Notes on Operations

Electronic Resources Communications Management

A Strategy for Success

By Celeste Feather

Communications in the workflow of electronic resources (e-resources) acquisitions and management are complex and numerous. The work of acquiring and managing e-resources is hampered by the lack of best practices, standards, and adequate personal information management software. The related communications reflect these inadequacies. An e-resource management communications analysis at The Ohio State University Libraries revealed the underlying structure of the communication network and areas that could be improved in terms of efficiency and effectiveness. E-resources management must be responsive to the high expectations of users and other library staff. Efficient management of the related communications network increases the likelihood of a productive and successful operation.

As more resources become available in digital format and their acquisition and maintenance increase in complexity, the management of these resources in academic libraries demands greater attention. In a 2005 article, Cole described the complexities that those who manage electronic resources (e-resources) face on a daily basis.[1] The communication network related to e-resources management also is complex. As libraries face the question of how to provide more services with fewer resources, administrators often expect e-resources acquisition units to manage more resources with fewer staff than their peer print acquisition units. Communications about e-resources management therefore are key to efficient and effective processing. An informal audit of the communication network in the e-resources unit at The Ohio State University (OSU) Libraries indicated that communications can be structured to create a more efficient operation.

The "any time any place" characteristics of e-resources create high expectations for acquisitions and access. E-resources are expensive and complex to acquire and maintain. When access or availability problems arise, users clamor for information and expect timely responses. The staff of most large libraries are not certain who performs which role in an e-resources unit. Users and staff sometimes believe that an e-resource problem will be addressed more quickly if more people know about the issue and so deluge those who manage these resources with communications, mostly via e-mail. Coping with this e-mail overload and performing complex electronic multitasking reduces staff productivity. E-resources management systems are being developed to improve productivity, but effective software that relates e-resource records, e-mail, text files, and project management work is not yet available. Creating software with such functionality and establishing best practices could dramatically improve the efficiency and productivity of those who manage e-resources.

Problem Statement

At OSU Libraries, one librarian and two library staff members are directly responsible for acquiring and man-

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aging e-resources. The e-resources unit in which these individuals work is a section within the Serials and Electronic Resources Department. The e-resources unit works closely with a librarian in the Information Technology Department, who serves as a liaison to the public services staff. This information technology position manages product trials, compiles usage statistics, manages the proxy server, contributes local information to the consortial link resolver product, and provides direct end-user support and troubleshooting in the use of e-resources. The e-resources unit staff in the Serials and Electronic Resources Department process all requests for e-resource purchases and renewals. They negotiate licenses, set up access to the resources, perform copy cataloging, manage the e-resources management module of the Millennium integrated library system from Innovative Interfaces, manage the A–Z e-journal list and MARC records profile with a third party vendor system, and troubleshoot access problems. More than half the e-resources at OSU are obtained through consortial licenses. Such heavy involvement in consortia adds complexity when the consortial resources are acquired and managed at the local level.

The e-resources unit at OSU Libraries receives and sends dozens of informative messages as part of its daily acquisition and maintenance workflow. Most of these communications are processed through e-mail, and the number of e-mail messages handled in the unit can be overwhelming for the individuals responsible. The e-mail communication is complemented by other traditional media, e.g., telephone, fax, paper mail, and in-person conversations. Timely responses are important because user expectations regarding e-resources are high and users prefer these resources because of their accessibility.

Questions arose at OSU as to whether the most appropriate types of media were being used for each type of transaction, if the communications were being processed and handled in the most efficient manner possible, and which communications should be processed in ways that would make them more accessible to a larger community. Although the communication network was not dysfunctional, improvements to maximize efficiency were needed in response to the increasing volume of work. As the work of managing e-resources evolved, the communication network needed to evolve as well.

