because it has great sources that we don’t have here on campus. I think the differences between kinds of libraries are blurring and that’s good. Seamlessness is what we’re aiming for—we don’t want users to have to pick what libraries or librarians to go to when they have questions. That’s why virtual reference has so much potential. Why should a person have to select one of the 18 libraries on campus before she can ask her question?”

Baby Boomer librarians have had to work hard to stand out in their crowded

workplaces and like to put their own mark on things. Our Xer librarian said:

“Collectively, we feel we need to do everything ourselves—we need to get over this.”

We’ve spread ourselves too thin. Now, we’re not the only ones who know about metadata, or searching, or creating Web pathfinders. If I can find a great pathfinder on another library’s Web site, I’ll simply link to it. I certainly don’t need to redo their good work.”

When she was asked what she thought about Boomer librarians, she said, “Boomers have gone through drastic changes, and some are just exhausted and cynical, but some are still very excited about their work. I’ve learned so much from the Boomer librarians that I work with. They’re great colleagues and mentors. Maybe the generation gap is more about energy than age.”

And what does a young librarian see as the profession’s major challenges?

“Working collaboratively with people to make things happen.”

Here on campus, we don’t work together enough. The faculty, the IT staff and librarians have a fantastic pool of knowledge and expertise, and if we worked together on the big stuff—digital scholarship is an example—we would get things done faster and better. And we wouldn’t have to figure everything out by ourselves. We’re really great at talking about what needs to be done, but then we all go back to work. There’s too much day-to-day work to work on the high-level

challenges. It would be great if we found a better way to communicate and then actually solve the problems that we’ve spent countless hours discussing.”

What about that day-to-day work, Gen X librarian? “Regular work, such as filing microfilm, keeps me grounded. I love contact with students. I am really reassured and energized by what I see when I teach. Seeing students ‘get it’ is so rewarding.”

So what does a Gen X librarian think of the Web? “I like the Web and appreciate the amount of information that’s available there. But, students are not well served by the open Web. They’ll look through the first five results and take the best of those five. I work with faculty to create assignments that require sources that students won’t find using Google.” Well, in this, our Gen X librarian seems to be much like librarians of any age. And perhaps this is why we don’t need to worry about the future of the profession. Gen X and Millennial librarians may be more comfortable with change and technological gadgets than their Traditionalist and Boomer compatriots but at bottom, they seem to be very much like we all were at their ages. The Boomer OCLC interviewer and Gen X interviewee had a laugh over a common experience separated by almost 20 years: both had embarrassing moments in front of a class of students when, in an effort to be hip, they used search terms that immediately labeled them as completely out-of-touch with those 19-year-olds. The terms “yuppies” and “Ferris Bueller” got equally blank stares from across the generational divide. Our Gen Xer librarian has a solution: “I subscribe to *Entertainment Weekly* to keep in touch with students.”

New roles

“[T]he new [Salt Lake City Main] library is a secular city center where groups of all ethnicities, religions, politics and purposes feel they have a place and a stake. The library hosts classes in English as a second language, meditation and Braille, as well as discussion groups about the latest nonfiction. Organizations from Weight Watchers to the Royal Court of the Golden Spike Empire to No More Homeless Pets have held meetings in the building, as well as Amnesty International, Single Moms, the Hispanic Dance Alliance and the Utah Socialists. On Saturdays, a group meets to read to their dogs.”⁶

Among the many new roles 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 by building information commons, hosting poetry contests, digitizing city council minutes and positioning themselves as the knowledge management experts within their peer groups. In some respects, the goal of being relevant to one’s community is no different from the earlier goals of any broad-minded and sensible administrator. But, in an era when public support of institutions like the library and the local park is under scrutiny, a reliance on citizens funding an institution they may use infrequently is likely not good planning. Funding bodies demand to see tangible, measurable returns on their investments and busy libraries suggest money well spent. It makes a great deal of sense for libraries to look for new, broader service opportunities within their communities.

Here are some key points about **new roles** made by people OCLC interviewed:

- The library should serve as a **community/civic center**.
- There is an opportunity for the public library to be the **aggregator of community information and partner with other local organizations** to gather grey literature.
- There is demand for 24/7 access to the physical library as well as the virtual one—I call this “**retail expectations**.”
- **Access is a form of sustainability**. Content that can be accessed is valued and is more likely to be sustained by the community.
- The hard work of collection development is not with published material; it is with **new formats and delivery mechanisms**.
- Archives are seeing a big drop in “turnstile traffic” due to **self-service** via the Web.
- Mass-market materials are increasingly **avoiding traditional distribution channels** such as the library.
- **Collections are increasingly generic**—even among research libraries—as standard aggregated content is bought. There is a focus on **merchandising the reading experience**—book superstores introduced this and did an outstanding job. Libraries were built to accommodate materials management, not users.

6. Mary Brown Malouf, *The Salt Lake Tribune* (August 25, 2003), www.sltrib.com/2003/Aug/08252003/utah/86808.asp.

- The library can be—and should be—a **resource to other community agencies** for information management.
- Libraries need to work with a **broader group of agencies**.
- Libraries need to be **proactive about e-learning** and not wait to be approached as a partner.

Accommodating users

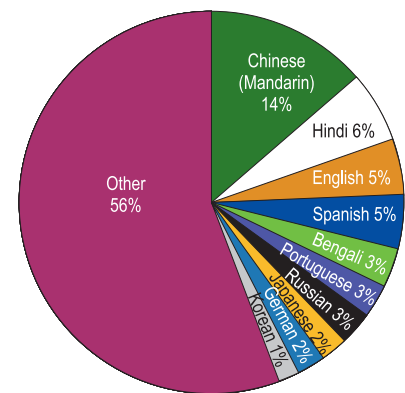
“Internet-savvy students told us that the online world offers many advantages over the alternatives—school-issued textbooks and their school and community libraries. They said the Internet is much easier and more convenient to access. It is as close as the nearest Internet connection—which is often in their homes—and does not require a ride in a car or bus. Students said school and community libraries have limited selections of multimedia, while online sites routinely offer downloadable graphic images, photographs, animations, video and sound. However, a unanimous “no” echoed throughout the OCLC focus groups when we asked if they are able to complete their entire projects on the Internet. ‘You still need a lot of resources,’ said one student.”⁷

“Senior citizens, at the other end of the spectrum, told us their primary reasons for going online include doing e-mail, reading newspapers and searching for information on prescriptions, finance and investments, hobbies, recipes, movies and garage sales. They told us the reasons they use the library include book sales, taking grandchildren to reading programs and reading newspapers. ‘Computers are kind of a shortcut to information. They really are. But, I still think the library and the printed word...you have to have that, too,’ said one senior.”⁷

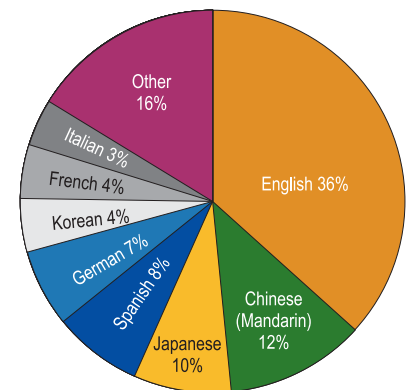
While there are some outstanding examples of libraries making efforts to take services and content to users, it is still the case that most library users must go virtually or physically to the library. Library content and services are rarely pushed to the user although more and more libraries are using RSS feeds and content packaged for handheld devices as a way to get into users’ spaces.

