Learning from the Past
The Acquisitions Librarian as Change Agent in the Transition to the Electronic Library

Ross Atkinson

All information services, regardless of the format used to convey the information, can be divided into the two fundamental categories of delivery and mediation. Delivery is the less visible but no less critical service responsible for shifting the physical information package among different locations. Delivery will become an increasingly significant—but no less invisible—function after the arrival of routine electronic publishing. Acquisitions administrators—who, along with circulation, interlibrary loan, and preservation officers, have primary responsibility for delivery in the paper-based academic library of today—need to begin planning now to expand their knowledge and responsibilities to respond to the new requirements for information delivery in the rapidly approaching age of networked information. If they can achieve such objectives, acquisitions staff will play a key role in improving the future contributions of the library to the academy.

> If there is any period one would desire to be born in, is it not the age of Revolution; when the old and the new stand side by side and admit of being compared; when the energies of all men are searched by fear and by hope; and when the historic glories of the old can be compensated by the rich possibilities of the new era? This time, like all times, is a very good one, if we but know what to do with it.
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> —Emerson, *The American Scholar*

Anyone seeking a quick, concentrated glimpse into the current state of the academic library, its self-esteem and its self-depreciation, its hubris and its paranoia, need look no further than the library's acquisitions operation.[1] The place and image of the library in the institution is mirrored in the position and perception of the acquisitions operation in the academic library. In both cases, as Joe Hewitt has implied,[2] we find complex responsibilities seldom understood by those in authority and perceived by most clientele (if indeed they are noticed at all as being primarily clerical and flagrantly bureaucratic). We find, above all, in both the acquisitions operation and the library as a whole, a vague apprehension of a creeping superfluity, a sense of pending obsolesence engendered primarily by advances in information technology so rapid in their development and so complex in their potential as to be barely intelligible to many line librarians.

Discussions of this situation are often complicated by a tendency to confuse functions with administrative units. The function of acquisitions is for the time being not at all in jeopardy, but the acquisitions department might be, and we have indeed seen transformations in such departments in several institutions; in some cases we have even seen parts of the traditional acquisitions responsibility shifted into other functional areas, such as collection development. In the same way, the information services function

Ross Atkinson (ra13@cornell.edu) is Associate University Librarian for Collections, Cornell University.

in the academy now performed by the library can never be eliminated if the institution is to pursue its educational and research mission, but there are prospects that at some institutions the library as an administrative unit will merge with or be relegated to other information service units on campus, such as academic computing.

Regardless of whether such administrative reorganizations enhance or impair the performance of library functions, the fact that such restructuring is even considered presents a clear signal that acquisitions may have failed to convince the library—and that the library may have failed to convince the institution—of its ability to effectively meet the needs of its clientele as we gradually but inexorably enter the new era of online information. The question that immediately presents itself, therefore, is whether adjustments might be introduced into the acquisitions function that would not only lead to an improvement in its role in the library but at the same time improve the effectiveness of the library's contribution to the institution. The purpose of this paper is to present some general ideas and tentative suggestions that, I hope, will serve as a basis for further discussion on this issue.

Future Prospects

We have in recent years witnessed a small but growing number of standard information sources published in electronic form. This shift from paper to electronic publishing has so far had its primary impact in public services, especially reference and collection development. This is because many such electronic sources either are directly accessible to users or public services staff over networks or are shipped to libraries as computer files in such forms as CD-ROMs or tapes, so that they can be managed by acquisitions operations in somewhat the same way that traditional paper sources are treated. No one will doubt, however, that the point is rapidly approaching at which an increasing amount of full-text information will be made routinely available to libraries and their users by transmission over networks, and it is that inevitable innovation—its approach already heralded for decades—which upon finally arriving will have the most profound effect on all aspects of library operations, including especially the acquisitions function.[3]

The question acquisitions administrators need to consider is whether they plan to continue simply to maintain their current focus, retain their present methods, and restrict their responsibilities to those paper (or paper-like) publications that will no doubt continue to be published for some time (this is fully possible, since one could presumably bypass acquisitions in ordering access over networks to online sources) or whether the acquisitions function should be prepared to undergo some radical, fundamental alteration, so that it would gradually begin to play, with respect to networked information, a role analogous to what it now plays in the provision of information transferred via paper. There is still time for acquisitions to begin to plan for such a transformation. The development of electronic publishing has for several reasons not evolved nearly as quickly as was once predicted.[4] But electronic publishing is nevertheless making noticeable progress, and it is likely to move forward very rapidly and very suddenly once it gains momentum and critical mass of user acceptance. While opportunities remain, therefore, to adjust to, and to take advantage of, these rapidly evolving developments in the techniques of information exchange, we are probably approaching the eleventh hour.