Literature Review

Two fields of study, organizational communication and personal information management, are useful in gaining a broader perspective on the communications necessary to manage e-resources. Studies of organizational communication have been performed with a growing set of research methods since the 1950s. One technique, the communication audit, seeks to evaluate the effectiveness of communications systems and activities within an organization.[2] A communication audit is a complete analysis of an organization's communication, internal and external, that leads to a series of recommendations to upper management. These recommendations allow management to make informed decisions about improvements or directions needed in communications to achieve organizational objectives. In 1979, Goldhaber and Rogers identified the key objectives to be achieved by performing a communication audit.[3] Communication audits are not in widespread use in the library community. Most of the library professional literature regarding communication audits emphasizes external communications and focuses on how well a library markets services and performs outreach to a user community. Cortez and Bunge introduced the notion of a communication audit for internal library communications in 1987.[4] They noted that organizational communication is often a factor in employee stress, and that interest in organizational communication was directly related to the change and innovation then occurring.

A formal communication audit requires an objective outsider to lead the process. The study considers sociometric data and formal and informal communication within an entire organization. Portions of the research methodology also can be applied in a more focused study on a smaller segment of communication flow within an organization. Downs and Adrian provided guidelines for assessing a focused area.[5] Among them are:

- examine how the task processes impact communication;
- determine adequacy of information exchange;
- check the directionality of information flow;
- plot communication networks;
- link internal communication to organizational strategies; and
- relate communication to organizational outcomes.

Downs and Adrian also recommended guidelines for choosing methods of communication. They suggested that

- face-to-face communication is more effective for sharing knowledge;
- written communication forces clarification of complex messages;
- face-to-face communication is the best way to receive immediate feedback;
- e-mail may be best when simultaneous communication is not needed;
- persuasion works best face to face; and
- communication intended simply to inform may just as well be written.

Tourish and Hargie addressed some of the changes brought about in

the workplace by the communications revolution.[6] E-mail in particular has served to flatten hierarchy by enabling people at all levels in an organization to communicate directly with one another without going through intermediate gatekeepers. They warned, however, that danger exists if e-mail is used so much in an organization that it displaces face-to-face communication. They also identified points to consider when auditing e-mail communications. These included the number of e-mail messages sent and received, how e-mail complements or substitutes for other means of communication, the extent to which e-mail contains information that would not be communicated by any other means, and whether goals for responsiveness have been set or are being met. Tourish and Hargie discussed information fatigue syndrome (sometimes called techno stress), describing situations in which individuals become overwhelmed by a constant barrage of electronic communications. These situations can lead to coping difficulties. Techno stress can be heightened by the expectations for high levels of service in the modern environment.

The literatures on the communication audit and personal information management are linked by the shared underlying theme of information fatigue syndrome. Hallowell labeled this neurological phenomenon attention deficit trait (ADT).[7] ADT is caused by brain overload and appears in individuals employed in jobs that involve constant communication and constant demands for time and attention. Symptoms include decreased productivity, increased mistakes, difficulty with organization and prioritization, and the inability to focus. ADT symptoms increase gradually and usually manifest themselves in a series of minor emergencies as an individual is trying to keep up with the workload. One of Hallowell's recommendations for addressing ADT is putting employees in an environment that promotes both face-to-face interaction and electronic communication.

Personal information management, the second field of study relevant to this research project, is a challenging area in which experts admit that no adequate software solutions are yet available. E-mail is usually at the center of the discussion because it serves so many different purposes. E-mail was developed to be a communication tool, but it also has become an archive, a project management tool, and a collaboration tool. E-mail alone is not an effective management tool. A complete integrated communications management system should include, at a minimum, e-mail, a calendar, a contacts list, a project management tool, and the embedded capability to link to other data files. Whittaker, Bellotti, and Moody noted an absence of research about what e-mail really is and what it really does within an organization.[8] What is clear is that e-mail is being used for more purposes than those for which it was designed.

Bellotti and colleagues found that the primary reason for e-mail overload is not the quantity, but its use for task management and collaboration.[9] They noted that current e-mail systems are inadequate for this type of work. When e-mail is used for tasks that cannot be done without the input of others, then a tracking system must be created since the threads of the conversation often are interleaved among other conversational threads in an e-mail inbox. Tracking a number of incomplete projects or tasks that have related communications interleaved in an inbox or folder results in increased stress and continuing e-mail overload. E-mail inboxes are simply not sufficient to handle this complexity of use. Bellotti and colleagues are developing a tool that would be embedded as an integral part of an e-mail system to assist in task and project management.