Here are some key points about **accommodating users** made by people OCLC interviewed:

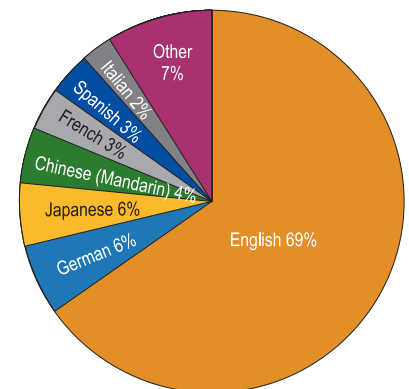
- We need to stop looking at things from a library point of view and **focus on the user’s point of view**.
- Users don’t care if content is a Web page, a blog, a book or a serial.
- A common interface to content is not a big deal anymore.
- **Personalization and categorization** are really important for the end user as a way of filtering through large sets.



Top ten spoken languages ⁸



Online language populations ⁸



Languages of Web content ⁸

7. High School Students: The Internet and Information Use, OCLC Focus Group (November 2003).

Senior Citizens: The Internet and Information Use, OCLC Focus Group (November 2003).

8. For sources consulted, see “Sources” on p. 147.

- Undergraduates are using a lot more primary material.
- Librarians **underestimate users' knowledge** of searching the Web—how did we learn to read newspapers without help? Aren't they collections of unrelated material too?
- There is a high level of **satisfaction with self-service** applications in libraries.
- Librarians **cannot change user behavior** and so need to meet the user.
- Vendors are always looking to see how people's needs are not being met and stepping into that hole—libraries don't do this. They try and make the people fit the library.
- Libraries are behind the curve—services have not been built to support user interests.
- Use drives selection—**convenience is more important** than it was. Convenience of service has increased as an expectation from the public, as they expect hours of service to match retail hours of service.
- We confuse building-based services with services in general. Why should a user care if content comes from the law library or the medical library?



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

Director, Public Library

Traditional versus nontraditional content

“It was the best of times, it was the worst of times.”⁹ Perhaps none of the trends covered here fits this notion better than trends in content. All of the pressures inherent in the landscapes covered in the scan converge here. Social, economic, technological and learning issues make content management for libraries and allied organizations enormously challenging. The older pre-Internet world of content coexists with the new world. Print material must still be bought, circulated, reshelfed, repaired, preserved and discarded. This material will persist, much of it will not be digitized and people will continue to use it. But, because libraries do not exist independently of their cultures, all artifacts of those cultures must be curated, preserved and made accessible. So, the challenges faced by the stewards of content will not diminish, and issues of description, use and preservation will be radically different than the issues related to the print content currently under stewardship.

Clifford Lynch makes this point unambiguously; “Rather than considering how to redesign or recreate or enhance libraries as digital libraries, we might usefully focus our attention on the human and social purposes and needs that libraries and allied cultural memory institutions have been intended to address. [...] [W]e must be careful not to overly emphasize the parts of this knowledge ecosystem that are familiar, that we are comfortable with intellectually, socially and economically, to the exclusion of the new, the unfamiliar, the disturbing, the confusing.”¹⁰

Here are some key points about **content** made by people OCLC interviewed:

- Being **collection-centric is old-fashioned**; content is no longer king—context is.
- **Context** means adding intellectual value to content.
- Maybe it would be cheaper to **buy monographs as POD** (print-on-demand) rather than buying in anticipation of need.
- Most libraries’ status is about what they own. How can we change this? It is the library equivalent of the tenure system.
- We need a way to **bring together all content** on a topic, not just what’s in the catalog.
- The library has no curatorial role for published material—**it’s up to third parties to archive**.
- Bibliographic information is a **corporate asset** and should be treated like other assets.
- Librarians are way too focused on published material: they should **leave that to the Amazons** and concentrate on the hard stuff.
- Special collections need to be **liberated and desegregated**.

The library as a book warehouse is passé.

Director, Academic Library

We’re trying to create an edge in electronic publishing and take advantage of opportunities, but the challenge is how to do that when revenue is flat.

University Press Editor

9. Charles Dickens, *A Tale of Two Cities*.

10. Clifford Lynch, “Reflections Towards the Development of a ‘Post-DL’ Research Agenda,” paper presented at the National Science Foundation invitational workshop, Post-Digital Libraries Research Futures (Chatham, MA: June 15-17, 2003), www.sis.pitt.edu/~dlwshop/paper_lynch.pdf.

Today's community information is tomorrow's cultural heritage.

Print on demand could be huge.

- Access to published content is closing down as **licensing restrictions increase**.
- The idea of the **balanced—but unread—collection** is disappearing.
- The Web means public libraries can **focus more on specific, local communities**—we can be more specialized. There is no need for all branch libraries in a system to have a common core collection.
- **Print-on-demand** could be huge.
- Publishers and librarians need to **work more closely together** to identify consumer needs and content delivery systems.
- There is a lot of interest in **deconstructing the publishing unit**.
- We need to provide **what the market wants** but we haven't established what that is.
- Librarians avoid talking about relationships among content and certainly have not done anything about this.
- 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.
- The goal should be **access to print** material and **stewardship of institutionally published material**.
- Institutional repositories are important but we're not doing anything. **We're waiting** to see what others do.
- **There is no consensus** as to what institutional repositories are.
- Who has or will have the large-scale utilities for **data migration** of the content of institutional repositories?
- My library today is more like Harvard than it was 20 years ago because of the **common aggregated material**.
- There must be **more linkages among content types**—people should be able to find all relevant material regardless of what content quadrant it belongs in.
- Institutional content may never be “collected” but the library should have a **curatorial role**.
- **Simple indexing and ranking** are good enough for open Web resources—get over the cataloging issue!
- **Collection-level records** have to be the way to go for large, related collections.
- Much institutional repository work is bypassing the library.
- We definitely have **no consensus** or idea what to do about material on the open Web.
- The jury's out on the sustainability of e-learning but publishers are looking at **repurposing content** for course packs.

