Chapter 1

Managing Electronic Resources

Addressing Workflow & Staffing

Workflows that involve many different people in separate parts of an organization beg for a systematic communication mechanism. Workflows that have tasks contingent on other tasks beg for a systematic tracking mechanism. Workflows that involve many documents with detailed information pieces beg for a systematic storage mechanism. In short, library initiatives to bring electronic resources into the collection require a systematic way to communicate among groups, track progress, and store data.

The process of managing electronic resources in libraries is often referred to as a "life cycle," and this management process is commonly visually rendered in circular diagrams. The categories may differ slightly or are named with small variations, but the circular image persists, and no one seems to question it. We may accept the image because it reminds us of a dog chasing its tail, and we can empathize with this feeling of frustration and futility; however, for better or for worse, the cyclical nature of electronic-resources management is *wrong*. At best it is a helix, spirally upward and hopefully implying progress; at worst it brings to mind images of Medusa's hair.

Traditionally, selection of materials for a library collection depends on some set of standard tools, such as subject-specific bibliographies, reviews from vested sources in any particular discipline, and comparison with external collections from other libraries and book and serial vendors. (As a side note, it was also in the mid-1990s that the collection-evaluation sources, for print materials available on the Internet, were developed.)

In the general collection-evaluation process, a subject selector asks a series of questions about a potential resource. First and foremost, the subject selector must decide if the material fits the library's subject criteria. The material also has to match the library's language, format, physical, and chronological collection limitations. The selector should also ask if the material serves the library community at the appropriate scholarly level. For example, if the library serves a community of doctoral candidates, the selector needs to ask: does the material meet the doctoral-level user's need and expectation? The source of the material—that is, the author or editor—should also be deemed an authoritative source. And certainly, price should be measured against value and against existing funding.

More than a decade after its appearance, the electronic resource, at the selection stage, must meet a separate set of criteria *in addition* to those we use to measure print, and while it is still in the selection stage, this decision involves expertise and input from library staff members beyond the subject-selector group.

Frequently, there are technological issues to be sorted out; for example, many producers of new electronic resources now allow potential library subscribers to trial products for a limited amount of time. In some instances, a trial license or contract must be agreed to before the trial can be implemented. Part of this agreement may include the library staff's determination of whether to make the trial a public one or to make it for staff-evaluation purposes only. Often, these trials need to be set up within the library's Web site, or through the larger organization's network, and with appropriate technical permissions set on proxy and other servers. Technical information must be exchanged between the content producers and an information-technology group, either within the library or within the larger organization.

Beyond the trial stage, the subject selector needs to understand how a new electronic resource will be delivered

to library patrons and whether or not that delivery mechanism can be accommodated by the library's technical support system. There are platform interface issues that require public services' input in order to determine whether the user interface is adequate or which of a choice of interfaces is best for the library's patrons. There are also technical issues of feasibility related to individual products. (Note that the Electronic Resource Management Initiative—discussed in the section "The Digital Library Federation's Electronic-Resource Management Initiative," on page 14—workflow puts this piece of the process in the acquisitions section, but if there are choices to be made that effect publicly available features or patron usefulness, it may be appropriate to determine this *before* the selection decision is passed on to the acquisitions group.) In addition, there are duplication issues to be sorted out, and to complicate this even further, the duplication of an electronic resource may be in print or may be aggregated in another electronic database.

Subject selectors may wish to acquire or subscribe to a resource both in print and electronic format under a variety of conditions. For example, the resource may serve a population with mixed feelings about using electronic resources; the publisher may define the print version as the final and authoritative record; or there may be no convincing plan for archiving a title too valuable to lose access to. Because the implications are far broader than any single subject area, these types of decisions need to be made at a higher level of collection management than at the individual selector level.

Selectors may also want to subscribe to material in databases that have overlapping content, which can result in a library providing access to two or more electronic iterations of the same thing. This is not a choice that can be made at the title level; rather, it is the result of circumstances created by the publisher or database producer whose business decisions determine the content of these aggregated databases. Because these databases cover broad subject categories, include many titles, and can be expensive, it is typically not the decision of any one individual subject selector, but rather a collective decision from a larger group of selectors evaluating content, public-services librarians evaluating user interfaces, and IT staff members evaluating platform synergies with the library's own systems. Because this electronic-resource selection process is so much more complex than the print-resource selection process, many libraries want to keep track of the selection decision made, the reasons for the decision, and identify the people involved in the decision. Reconsideration of a product several months later can only be enhanced by an understanding of the input from the various staff members in the last evaluation.