Venolia and Neustaedter proposed a visualization model for e-mail conversations that would enable a user to view at a glance all parts of a conversation and their relationship to each other within a hierarchy.[10] A user could quickly see the chronology of the messages and the tree of reply relationships. Such a tool would greatly assist the tracking of asynchronous conversations.

Based on evidence that personal information management currently is poorly supported by technology, Boardman, Spence, and Sasse designed a prototype tool that would mirror and synchronize folder structures in three different areas: documents, bookmarks, and e-mail.[11] They believe that many information management problems encountered by users are due to the fragmented nature and poor integration of the tools used. During their study, Boardman, Spence, and Sasse were surprised by the strong reactions of users toward their personal information management problems. Feelings of guilt about being disorganized and untidy, stress, and lack of control were common, and productivity suffered.

The previously discussed research is highly relevant to the management of e-resources, which requires numerous communications that currently are transmitted primarily by e-mail. E-mail often is used as a task or project management tool in this work, and the difficulties of interleaved conversations housed in an inbox that relate to documents and records stored elsewhere present additional challenges to an already complex workflow. Search features of an e-mail system are used heavily to locate relevant and related e-mail messages stored in large archival folders because no easy way to store associated messages elsewhere is readily available. The methodology of communication audits lends itself to the study of e-resources management communications because it reveals the larger network of communication relationships, directionality, and effectiveness. An objective consideration of the network of communications can iden-

tify areas for improvement, areas that cause particular stress on the individuals performing the work, and strategies that work well. A clear understanding of the communications network also enables a manager to respond more effectively as needs arise for workflow adjustment. Finally, library administrators need to be aware of the triggers for stress and overload inherent in the work of e-resources management in a complex environment. These triggers come both from the nature of the work and the inadequacy of current software tools to handle the information efficiently. This emerging specialized area of library work presents new challenges, among them those of constantly performing tasks in a highly complex communication network.

Research Method

The author analyzed e-resource management-related communications to and from the OSU Libraries' e-resources unit staff during January and February of 2006. The intent was to discover how information was transmitted, if certain methods were preferred for certain types of content, who was sending and receiving the communications, and whether the communications were organized in ways that promoted productivity, efficiency, and the achievement of organizational goals. For the purposes of this study a communication was defined as an act to transmit information. The communications were classified by the characteristics of the information conveyed, including general type of content, directionality, and method used to transmit. E-mail was identified as the predominant method used for communications, and the need for closer examination of the content and number of e-mail messages quickly became clear. For two weeks in late February 2006, the e-resources unit staff members kept detailed records of all e-mail communications related to managing e-resources. Some e-mail messages were received by more than one individual in the unit, and those were recorded multiple times. The intent of the exercise was to capture the volume of e-mail workflow rather than the number of unique communications. The staff did not record other types of workplace or professional communications such as general announcements, policy discussions, local library issue discussions, and meeting announcements. Also in late February, as the final step in the audit, the author interviewed two staff members in the e-resources unit, two librarians outside the unit whose positions required them to communicate with the unit frequently about e-resource management workflow, and two librarian subject specialists who were frequent users of the unit's services in the previous six months. The interviews elicited information about why the individuals chose to communicate about e-resources in the manner that they did, what positive and negative experiences they were having during the communication process, and what suggestions they had for improvement.

Findings

E-mail, telephone, fax, printed mail, in-person conversations, notes in online records, and printed documents were the methods used to transmit communications during the study. All methods except e-mail were used to transmit very limited types of content. Individuals used the telephone to transmit highly complex explanations and urgent pleas for assistance. Fax was the choice for transmitting renewal forms and license documents under negotiation whenever e-mail was not convenient. Printed mail served as the method for transmitting official copies of license documents and invoices for a small number of providers. One-to-one in-person conversations with individuals outside the unit were rare. These occurred only when an unusual or complex matter arose and the staff member outside the unit chose to speak in person rather than by phone. The communications that unit staff recorded to online records were highly specific to each e-resource involved. Unit staff members transmitted copies of printed invoices, licenses, and supporting documentation to file folders to facilitate information retrieval at a later date.

