

## Managing Licensed Networked Electronic Resources in a University Library

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*The issues faced in delivering licensed networked electronic information resources to users have received much attention in university libraries and in the library literature in recent years. Management of those resources has been addressed on many individual topics as well. In key areas such as licensing, access, consortia, and cataloging, for example, issues have been and continue to be explored in some depth. This article presents a holistic view of the management of licensed networked information resources in a university library and suggests areas for further consideration.*

**M**anaging information resources so that they may be discovered and used by university students, faculty, researchers, and staff is at the core of the mission of a university library. Traditionally, this management has included the processes of selection, acquisition, cataloging and classification, labeling and other physical processing, storage, circulation, and preservation of books, journals, videos, and many other kinds of physical materials that constituted the packages containing the information. Because the outcomes of these processes were not always sufficient to allow users to find the information they needed, libraries also have provided reference and information assistance and more and more user education. Libraries have acquired complex bibliographic searching tools such as indexes and bibliographies, and librarians invented interlibrary loan to acquire materials that users needed but which their libraries did not own.

From the beginning, libraries were leaders in the utilization of information technologies. Today's printed book is a splendidly successful and long-lived information technology, and libraries have long used binding to gather, preserve, and make more accessible the less sturdy, soft-covered magazine and journal. In fact, libraries have been in the forefront of society's adoption of new information technologies. Microfilm, film, video, other audiovisual formats, and public photocopying were all embraced by libraries. Before Kinko's and Hollywood Video, there was the library.

Digital computing technology is no exception. The obvious benefit of library automation to society was clear to many—non-librarians as well as librarians—very early in the development of computing, and the rest, as they say, is history. Library automation was so successful that until very recently, libraries were probably unique in having standards for both their computer records (MARC) and for the data in those records (the cataloging rules and classification schedules). In short, libraries not only have a long and honored tradition of managing in-

formation, they "have significant experience with managing technology" and not being managed by it.<sup>1</sup>

The extremely rapid development of the global networked environment, however, has forced librarians to scramble—in almost the military sense of that word—to prevent the loss of their ability to manage networked information resources for the good of their current and future users. Is it irony or only coincidence that the first article in the June 1998 issue of *ARL: A Bimonthly Newsletter of Research Library Issues and Actions* summarizes one of the most recent attacks on that ability, and the second, some of the most recent counterattacks?<sup>2</sup>

The first article concerns a proposed update to the Uniform Commercial Code that "is poised to shape the legal landscape for transactions in information products, including copyrighted works, databases, and computer software. It is therefore likely to impact the operations of all libraries and academic institutions." Perhaps the most direct outcome would be to legitimize the shrink-wrap license and open its application to any form of intellectual property including books. Break the seal, and a library would be wrapped in the license, strongly suggesting the need for a new profession to serve us all in our despair: the Library Shrink.

The second article updates an "agenda to reclaim scholarly publishing," including ARL's SPARC, the Scholarly Publishing & Academic Resources Coalition. Among the many possible outcomes would be the retention by universities and scholarly organizations of copyright on the published results of scholarly research. As noted in a report of the Association of American Universities Research Libraries Project, "In order to be published, and usually without conscious attention to the consequences, faculty, research staff, and other university employees" assign copyright of their published journal articles to the journal publishers, and "thereby put themselves and their institutions in the position of buying back subsequent uses of their own work."<sup>3</sup>

Library literature is replete with information about managing information services. In the past decade, there has been a deluge of information on various aspects of managing electronic information resources, including networked information resources. Appropriately, much of this new information is itself available only on the Internet, first on discussion lists and FTP sites (such as the broad-purposed PACS-L list), and more recently on Web sites (such as the specialized Liblicense site). However, there is very little in the literature to provide the library practitioner with a synopsis of the problems

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and challenges of managing electronic information. The purpose of this article is to outline a holistic approach to managing licensed networked resources for library users in a university library.

## ■ The Challenges

The problems of managing electronic resources did not begin with the explosion of the Internet. Many libraries first faced them when they joined OCLC or another bibliographic utility: they had to sign what may have been their first license, wire their first network (if they had more than one terminal), and adapt paper-handling-based workspaces to the ergonomic needs of computer workspaces. The first experience might have been with a computerized circulation system, which presented many of the same problems. The first public service experience may have been providing mediated online searching services to faculty, researchers, and students. The challenges expanded with the advent of online public access catalogs and especially with the offering of dial-in access.

But the biggest hints of the challenges to come in managing access to networked electronic information followed the introduction of CD-ROM resources for public use, especially as librarians began to consider networking their CD's and providing remote access to them. They needed to consider the impact of licensing; interpreting copyright of electronic information; printing; the acquisition of resources from aggregators (such as IAC) rather than publishers; ownership and access; and multiple interfaces.