Typically, print resources selected at the selector level are passed on to the library's acquisitions group. This group's functions—traditionally used to support the purchase of print materials for the library—are somewhat inadequate for the acquisition of electronic resources. In a print environment only, staff members in the acquisitions group had both book and serials vendors with whom they contracted to manage the acquisition of a variety of materials from an array of publishers and producers.

In the electronic environment, the library and publishing communities have struggled with this intermediary role. In the white paper, "Agents in Place: Intermediaries in E-Journal Management," Rick Lugg and Ruth Fischer of R2 Consulting nicely sum up the value librarians have found in these intermediary services. "Since the late nineteenth century," wrote Lugg and Fischer, "subscription agents have provided consolidated ordering and billing, price comparisons and projections, consolidated claims handling, pre-payment plans, and one-stop customer service."[3] It is this ability—to accomplish a great deal of buying from many sellers through only one intermediary, in one "place" and at one time—that suits the acquisitions librarian's tasks and workflow so well and that has appeared to be missing in the electronic environment for some time. Additionally, the value of having all of a library's information about its purchases in the hands of one or a small number of vendors allows libraries to receive reports that create necessary and valuable snapshots of library collections and budgets.

These days it seems obvious that having one place (or a small number of places) to go to initiate your orders and having one place (or a small number of places) to go to get a comprehensive picture of your ordering habits and history is a far more expedient way to get your acquisitions work done. But earlier—during the period in which electronic resources were just becoming available—when trying to acquire electronic resources, this didn't seem quite so obvious to either the publishers or the librarians. In many cases, publishers felt that they could sell directly to libraries, in order to eliminate the middleman and the associated costs of dealing with the middleman. So, although they would allow subscription agents to manage orders for their print sales, they felt they could and should handle the newer electronic-version sales. Cutting the middleman out of the equation meant that libraries had to identify, find contact information for, and work directly with many individual publishers; very often the publishers were working with incomplete information and services not equal to those librarians were used to from subscription agents. In the instance in which a library acquisitions staff member might have chosen *not to work* directly with the publisher, the staff member's alternative was a variety of consortia offers. (Libraries often belong to more than one consortium, and each consortium could offer a deal on the same publisher title or title packages.)

What seemed so very simple in the print environment had become overwhelmingly complex in the digital environment. In acquiring electronic resources, acquisitions librarians had to find all the possible sources for starting

the purchase process, including the original publisher, the old vendor who might just be able to help with the electronic subscription, and all available consortia offers.

Because serials-subscription agents have been *increasing* ERM services for several years, publishers seem to be beginning to understand the value of these subscription agents to libraries—that administration of direct purchases from libraries may require skills more aptly suited to the subscription agent. Consortia now, too, are willingly using subscription agents to manage orders and related acquisitions details. It is still a complex environment, but with the re-emergence of the serials-subscription agent, the process need not be so unnecessarily complex.

Electronic Resources: A Matter of License

When a print order is placed, funds are encumbered, and an order record is generated to prepare the library for the receipt of issues of a print journal. In the digital realm, an order may set in motion these and many other things, but before we get to the ordering and encumbered-funds' step, it is generally dependent on a review of the license. This process includes getting a current copy of the publisher's license either from the publisher's own Web site, from a vendor (or consortium if at all possible), or from a contact within the publisher's organization. It might be as easy as a quick trip to a Web site, or it can be as tedious as making phone calls, leaving messages, waiting for return phone calls, missing phone calls, and finally getting a copy of a license sent to the library for review.

In 1999, in the ARL *SPEC Kit 248*, "Managing the Licensing of Electronic Products," George Soete found that sixty percent of libraries responding to his survey had one employee who was responsible for, among other things, managing license negotiations. Among this group of survey respondents, however, the position this person held within each organization might be in collection development, serials, acquisitions, electronic resources, or even in special collections.[2]

License Negotiations

Here in early 2006, there's still little consistency in regard to the department responsible for license negotiations. Oftentimes, the final negotiated version of the license requires approval from a source outside the library but within the larger organization. Regardless of the organizational unit—the department in which the license-negotiating staff member is working—negotiating the license, this is a task that follows the selection of a title, and precedes the actual ordering of the resource, and there is no parallel in print-resource acquisition.