We now have available to us a variety of well-conceived predictions about the future of the library as publications become increasingly available online.[5] These discussions are very useful in preparing ourselves for the changes we must shortly confront; however, it is important to bear two further points in mind. First, more precise projections of the conditions of libraries in the coming decades can be little more than exercises in pure speculation, which are, for the most part, not helpful in planning, especially given the restricted time we have available to spend on such work. Second, well-managed planning, if successful, is not simply an effort to prepare for future events; it should also be an attempt to shape them: by considering and readying ourselves for the future, we can and probably will change it. It is essential, therefore, that any planning we do leaves us with broad flexibility to absorb and to take advantage of unforeseen future developments while at the same time provides us with some kind of clear framework within which, or target toward which, we can orient ourselves in the course of the transition. One way to begin this process is to agree upon a general description or model of the whole operation—in this case information services—that is applicable to both the present and the probable future condition. Such an abstract model can be used as a context within which to make adjustments to the concrete conditions or activities now in place, in order to move the operation through the transition toward the preferred future. Creating such a description applicable to both the present and the probable future is in a sense simply a way of looking at the present and future simultaneously as we begin to make our adjustments: if one changes or upgrades activities or concepts, and these continue to fit into the model, then one is probably moving in the right direction. Let us therefore attempt this—but first we need to insert two presuppositions.

Two Presuppositions
The Potential Primacy of Notification Sources

Graphic information is communicated in many formats for a wide variety of purposes. Many categories of information sources—belles lettres, for example—will almost certainly continue to be published in paper form well into the future, and the relationship between those materials and the library's acquisition function will presumably remain unaltered for some time. We have recently become aware, on the other hand, that certain types of information sources are particularly amenable to electronic publication—for example, bibliographic files and numeric data. The next major advance will presumably be the routine publication online of narrative full text. Of the various sources for which the academic library is responsible, it will most probably be the large category of library materials that I have elsewhere called *notification sources,*[6] which will be published increasingly in full-text electronic form in the near future and which will be likely to have the most significant impact on library operations. Notification sources are those materials written by scholars to describe the results of their research and thought for the information and assessment of other scholars working in the same or related fields. Most scholarly journal articles and monographs fit into this category, and there have recently been repeated calls from scholars, librarians, and network administrators to publish more information of this kind in electronic form.[7] It is in notification sources that the greatest opportunities for online scholarly communication should be available.[8] The delay in routinely publishing most notification sources online surely derives less from any limitations of technology than from cultural habits and the economics of publishing. Once these two (admittedly substan-

tial) impediments are bypassed or moved aside, as they must eventually be, the floodgates will open, and we will experience a deluge of online scholarly publications, which some institutional agency—one hopes it will be the library—will need to ensure are available to scholars. Most of these publications, at least in the beginning, will probably be electronic journals, many of them no doubt in the sciences.[9] But the other scholarly disciplines will not be far behind, because all subjects will benefit so demonstrably from remote access at personal workstations to the latest published information.

For reasons of convention, aesthetics, and ease of access, we may expect that monographic publications will continue to be published in paper form for a somewhat longer period than their journal counterparts, but we must anticipate that the scholarly monograph as well will succumb to online publication in the relatively near future.[10] It may be that the scholarly monograph will be replaced by some form of online monograph, or that lengthier materials will be published in digital form with the expectation that they will be printed by or for the library user on site and on demand, or even that the monograph as a method of scholarly communication will be replaced by shorter essays more conducive to publication as electronic journal articles. In any event, the driving force behind the replacement of the paper monograph by some online form of publication will undoubtedly be primarily economic. The publication of lengthier studies on highly specialized subjects, especially in those disciplines without industrial or commercial applications, is already becoming so expensive as to be prohibitive. I suspect in fact that there has seldom been enough of a true demand for such specialized monographic notification sources to justify their publication economically. We have perhaps succeeded so far in

circumventing this problem primarily though the agency of the academic library, which creates a kind of artificial demand for specialized scholarly publications. Under the current system of collection development, the library imputes a use-value to materials for which no actual use-value has been demonstrated. The library purchases the publication on the basis of that potential use-value (or on the assumption that the publication by virtue of its availability on the shelf will acquire use-value). As a result, enough of a reliable demand of this kind presumably exists to permit publishers to bring out short runs of highly specialized monographic publications. The pressures on library budgets in recent years (caused in part by rapidly inflated journal prices), however, have now become so paralytic in their effect that some libraries can no longer afford to acquire materials based on potential—as opposed to demonstrated or expressed—use-value. Since a reduction in publication costs appears unlikely, it may well be that only through some form of restructuring of the scholarly publication process will it remain possible economically to communicate such specialized information for very much longer in lengthier publication formats.

In light of these considerations, therefore, let us restrict our inquiry, at least initially, to services promoting the exchange and use of notification sources published electronically.

The Inclusion of Input

The purpose of notification sources is, obviously, scholarly communication. Communication entails the transmission and the reception of information—input and output. Modern libraries have restricted their responsibilities mainly for reception—or more precisely, to the facilitation of reception—of information, leaving responsibilities for transmission for the most part to other

agencies, mainly publishers. This has always been a potentially problematic approach to the promotion of scholarly communication, because transmission and reception are so fundamentally interdependent. If the library intends to continue to play a key role in scholarly communication in the online age, therefore, it must be prepared to assume some responsibility itself for ensuring that the entire scholarly communication system operates effectively—and that must necessarily include input.