Table 1 shows the number and type of e-resource management e-mail communications recorded by unit staff members during the two-week period in February. The time to handle each type of transaction required by the e-mail varied widely. Maintenance e-mail regarding previously acquired e-resources that was sent to the e-resources unit staff presented tasks that required from a few minutes to many hours to handle, depending on the nature of the problem with each resource. Some tasks were completed with one effort, and others required multiple efforts in blocks of time spread over several days. All of the new resources requested were free. February was not an active month for adding purchased resources at OSU, and no purchase requests arrived during the two-week period that required negotiations and a long time to complete. Automatically generated invoices and alerts generally required less than fifteen minutes to handle, depending on vendor requirements and the nature of the alerts. General awareness and discussion communications from e-mail lists during this period required only time to read the messages.

The three unit staff members received 69 percent (374 messages) of the e-mail communications examined. They sent 31 percent (168) of the e-mail communications examined. The imbalance between received e-mail and sent e-mail was one indicator of the potential for stress and information

fatigue. All of the e-mail during this two-week period came from electronic discussion lists, other library staff, vendors, publishers, and automatic messaging systems. The e-mail sent by the unit staff was sent to other library staff, vendors, and publishers. No opportunities arose to communicate directly with library users during this time period, largely due to the Libraries' organizational structure and assigned responsibilities of the unit staff.

Table 1. E-mail communications during two weeks in E-Resources Unit (*N* = 542)

Sender	Recipient	Content	No.	%
Other library staff, vendors, publishers	E-resources staff	Maintenance and access issues	240	44
E-resources staff	Other library staff, vendors, publishers	Maintenance and access issues	168	31
Other library staff	E-resources staff	Add new resources	14	3
ERMS or vendors (automatically generated)	E-resources staff group e-mail	Invoices, alerts	54	10
Local and consortial e-resource lists	E-resources staff	General awareness and discussion	66	12
Total			**542**	**100**

High expectations of service caused the e-resources staff to constantly copy each other on e-mail messages just in case something might need to be addressed while one individual was away even for a few hours. An additional reason for frequently sending copies of e-mail messages to many individuals was an attempt to compensate for the demise of formal communication channels between supervisor and supervisee in the hurried workflow. Employees sometimes used e-mail to communicate with others in close proximity because it was quicker than initiating an in-person conversation, or they did not want to interrupt a colleague's concentration or workflow.

Analysis and Discussion

The author used the Downs and Adrian guidelines mentioned previously to analyze the focused communications within the e-resource management unit. Four major categories of communications became apparent as the analysis progressed. The author named these categories *darts, lobs, shadows,* and *spotlights,* with directionality implied in their names.

Darts are the types of communications that arrive in the e-resources unit and contain all of the information necessary to perform and complete a task. Darts tend to be preformatted or automatically generated e-mail messages, but sometimes arrive from individuals with specific instructions about a task that needs to be performed. Examples of darts are messages generated by an electronic resources management system (ERMS); contents of online forms sent from other library staff who request a resource purchase, report an access problem, or request that a free resource be added to the collection; and messages sent from vendors and publishers to a group e-mail account monitored by the e-resources unit staff. The group account receives invoices, service change notifications, and other important official notices. The e-resources unit staff do not need to respond to a dart with another communication. They simply need to perform a task.

Lobs are communications that bounce back and forth between individuals in order to accomplish a task, inform, or make a decision. They arrive in the form of e-mail sent directly to individuals, telephone calls, in-person encounters, voice mail, faxes, or paper mail. Discussions on consortial e-mail lists and discussions during group meetings generally are classified as lobs. Other examples are communications among library staff about the availability of resources, the status of order requests, and the access setup for new resources. Lobs often require considerable time to handle, as each message or item needs special attention and presents a unique case. E-mail is the primary method of transmission for lobs, and the difficulties with interleaved topics of conversation presented in an e-mail inbox add to the complexity of managing this type of communication.

Shadow communications occur and are stored only within the confines of the e-resources unit. This category includes the acts of filing paper documents, storing digital files in a unit file directory, archiving e-mail, entering information in protected online record fields that are only visible to those in the unit, and conversing informally with other unit staff members. Shadow communications transmit a wide variety of content. At OSU, license documents, invoices, and information about the history of acquiring specific e-resources are stored in filing cabinets. Negotiations with vendors and agents regarding access and licenses that begin as lobs ultimately are stored as shadow communications to personal e-mail archives. Informal conversation, which in many ways is the communication channel that maintains the teamwork spirit and cohesiveness of the unit, often spreads knowledge about resources and operations that is never recorded outside human memory.