The first order of business might be to determine which license to use, the choices being the publisher's license, the consortium's license, or the library's license. Many libraries and consortia have worked at crafting license agreements that meet their needs, and a small number of publishers are willing to work with these licenses in lieu of having to set up their own with a library.

Without a license of one's own, generally a library should have a list of common terms that can be agreed to, terms for which there might be some latitude, as well as terms that the library will not or cannot accept under any circumstances. Libraries and their legal circumstances vary so greatly that any clause in a license might be desirable, acceptable, or problematic to different libraries. State universities, in particular, may be prohibited from signing contracts in which jurisdiction is outside the home state of the university. Libraries with multiple sites or strong distance-learning programs may be very particular about their definitions of authorized users. Some libraries may feel very strongly about specifying interlibrary loan (ILL) rights, while others may be comfortable with minimalist clauses that leave more possibilities open to interpretation.

Whatever the individual library's circumstances, there should be a general understanding of what is and isn't negotiable in a license *before* the negotiations actually start. The negotiation process is generally a back-and-forth discussion between the responsible person within the library and the publisher's appropriate representative and can go quickly once the parties have each other's attention—or it might take much longer, if contact is sporadic and agreement is difficult on specific terms. A major recurring problem lies in the fact that most of a library's license negotiations happen at uneven rates and need to be constantly monitored to make certain the other party is as invested, regarding terms and getting the license agreement finalized, as the library. Some libraries require the added step of having a legal representative within the larger organization approve or sign the final license. Other libraries have been able to assign this responsibility to a library staff member; however, this designated library staff member may *not be the person* who negotiated the final terms of the license.

Providing Access

Once the license is fully negotiated and signed, an order can be placed or finalized. Access, however, does not happen immediately. The technical details of setting up access become the next item of business. This generally involves getting network addresses from the publisher and giving IP addresses to the publisher or receiving user IDs and passwords for the resource. Proxy servers may have to be updated, or password scripting may have to be written, to accommodate this technical-access information.

When all of this information is exchanged and acted upon, it must be tested to verify that access has been established for all licensed users, including onsite and off-

site users (as the contract has defined them). Many of the more technically advanced libraries have their own name servers, and these name servers allow a library to create a locally unique, controllable, and unchanging URL for a resource. The name server is one more piece of software that runs on one more piece of hardware that must be administered and supported by a technical unit either within the library itself or within the larger organization. It's necessary, though, because if a publisher changes a resource's URL, it prevents the library from having to find all of the places in which a resource's URL is listed and correct each one. In one time-saving step, the name server links the library's own URL to all of an e-resource's iterations within the library catalog and Web site.

With or without a name server, library staff must register the URL for the new electronic resource in a variety of new applications that were wholly unnecessary and unimaginable in the print-resource environment. Where formerly librarians made a bibliographic record available in the online public catalog, library staff members now have OpenURL link resolvers, federated-searching software, library portals, A-to-Z lists of electronic resources, and subject-specific guides that need to be updated with information about these newly acquired electronic resources. Some of these new applications can be updated automatically by feeding off others, but at least one (if not more) of them must be updated either through an automated-batch-update process or via a manual intervention that adds the new data about the new electronic resource.

Cataloging E-Resources

The process of cataloging electronic resources is complicated by the many places within the library's systems in which information about holdings is collocated. It's no longer just a matter of creating a new bibliographic record or editing a pre-existing bibliographic record to accurately reflect what title the library has access to and, within that title, what holdings the library has. Although cataloging (especially for serials) has never been a simple task, it has become even more complex in the electronic-resource area because of the need to clearly identify the linkages among the various formats of the same material and the various holdings of the various iterations of that same material.

In addition, MARC records need to be edited to include the location of the electronic resource in a manner that provides access directly from the bibliographic record within the online public catalog or from any of its by-products or other resource listings. Formerly, this was accomplished by adding a call number or location code of some kind; it now entails adding an accurate URL, which may be from either the publisher's Web location or from the library's name server. For those libraries that choose to classify their serials and other continuing resources, the addition of the URL—as a mechanism for accessing an electronic resource—does not necessarily eliminate the need to add a complete classification number.