The need and the potential for the academic library to play a much greater role in publishing as we move further in to the online era is by now a relatively common idea.[11] Little has been done so far, however, to chart the processes by which such responsibilities might be assumed. At this point, we need only stress two implications of such an expansion of the library's traditional activities. First, if such new responsibilities are to be accepted by the library, a key role in that undertaking will need to be played by those library staff with the most advanced understanding of the processes and economics of publication—and those staff will for the most part be located in our acquisitions (and also collection development) departments.

The second implication is mainly economic. If the library does assume greater responsibility for assisting and promoting the entire process of scholarly communication, much of which is achieved primarily through notification sources, then the present methods of funding that communication must soon be recognized as ineffective. We must bear in mind that scholarly communication is an admittedly slow but nevertheless progressive dialogue. Scholars read publications primarily to write more of them—to continue the conversation. (Much more "interactive" publication will no doubt become possible online.) Both sides benefit from the dialogue: not only the reader, but also the author

and his or her institution. (The institution's primary "product" or "commodity," which is sold to prospective students and to funding agencies is, after all, the reputation of its faculty—and that reputation is established mainly through publications.) Most of the readers and writers of notification sources are, moreover, the clientele of academic libraries. Under such circumstances, we must conclude that our current funding methods for notification sources are largely counterproductive. We will be wasting our money—and in a very real sense we are already doing so—buying information (packaged as notification sources) from each other. Instead, we should be using that funding to send such information to each other. Libraries must maneuver themselves into a position from which they will be accepted as credible and legitimate conduits for the transmission of notification sources.[12] Needless to say, such a shift in the method of scholarly communication raises many questions, but there is no doubt that academic libraries are fully capable of putting such a system into effect and that such an arrangement managed by the library would promote the interests of scholarly communication substantially. It would also, if properly managed, bring about a much more egalitarian distribution of scholarly information.

Having posited our two presuppositions, we may now turn to our primary task of presenting a general description of information services.

The Dialectic of Information Services

Information services are those facilities designed to improve the ability of (in the sense of reducing the time required by) the individual client to identify, organize, transmit, receive, exploit, and develop and maintain standards for communications, usually in the form of sets of graphic signs, for

predefined purposes. In the academic library, those purposes are for the most part education and research.

The basis of our description will be a division of information services into two fundamental functional categories. The first of these two functions, which we will call *delivery,* is charged with the transportation or conduction of the material information package or carrier; the other function, which we will call *mediation,* is designed to assist the sender and the receiver of the package in the transmission, receipt, and the application of the so-called information content of the package.[13] Together these functions form a kind of dialectic of information services, so that one cannot in reality be disconnected from the other. At the more elementary level, it is obvious that mediation, in order to achieve its function, must play a role in the delivery process—it must, for example, take economic issues into account in document assessment and consider location as part of the process of identification. By the same token, delivery can seldom be effectively achieved without some understanding of or reference to the content, and the needs of the communicants—i.e., the senders and receivers of the information—must be understood by those responsible for delivery if, for example, effective priorities for delivery are to be established.

On a more fundamental level, the dialectic reduces perhaps most clearly to the realization that all communication could and might be understood as a form or process of delivery. The package and the content are both primarily means of delivery. The medium is selected by the communicants through a kind of mutual agreement that such a medium provides the best prospects for delivery, and that decision will be driven or conditioned by the relative delivery potential of different media. Even the capacity to manipulate the data received, which

most electronic media now provide the user—that, too, can and must be understood in a sense as a delivery function, for the data needed by the receiver are in effect made deliverable and are delivered by means of that manipulation. The user in effect through manipulation creates and delivers the data for his or her own use. Mediation itself can in fact be understood—and must sometimes be viewed—as that segment of information services responsible for ensuring and enhancing delivery.

We could, of course, expand on these connections indefinitely. The only important point is that, in the heat of our efforts to divide information services into these two types of activities, we not lose sight of the fact that such categorical distinctions as delivery and mediation are always artificial abstractions. We can no more separate delivery from mediation than we can divide transmission from reception: each is understandable and practicable only as an extension of the other. At the operational level, however, it does appear very likely that some staff in the electronic library will specialize in delivery and others in mediation.

Both delivery and mediation are, of course, services in themselves, designed to serve the needs of the communicants. Both delivery and mediation are also concerned with the material containers of information— albeit in very different ways. This is, again, as true in the electronic environment as it is in the paper environment. It is admittedly sometimes tempting to view information exchange in electronic form as something done "without having to rely on tangible physical objects as the medium of communication."[14] This is, of course, incorrect. All communication is achieved through some kind of material media. In the case of online communication, those media are difficult to observe and they can be moved about very quickly, but they remain nevertheless material objects, and

their transmission and reception remain material manipulations.