- Publishers are slow to see the need for **languages other than English**.
- We need to get medical and engineering content to underdeveloped nations—this could be a **big growth area**.

Preservation and persistence

Issues set out in this section are, in effect, a subset of the issues outlined above in content management. How will content be preserved, archived and represented to users now and in the future? Issues related to persistence and preservation of content are perhaps thornier than the broader issues related to content selection, description and management because even in the older world of exclusively print collections much talk resulted in little activity. As one interviewee said so succinctly: “There is no more substance behind ‘digital preservation’ than there was behind ‘print preservation.’ All talk about how important it is and we don’t do either. Besides, there’s no money for preservation of any type.” As is evident from the points made by interviewees, there is perhaps even less agreement about the nature of the challenges inherent in archiving and preservation than there is in other areas.

Here are some key points about **preservation and persistence** made by people OCLC interviewed:

- Digital preservation has to be a **national issue**—it will never work on an institution-by-institution basis.
- Preservation of institutional content is the responsibility now of the parent institution—it’s a **huge burden**.
- We haven’t a clue how to approach digitization. Thematically? Chronologically? **Cataloging does not help** with such decisions.
- Digitization is for **dissemination, not preservation**.
- Digitization is basically a **cottage industry**, institutionally driven and based on no standards.
- **We haven’t preserved print** so why the big concern about digital preservation?
- There is a **chaos of creation** out there—everybody’s creating digital content—we desperately need some system of archival value assessment.
- It is **not cost-effective** for each library to digitize—it must be a national effort.
- **Why preserve** something if it was not durable in the first place?
- Preservation is **more about social relationships** than formats and technical issues.
- There are **no standards** and no national strategy for preserving cultural heritage.



- Access licenses have effectively taken the discussion of preservation out of the realm of the possible—we don't own the content and we can't archive it.
- **Access is a form of sustainability**—content that can be accessed is valued and is more likely to be sustained by the community.
- **We're all saving the same stuff**—we need a national last copy and preservation program.
- Paper content is being moved off-site to make room for things like cafés and information commons, but **what stays and what goes?** We do not have good tools for these decisions.
- The technology infrastructure isn't a big deal anymore—**technology happens**. But Digital Rights Management (DRM) and identity management are big deals.
- There is an **overwhelming tension** between the DRM community and the open access community and it's getting worse.
- DRM is **hugely complex** to manage and coordinate—we need standardization!

Funding and accountability

“Libraries are becoming less viewed as a community resource than they used to be, in part because chain bookstores are kicking their butts in that area, providing a place to read, chat, have a coffee and even attend events. Maybe it's chicken and egg, because **if libraries were better utilized they'd probably get more funding**. I don't know if that's the issue. So libraries need to improve their current public image, from boring, dusty 'whispering-only' collections of old books, to cool places to check out the latest books from your favourite author. Basically that's what the large bookstores are doing. Knowing that the library has copies of *recent* books is important, and borrowing the coffee shop idea from the chain stores is not a bad idea either!”¹¹

Funding to libraries, museums, historical societies and other institutions reliant on the public purse may continue to decline in the short term. Libraries have been responding to reductions in funding by closing for some specified time, reducing programs, reducing staff hours and forgoing materials purchases. There is another trend: competition among sister institutions for funding. In one Ohio county, a private library strapped for funds and in danger of having to drastically reduce staffing and hours of service, appealed to the County Budget Commission for funding. They were successful in getting a share of the state library subsidy, but at the expense of two public libraries in the county. The amount awarded to the private library was deducted from the amounts allocated to the public libraries. As a result, the public libraries will have to determine what to cut to make up for the unanticipated shortfall in funding.

11. Posted on Slashdot (<http://slashdot.org>) by “silk” (Sunday, August 24, 2003).

This example pits a private institution against public ones, but extrapolating from this budgetary battle suggests the possibility of county systems competing with city systems, with liberal arts college libraries vying with large academic libraries, with school libraries forced to merge with public libraries. There may be benefits to such joint-use libraries.

Here are some key points about **funding and accountability** made by people OCLC interviewed:

- Technology issues are not difficult, **funding is**.
- Librarians have **unrealistic expectations about pricing** of content—they do not understand the economics of publishing.
- Print revenue can't be artificially protected by trying to make e-content mimic p-content—one user, one book doesn't make sense for e-books.
- E-content has done nothing to help **cost control of materials**.
- We need changing measurements of **library performance** resulting from the growth of electronic services.
- **Donors are very keen** to have their collections digitized—libraries should use them for funding.
- Library directors are increasingly focusing on **fund-raising**.
- Special collections are increasingly important and could be a **source of revenue**.
- Libraries and archives may have to **sell valuable collections** to fund other collections and projects.
- Governments are questioning the **value/cost/benefit** of higher education versus vocational education.

Digitization is not necessarily a preservation method.

Do collaborative collection development.





- We need **flexible e-commerce models** for content—would you subscribe to Lands’ End?
- Better automation for **assessing ROI is crucial** for identifying what was bought and how it was used.
- Economies of copy cataloging have diminished as much content now shares little characteristics with traditional, published material.
- Accountability is really important—better your Board gets **information on material usage** than hear about it in the press.
- **Budget reductions** at institutions put centrally-funded collections at risk: national money builds collections, local money supports buildings and physical access so even if we keep national money, reductions in local funding jeopardize collections.
- The public won’t support endeavors they can’t see.

Collaboration

“[I]f the last few decades of library and information developments have taught us anything, then it’s surely that the really significant advances, and the most meaningful and lasting solutions, are cooperative ones. And more than that: they are tending to become global ones. MARC, AACR2 and even the Internet itself, are obvious examples of this, and there are many others; and the rise of consortia of every kind is testimony to the growing recognition of the value—the necessity even—of interinstitutional cooperation, at both local and international levels. [...] I hope we can all agree that, even where we are in competition, we also have a mutual self-interest in helping to build systems and processes and models and service-delivery solutions that are based on cooperatively-agreed solutions and standards.”¹²

“It’s possible for people of varying levels of technical skills to build useful tools and applications in a spirit of informal collaboration and fun; that software development doesn’t have to involve a lot of top-down planning, RFPs and whatnot.”¹³