E-Resource Administration, Maintenance, and Storage

Print-resource administration and maintenance in a library first involves checking in individual issues of serial titles, something that doesn't need to be done in the same manner in the electronic environment; however, one can easily make the case that monitoring access—in order to verify library users are still able to reach the content Web site and retrieve information from it—is the electronic environment's equivalent of checking in individual issues of continuing print resources.

In the print environment, when issues are not received, claims are sent either to a subscription agent or directly to the publisher. Automated check-in (and its associated predictive check-in record) allows acquisitions staff to review claims generated by the ILS. Appropriate claims can be passed on and tracked in either the subscription agent's system or in a library's local ILS, and reminders can usually be generated from either of these systems.

Claiming for digital resources is less automated, though, and the tracking for this type of task is not in place still today. Lack of access to an electronic resource needs to be investigated by library staff, from a variety of platforms and computer applications and from a variety of locations. If the library staff discovers that they can't access a resource, they then need to find (usually by process of elimination) whether that access problem is localized to a particular computer; whether the access problem is due to a specific type of computer program (such as the Web browser) being utilized; or whether it's a problem affecting the machines situated in a specific physical location (suggesting a problem with a small subset of numbers within the library's IP range). If a library doesn't receive a copy of a printed issue of a serial, it's clear what the problem is and what the remedy ought to be. If a library can't access a publisher's Web site, however, then the list of possible problems seems endless, and the remediation is neither simple nor obvious.

Print-collection maintenance also involves shelving and binding, but in the electronic environment, there appears to be no equivalent task. These shelving and binding responsibilities are very often assigned to nonprofessional staff members, so the fact that they have no electronic-resource equivalent has an impact on overall staffing issues, but does not affect the workflow and responsibilities of professional library staff members.

Additionally, a task that has no equivalent in the print environment, one facilitated by the nature of the electronic environment, is the ability and, therefore, the need, to monitor resource use. This is a twofold activity: with the development of COUNTER (Counting Online Usage of NeTworked Electronic Resources), a standard mechanism for count-

ing and codifying incidents of use (of content) from the provider's hosted site, libraries can monitor and measure how valuable an electronic resource is to their constituencies. Reports are available from publisher Web sites on a predetermined but regular basis. Information about the location and access restrictions (such as user IDs and passwords) must be kept, and a librarian must access the site to retrieve these reports in an appropriate format. Because these reports from various provider sources are produced with agreed-upon definitions and consistent formats, these reports can be reviewed for individual resource evaluation and can be combined to give collection managers an overall picture of the use and value of all of a library's electronic-resource holdings. The ability to monitor use also can alert a publisher to a potential license breach. In such an instance, a member of the publisher's systems staff would note unusually high activity in a consistent and methodical pattern that would track a library's authorized user's violation (for example, downloading massive amounts of content). In this scenario, the publisher's representative would notify the library, and the library, in concert with the larger organization's information-technology service staff members, would be obligated to investigate the breach, identify the culprit, and take steps to halt the breach within a period of time specified in the license.

Storage of less frequently used materials in less accessible, often remote, locations is a responsibility that generally is coordinated under the auspices of the collection-management officer or group. Generally, preservation is partnered with the issue of storage, because libraries want to ensure that what they store will last. However, preservation of print materials also involves reviewing materials in the active collection. In libraries, preservation takes a two-pronged approach; those working in a library expend time, staff, and other resources in order to identify compromised materials so they can be restored. Library staff members also work to create an environment that will prevent damage to materials in the first place. The first course of action is remedial, while the second course of action is prophylactic. With the promulgation of the American National Standard Institute (ANSI)/ National Information Standard Organization (NISO) for Permanence of Paper for Printed Library Materials, Z39.48 (originally published in 1984, revised in 1992, and reaffirmed in 2002), publishers were able to issue their materials in a physical format that would prevent acidic deterioration. Further preservation research has given libraries guidelines on temperature, humidity, and light controls, which allow libraries to create a safer prophylactic environment for print resources.