We must be careful to distinguish, therefore, between: (a) the carrier or what we are calling the information package (e.g., a book or a database); (b) the content of the package, which most often consists of linguistic or pictorial symbols (e.g., the print on the page or on the screen), which is, of course, also material; and (c) the information symbolized by the content, which is encrypted (encoded, turned into symbols) for purposes of communication by the writer and decrypted by the reader. Bearing in mind that these three entities are, of course, also inseparably interdependent, we might say that, in the grossest possible terms, the responsibility for managing the carrier or package belongs in large part to the delivery operation; the content forms in many ways the central focus of mediation; while the information itself must always be the primary concern and responsibility of the communicants.

We can best begin to distinguish delivery services from mediation services by differentiating their respective relationships to the information package and to the user. Delivery is primarily a logistical operation aimed at the transportation of the package or the carrier from one location to another. The material nature of the package, its physical composition, is of critical importance to the delivery operation, because it has the most fundamental effect on the package's portability. It is in general much easier (or, at least, much faster) to move information packages from one location to another in electronic form than in paper form. Regardless of the package's physical composition, however, delivery requires a thorough knowledge of the technology of transmission as well as an experienced understanding of many of the peripheral factors—administrative, economic, legal—upon which the successful movement of the information package depends.

Mediation, on the other hand, is primarily a linguistic or hermeneutic operation, designed to optimize or amplify the exchange of information among the communicants; this service reduces in most instances to assisting the writers and readers in making different kinds of selection decisions: what and how to transmit, what to receive and what to filter out, how to search, what uses to make of the information once it is obtained. While delivery is concerned more with the transportation of the information package (which may admittedly sometimes involve some transcription of the content), mediation must concentrate more on assisting in the translation of meaning into material symbols, and of the material symbols into applicable meaning. This requires knowledge of the needs and interests of the communicants, as well as the methods of identifying and interpreting information packages. Delivery services work primarily with matter "out there" in the material world (including, increasingly, segments of electronic databases); their activities, operations, and success are for the most part objective, public, and measurable. Mediation services, on the other hand, while also working admittedly with material content, are nevertheless designed to facilitate private, subjective activities—writing, reading, evaluating, interpreting, applying—which are neither observable nor precisely measurable.

In spite of their relatively observable activities, however, delivery services are normally separate from, and seldom observed by, the communicating clientele. That aspect of information services that is de facto public, in other words, and that could be objectively evaluated is paradoxically seldom even perceived, let alone evaluated by the public. Mediation, on the other hand, is subject to constant scrutiny and aggressive public assessment. Even though delivery operations in the traditional paper

environment are already barely visible to most library users, such services in the online environment have the potential to become even more obscure. How often have we heard it said that in the online environment, it makes no difference where the information is located: the user can gain access to it over the network regardless of its location? This is indeed true, provided that those invisible technicians and information service specialists responsible for delivery have done and continue to do their work. The extensive technical and administrative effort invested to provide such immediate access to large volumes of information in different locations remains relatively unnoticed by most users—unless, of course, the system malfunctions.

This also means among other things that delivery services always function as a kind of direct representative of the user. Delivery services act for the communicants in their absence and carry out their presumed bidding, in effect making decisions for them. One of the major liabilities of delivery services, therefore, to which we have already made reference, is that delivery staff can for this reason alone easily become detached from the clientele in whose interest they are charged to operate. Mediation services, on the other hand, can seldom if ever act entirely for the communicants but rather must work frequently in their presence as (often very much less than equal) partners. Precisely because mediation services depend for their success on a close coordination with the user, they are highly visible and are subject to all of the benefits and liabilities of that exposure. It is mediation services, moreover, that always have functioned as the library's link to the user and will no doubt continue to do so.

We must also distinguish between our two basic services at the economic level. Mediation services, with various degrees of input from the communicants, try often to assess the value of information from the perspective of utility or use-value. The willingness to pay the cost of the transmission and receipt of the document depends upon how much (i.e., how fast) that access is needed by the receiver. Delivery services, on the other hand, tend to view the value of the document more in terms of its exchange-value or market value—i.e., in financial terms. The value of the document or package is assessed or inferred mainly by comparing it as a material object to other packages of like quality, origin, and design. Thus, while mediation services are more inclined to view scholarship as a form of specialized communication and documents as products of research to be communicated, delivery services tend perhaps to view the document more as a commodity and scholarly information exchange more as a specialized form of commerce. This tendency is perhaps one further manifestation of the fact that delivery services are accustomed to objectivity and relatively exact measurement, while mediation services understand their operation as promoting primarily subjective and relatively private action.

We should note, finally, that the citation of an information package— its bibliographic surrogate—may refer to different concepts in delivery than in mediation. While the citation for mediation purposes is used mainly to characterize or identify the content as it relates to the content of other documents, the citation for purposes of delivery is used mainly as a means to determine where the document is or could be physically located and perhaps where it should be sent—in other words, a kind of address. What the document is about—in the sense of what its content refers to—is for the most part irrelevant to delivery services, except to the extent that it can serve as an indication of its origin and destination.