They also needed to take into consideration the impact on collection development policies; funding for the acquisition of new forms of information and technologies during a period of transition; traditional relationships between libraries and vendors and among various library departments; technological infrastructure; ILL; service to multiple units such as branch libraries or branch campuses; service to remote users; user education; staff training; archiving; and collection of use and management data.

The explosion of the Web and the concomitant development of electronic journals and other electronic full-text resources has magnified these challenges and added new ones such as IP access management, consortial purchasing and licensing, new economic models as publishers attempted to learn how to transform their own businesses successfully in the new networked environment, and marketing.<sup>5</sup>

These challenges face all academic libraries (and indeed there are challenges such as filtering that face public and school libraries that are not issues in higher education), but they are more complex in university li-

braries because: (a) they are larger and likely to have more electronic resources (and thus more variants); (b) they are more likely to serve multiple locations, both on campus and branch campuses (and in the case of land grant institutions such as Washington State University [WSU], serve scattered agricultural research stations and faculty in every county of their state); and (c) have larger, faster-growing, and more complex distance education initiatives. They also tend to have larger scientific and engineering programs and thus have been faced with the journal pricing crisis years before they faced the added complexity of electronic journals.

University libraries have larger and more specialized professional staffs. While this may contribute to their greater ability to recognize and develop alternate solutions to the more complex technical problems, it also requires them to rethink their traditional organizational models. As James Mouw has noted, "New combinations of library staff . . . need to be brought into the decision process, which then becomes a longer and more complex task." New relationships must be developed, and professional and staff roles are evolving and changing. New communications strategies must also be employed.<sup>6</sup>

This article cannot address all aspects of all of the challenges listed above. That would be the subject of a substantial—and probably soon outdated—monograph. Some are not management problems as such, but technical problems. Some are being dealt with extensively already, and there is no reason to repeat that work. Many of the issues overlap so that the management challenges are at their intersections (for example, the effect of licensing on ILL). This article assumes that a library's collection development policy covers electronic resources; that licensed networked electronic resources have been acquired; that a university Ethernet network exists and that most or all faculty, students, and staff have access to it; that the library is engaged in consortial activities; that it offers access to networked resources to remote users; and that it has some facility for their authentication. It concentrates primarily upon licensed resources to which a library subscribes or otherwise acquires, and deals only peripherally with free, unrestricted materials such as government information and with resources that it may itself digitize and make available for use.

## ■ Managing Licensing and Copyright

No issue relating to networked information has drawn more attention than licensing. There is simply no excuse for a library to accept a vendor's "standard" license agreement unless it meets all of the conditions now

accepted as "best practices" by the librarians and legal advisors to them who are the leaders in licensing issues today. It must also meet the needs of the users of the library, which must forcefully negotiate the changes necessary to make it a "win-win" agreement for both library and resource provider. For more information visit the Liblicense home page and consult the references below. The excellent workshops on licensing offered by the American Library Association and its divisions, the Association of Research Libraries, and other professional library organizations are good resources.<sup>7</sup>

Obviously, negotiating a good license is a management issue, but licensing also overlaps with virtually every other challenge of managing networked electronic resources. To understand why, simply reflect upon the fact that in a library information environment governed by copyright, all librarians share a common understanding of the fair and proper use of their information resources. They may not all have the same level of understanding, and there are certainly misunderstandings of the intricacies of copyright law,<sup>8</sup> but there is, unquestionably, a shared understanding.

Furthermore, there is a large body of shared practice. Federal regulations specify the statement we librarians post on all of our copying machines, and ILL practices are codified and successful. OCLC handles a million successful ILL transactions every two months, and consortia such as OhioLINK and Orbis facilitate user-initiated direct borrowing among their member institutions.<sup>9</sup>

There is not, and at this point cannot be, any shared understanding of the proper—or, for that matter, the improper—uses of licensed electronic resources, not among the staff of a single library and certainly not between libraries, unless we introduce new management tools to create that shared understanding. As one writer has noted: "Managing the licenses has now become an enormous task as the number of databases available has increased, and the variety of licensing restrictions and special clauses seems to be ever growing."<sup>10</sup>

In some university libraries, the license negotiations are handled by a single librarian; in others, by a team; and in still others, not by anyone in the library but by the university attorneys. There is simply no way for even an informed librarian to intuit what any license covers or omits, allows or forbids. Fair use as we know it is not an issue in a licensed resource unless authorized by the license. The whole reason that publishers insist on licensing their electronic wares is their distrust of copyright and fair use in a networked world.

Licenses, in general, are improving favorably for library users as librarians become more adept at negotiating and as publishers and vendors become more comfortable in removing or modifying counterproductive

restrictions. These improvements have happened over a several-year period, and consequently there is a wide variety among the use conditions of a library's various licenses. There are also significant differences among various e-resources, and, there may, therefore, be sensible differences among licenses.