In the digital environment, the issue of storage is also intricately bound to the issue of preservation. The starting place of electronic resources is different from that of print resources, in that the library does not generally own the resource but, rather, has contracted with the content producer so users can access it (which is generally hosted outside the library's systems, therefore outside its control). When a license is terminated, it is not uncommon for a library licensee to physically acquire content files for which it had contracted. If a library were to take advantage of this license clause, it would receive, in some usually unspecified format, a wealth of content files but not necessarily the platform from which to deliver these files in a meaningful and featured way to its end users.

ANSI/NISO Z39.48-1992 (R2002)
www.niso.org/standards/resources/Z39-48-1992R2002.pdf?CFID=15845032&CFTOKEN=83413770

Lots of Copies Keep Stuff Safe (LOCKSS)
http://lockss.stanford.edu

Several libraries have started to acquire and store publishers' content through the LOCKSS Program (Lots of Copies Keep Stuff Safe). On the library side, LOCKSS requires the installation of software for gathering and storing data on a personal computer. An administrative module with a Web interface allows the library to configure a crawler to access publisher sites for which they have permissions. The crawler pulls down and caches the designated pages from the publishers' Web sites and then compares these pages with the same pages in other LOCKSS caches at other libraries and at the publishers' sites. This comparison allows for a damaged cache to be repaired and for all LOCKSS caches to be synchronized. Delivery of content for end users is from the publishers' Web sites, unless these sites are unavailable, in which case a cached copy housed on the library's computer is delivered. In the instance of a library using the LOCKSS system, the burden of storage and preservation moves from the collection-management group to a more technical area, such as to the information-systems group.

LOCKSS, however, is only one of a handful of archiving and preservation initiatives currently being researched and developed to help libraries create a digital equivalent for our print-preservation responsibilities. Because of the distributed nature of the electronic-resource environment, it seems as though there is little impact for the individual library in terms of workflow and staff responsibilities. But this attitude may be shortsighted and cavalier. For the present, it is imperative for librarians to set a goal to research, monitor, and seriously consider archiving and preservation activities in the digital environment. The caveat here is that it is easy to see, based on past experience with the explosion of opportunities presented by electronic resources, that a day will come when librarians in individual libraries must actively

choose an archiving and preservation option and take on the associated tasks, whatever they might be.

E-Resources: New Roles and Responsibilities

Electronic resources require librarians to take on new roles, tasks, and responsibilities. They also require us to construct new partnerships within our own libraries, within our own organizations, and outside of our individual organizations (see table 1 on page 12). For the subject selector, new tasks include establishing trials, examining duplication within the collection, coordinating decisions on large publisher bundles and aggregated collections, and making platform choices. New partnerships include working with public-services staff, collection-management groups, publisher representatives, library IT specialists, and the larger organization's IT personnel. In larger libraries, subject selectors or bibliographers are separate from public-services staff and need to work more closely with this group to evaluate electronic resources.

Content evaluation no longer rests on the value of the content solely; these days, the evaluation should also take into consideration the way patrons will access, manipulate, and use the content. The public-services staff is now charged with assessing the ease of use of a variety of features available from the hosted content site. In addition, there may be a set of applications required on an end-user's computer in order to access and view files from the content site. The library's IT group needs to weigh in on these applications, assess if they are easily available, and decide if they can be supported for a range of computing systems common to the library end-user population.

A larger technology issue to be addressed, which must involve the IT group of the broader organization, is whether and how the resource can be made available through the organization's network. In the case of streaming video, for example, many organizational firewalls require modification in order to allow these large data flows to come through uninterrupted. If a selector chooses to try a resource, this too involves both public-services and technical-services groups within the library as well as a publisher or content-producer representative. The trial may be restricted to the library staff, or it may be made available to the library's end users. Such a public trial would require modification of the library's Web site and public marketing. In the instance of aggregated databases/large collections or publishers' bundles, the individual selector needs to work collaboratively with the larger subject-selector group and with collection-management personnel to determine whether the package is suitable or not.

New tasks in the acquisitions category include choosing the vendor from which the resource will be acquired; managing the license-negotiation process; and organizing the contact information for both administrative and technical details. These new tasks require partnerships with the library's designated license negotiator and the larger organization's license negotiator, as well as with a variety of consortia and publisher representatives from whom electronic resources might be ordered.