In order to examine these concepts further, let us resort to a diagram that summarizes the distinctions we have been discussing but that also retains at the same time the terms we use now in the primarily paper environment (see figure 1).

The broken vertical line between input and output today separates also the library's responsibilities on the output side from those of the publisher, who is now primarily responsible for input. As noted earlier, at least as far as notification sources are concerned, which are both written and read primarily by the clientele of academic libraries, there is no reason, especially in the online environment, not to expand the library's role in information services to include input—to fuse more effectively the inputting and outputting operations. Even in the primarily paper environment, as already noted, we pay dearly for this unnecessary and highly contradictory division of responsibilities. Our goal, therefore, must be not simply to add input responsibilities to those we already have for output, but also in so doing to bring about a closer coordination or consolidation between the two.

This is admittedly perhaps most demonstrably practicable in the diverse realm of mediation. Certainly the library has the potential, and should assume much more responsibility for, assisting and organizing the editing or input-filtering function. Much more is being published today than needs to be for purposes of scholarship, because, among other things, there is an inadequate system of quality control.[15] Working with scholars to establish standards and procedures for editing notification sources should be a fundamental library service, which should aim to bring about a much more effective and dependable quality control over scholarly communication. But we must also strive to combine what are now conceived primarily as outputting
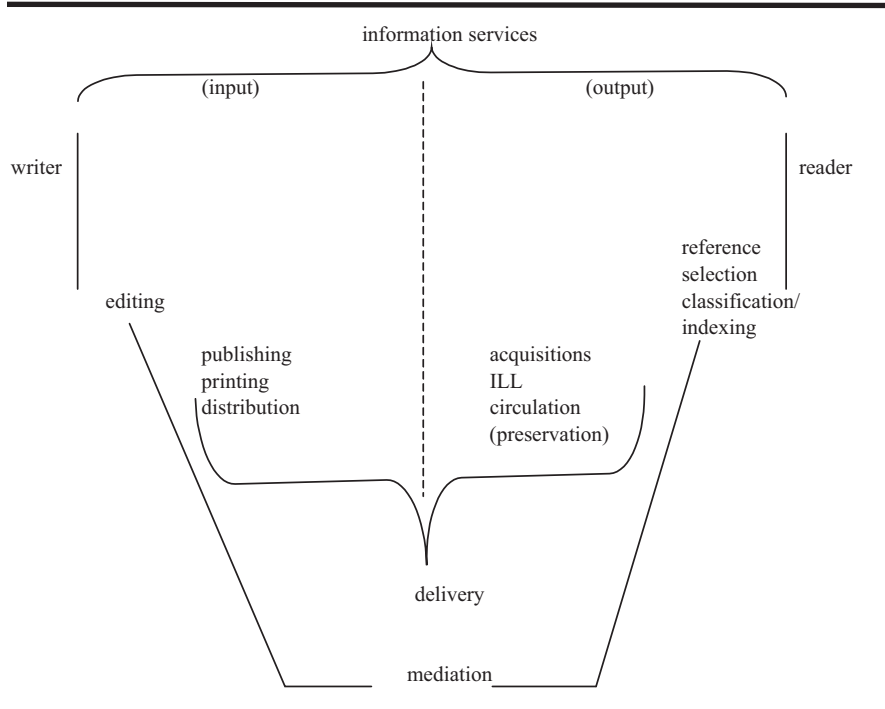
Figure 1. Structure

responsibilities with inputting activities. This is especially needed in selection and in cataloging and indexing. An integral aspect of the selection responsibilities for notification sources should be the influencing and assisting of what gets published; part of selection activity, in other words, as mediation service, should be to work closely with scholars to select those writings that should be made public through standard channels and to determine the levels of access that should be provided for different publications. The classification and indexing of notification sources should also properly be done by the library—again, as mediation service, that is, in partnership with the author at the inputting stage. When the library transmits (i.e., publishes) a notification source, the cataloging or indexing should be part of, or one further form of, that publication. As mentioned earlier, collection development funding budgeted for notification sources should be used at least partially for

inputting, i.e., for transmitting those sources to other libraries for the use of scholars elsewhere.

Such an amalgamation between input and output should also occur in the area of delivery services. Those staff responsible for receiving transmissions—or for ensuring that such transmissions are available to local scholars—should be the same staff responsible for the transmission of the work of local scholars to other institutions—or at least for ensuring that other institutions can effectively request and receive such transmissions on demand. In this way, we can guarantee critically important uniform standards and procedures in the online exchange of notification sources, much as we have succeeded to a limited extent in achieving such standardization today in interlibrary loan.