A large library is now likely to have hundreds of negotiated and signed licensed networked resources (not counting shrink-wrapped licenses, which many university attorneys, including WSU's, do not consider to be enforceable). Even if the same librarian or same team has negotiated all of these, it is unlikely that he, she, or they may remember the provisions of each. From a management perspective, it is irrelevant even if they do because that knowledge is not available to the institution unless it is incorporated into the management structure.

At WSU, we are building a searchable Web-based database of all of our existing licenses. Included will be information about authorized users and uses, unauthorized uses (is ILL permitted?), access provisions (IP, password, etc.), term covered, access methods (cataloged?), and any other information needed by anyone in the WSU Libraries about licensed resources to serve the public or otherwise perform their duties. It will also track the negotiation process so that collection developers and reference librarians will have some idea when a product may be available. This database will be one of our principal management tools for networked resources.

Another effort will be to build a licensing team. Team members will include representatives from collection development, acquisitions, systems, ILL, cataloging, reference, distance education, and the Attorney General's office. This will provide broader input to the licensing process and increase the shared understanding of the challenges inherent in the licensed, networked environment.

It is by no means obvious that licensing a networked electronic resource is not analogous to owning a printed version of the resource. It is instead the purchase of a right to use or access the contents of a remote file under certain conditions, often involving restrictions that may not apply to that same resource if it were owned as a printed, copyrighted resource.<sup>11</sup>

Managing licensed network resources is critical because the license is a contract to which the university library has agreed and to the provisions of which it is legally bound. If a license forbids the interlibrary loaning of information from the networked resource, the ILL department and all of public services must know that, and if the resource is included in the online catalog, the cataloging record should reflect that restriction. For example, it is quite common for publishers to offer their library subscribers free or modestly priced access to the

Web versions of their subscriptions. However, it is equally common for them to restrict ILL from the Web versions in a non-negotiable clause of the licenses. A handful of university presses have no such restrictions, and the American Chemical Society and (most recently) Elsevier are also now allowing interlibrary loaning from the Web issues. Elsevier's ILL allowance, however, is still more restrictive than the fair use provisions of the Copyright Law that pertain to the printed versions of the same journals.

Managing licensed electronic resources is a process of managing restrictions imposed by the licenses, and librarians must deal responsibly with them in the same way that they have successfully managed user access to copyrighted information and more restricted information resources such as files of standardized tests. They must take their licenses seriously, but they should not wear them as straitjackets. Daniel Jones notes that "We do not have any more control over what someone does with electronic journals than we have over what they do with print journals." Librarians must make sure that license provisions acknowledge the free and open process of scholarly communication in the university and the day-to-day reality of the university library as a social institution as well as a scholarly one.<sup>12</sup>

## Collection Development and Acquisitions

Perhaps in no areas are management challenges greater than in collection development and acquisitions. In these areas there are probably no single right answers. A process or solution that works well in one institution might not be relevant in another. Unlike licensing, where one may identify current "best practices," the models that apply here are more likely to be general than specific. In fact, perhaps the best an author may do is raise issues and suggest possible responses.

In no area is the need for the inclusion of new players more apparent than in the decision and communications processes for collection development.<sup>13</sup> Systems staff must be included to insure that there are no technical impediments to the use of a resource and that support can be provided. The individual or team responsible for licensing must be ready to negotiate with the vendors. User-education librarians need to be ready to introduce a new resource; it should not be sprung on them without warning. Reference librarians, if they are not coincident with the collection developers, need involvement for the same reason. Branch campus librarians need to be consulted if the vendor will not include them without a separate "buy-in." WSU is combining collection develop-

ment and systems into a new administrative unit of Collections and Systems headed by an Assistant Director. This new alignment reflects the growing importance of networked electronic resources in serving the learning and research environment of a twenty-first century land grant university.

Furthermore, new players necessitate new workflows in both collection development and acquisitions. Libraries must decide at what point in the collection development process the new players need to be involved. New forms, whether paper or electronic, will need to be designed and new tracking schemes initiated. As the new processes mature, they will need to be fine-tuned because it is impossible to foresee all of the variations that might be introduced by new types of electronic resources or new business models of electronic commerce.

For example, several years ago the WSU Libraries in Pullman developed a new process linking a simple alphabetical list on a public Web page to all of our e-journals as soon as the license for a new e-journal was finalized. Thus, users had access to new e-journals as soon as they were available. The new process assumed that the e-publishers would return copies of the final signed licenses to the library, this being, we thought, standard contract practice. Some publishers did. Some did not, and the suspense file grew. We discovered that we had to amend the cover letter attached to the signed copy we submitted to publishers requesting that they return a "final" signed copy to the library.