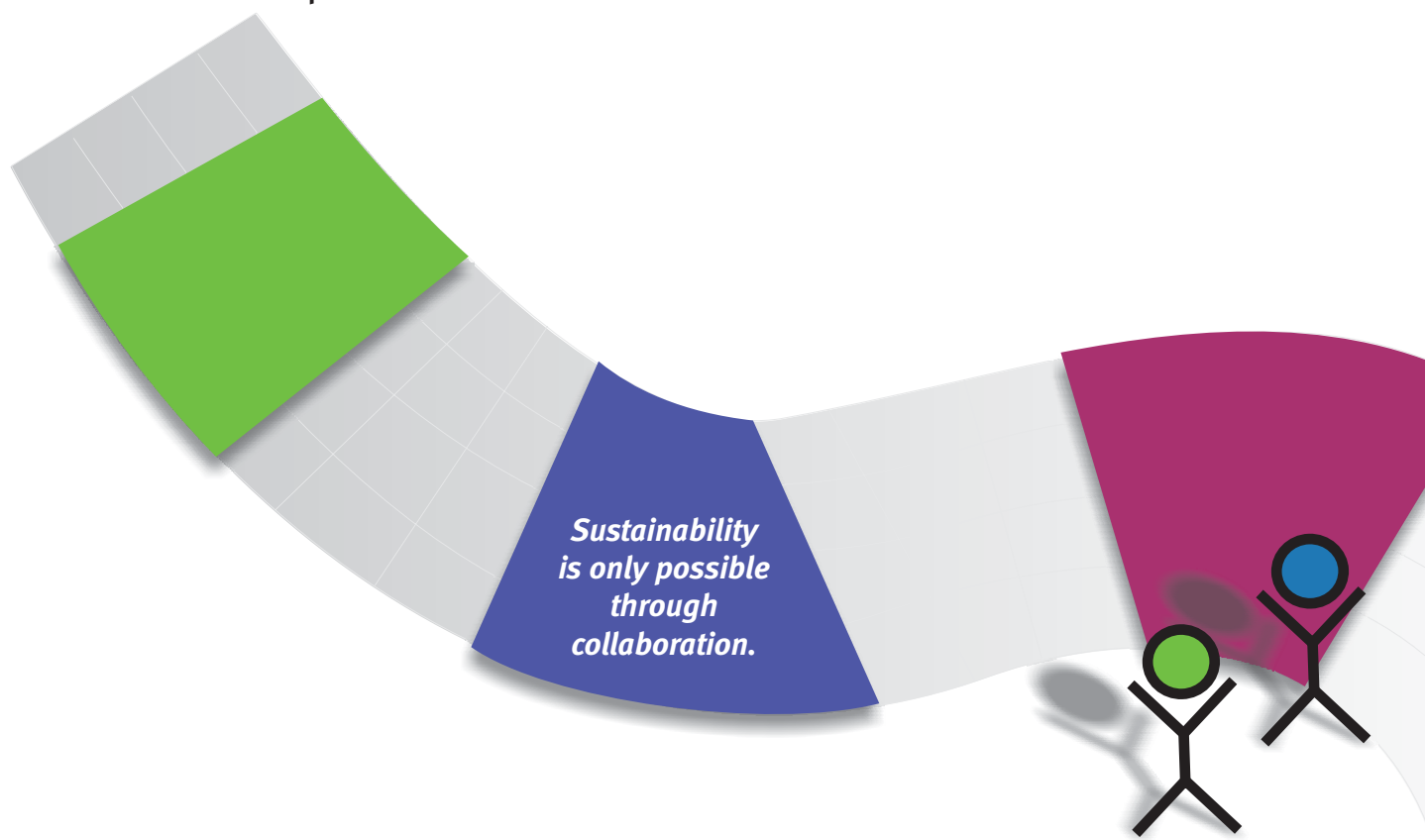
Here are some key points about **collaboration** made by people OCLC interviewed:

- Smaller institutions should **work together** on institutional repositories because we’re too small to have our own.
- **Joint use of libraries** is something smaller institutions need to look at—combined academic libraries, combined school/public libraries, combined public/academic libraries.
- **Libraries need to collaborate** to create “whole cloth” collections irrespective of location or holding library.

12. Reg Carr, *The Future of Libraries and Collections: Keynote address to the Fiesole Collection Development Retreat*, Oxford (20 July 2000), www.bodley.ox.ac.uk/librarian/fiesole/fiesole.htm.

13. John Durno, speaking about Hackfest 2003 held during the Access 2003 conference in Vancouver, BC, quoted in Roy Tennant, “Where Librarians Go to Hack,” *Library Journal* (e-version) (November 15, 2003), www.libraryjournal.com/article/CA332564.

- Libraries should **explore the affiliations** of their parent institutions for funding and collaboration opportunities—alumni are more likely to support activities related to special purposes.
- Centrally-stored (i.e., at the state or national level) materials that can be repurposed might be sensible.
- **Shared preservation is crucial**—can we get by with ten copies instead of 500?
- We need **way more collaboration** among museums, libraries and historical societies to present coherent collections.
- Historical societies could be **much more visible** by partnering with public libraries to digitize local historical materials.
- Collaboration comes with a cost—institutions have to **share priorities**, and coordination takes staff time.
- We need to share off-site storage and **do collaborative collection development**—there's too much for any one institution to do.
- A collaboration between the city and the public library only **increases the value of the library**.
- Overlapping public libraries—county and city—need to **collaborate to decide how to maximize strengths** and not duplicate work and collections.
- Local history collections often 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.
- OCLC's role is to provide interinstitutional collaboration—**be a collaborative not a cooperative**.



The Technology Landscape

“New applications of technology will enable libraries to shift from their traditional emphasis on the packages of data to furnishing information for decisions and action.

Hence, the new technology will provide librarians with the opportunity of developing new concepts of librarianship, having as their main emphasis the provision of information to individuals when and where they need it.

Finally, it must be recognized that this new librarianship will evolve step-by-step and in cadence with the cultural evolution of our society.”¹⁴

Fred Kilgour, 1981

Major trends

The library applications environment is poised in a very interesting way. Long dominated by the Integrated Library System, we are finally seeing a necessary move to a more plural systems environment. This is accompanied by two complementary trends. First, really distributed systems look as if they will emerge at last. And second, many library protocols and standards are being modernized in a “Webby” idiom, making them less library-specific. Accordingly, this section is written around four dominant themes:

- **An increasingly interconnected environment**
- **Network services and architecture**
- **New standards**
- **Universal access to information**

An increasingly interconnected environment

The library systems environment is becoming more densely interconnected. This is a result of several pressures:

- The need for more systems support for the range of library activities in a digital environment.
- The evolution of consortial and other shared arrangements.
- The need to interconnect with nonlibrary systems such as learning management systems or campus portals.
- The use of common services such as authentication across applications.