We must bear in mind, finally, that delivery not only is concerned with the movement of information into and out of the institution for research purposes, but is also responsible for the trans-

portation of information within the institution for instructional purposes. Information, for example, "scattered throughout the library can be brought together or interconnected to form a useful collection for teaching and learning purposes. These facilities can be supported by not only the library but also the computer center and offices of instructional development on campus."[16]

Beyond Notification

Although we have restricted our discussion to notification sources, we must also pay at least some passing attention to the fact that other sources will also become increasingly available online in full text, although not as quickly, I suspect, as current notification sources. One very large body of potential online information, which may well become prevalent shortly after the initial emergence of notification sources, consists of materials previously published in paper form but later digitized. The purpose of such digitization may be preservation, storage, or simply improvement of access. Whatever the purpose, we must expect large numbers of digitized documents eventually to replace their paper originals at most of our institutions. These digitized items will be transportable over networks to readers throughout the country and the world. The direct intervention of libraries in this transfer of information might possibly be less necessary, although the screening or selection skills of mediation will very probably remain essential services. In any event, such transfer will be impossible without not only technical innovations but also complex economic and political negotiations. Creating and maintaining an infrastructure that can promote and link such innovation and negotiation must be the responsibility of delivery services. Once again we find the special skills of delivery staff

in clear demand: technical and administrative knowledge and skills, not to mention an understanding of the economic base on which the whole structure must be erected. In addition, the legal work to be done on such digitized reprints, and which should also be accepted as part of the responsibility of delivery services, will be considerable, because most of the materials to be transferred to online form will be protected by copyright. Some agency within the academy familiar with the economics of information and publication will need to negotiate with publishers on the provision of access in this form.

There is also no reason not to assume that all scholarly publications—not only notification sources—might eventually be published online, in the sense that they would be sent to institutions over a network, and then either printed and put on the shelf or maintained and read in digital form and, if necessary, printed on demand. We are now, I believe, technically able to accomplish this. Once again, however, it will not be the technology that deters this innovation, but rather the fact that a critical portion of the current input side of delivery services—i.e., publishing—remains primarily in the hands of commercial publishers whose goals are not communication but rather revenue and who therefore must control and restrict the distribution of their publications. Online publication, with its potential for immediate proliferation, would jeopardize that restriction. This is one more reason that it is essential for the academic library to assume increasing responsibility as soon as possible for the input side of delivery services, for only in that way will scholarly communication realize the full benefits of online publication.

Conclusions

While libraries have recognized for some time that substantial changes in

what we have been calling mediation will issue from advances in electronic publishing,[17] libraries have reflected much less on the changes that are bound to occur in delivery—changes that will be at least as significant as those we anticipate in mediation and, given the increased independence of the user from direct mediation in the online age, possibly even more significant. Delivery, redefined or specified in some manner as we have tried to do above, will remain a highly critical function, therefore, in the electronic library.

It is clear that, if we adopt perspectives similar to those presented above, a variety of relatively disparate operations in the current environment—acquisitions, interlibrary loan, publishing, network design, telecommunications—are in fact all oriented toward very similar objectives and are perhaps most productively understood as variations of a single service concept. There is, moreover, at least some potential, as we move increasingly into the era of online information exchange, for these now separate functions and responsibilities to be synthesized into a unified system of scholarly information delivery.

There can be no doubt that the current delivery operations in the library have the leverage and the potential, the position and the connections, to play a much expanded coordinating role in future information services. The ability of the library to manage and adapt to rapid changes in information technology will depend, moreover, precisely upon such a conscious "interaction with the environment."[18] This does not mean, I hasten to add, that our current library delivery services will necessarily assume such a role. Certainly such opportunities will not materialize *ex nihilo*—nor is it likely that such responsibilities will simply devolve to any operation anywhere in the information services system without some action being taken by that operation

to attract those responsibilities. It will be, as always, those segments of the system that best discern how to take advantage of the present to create their own future that are most likely to play an enhanced role in that future (albeit not always in the way they had originally planned). Whether acquisitions staff in academic libraries today will have the motivation and the foresight to create for themselves a more influential and critical position in the kind of information services structure we have been describing is a question to which I have no answer. What I do know is that the necessary (if not alone sufficient) condition for the assumption of a major leadership role by acquisitions will be at the very least a breadth of knowledge and perspective not today traditionally associated with the acquisitions function. Gaining that knowledge, forming that breadth of perspective, would no doubt be the most effective first step by acquisitions administration toward that preferred future. What kind of knowledge are we talking about?

To begin with, the knowledge acquisitions already possesses in the economics of publishing will need to be broadened. Above all, the same level of expertise acquisitions is reputed to possess in the area of traditional publishing must be extended to electronic publishing. The library, and indeed the institution, should be able to look to acquisitions as the authority on advances in electronic publishing for purposes of scholarly communication. This knowledge must encompass not simply the techniques but also the economics of scholarly publication, precisely because, again, the major impediments to the evolution of electronic publishing are not electronic. They are economic. If the library is truly to serve the interests of scholarly communication, it must appropriate increased economic responsibility for scholarly publishing. The economics of scholarly communication cannot be left solely in the hands of either the

information technicians or the commercial publishers, although both of those groups—one in the interest of expediency, the other for purposes of profit—have been and will continue to be quite prepared to assume that control. Rather, it is the library that is in the best position to assume responsibility, as it has always sought to do, for ensuring that scholarly information is available to all who need it for educational and research purposes.