Spotlights, one-way communications from the unit staff to the world outside the e-resources management unit, mainly are transmitted to and stored within the library catalog and the ERMS. Access to retrieve this information may be set at different levels, such as public access to view certain records and staff access to view underlying and related records within the ERMS or the library's integrated system. Other internal notices to staff such as those about the availability of newly acquired e-resources also are communication spotlights on the work of the unit, but the catalog and the ERMS provide the most enduring and broadest view into the work of the e-resources staff.

A streamlined and efficient communication network encourages the use of darts, minimizes the use of lobs, examines shadows to make certain that useful information is included in spotlights, and encourages the regular review of spotlights by all library staff. The complexity of the network is immediately apparent in this type of analysis. Appropriate use of each category also leads to greater satisfaction for all library staff.

All categories of communications are necessary for the successful performance of an e-resources unit. Organization of communications into the appropriate categories can increase staff efficiency and productivity. Since lobs require the most time and attention from the staff, one important goal is to examine whether some lobs can or should be transformed into darts. If certain types of communications arrive frequently with incomplete information, such as an order request without a designated fund code or an access problem without the correct title of the problematic e-resource, forms may need to be designed or redesigned to require the person completing them to enter information into specific fields. Online forms are generally very useful if they are easily accessible and create a succinct dart communication. If vendors send invoices by paper mail that needs to be sorted and filed, they could be asked to send e-mailed invoices. Staff who place telephone calls about resource access problems could be encouraged to use online forms to report their difficulties. This ensures that the e-resources staff has the correct information with which to address the problem, rather than working from a hastily jotted note on a piece of paper after retrieving a voice mail message with incomplete information.

Shadow communications are shadows for various reasons. Some information such as database administrative login information should be communicated only within the e-resources management group. Paper is still the format of choice for some official files, such as signed license documents and invoices. Many shadows would be more useful as spotlights. Information about the status of a license negotiation that is readily accessible to all library staff could promote understanding of the process within the staff and reduce the number of inquiries the e-resources staff receive. Personal e-mail archives, which exist because transforming those communications into another format is too difficult, often contain a wealth of background information and transaction history that could be extremely useful and valuable if shared and viewed in a spotlight communication tool. Software does not yet exist that would enable an e-mail negotiation or discussion (lobs) to be linked to an ERMS record in order to provide background information for future use. Cutting and pasting is not an acceptable solution because it is too laborious. Some shadow communications become shadows because of current electronic communications software limitations. Informal face-to-face communications within the unit, as important as they are, should be monitored to make certain that key pieces of information transmitted verbally are also recorded in a way that makes them accessible in the future.

Spotlights are critical to the success of any e-resources management unit. Often useful information about e-resources is not accessible to most library staff due to inadequate management software. Information regarding the negotiation process, access rights, usage restrictions, payment history, and much more should be readily available to a large number of library staff. Accessible information helps to dissolve the mystery surrounding the management of e-resources that exists in many libraries. The work of e-resources management must be seen as integral and mainstream rather than unusual. Improving communications about e-resources management can assist libraries and their staff members in making that transition.

Recommendations

The analysis of the OSU e-resources management communications network revealed several ways in which processes could be improved. The improvements mentioned below are specific to OSU, but similar improvements probably could be made in many other libraries. While online forms designed to turn communications into darts were already available, they needed to be revised to update and improve the information required and transmitted to the e-resources unit. The forms needed to be renamed and links to them needed to be in more logical places. The existing lengthy names and acronyms by which they were referenced were confusing and their purposes were not always clear.