New tasks for access-services and cataloging personnel include helping with technical setup and establishing links to a variety of systems and services including name servers, OpenURL link servers, federated-search applications, library portals, A-to-Z lists, and subject guides as well as working to link holdings information in the bibliographic record for a variety of formats representing the same content. Much of this work requires this staff to interface and collaborate with the library's IT staff and the larger organization's information technology group.

New tasks in administering and supporting electronic resources include monitoring access, troubleshooting systems that appear inaccessible, acquiring and reviewing use statistics, resolving breaches identified by the publisher, managing storage, and keeping current on the latest research in electronic archiving. The tasks involve collaboration among public-services units, library IT staff, selectors, collection-management groups, acquisitions, the organization's IT group, and publisher representatives.

In 1998, Drexel University's library made a strategic decision to move from acquiring print serials to acquiring electronic resources. The initial work detailing this migration was documented in a presentation at the Economics and Usage of Digital Library Collections Conference, held in March 2000 in Ann Arbor, Michigan. The paper, "Framework for Assessing the Impact of an Electronic Journal Collection on Library Costs and Staffing Patterns," identified a number of areas in which staff would experience increased or decreased work and would need to develop new skills.[3]

To manage this transition, Drexel created a new position: the electronic-resource manager. The person in this position was charged with managing and coordinating all aspects of selection, acquisition, access, and administration of electronic resources.

In one very significant way, Drexel University's experience is somewhat different from most libraries that have committed to acquiring electronic resources; Drexel's intent was to replace its print collection as comprehensively as possible, even to the extent of throwing away print issues of serials for which they had electronic access when there was no other way of eliminating the receipt of a print issue. The university's library was, in short, trying to wean its users from print subscriptions and eliminate as much as possible the tasks related to that print collection.

Most libraries are not currently in a position to eliminate their print collections. Most library professionals and staff members have their feet firmly planted in both

worlds, the electronic and the print, and we cannot eliminate either the print collections or the tasks associated with them. For this reason, all responsibilities related to the development of electronic-resource collections have become *add-on*, not replacement, responsibilities. It has not been possible to reassign staff in order to accommodate the new electronic-resource responsibilities. Instead, libraries have chosen to create new positions to manage these responsibilities.

In her 2002 article, Rebecca Albitz analyzed position announcements (between 1996 and 2001) for these newly created electronic-resource management positions in academic libraries.[4] In 2001, Albitz counted 23 announcements identified as electronic-resource librarian positions, up from lowest recorded number of position announcements of 12 in 1997 and 1999. Of the 101 position announcements Albitz reviewed, she was able to identify 42 as positions within public services and 33 within technical services. The remaining 26 were either listed as serving both areas or were unclearly defined. The responsibilities listed in the position announcements represented a comprehensive range, including everything from coordinating electronic resources in 69 advertisements to circulation in 1 advertisement. Albitz refers to this as a "daunting number of varying responsibilities."[5]

Nicholas Lewis documents the changing nature of the electronic-resource librarian in his article, "Redefining Roles: Developing an Electronic Journal Collection at the University of East Anglia."[6] Initially charged with managing the range of responsibilities related to electronic-resource collections, the role of electronic-resource librarian at the University of East Anglia (U.K.) was redefined to allow the responsibilities to be distributed throughout the library staff and under the guidance of this position. Much of the work and the development of workflows were overseen by the electronic-resource group, led by the electronic-resource librarian, and included representatives from acquisitions, cataloging, systems, subject selection, and the reference desk.

In the ARL *SPEC Kit 282*, "Managing Electronic Resources," Grahame and McAdam document the changes in staffing and current trends in library organization that deal with the management of electronic resources.[7] Of the sixty-nine libraries that responded to the survey, sixty libraries made some kind of personnel change to accommodate the new tasks and responsibilities that come