14. Frederick G. Kilgour, “The Next Fifty Years in Libraries,” *Reed* 59, no. 10 (May 1981): 11–4.

Systems Support

The first area of pressure is the diversity and number of systems that information organizations may have. Consider the range of systems investments libraries now potentially make to support their operations:

- **Library management system.** Long the core of library automation, the sector is served by a range of well-known companies that specialize in library management solutions.
- **Digital object management system.** As libraries digitize their collections or look to managing other digital objects they need to put in place systems support. Digital asset management systems are now a commodity. Some are generic; some are specialized to the library or cultural heritage communities.
- **Portal or metasearch system.** There are two broad classes of portal applications that have been deployed in libraries: cross-searching systems, using Z39.50 and other approaches, and personalization systems like MyLibrary.
- **Resolver/linker.** This is a relatively new application, but one that has quickly been taken on board by many libraries. A resolver or open linking system allows a library to link a citation or OpenURL to copies of the cited items. This is especially important for the library, which wishes to guide its users to the most appropriate copy of an item, based on cost or policy concerns.
- **ILL/resource sharing system.** Several systems support the management of interlibrary lending transactions.

Most libraries have a library management system. Many will have more than one of the above systems. Some larger libraries will have them all.

An interesting manifestation of this trend is the diversification of product offerings from the major library management system vendors. Although they may be bundled differently, the larger library system vendors now offer digital object management systems, portal systems and resolver systems, in addition to library management systems. Of course, a variety of other providers also make these systems available and in some cases—digital object management, for example—open-source systems may have some impact.

Growth of formalized sharing

The second pressure is the growing trend towards group resource-sharing arrangements, at various levels. Depending on circumstances, these may be consortial in nature, or may flow from state, regional or national structures. This has led to several systems solutions.

One is a distributed approach where library systems remain autonomous, but employ portal and resource-sharing technologies to provide a “virtual” union resource. This is the approach taken by consortia that implement Fretwell Downing’s VDX for resource sharing for example. This depends on complex distributed interactions, using protocols such as Z39.50 and the ISO interlibrary loan protocol.





A second approach is a totally centralized approach. This is not very common, but is implemented by the Norwegian academic system Bibsys for example. Here all the Norwegian academic libraries share the same centralized library system.

A third approach is a hybrid one, a mix of centralized and distributed approaches. This is what we find in OhioLink for example, where libraries have their own local library systems but there is a centralized union catalog and interlibrary “circulation” or ILL system. Another hybrid approach is exemplified in OCLC’s group catalog service, where, again, each library retains its own system, but looks to a central resource on OCLC for union catalog and ILL request services. In the hybrid case, the central system needs to communicate with local systems to determine holdings and availability data. In the OhioLink case, all the libraries share the same system, which facilitates this interaction at the cost of uniformity; the group catalog approach is more flexible in terms of local system, but at the cost of complexity of interaction. It requires some protocol support.

Interconnecting and interoperability

The third pressure is relatively new, but will become more important over time. This is the need to interact with other systems’ environments. Take two topical examples. The first is the learning—or course—management systems. In academic environments, the library is looking for ways to ensure that its services are visible within the learning environment where students increasingly do much of their work. The leading learning management systems—Blackboard and WebCT especially—are in discussion with library management system vendors about facilitating these links.¹⁵ A second example is the campus portal. It is estimated that two-fifths of campuses in the U.S. will have campus portals by the end of 2003.¹⁶ Increasingly, the library will need to think about how its services are surfaced in those environments.¹⁷

Finally, library applications increasingly need to interact with “common services”—services that are delivered enterprise-wide. The one of most immediate importance is authentication and authorization, as library users want single sign-on facilities to library resources. Several techniques are in use here, but Shibboleth is emerging as an approach of great interest. This is a common service because it is one that needs to be used by many applications, and one, which, increasingly, it does not make sense to provide on an application-by-application basis.

What we have here then, is a systems environment becoming more and more complex. And these complex systems need to talk to each other in various ways. So, for example, one wants to move content between repositories. A portal application needs to search across a range of resources. A central catalog may need to query a local circulation system for availability data. This in turn raises—much more starkly than in the past—the need for interoperability and a move to thinking about systems as communicating network services.

15. See the University of Edinburgh library’s implementation of WebCT: srv1.mvm.ed.ac.uk/devilweb/.

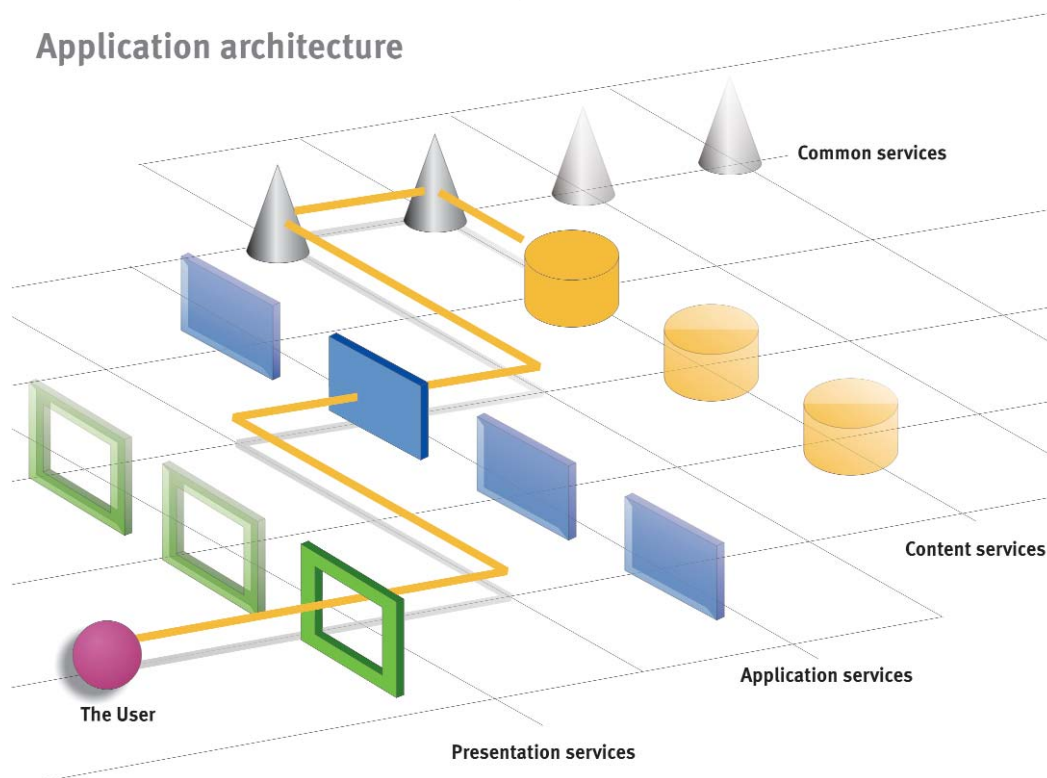
16. “The Campus Computing Project: An Interview with Kenneth C. Green,” *Commentary* (November/December 2002), <http://ts.mivu.org/default.asp?show=article&id=1055>.