The e-resources unit staff had established a group e-mail account to receive invoices, other non-advertising important messages from vendors, and system-generated alerts from the ERMS. Over time the original purpose of the account was weakened as others

joined the group and used it for different purposes, such as receiving tables of contents from electronic journal alert services. In order to gain efficiency, unit staff took steps to return to the original purpose of the account so that communications sent to it could be trusted to be darts. Group e-mail accounts work well to raise the level of awareness of issues among the participants if responsibilities regarding workload are clearly defined and trust exists among colleagues that the appropriate person will do the appropriate work to respond to the communication. Otherwise, significant time can be lost in duplicate efforts, double-checking the work of another, and conversations to clarify who is doing what. The danger of only using personal e-mail addresses for these sorts of official communications is that if one person is absent and receives a message, no one else will be able to respond to it in a timely manner.

Since e-resources management is still new, some library staff members felt compelled to copy all individuals in the unit on all communications. While this raised the awareness of everyone in the unit about every single problem that occurred or question that needed to be addressed, the practice added to the e-mail overload that each individual dealt with on a daily basis. If a print journal issue needed to be claimed, generally one or at most two people received alerts. If access to an electronic journal ceased, often three or four people received alerts. E-resources management has evolved to the point where the matter of troubleshooting an access problem does not need to be shared with so many individuals unless it is major or unusual. For those who work with e-resources daily, an access problem with an e-journal is no more unusual than a print journal issue that needs to be claimed. A shift and change in attitude over time with encouragement by managers and administrators will likely ease this situation as e-resources integrate themselves into the daily life of all library staff members.

Another issue that arose during the course of this analysis was the need to develop more formal ways (darts) of alerting staff outside the e-resources unit when work needed to be performed, such as cataloging resources or notifying other library staff of the addition of a new resource to the collection. Notification sent in a dart communication is often more efficient since the sender does not have to worry about pleasantries and full sentence structure that would be preferred in a lob e-mail message. Also, the person on the receiving end knows exactly what to expect and what needs to be done upon receipt without having to spend time to discerning the intent of the message.

A closer examination of the communications workflow for the requests to acquire e-resources revealed a number of areas for improvement. A senior administrator for collections was required to approve every request for the acquisition of a product in electronic format, regardless of the cost. In some cases when an electronic journal was requested as an add-on to a print subscription, the cost was very low. An order for a print monograph that cost so little would not have needed approval. The workflow was established a number of years ago when every e-resource required special handling. That approach was no longer necessary in the current environment. By taking the senior administrator out of the regular workflow for every e-resource acquisition request, e-mail traffic was reduced, resources were acquired more quickly, and many fewer interleaved lob e-mail messages resulted before the final dart order request was sent. The department head of Serials and Electronic Resources also no longer felt the need to be copied on every electronic order request and problem report, so e-mail clutter was even further reduced.

The e-resources unit staff needed to make decisions about where to store certain types of information in spotlight communications since the ERMS provided the library with more places to record valuable information. Some of this information previously had been stored in order records in the library's integrated system. The ERMS will become the primary means of dissemination of information regarding e-resources management, but staff-wide access to view the records is a recent phenomenon. Training was necessary to introduce library staff to the concept of seeking information in this way. The hope is that the act of putting more and more information at the fingertips of the library staff in spotlights will reduce the number of lobs transmitted to the e-resources unit.

During the analysis, an indication that a communication process could be improved often appeared when a style of communication did not fit into one of the four major categories. For example, when the group e-mail account established for vendor and ERMS communications could not be placed in the dart category with total comfort because a significant amount of lob traffic was sent to the account as well, that was a sign that some restructuring could improve that small area. Using e-mail filters to sort out dart messages so that they can be identified easily and set apart from lobs is an efficient approach. This enables workflow to be more structured and productive, and reduces the amount of time spent multitasking and dealing with interleaved conversations and messages in an e-mail inbox.

The analysis also indicated a clear need to increase face-to-face communication within the e-resources management unit in order to relieve information fatigue. Staff members began to seek opportunities to conduct business in person rather than by e-mail. Group awareness of the special factors for stress inherent in e-resources management helped to increase work-related conversations.

Conclusion

The audit and analysis of the e-resources management communication network at OSU Libraries revealed a need to structure the communications and to be aware of the characteristics of each type of communication in order to use them appropriately. The communications network was improved by updating and improving online request forms, reducing the number of individuals involved in certain workflow communications, reducing the number of inappropriate messages sent to an e-resources unit group e-mail account, spreading awareness among other staff about the e-mail clutter caused by notifying too many individuals of a problem, and encouraging library-wide staff viewing of ERMS records.