Second, and closely related to the need for acquisitions to broaden its knowledge of the techniques and economics of publishing, is the need for acquisitions to work to gain a more in-depth understanding of information technology and telecommunications. This is necessary in order both to promote electronic publishing and to begin to guide and influence technical innovations in the information industry more effectively. A durable and open link has yet to be forged between the library and information engineering; if this is not put in place relatively soon, two distinct and competing cultures are certain to emerge. This is not to deny, of course, that the development of information technology should be left in the hands of the technicians. It certainly should be, but those technicians should and will need much more precise guidance in the potential applications of that technology,[19] and it is through the library's delivery services—those staff most knowledgeable in the material aspects of information management—that such guidance should be supplied.

Finally, were acquisitions to assume such an expanded role in the electronic library, it would need to begin now to strengthen its understanding of mediation services, as these will evolve in the online era. This is necessary not only to gather the information needed to advise information engineers on future technical development requirements, but also more fundamentally to ensure

that all delivery operations are meeting the needs of scholarly information exchange. Mediation services will, as already noted, very probably remain the primary link between delivery services and the clientele—the communicants. The potential for delivery services to become isolated, to act as independent representatives of the communicants with only a vague or indirect understanding of their needs, can be avoided only by delivery services establishing and maintaining routine and functional connections with mediation services.

This is admittedly an almost absurdly ambitious agenda for acquisitions—but we face unprecedented changes and opportunities, and these call for radical action. If such goals as those just described could be achieved in the near future by the acquisitions operation, delivery services would be able to assume the kind of pivotal coordinating or linking function necessary ultimately to attain the level of efficiency and productivity that users of information services in an online environment will demand and deserve. This linking function is schematized in figure 2.

The ideal function of delivery within such a structure is not only to manage the logistics of the transmission and reception of graphic information for the institution, but also in doing so to represent the needs of scholarly communication to the technical arm of information services and to convey the technical capacities and options, including their administrative and economic advantages and perquisites, through the agency of mediation services, to the scholarly user community. Delivery services would function in such a capacity as a kind of regulatory mechanism within the national system of scholarly information exchange, which would define what material forms of exchange are technically available and economically feasible. This service, if well managed, would have the most beneficial effects
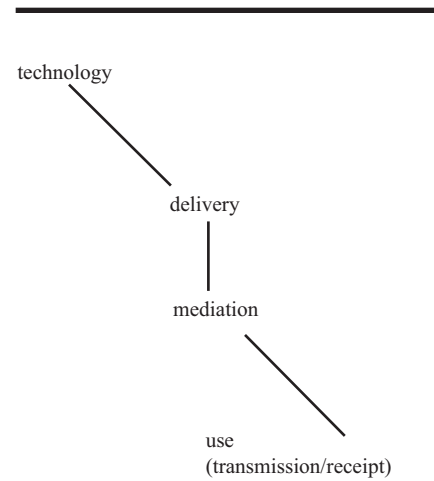

Figure 2. Coordination

for the communication of scholarly information in the online era, for the service contribution of the library to the institution, and, needless to say, for the position of delivery services within the library.

Despite the forward-looking philosophies adopted by a small number of acquisitions departments, few operations in the academic library today appear as ill prepared as acquisitions for the advent of online information exchange. Certainly no operation will be more profoundly affected by that development than acquisitions. No operation has so much to lose by deferring such preparation or so much to gain by beginning now to plan and to implement whatever functional changes are needed to accommodate and to exploit these opportunities. If acquisitions does not assume these responsibilities, they will certainly be absorbed by other agencies in the information services community, probably ultimately to the detriment of scholarly communication.

References and Notes

1. I will be using the term acquisitions to refer to those library functions responsible for the ordering and receipt of library materials in all formats, including serials.

2. Joe A. Hewitt, "On the Nature of Acquisitions," *Library Resources & Technical Services* 33 (1989): 107.

3. See *Managing a New Library Resource: Results of the RLG Machine-Readable Data File Project in Six Member Libraries* (Mountain View, Calif.: Research Libraries Group, 1989). For a recent, very adaptable effort to integrate electronic publications into the current academic library, see Paul Metz and others, *Report of the Task Force on the Electronic Journal* (Blacksburg, Va.: University Libraries, Virginia Polytechnic Institute and State University, 1991).

4. Participants in a 1980 Delphi study, for example, predicted that by "1990 25% of existing reference books will be available only in electronic form." Reported in F. W. Lancaster, *Libraries and Librarians in an Age of Electronics* (Arlington, Va.: Information Resources Pr., 1982), 61.