Over a several year period, we have discovered a number of such "holes" in our processes and procedures. For example, when a physical resource such as a book is ordered, it is received in acquisitions, and then moves through a processing routine. But if the resource is electronic, how is it received, and how does that affect the processing routines? If the resource is the "free" Web-accessible equivalent of a current paper journal, it may easily bypass all existing routines. As the network evolves, so must a library's management of networked resources evolve. While that is no more than a statement of the obvious, it must be stated: it cannot be taken for granted.

Library acquisitions budgets have not kept pace with either the growth of information or the rate of inflation in the library information marketplace. The development of electronic information resources in parallel with printed resources has further exacerbated the problem of managing dwindling buying power. Librarians and university administrators blame greedy publishers. Publishers blame universities for not funding their libraries at realistic levels. Most libraries have not solved the problem of managing the dual print-electronic environment—or what is often called the "transition period"

from a print to an electronic environment—to their satisfaction. The best management tool is an up-to-date collection development policy providing both guidance and a rationale for decisions about ownership and access and the duplication or not of electronic and paper versions of the same or similar resources.<sup>14</sup>

## Aggregators

Another collection development approach to increasing the amount of electronic resources a library provides is the use of “aggregators” of information. Aggregators combine electronic resources from disparate suppliers or locations into larger resource units for users.

While most aggregators are third-party vendors (UMI, IAC, Ebsco, Silver Platter, OCLC, CARL, Blackwell, Elsevier/CIS, to name just a few) that combine the offerings of multiple publishers, some such as *IDEAL* from Academic Press aggregate the publisher’s own electronic titles into a single package.<sup>15</sup> The most common resources in an aggregator’s package are electronic journals or the articles from current journals, but resources may include legal resources, financial reports, and government documents.

Not all aggregators provide the same type of service. Those such as UMI’s *ProQuest Direct* service provide access to a defined set of titles (or, more strictly speaking, the articles from those titles); others such as OCLC *Electronic Collections Online* offer a single point of access to a defined set of electronic journals but, for any given library, only to that subset of the titles to which the library subscribes; and others such as Swets offer access to a defined set of e-journals provided the library uses the vendor as its subscription agent for those titles.

Aggregators are not a new phenomenon among library vendors. Before the Internet, there were CD-ROM vendor aggregators (such as Silver Platter and IAC), and before CD’s, there were numerous microform vendors who acted as aggregators (UMI, for example, or the ultrafiche collection, *Library of American Civilization*, to name just two). Examples of aggregations of printed resources are legion.

The advantages of aggregators depend upon the product being considered, but a library should concentrate upon the value added by an aggregator when considering its resource.<sup>16</sup> This may include the inclusion of the e-text of articles indexed in a popular database that the library already uses, such as UMI’s *ABI/Inform*; access to page images rather than plain text; conversely, full-text searching of articles; the inclusion of titles to which a library does not subscribe; hyperlinks among resources in the package or to other resources to which the library has access; a common interface for disparate resources; or links to the library’s OPAC.

The disadvantages can make aggregators look like wolves in sheep’s clothing. Some are the obverse of what, in other contexts, might be advantages. The inclusion of titles to which a library does not subscribe may mean that the library is paying for a resource that it does not need. The aggregator’s index may not be the one the library’s users prefer for searching for information in those titles. Because there are still relatively few e-journals, the offerings of various aggregators overlap dizzyingly, making analysis of the various offerings extremely laborious and time-consuming. A single vendor’s product line may be so differentiated, in order to make it look more competitive in the marketplace, that enormous overlap occurs within its own offerings (such as *ProQuest Direct*). Without extreme care, a library may acquire two packages that look distinct but that in fact have few real differences in content. Finally, one vendor’s product might become stale compared to a similar product from a competitor. If the library switches to the competitor’s product, it risks confusing users and causing chaos in cataloging.<sup>17</sup>

Aggregations of e-articles are not the same as subscriptions to e-journals. A library considering the potential savings of canceling print subscriptions should approach such decisions cautiously when dealing with aggregations. It is unlikely that the aggregator has included the entire contents of a journal issue in its electronic article collection.<sup>18</sup> (This is also not a new problem. Microfilm vendors frequently did not film the entire contents of journals, and libraries that acquired the microforms as an alternative to binding and housing back issues of serials frequently found they had acquired less than they had replaced.) Furthermore, as librarians are discovering as they deal with aggregators of information, the information they think they are acquiring is not always “fixed.” Aggregators may lose the rights to continue to provide content from a particular publisher and even from another aggregator, so that the contents of a package may suddenly, and without warning, change. The current controversy over CIS-Lexis/*Nexis Academic Universe* is just the latest example. Despite these disadvantages, however, the advantages of aggregators for libraries today often, or even usually, outweigh the disadvantages.