17. See the University of Delaware’s *WebCT Resources*: www2.lib.udel.edu/usered/WebCT.htm.

Network services and architecture

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. An architectural perspective becomes interesting as a way of visualizing the system components and the relationships between them. A simple architectural perspective is presented here as a way of framing some discussion about interoperability.

Application architecture



Content services

Content management services:

repository architectures, preservation, knowledge organization, retrieval ... e.g., OAIS, DSpace, Fedora, LCSH, Dewey ...

Packaging:

OAIS SIP/AIP/DIP, METS, RSS, SCORM, IMS-CPS

Information resources:

text, static images, moving images, audio, multimedia ... HTML, PDF, JPEG, GIF, MPG ...

Metadata:

discovery, technical, administrative, structural DCMI, MARC, MODS, MIX, EAD, LOM ...



Application services

Generic Web services:

UDDI, WSDL, SOAP, XSLT ...

Discovery services:

Xquery, SRW/SRU, Z39.50 ...

Aggregation services:

OAI, RSS, Web services, Semantic Web ...

Transaction services:

exchange, billing, delivery NCIP (circulation, ISO-ILL)...



Common services

Terminology services

Metadata schema registries

Directories

rights, people, organizations, collections ...

Identity management:

Shibboleth

Resolution services:

OpenURL, identifiers (PURL, DOI)



Presentation

Rendering:

browser, database interfaces, media players ...

Content views:

personalization, visualization ...

End-user support:

searching, ordering and delivery, technical support ...

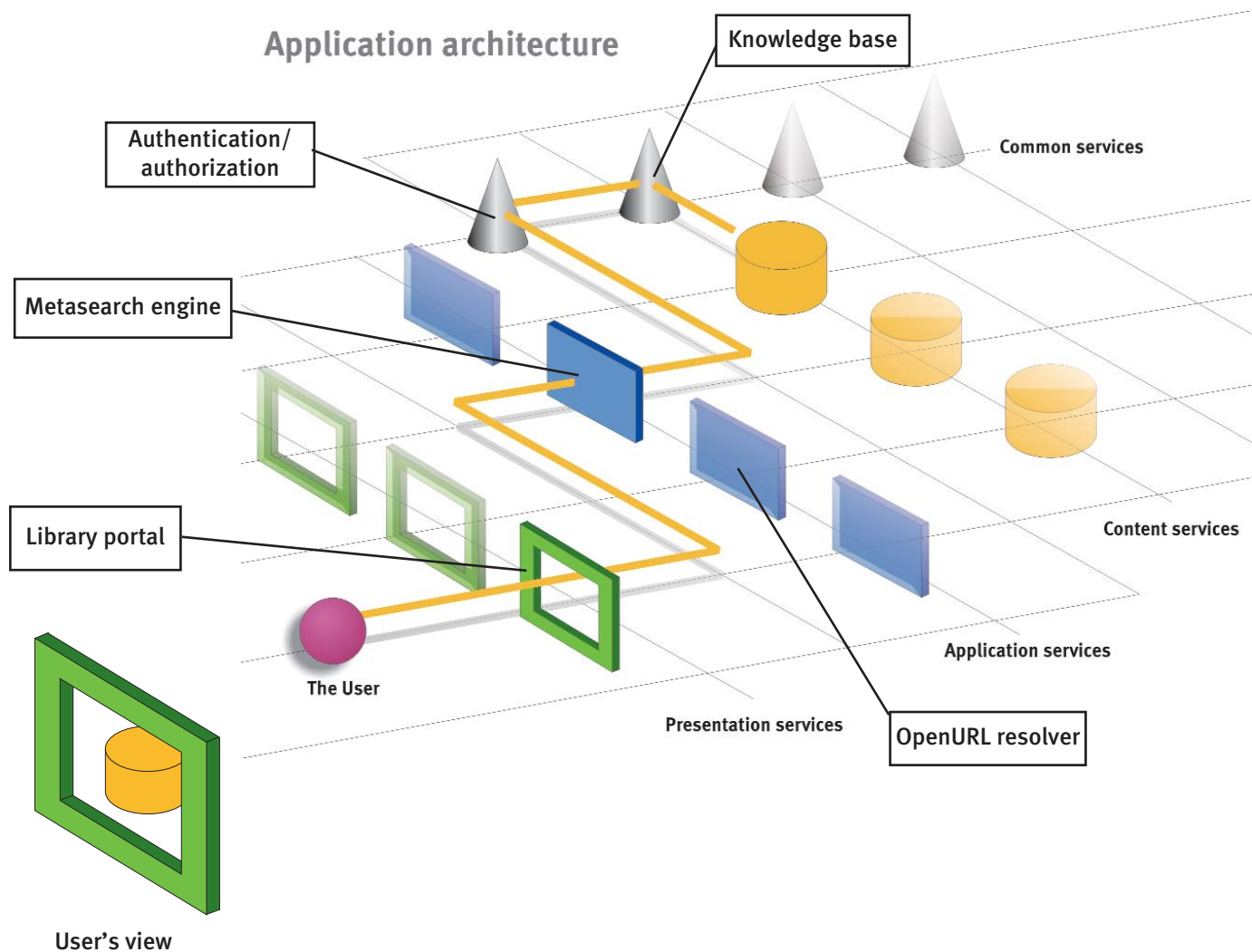


This perspective is based on the JISC Information Environment, which looks at how a set of national services might be developed collaboratively, in the United Kingdom, but which has become more widely influential.¹⁸ Effectively, it describes an environment onto which a portal provides a view. Some other architectural perspectives are available. At a high level these architectural initiatives are quite similar, they discuss similar services and seek to facilitate similar types of design and discussion.

What this architectural perspective shows are the following types of services:

- **Presentation services:** these are responsible for accepting user input and rendering system outputs. Typically, services are presented to a Web browser, but other environments (cell phone, PDA, collaborative environments, and so on) are possible. As discussed above, library services may be made available at their own interface, within a library portal, but also increasingly in other environments such as learning management systems, virtual exhibitions or campus portals. The presentation layer may be a “portlet,” a channel in some other environment.
- **Application:** these are services responsible for managing transactions between components. In business terms, these are the “business logic.” We have already discussed metasearch and resource-sharing applications. Another emerging application is aggregation, where metadata or content is “harvested” into a repository. A question broker is an application, which drives virtual reference services.
- **Content services:** these are repositories of data and metadata. Libraries have always managed large metadata repositories. In the last few years, more libraries are now also managing growing repositories of content. This poses a range of technical and service challenges, as well as preservation challenges.
- **Common services:** these are services that are potentially shared by several applications. They include things like directory or registry services, authentication and so on. A union catalog could be considered a “common service,” particularly when it is thought about as a way of locating items through holdings lookup. The need for directory services (for data about policies, collections, rights, organizations, people) grows as we move towards a distributed environment. These are effectively “intelligence” that applications need to work smoothly and avoid redundant development effort. An example of such a directory is OCLC’s ILL Policies Directory. Another is the “knowledge base” that is configured into current portal and resolver services. At the moment, each vendor or implementer creates a knowledge base with significant redundant cost. The knowledge base contains such data as descriptions of available resources, technical information about how to connect, and rights data. There is growing interest in making such data available nonredundantly as a “shared service.” This idea makes technical sense, although it is not yet clear whether economic incentives exist to bring it about. “Registry” services typically allow applications to discover technical details that

18. UKOLN, JISC Information Environment, www.ukoln.ac.uk/distributed-systems/jisc-ie/arch/.



are needed about registered entities. So, for example, OCLC runs a pilot OpenURL registry—this allows implementers of the new OpenURL specs to find authoritative data about identifiers and metadata schemas. Again, this type of application becomes more important as we move to distributed environments.