5. The classic work remains F.W. Lancaster, *Libraries and Librarians in an Age of Electronics*. For a more recent discussion by Lancaster, see his "Electronic Publishing" in *Library Trends* 37 (1989): 316–25. For a recent critique of Lancaster's position, see Svend Larsen, "The Idea of an Electronic Library: A Critical Essay," *Libri* 38 (1988): 159–77. For a summary of different perspectives in the published literature, see Meredith Butler, "Electronic Publishing and Its Impact on Libraries: A Literature Review," *Library Resources & Technical Services* 28 (1984): 41–58. For a selected bibliography on electronic publishing, see Barbara M. Robinson, "Managing Change and Sending Signals in the Marketplace," *Library Acquisitions: Practice & Theory* 13 (1989): 223–25. The best recent overview is certainly David W. Lewis, "Inventing the Electronic Library," *College & Research Libraries* 49 (1988): 291–304.

6. Ross Atkinson, "Old Forms, New Forms: The Challenge of Collection Development," *College & Research Libraries* 50 (1989): 514–15.

7. For a very recent example of such a call to publish more online, see N. David Mermin, "Publishing in Computopia," *Physics Today*, 44 (May 1991): 9–11.

8. See Brian J. Perry, "The Impact of Electronic Publishing on Library Collection and Services," *IFLA Journal* 14 (1988): 129.

9. See Lewis, "Inventing the Electronic Library," 296: "Disciplines where the results of research can be separated from the reporting of results will find the transition easier than disciplines where a large part of the scholarly task is the expression of understanding. A biochemist receives a Nobel Prize for work done in the lab, but a historian will receive a Bancroft, not for work in an archive, but only for a book." See also Eric Wainwright, "The University, Its Library, and the Information Age," *Australian Academic & Research Libraries* 16 (1985): 75.

10. Michael Gorman would disagree. See his view on the future of the monograph in his "The Academic Library in the Year 2001: Dream or Nightmare or Something in Between?" *Journal of Academic Librarianship* 17 (1991): 7.

11. See, for example, Edwin Brownrigg, Clifford Lynch, and Mary Engle, "Technical Services in the Age of Electronic Publishing," *Library Resources & Technical Services* 28 (1984): 67. More recently, see Peter S. Graham, "Electronic Information and Research Library Technical Services," *College & Research Libraries* 51 (1990): 249. The Coalition for Networked Information has established the Working Group on Non-Commercial Publishing, which is considering among other things how institutions can be assisted in undertaking more electronic publishing.

12. See Patricia Ohl Rice, "From Acquisitions to Access," *Library Acquisitions: Practice & Theory* 14 (1990): 18–19. See also Eldred Smith's idea of a centralized "electronic collection" for the use of all research libraries in his "Resolving the Acquisitions Dilemma: Into the Electronic Information Environment," *College & Research Libraries* 52 (1991): 236.

13. See Clyde Hendrick's "The University Library in the Twenty-first Century" (*College & Research Libraries* 47 [1986]: 128) in which he divides the user's task in the coming online age into two parts: (a) mastery of the physical means of getting at the information, and (b) mastery of the conceptual systems for the organization of the library's store of knowledge. See also Gorman, "The Academic Library in the Year 2001," 6: "The purpose of libraries is, and always has been, twofold: (1) to acquire, store, disseminate, and allow access to carriers of knowledge and information in all forms, and (2) to provide services based on those carriers of knowledge and information. The fact that there are now new carriers and new technologies ('twas ever thus) has not changed that enduring purpose one whit."

14. Gordon B. Neavill, "Electronic Publishing, Libraries, and the Survival of Information, " *Library Resources & Technical Services* 28 (1984): 76.

15. See Carolyn J. Mooney, "Efforts to Cut Amount of 'Trivial' Scholarship Win New Backing from Many Academics," in the *Chronicle of Higher Education*, May 22, 1991 (p.A1, A13), and her "In 2 Years, a Million Refereed Articles, 300,000 Books, Chapters, Monographs" (on p. A14 in the same issue).

16. Deanna L. Roberts, "Needs-Led Service Not Acquisitions-Led Service in the Research Library," *Collection Building* 11, no. 1 (1991): 24–25.

17. See, for example, Forest Woody Horton, Jr.'s idea of "The Emerging Information Counselor," *Bulletin of the American Society for Information Science* 8, no. 5: 16–19 (June 1982).

18. "Interaction with the environment" is one of the seven major issues relating to the successful adaptation to change identified by G. Edward Evans in his "Research Libraries in 2010," in *Research Libraries, the Past 25 Years, the Next 25 Years: Papers for a Festschrift Honoring Le Moyne W. Anderson* ed. Taylor E. Hubbard (Boulder, Colo.: Colorado Associated Univ. Pr., 1986), 77–94.

19. See Martin Faigel, "The Library as Marketplace in a Collection

Management Environment," *Library Acquisitions: Practice & Theory* 12:194 (1988). Academic libraries have so far often been less than successful in influencing decision-making on technology at the institutional level. See, for example, Kenneth E. Flower, "Academic Libraries on the Periphery: How Telecommunications Policy Is Determined in Universities," *Journal of Library Administration* 8, no. 2: 93–114 (summer 1987).