## Consortia

Perhaps the most significant management strategy that university libraries use today in the acquisition of networked, licensed electronic resources is the growing use of consortial purchasing and licensing. There is no question that the buying power of large library groups provides the members with economies that they cannot achieve by acting alone. Library collection development

policies must be updated to include consortial and other cooperative purchasing activities. For publishers, dealing with consortia can increase their market penetration and help control their costs by limiting the number of customers with which they deal directly. The consortium provides a single point of contact for purchasing and licensing. Allen provides an excellent overview of the current networked information activity of one of the oldest consortia, the Committee on Institutional Cooperation (CIC).<sup>19</sup>

In the past two years, communication and cooperation among consortia in the area of purchasing and licensing of networked resources has exploded. In 1997, the loosely coordinated Consortium of Consortia ("COC") began a series of twice-yearly meetings of representatives of library consortia. From these productive sessions and spirited communications on the group's discussion list, the COC has "morphed" into the International Coalition of Library Consortia (ICOLC). It has opened valuable dialogs between the library community and publishers and vendors of networked information. Its "Statement of Current Perspective and Preferred Practices for the Selection and Purchase of Electronic Information" has been adopted by consortia worldwide, and it has become one of the most positive forces assisting libraries in navigating the waters of networked information.<sup>20</sup>

There are disadvantages in consortial purchasing and licensing that a library must weigh when evaluating the networked resources offered via its consortium. A resource available at an attractive price may not be one that the library might otherwise have acquired. Because many consortial contracts are with information aggregators, all of the disadvantages of aggregation may apply. Consortial decisions reflect compromises among the members. Participating in consortial decision-making takes additional time and effort, both scarce commodities in many university libraries. However, consortial benefits have so far outweighed the disadvantages that they are now an integral component of university library management.

PEAK (Pricing Electronic Access to Knowledge) is an exciting joint project of the University of Michigan and Elsevier Scientific to investigate new pricing models for electronic journals and to study e-journal user behavior as well as other management issues in collection development and access. The project includes nine other universities. The model that has gained the most publicity, and the one used by most participants, offers libraries a "generalized subscription" to a predetermined number of articles from the entire Elsevier e-journal collection at a prepaid rate. Users choose the articles they want to read, and, once selected, an article is available for unlimited use by all other users of the system. Michigan

will build a database to analyze use. Both libraries and the publisher will evaluate the economic models to determine what kind of pricing strategy may work best for future electronic collection development.<sup>21</sup>

## Managing Access

The area of networked information resources on which libraries undoubtedly spend the most management effort is in providing access to the resources. As with licensing, a wealth of information already exists on most major access issues. The major management challenges include decisions about cataloging and maintaining access points, integration of resources, authentication and user access and needs, user education and staff training, measuring effectiveness, printing and document delivery, and infrastructure.

Most university libraries go through phases in implementing access to licensed network resources. They may start with access via links on a Web page before they begin to catalog e-resources. They may provide access to resources on library workstations, expand to campus access, and finally to remote access. They may allow printing to attached printers in the library, proceed to implement networked printing from all library workstations, encourage users to e-mail results to themselves, then implement large document delivery programs. They may start with the vendors' interfaces in their "native" form, then develop or acquire tools to implement a more consistent user interface to all networked resources. They may transform user education from training students how to use specific resources to teaching them to become discriminating users and consumers of networked information.<sup>22</sup>

Major management issues surround the cataloging of networked resources. It seems obvious that the resources would be cataloged and linked to the library Web-OPAC. However, with all of the disadvantages noted above for aggregator products, should a library catalog the individual titles in a large package? Who will monitor the shifts in content? Will the vendor guarantee some stability in the network addresses? Should the catalog point to individual titles or to a vendor's homepage, and does the library even have this choice? Many of these same questions relate to single titles acquired directly from publishers as well.<sup>23</sup>

User access management issues include authentication, printing and document delivery, inconsistent interfaces, multiple access points to the same information, measuring the effectiveness of networked resources, and user access to both the network and the tools needed to use networked resources.

In offering their first Web products, librarians were torn between designing access for the lowest workable level of hardware and software or taking advantage of new functions offered in the latest versions of browsers (not to mention the nearly intractable problem of designing for access by those whose physical disabilities make a graphical interface very difficult or impossible to use). That is usually not an issue with licensed network resources because the marketplace drives vendors to offer feature-rich products. This requires libraries to improve their internal infrastructure of hardware and software continuously, and library management must plan for continuous improvement as well as for leveraging existing competencies.<sup>24</sup> Remote users simply have no choice but to provide themselves with adequate hardware, software, and network connections or to utilize those resources at a local public library. Fortunately for libraries, they should suffer no blame from remote users. Librarians should manage their systems confident that remote users are driven by a consumer electronic market that will meet their library needs as well. In a world of increasing disparity between rich and poor, this may not seem like a good library attitude, but it is the only sensible management strategy for serving remote users. Librarians should make sure that they provide their remote users with free, downloadable versions of the browsers, readers, and other programs necessary to use the networked resources.