Table 1: New Roles, Responsibilities, and Partnerships

Library Group	New Task	New Partnership
Selection	Trial	Public Services, Library IT, Organizational IT, Publisher
	Duplication checking	Collection Management
	Multisubject collections	Selection Group
	Platform choice	Library IT, Organizational IT, Public Services
	Use statistics	Selectors, Collection Management, Acquisitions
Acquisitions	Choice of vendor	Subscription Agent, Consortia, Publisher
	License management	Subscription Agent, Consortia, Publisher, Library Licensee, Organizational Licensee
	Technical and administrative contact	Subscription Agent, Consortia, Publisher
Access, cataloging	Technical setup	Library IT, Organizational IT
	Name server	Library IT
	OpenURL link server	Library IT
	Federated-search application	Library IT
	Library portal	Library IT
	A-to-Z list	Library IT
	Subject guide	Library IT
Administration	Monitor access	Public Services, Library IT, Publisher
	Troubleshooting	Library IT
	Use statistics	Selectors, Collection Management, Acquisitions
	Breaches	Library IT, Organizational IT, Publisher
	Storage	Library IT, Organizational IT
	Archiving	All Library Staff

with adding electronic resources to existing library collections. Overwhelmingly, the responding libraries had created new positions, with a little more than half of these new positions in collection development. Some libraries chose to reassign positions or responsibilities, and almost half of these changes were in the acquisition areas. In addition, almost three-quarters of the survey respondents indicated their libraries had charged task forces or a committee with creating policy, indicating that the management of electronic resources is truly new to the library environment and not yet an established and easily managed responsibility. Ensuring sufficient staffing levels and the need for an automated module to manage electronic resources are the two largest challenges that respondents feel libraries are facing.

In a narrower survey disseminated in 2002 by Duranceau and Hepfer, which focused on staffing issues related to the acquisition and maintenance of electronic resources, the authors found that over a five-year period (between 1997 and 2002), staffing increased 100 percent, whereas the associated collections grew at a rate of 1,000 percent.[8] Many responsibilities associated with the management of these electronic resources are distributed among several staff members, who are often in different departments. The distributed approach works best when it is accompanied by a team approach across departments. Without this cross-departmental team strategy, the distributed approach (to managing electronic resources) is in danger of becoming fragmented and existing without a clear communication mechanism.

Much of the literature that addresses staffing issues for electronic-resource management clearly suggests that libraries need to find ways to accommodate these new responsibilities. Surely this means adding new staff. Beyond that, there is little consensus about how much staff to add, in what part of the library's organizational chart staff should be added, or with what specific responsibilities these newly added staff members should be charged. It does seem clearer, however, that libraries are beginning to understand the list of new and added responsibilities. And so, with this hard-earned understanding of what needs to be done, it is an opportune time to consider the new tools being developed to support these responsibilities.

Notes

1. Rick Lugg and Ruth Fischer, "Agents in Place: Intermediaries in E-Journal Management" (a white paper by R2 Consulting, prepared with the support of Harrassowitz Booksellers and Subscription Agents, October 2003), www.harrassowitz.de/top_resources/docs/AgentsInPlace20031024.pdf (accessed January 31, 2006).
2. George Soete, "Managing the Licensing of Electronic Products," Association of Research Libraries *SPEC Kit 248* (August 1999), www.arl.org/spec/248fly.html (accessed January 31, 2006).
3. Carol Hansen Montgomery and JoAnne Sparks, "Framework for Assessing the Impact of an Electronic Journal Collection on Library Costs and Staffing Patterns" (presented at the Economics and Usage of Digital Library Collections Conference, Ann Arbor, Mich., March 2000), http://dspace.library.drexel.edu/handle/1860/583 (accessed February 1, 2006).
4. Rebecca S. Albitz, "Electronic Resource Librarians in Academic Libraries: A Position Announcement Analysis, 1996–2001," *portal: Libraries and the Academy* 2, no. 4 (2001): 589–600.
5. Ibid., 597.
6. Nicholas Lewis, "Redefining Roles: Developing an Electronic Journal Collection at the University of East Anglia," *Information Services and Use* 21, no. 3/4 (2001): 181–87.
7. Vicki Grahame and Tim McAdam, "Managing Electronic Resources," Association of Research Libraries *Spec Kit 282* (August 2004), www.arl.org/spec/SPEC282web.pdf (accessed February 1, 2006).
8. Ellen Duranceau and Cindy Hepfer, "Staffing for Electronic Resource Management: The Results of a Survey," *Serials Review* 28, no. 4 (December 2002): 316–20.