The data collection, analysis, and recommendations can be applied to other libraries. As workflows evolve, the communications network will need to evolve, too. One area that needs constant attention is achieving balance between communicating with too many individuals versus too few. To whom do all of the communications go, and to whom do they really need to go? Direct communications among staff members that bypass traditional chains of command and gatekeeper structures are still seen as threatening by some and as a matter of survival by others, due to the pressure of time and quantity of work. As workplaces evolve, the stress created by changing traditional communication patterns should ease.

Library subscription agents are seeking new roles in the digital marketplace as the number of printed serials subscriptions declines. Seeking their assistance for such matters as electronic journal setup, access troubleshooting, and license negotiations might relieve some of the burden on library staff in a cost effective way. These agents also could play key roles in helping to establish best practices for e-resources management between libraries and publishers. If their assistance is considered by a library, the impact on the library's communication network also should be taken into consideration. Will information that would be useful to other library staff become shadow communications hidden in an agent's e-resources management service or system? How easy will transferring information from an agent's system into a local one be? Can time-absorbing lobs be reduced by enlisting the aid of an agent? Is the timeliness of the agent's response offset by a reduced local workload? These and many other considerations will be necessary to evaluate the appropriateness of contracting with an agent to provide e-resources management services beyond acquiring a subscription.

One area of research that would assist in structuring communications more effectively is an analysis of what publishers and vendors are experiencing and expecting as they handle the management of e-resources. The library profession needs to have a better understanding of what information publishers need in the digital age. Is it possible to develop business standards that would result in a more linear workflow in e-resources management? Should library professionals encourage the development of electronic resources management systems that support more flexible and nonlinear workflows? If the workflow were less complex, the communications network necessary to support it would be as well.

As the newness of e-resources diminishes and best practices emerge, some of the intensity and anxiety surrounding the work of managing these resources will subside. For the present, however, when the management of e-resources is seen as being so critical to the relevancy and the future of academic libraries, enormous pressure exists to perform the work with utmost efficiency and accuracy. Strategies for maintaining control over the communication network for e-resources management are key components for success in this fast-paced and rapidly changing environment.

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In contrast, a relevant working definition of "digital library" as put forth by the Digital Library Federation (dated 1998) is included: "Digital libraries are organizations that provide the resources, including the specialized staff, to select, structure, offer intellectual access to, interpret, distribute, preserve the integrity of, and ensure the persistence over time of collections of digital works so that they are readily and economically available for use by a defined community or set of communities" (xii).

Despite the fact that some of the information in this text is dated, it contains many universal concepts that are applicable and provide good information, such as the chapters on personnel (specifically hiring and training), collection development policies, teamwork, and project implementation and management. This text also touches on issues that are still challenges for digital library initiatives, including copyright, staffing for the digital library, paying for the digital library, and getting appropriate support from one's administration. Some of the chapters include sidebar descriptions of projects and experiences, often written in the first person, by project participants or leaders; these are insightful and complement the text. Although different individuals wrote the chapters, the writing flows and is cohesive. This is often not the case for works with multiple authors, and speaks to the editor's contributions.

A quote about engaging the entire institution in digital library initiatives and mainstreaming digital projects is relevant in current context and is also indicative of the spirit of cooperation that likely existed at Mann Library: "the organization relies on the skills of catalogers and the talents of programmers to develop metadata structures, while the institution depends on the vision of public services and the knowledge of selectors to create a repository of information resources" (2). Furthermore, Chapter 2 ("Mainstreaming") indicates that many of the skills needed to build a digital library are already present in libraries in acquisitions (purchasing, licensing), cataloging (access to resources), and public services (experience with information tools). *Becoming a Digital Library* illustrates how quickly terms and concepts related to digital library technology change. It provides an interesting look at the digital library development of a leader institution and provides some universal information about personnel, teamwork, and project management that are appropriate to all library environments.—*Mary Beth Weber (mbfecko@rci.rutgers.edu), Rutgers University, New Brunswick, N.J.*

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