Librarians should also make sure that the products they offer meet their users' needs. They must insist that publishers and providers of networked resources work with them and with consortia to develop effective data collection and reporting structures. Libraries need this to provide better service to users, and library managers need it to provide justification to university administrators and to their funding sources such as legislatures for future funding of resources. In most cases, the data being provided by vendors today are not adequate. However, librarians must also work with vendors to insure that vendors do not invade users' privacy any more than is necessary for the vendor to conduct its legitimate business. Librarians must realize that they and commercial vendors have entirely different views of user privacy rights.<sup>25</sup> Public service librarians must also develop regular means to measure the effectiveness of networked resources from the users' perspectives. Not only will this enable more informed collection development decisions about these often very expensive products, it will also enable user education librarians to assess and refine the effectiveness of their programs, which must be developed for use on the network.

User effectiveness may be compromised by multiple interfaces and multiple access points to the same information. The management reality is that libraries have

always provided multiple interfaces and multiple access points. (How many users have never really understood why they can't find journal articles in the library catalog, be it card or OPAC?) Technology is providing libraries with the tools (OCLC *SiteSearch*, for example) to combine many resources under one "look and feel." Most libraries can customize their Web catalogs. Tools like *SiteBuilder* in UMI's new version of *ProQuest Direct* allow a library not only to customize the interface to that networked resource but also to build new products such as course packs and reserve lists. At the same time, the explosion of the Web and of networked resources offered by libraries provides users with evermore access points and interfaces. Building new interfaces requires libraries to invest in Web programming staffs, software tools, and in staff time to design and test the new wares. Projects like *Galileo* in Georgia and *MIRLYN* at the University of Michigan Library may indicate a future direction for many libraries.<sup>26</sup>

The ability to authenticate remote users is improving, helping libraries manage access to licensed networked resources by authorized users in their offices, residences, or "on the road."<sup>27</sup> This is especially critical because of the rapid growth in distance education programs throughout universities. Access to networked resources is an important service that libraries offer to distance education students, and the ability of the library to manage access also provides faculty the opportunity to design richer course offerings and helps increase trust between publishers, vendors, and their library customers.

It is ironic that the increase in access to networked electronic resources has forced many libraries to increase the printing services they offer to users.<sup>28</sup> Networked printing solutions are now becoming common in university libraries. Libraries that once provided users with free screen prints now manage self-supporting LAN-based printing systems, which may utilize debit cards, copy cards, or coin-op devices. These are usually installed to manage the printing from full-text resources, but they may force the issue of whether to charge users to print citations. Some systems allow managers to authorize that the first one or two pages to be printed for free.

On the other hand, the opportunity for vastly improved document delivery services is also now at hand. A growing number of university libraries are funding free document delivery for faculty, and sometimes graduate students, of materials not owned or accessible in full text by the library. A number of the networked resource providers include document delivery modules. The earliest document delivery pilot projects, such as the one at WSU, have been successful—and affordable—and are now being expanded. ARL has been addressing the issue of how to measure this kind of performance for some time. It is not yet clear, however, how accrediting

bodies will treat this sort of access compared to ownership. It is also not yet clear how libraries may change the management of their collections by substituting document delivery for acquisitions.

## Managing the Future

It is daunting to write of the future of the library networked environment. One is tempted to say, "Read everything by Clifford Lynch. The End."<sup>29</sup>

However, a few management issues over which libraries can have some control in the immediate future do stand out. Archival issues probably stand out the most. Libraries have served the archival function for society from their beginnings, and university libraries have had an especially important archival role. The transient nature of electronic information has often been noted. Improperly managed, it cannot be trusted to be archival. According to ICOLC, "It is critical to libraries and the constituents they serve that permanent archival access to information be available, especially if that information exists only in electronic form. Libraries cannot rely solely on external providers to be their archival source. Therefore, agreements to procure e-information must include provisions to purchase and not just to lease or provide temporary access." While there are now a heartening number of digital archiving initiatives underway (Library of Congress, JSTOR, National Digital Library Federation, OCLC, and RLG, to name some), libraries are, at present, a long way from solving the archival dilemma.<sup>30</sup>

Working with teaching faculty to integrate licensed network resources more fully into the increasingly networked teaching and learning environment of the modern university is another management challenge. Universities are under fire to stem the increasing cost of higher education, and libraries are in competition for scarcer university resources. The more tightly the e-resources fit into the curriculum, the better the chances for libraries to manage a transition whose end appears nowhere in sight.