An example: Think about using a portal. Typically, the user will see a screen and can search several databases.

However, if we look “behind” or “through” the screen we see a potentially complex range of interactions. For example, consider a typical set of interactions to support a cross-searching application. The portal interface will give a view to the user of what is available. It will accept input and will pass to a metasearch engine. This in turn may need to look in a knowledge base to see how to interact with a particular resource. Authentication and

authorization may be required at several stages. When some metadata is returned and the user selects an item it may be passed to an OpenURL resolver. This description simplifies the process, and there may be many other interactions. There may in fact be a range of other fine-grained services. Some metasearch engines merge and enhance metadata from third-party resources. Because of the heterogeneity of potential targets, there is a need for terminology services, where an application can interact with a service that maps vocabularies, expands searches and so on.

Say the item returned to the searcher of a portal was a book record and the user wants to initiate an interlibrary loan request. Then the portal might interact with a request broker service. It might have to select a library to send a request to based on a directory of rules, consult an ILL policy directory and send a request. It may have to interact with a common billing service.

It should be clear at this stage that this is an idealized schematic: in fact these systems are much more monolithic, enclosed and Tower-of-Babel-like than this representation suggests. However, the interconnected environment described in the last section suggests that there will have to be more decomposition of systems if we are to build flexible digital environments. This in turn suggests that we need effective and efficient links between the various components: they need to “click.” This then raises the question of ensuring an appropriate standards framework to make this happen.

New standards

Repository and content standards

Consistent with the emergence of digital object management as a concern is a focus on standards to manage this emergence. Of special note are the following:

- **OAIS.** This provides a model for the development of archival repositories. It has provided a framework within which OCLC and others have developed their archives.
- **Preservation.** There is ongoing work on preservation metadata and exploratory work on how to actually provide preservation services. This area is still in early stages and there are serious issues for those aiming to provide production services.
- **Content packaging.** The library community has developed METS as a way of packaging complex digital objects for exchange and manipulation. The learning community has developed SCORM. Industry approaches such as MPEG 21 part 2 and SMIL may have some overlap also.
- **Content exchange.** We do not yet have a routinely implemented protocol framework for exchanging actual content between repositories. The work being carried out by the OKI initiative at MIT may be relevant here.

- **Metadata.** The metadata landscape continues to become more complex. Metadata is data that supports operations on objects. We have developed significant expertise in descriptive metadata for information objects. We now have new forms of metadata to support other operations. Some examples are: technical metadata (data about the technical characteristics of an object, what equipment was used to create it, etc.), structural metadata (metadata about the relations between components of an object), rights metadata. We also see metadata about other objects: collections, services, organizations, people. And finally, different domains and models are coming together in the shared space of the Web, so we need to work with schemas from related domains—ONIX (book industry), EAD (archives), IEEE/LOM (learning management) and so on.

Z39.50 International Maintenance Agency

www.loc.gov/z3950/agency

Applications

Application areas of note include:

- **Cross searching.** Z39.50 is a search and retrieve protocol that is widely adopted in the library and related communities for query. It is a complex protocol that is unlikely to grow in use. A parallel initiative is working on Z39.50 next generation: carrying Z39.50 over into a Web services environment. This work is resulting in two approaches SRW (search and retrieve on the Web) and SRU (search and retrieve URL). These are not widely adopted, but there is some expectation that they will be taken up in newer applications, and may find some traction outside the library community. They have been developed as “Web services.”

Open Archives Initiative

www.openarchives.org

- **Harvesting.** There has been great interest in harvesting metadata, sparked by the Open Archives Initiative (OAI). An example here would be an OAI-PMH-based harvester that takes data from several sources and makes it available at a machine or a user interface. The Open Archives

NISO Standards Committee on OpenURL

www.niso.org/committees/committee_ax.html



Initiative Protocol for Metadata Harvesting is a technique for sharing metadata between services. One service—a data provider in OAI terms—makes metadata available in an agreed way; another service comes and “harvests” it. The latter service—a service provider in OAI terms—may harvest from multiple “data providers” and in turn may provide access to the metadata it collects in this way.

- **Resolution.** A resolution service will typically take an identifier and return data about the resource identified. In the last couple of years a particular type of resolution service, based on the OpenURL, has become very important in library portal applications. An OpenURL provides a way of encoding citation data and exchanging it between services. Reference linking applications have emerged that are configured so as to resolve an OpenURL in a way that is configurable to the particular context of the user. So, in a typical scenario, given a journal article, a user might be directed to the local collection, to a particular aggregator and so on. This is a way of linking metadata for a resource with the “appropriate” copy of that resource, as determined by the library.
- **Niche library transaction applications.** NCIP and ISO ILL are two library-specific protocols. The latter is well established; the former is very recent. Neither is widely deployed, but each has a role in its niche area.

Universal access to information

Semantic Web, Web services, grid computing and wireless technology

“Well, there are a lot of problems with computing today, in how many things are still very manual or very isolated. You know, if you work with multiple PCs, phones and PDAs, the way you set up even trivial things like getting the sports scores that you care about, or the messages that are important, or your address book to be consistent on every device—that’s a mess [...] So, what’s the key ingredient that can solve these problems? Well, it’s largely about software breaking down boundaries. That’s why our goal is to achieve what we call ‘seamless computing’—between the structured and unstructured processes, between the devices, between the organizations.”¹⁹

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 the light of wider developments. Four are of special interest: the Semantic Web and Web services from the World Wide Web Consortium, grid computing and Wi-Fi. All of these, in one sense or another, attempt to address the less-than-seamless Internet-accessible world.