Participating as partners in new forms of scholarly communication is another important challenge. Initiatives like SPARC need the expertise of librarians who know how information is sought and used. Metadata projects need participation by librarians who have the cataloging and classification skills to organize access to networked information. Librarians in turn need to develop marketing skills not only to sell themselves in the new networked world but also to add credibility to new digital information initiatives.<sup>31</sup>

Librarians need to maintain flexibility: in dealing

with themselves as members of multiple, possibly overlapping, possibly competing consortia; and with vendors who increasingly find themselves not only in commercial competition with but sometimes in partnerships with some of their closest business rivals as well as with the libraries to which they are trying to sell their wares. Managing this "coopetition" promises to be challenging to both libraries and vendors.<sup>32</sup>

Finally, university librarians need to manage their institutions as exciting, dynamic, collaborative, and effective information places. Librarians should not and do not feel threatened by the challenges of the networked information age. We should instead employ our technical, service, professional, and human resource skills to thrive among its pacesetters.

## References and Notes

1. Daniel H. Jones, "Electronic Publishing: The Library's View," *Serials Librarian* 34, nos. 1/2 (1998): 191.
2. Laurel Jamtgaard, "Licenses and Information Policy: An Update on UCC Article 2B," *ARL: A Bimonthly Newsletter of Research Library Issues and Actions* 198 (1998): 1-4; Mary M. Case, "Academic Community Sets Agenda to Reclaim Scholarly Publishing," *ARL: A Bimonthly Newsletter of Research Library Issues and Actions* 198 (1998): 5.
3. Association of American Universities Research Libraries Project, in collaboration with the Association of Research Libraries, *Report of the AAU Task Force on Intellectual Property Rights in an Electronic Environment* (Washington: Association of Research Libraries, 1994): 133, in *Copyright in the Digital Age: A Leadership Workshop for Librarians*, April 10-11, 1997, Nashville, TN (Washington: Association of Research Libraries, 1997).
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5. Elizabeth Heaps, "Tailoring Licensed Rights to Users' Requirements: A Librarian's View," *Serials* 10 (1997): 318-19; Jones, "Electronic Publishing," 192-95; Sul H. Lee, ed., *Economics of Digital Information: Collection, Storage, and Delivery* (New York: The Haworth Press, 1997, published simultaneously as *Journal of Library Administration* 24, no. 4 (1997).
6. Sharon Cline McKay, James P. Mouw, Taissa Kusma, Sandra H. Hurd, and Paul Sonberg, "Partnering in a Changing Medium: The Challenges of Managing and Delivering E-Journals," *Serials Librarian* 34, nos. 3/4 (1998): 295-99; Pagell, "Managing Diverse Technologies," 153; Joanne Martinez and Karen Liston Newsome, "Planning and Budgeting the Transition to a Digital Tomorrow," *Serials Librarian* 34, nos. 3/4 (1998): 353-60.
7. The Liblicense homepage can be found at: <http://www.library.yale.edu/~llicense>; Ann Okerson, "What Academic



Libraries Need in Electronic Content Licenses: Presentation to the STM Library Relations Committee, STM Annual General Meeting, October 1, 1996," *Serials Review* 22, no. 4 (1996): 65-69; Trisha L. Davis and John J. Reilly, "Understanding License Agreements for Electronic Products," *Serials Librarian* 34, nos. 1/2 (1998): 247-60. The International Coalition of Library Consortia (ICOLC) intends to finalize its draft, "Guidelines for Technical Issues in Contract Negotiations," and issue it soon as an ICOLC document. The ICOLC homepage is at <http://www.library.yale.edu/consortia>, where such documents are available.

8. "Copyright is the metaphysics of law." My apologies to the speaker of that sentence and to the professional association (probably ALA) at whose meeting he spoke it. It was not spoken in the context of today's confusion surrounding the application of copyright to electronic information but at a session on copyright shortly after the enactment of the Copyright Act of 1976. He was an attorney and the keynote speaker, and this was his leadoff sentence. I've long since lost the attribution, so, patient reader, you must trust me: he said it.

9. The OhioLINK homepage is at <http://www.ohiolink.edu> and information on Orbis can be found at <http://libweb.uoregon.edu/orbis>.

10. Heaps, "Tailoring Licensed Rights," 319.

11. Thomas W. Shaughnessy, "Digital Information and the Library: Planning and Policy Issues," in *Economics of Digital Information*, 5; Patricia Sabosik, "Electronic Subscriptions," *Serials Librarian* 19, nos. 3/4 (1991): 67.

12. Meta Nissley, "Licenses, Leases, and Agreements: Issues and Answers," *Library Software Review* 9 (1990): 92; Michael D. Cramer, "Licensing Agreements: Think Before You Act," *College and Research Libraries News* 55, no. 8 (1994): 497; Jones, "Electronic Publishing," 192.

13. McKay et al., "Partnering in a Changing Medium," 296.

14. Sabosik, "Electronic Subscriptions," 69; Shaughnessy, "Digital Information and the Library," 5.

15. Rebecca T. Lenzini, "Having our Cake and Eating it Too: Combining Aggregated and Distributed Resources," in *Economics of Digital Information*, 40-41.

16. Barbara McFadden Allen, "Negotiating Digital Information System Licenses Without Losing Your Shirt or Your Soul," in *Economics of Digital Information*, 20.

17. Lenzini, "Having our Cake and Eating it Too," 41-43; Allen, "Negotiating Digital Information System Licenses," 20.

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19. Harold Billings, "Library Collections and Distance Information: New Models of Collection Development for the 21st Century," *Journal of Library Administration* 24, nos. 1/2 (1996): 11-16; Allen, "Negotiating Digital Information System Licenses," 15-26.

20. International Coalition of Library Consortia (ICOLC), "Statement of Current Perspective and Preferred Practices for the Selection and Purchase of Electronic Information" (1998). Online. Available: <http://www.library.yale.edu/consortia/statement.html>. The statement also appears in the March 1998 issue of *Information Technology and Libraries* (vol. 17, no.2), an issue devoted to library consortia.

21. For a brief news summary about PEAK, see Allison Weiser, "University Libraries Testing Model for E-Journal Prices," *Library Journal* 123, no. 15 (1998): 14.

22. Hazel Woodward, "Electronic Journals in an Academic Library Environment," *Serials* 10 (1997): 53-55; John R. Secor, "Digitizing as a Strategy," in *Economics of Digital Information*, 105.

23. Julie Rabine and Linda Rich, "Managing Electronic Journals in Times of Change," *Serials Librarian* 34 (1998): 279-83. For a full discussion of the issues of cataloging electronic resources, see the Virtual Library of Virginia, "Guidelines for Cataloging VIVA Electronic Collections." Revised 1 July 1998. Online. Available: <http://viva.lib.virginia.edu/~ejs7y/vivacat/guidelines.html>.

24. Jones, "Electronic Publishing," 194; Secor, "Digitizing as a Strategy," 105.

25. Heaps, "Tailoring Licensed Rights," 319; ICOLC, "Statement of Current Perspective and Preferred Practices," 3; Jones, "Electronic Publishing," 192; Clifford Lynch, ed., "A White Paper on Authentication and Access Management Issues in Cross-Organizational Use of Networked Information Resources" (1998), available at <http://www.cni.org/projects/authentication/authentication-wp.html>; International Coalition of Library Consortia (ICOLC), "Guidelines for Statistical Measures of Usage of Web-Based Indexed, Abstracted, and Full Text Resources" (1998), available at <http://www.library.yale.edu/consortia/webstats.html> and on p. 219 of this issue of *Information Technology and Libraries*. Adoption of these guidelines would, one hopes, solve most of this problem.

26. Information on GALILEO is available at <http://galileo.gsu.edu/Homepage.cgi>; on MIRLYN at <http://mirlyn.web.lib.umich.edu:80>.

27. However, for a full and authoritative discussion of authentication issues, see Lynch, "A White Paper on Authentication and Access Management Issues."

28. Jones, "Electronic Publishing," 194.

29. A good place to begin is the Coalition for Networked Information Web site, <http://www.cni.org>.

30. Michael Alexander, "Virtual Sacks: Storing and Using Electronic Journals," *Serials* 10 (1997): 173-78; Meredith A. Butler, "Issues and Challenges of Archiving and Storing Digital Information: Preserving the Past for Future Scholars," in *Economics of Digital Information*, 61-79; Heaps, "Tailoring Licensed Rights," 318-19; ICOLC, "Statement of Current Perspective and Preferred Practices," 2; Jones, "Electronic Publishing," 193; McKay et al., "Partnering in a Changing Medium," 299; on the Library of Congress initiatives, see <http://lcweb.loc.gov/loc/ndlf/digital.html>; on JSTOR, see: <http://www.jstor.org>; the Digital Library Federation's homepage is at <http://www.clir.org/diglib/dlhomepage.htm>; information on the OCLC electronic archiving pilot project is at <http://www.oclc.org/oclc/press/970127a.htm>; and RLG's archival resources can be found at <http://www.rlg.org/arrhome.html>.

31. Woodward, "Electronic Journals," 55.

32. Lenzini, "Having our Cake and Eating it Too," 44-46.