- **Semantic Web.** The objective of the semantic Web is to provide structure in Web documents, so that machines can process them in the way that people currently read them. So, at its core, the Semantic Web is about promoting languages for exchanging data and describing its meaning. Interoperability is enabled within a community, which uses a shared

*Web Services and XML
are related to business
process management
and people are
recognizing that
information is key
in this.*

Industry Pundit

19. Bill Schlender, “The Vision Thing Again,” [interview with Bill Gates], *Business 2.0* (December 2003): 106.

“ontology” of terms. The general standard for data is the XML-based Resource Description Framework (RDF) and the upcoming Web Ontology Language (OWL).

The Semantic Web has yet to find convincing demonstrators, but may be important in niche applications. It is still largely theoretical. There is one area in which it is potentially important and this is in the area of terminology services. We are likely to see more vocabularies made available as network services. An example would be a network-accessible version of Dewey,[®] which could be queried, navigated and so on, by remote protocols. Work is underway on such applications, and there may be points of contact between these and the Semantic Web.

- **Web services.** Web services are of major significance for the library community and for applications builders in general. In brief, they allow lightweight applications to be defined, which leverages the existing infrastructure of the Web: they provide potentially low-barrier implementation routes for distributed services. Web services are modular applications available on the Web. They may be recombined to provide other services. Google and Amazon make interfaces available as Web services so that others can more easily build them into their applications. The Web services approach has wide uptake in industry. SRW/SRU protocols discussed above are rewrites of Z39.50 as Web services. OAI-PMH and OpenURLs are implemented as Web services. They are built on top of the Web, using basic Web protocols and XML.
- **Grid computing.** Grid computing (www.gridcomputing.com) promotes the development and advancement of technologies that provide seamless and scalable access to wide-area distributed resources. Computational grids enable the selection and sharing of geographically distributed computational resources. This idea is analogous to the electrical power grid, where power generators are distributed, but the users are able to access electric power without bothering about the source of energy and its location. The idea has become popular in a variety of academic research environments, including computer science, molecular modeling and drug design, biophysics and high-energy physics, and has been extended by IBM and others into business settings. The promise of grid computing—of Web-based services providing universal access to information and computing in a collaborative environment—is as real as it is seductive.²⁰
- **Wireless technology.** Wi-Fi (wireless fidelity) refers to wireless local area networks that use one of several standards in the same “family”—the 802.11 standards. The wireless networks send and receive data to and from laptops and handheld devices such as cell phones, PDAs and the cell phone/PDA hybrids like the Treo. The resulting nomadic computing environment allows for flexibility, unencumbered by the need to locate wall plugs and hardwired computers. Many libraries are using Wi-Fi to deliver library content to users. Medical and health sciences libraries in particular are developing pathfinders and library information that can be downloaded to portable devices. Some libraries are using Wi-Fi and

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

Industry Pundit

20. Willy Chui, “Grid Computing: Fulfilling the Promise of the Internet,” *GridComputing Planet.com* (July 14, 2003), www.gridcomputingplanet.com/features/article.php/2234691.

handheld devices to collect data from copiers and printing stations, for example.

RFID (Radio Frequency Identification) is not a new wireless technology. What's new about RFID is that it has become cheap enough for large-scale deployment. Wal-Mart made the news this past year when they announced that they would require their 100 top suppliers to put RFID tags on pallets and cases of goods destined for Wal-Mart stores. Quite a few libraries have implemented RFID systems as a tool to help track materials, stop theft and check out and return books more rapidly. In a sense, RFID is the technological child of bar codes. The big difference between the bar codes and RFID tags are that bar codes have to be "seen" by a scanner and RFID tags can be read as long as they are within range of a reader. The difference to a library user may be the difference between standing in line waiting for access to a bar code scanner and having material checked out merely by entering the circulation area. One reason libraries have been slowly adopting RFID technology is cost, but as is always the case with technology, this inhibitor will eventually vanish. A more serious inhibitor is the concern many librarians have (and they have company in the Electronic Frontier Foundation) about the collection of data and individuals' privacy rights.

A 'Webby world'

The library world has been supported by some venerable applications: the MARC format, Z39.50 and others.

We have already discussed how new protocols are being developed in a Web services idiom. At the same time, metadata schema is being defined in an XML context.

Over the next few years, it is likely that most new protocol development will be in a Web services context. Modular applications will be quickly developed that advertise their interfaces for use by others.

Metadata and content standards will continue within a framework established by XML and the XML family of standards.

These developments will make library applications less specialized and domain-specific.

"I suppose you can say, 'Haven't we heard all this before? Didn't somebody talk about the digital convergence ten years ago? Didn't John Von Neumann have something to say about that in 1943?' Well, yes, but it has taken this long for a reason: It's hard."²¹

Here we chart the array of projects, technologies, standards and metadata initiatives, which are part of the library applications environment.

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

*Working collaboratively
with people makes
things happen.*



21. Schlender, "Vision Thing."

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.

Implications

- Many librarians and highly trained paraprofessionals will be retiring within the next five to ten years. *Is this “brain drain” a disaster or an opportunity?*
- Libraries and allied organizations increasingly have digital collections. *How are electronic collections to be defined and developed? Who owns digital information? How can its use be both protected and promoted?*
- The technical and economic challenges of digital preservation are significant and to some extent, still unknown. *Are archiving and preservation of all digital content possible? How should they be funded? Who decides what to archive and preserve?*
- Unmediated access to digital information is increasing. *How can the interpersonal aspects of librarianship—service, instruction, collaboration—be retained in a Webby world?*
- There is growing interest in providing integration—integration between information systems, and integration between information systems and other types of systems. *What is the function of the library in a networked distributed environment?*

What new attractions did we encounter on our tour through the Library Landscape? Perhaps not many. We know all the challenges, nightmares and dreams of this most familiar of landscapes. We read, write, speak and worry about them all. One thing is evident to anyone looking at the literature, published and unpublished, pertaining to the future of the library, or the future of the book, or the future of information professionals, in a digital world: it is often apocalyptic in one way or another. And we’ve been reading or writing it for at least ten years. It is possible to read an article published in 1992 on libraries in the digital age, substitute a few nouns and it’s all timely and relevant in 2003. Granted, this tone is evident in library writing whatever year one picks to peruse—in the late 1800s, for example, fiction was going to ruin libraries. But, the point is, collectively, we do not seem to have made many of the changes to our landscape that the brightest among us have advocated for, on behalf of our larger communities.

This is not to suggest at all that libraries, allied organizations and companies serving these organizations have not made a huge number of changes to service delivery, information-seeking tools and products. At the risk of trivializing and over-simplifying decades of innovation, commitment and hard work, for the most part, what’s been done has been done in a closed shop, using our own architects and consultants, with little direct assistance for our primary constituents, the information consumers. One result? Information Consumer is hanging out at the Information Mall with Google.

Bibliographic information is a corporate asset and should be treated like other assets.

Director, Academic Library