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Jam Tomorrow, Jam Yesterday, but Never Jam Today: Venturing through the Looking-Glass of Scholarly Communication

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Some Modest Proposals for Venturing Through the Looking-glass of Scholarly Communication

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The world of scholarly communications grew somewhat curiously. In large measure, especially since World War II, the current system arose as a response by universities to improve the learning process, to generate new knowledge, to share that knowledge with the academic world, and to weigh the importance of those contributions through the peer review tenure and promotion process. What started as a noble enterprise slowly became a self-perpetuating big business. Today, the world of scholarly communications is so complex and heavy that it could well implode, and it is under attack as never before. More external and internal uncertainties are facing the academy than at any time since the creation of the modern university centuries ago, and are facing academic publishing than any time since the days of Gutenberg.

Just determining our current station amid the chaos is a challenge. Libraries and scholarly publishers had a great past, and the possibility is there to succeed in the future, but about the present? In *Through the Looking-glass*, the White Queen explains the rule is "jam tomorrow, jam yesterday, but never jam today." Of course to Alice this makes no sense. If there will be jam tomorrow, and if tomorrow's yesterday is today, then surely there will be jam today. So Alice objects that "It *must* come sometimes to "jam to-day,"" but the Queen replies "No, it can't. It's jam every other day: to-day isn't any other day, you know."

Today truly *isn't* any other day. The "jam yesterday" was an ever-growing budget and a stable print medium that could be understood and to which librarians could bring a reasonable level of order and control. The serials librarians of yesterday may have thought their world was unruly, but it was well controlled by today's standards. Scholars, publishers, and librarians are all hopeful that there will be "jam tomorrow" in the form of the electronic information systems that hold promise to provide a new model for scholarly communication.

Meanwhile, there is no jam today -- no order, no hope. While librarians wait to emerge from the current chaos for the jam tomorrow, the real challenge to the entire scholarly communications community is how to have some "jam today" during this torturous period of transition. Libraries are caught not in the world of yesterday in which faculty and library staff thought everything was perfect, nor in the perfect tomorrow envisioned by publishers and university administrators, but in a present that everyone agrees is a perfect hell. Living in the present imperfect, what are scholars, publishers, and librarians to do?

Jam Yesterday and Tomorrow

To understand how to proceed today, it is important to assess the causes of the current situation, and to recognize the external and internal factors that are having an impact on the system of scholarly communications today in four key areas: changes in society, changes in technology, changes in higher education, and changes in scholarly research and publishing.

Changes in Society. Universities were once highly respected institutions founded on a belief that higher education was providing a virtuous common good. As a result, there was significant societal support for higher education. This support is now eroding. Nationwide there has been a reduction in federal and state support for higher education. Since 1990, "Medicaid displaced higher education as the second largest state spending category. ... [and] higher education's share of total state appropriations went from 12.3 percent to 10.3 percent. ... This decline ...[has had] a dramatic impact on the distribution of student aid within both private and public institutions."(1)

A major cause for the decreased esteem of higher education has been the rapidly increasing cost. The rate of rise in tuition has not only been the cover story of national news magazines, but was also a major feature of the May 30, 1997 issue of *The Chronicle of Higher Education.* Tuition costs from 1980 to 1996 rose by 256% in public colleges, and by 219% in private colleges. During that time, the CPI rose by only 79%, and the median household income rose by only 82%.(2)

In private higher education, from some elite institutions pursued a purposeful pricing strategy of boosting prices because price equaled quality. Within the past few years, this strategy was exhausted. Private schools recently have tried to hold the line on tuition increases or to limit the rate of increase to the CPI.

Public higher education fared no better, besieged by taxpayers who wanted more services at a lower cost. Governors and legislators not only cut back the direct tax support for higher education, they also tied the hands of campus administrators by limiting the annual tuition increases a campus can pass along to students. The percentage of most public college and university budgets funded by the state has been in steady decline over the last decade.

As the cost of higher education increased, legislators, boards of trustees, and parents questioned the efficiency, relevance, and the return on investment. In the November 1996 issue of *Policy Perspectives* entitled "Rumbling," a panel of experts in higher education came to the conclusion that although a consensus existed for forty years that higher education served a collective good for public purposes, "the new message is that the primary return on the investment in education is individual, rather than collective ... and that those who benefit directly should assume the greatest share of the cost."(3) According to *Forbes* magazine "the question is no longer: is it a good investment? The question [for parents] is becoming: Can we really afford it?"(4)

The inevitable secondary effects on scholarly communication are clear. Smaller increases in institutional revenue lead to lower library budget increases. This, in turn, cause decreases in library purchasing. What has been occurring over the past few years represents a fundamental shift in the scholarly communications market, not a temporary blip. Just as the higher education community was slow to realize that the public well was running dry, scholarly publishers seem as yet unaware that ours is not a bottomless well.

***Changes in Technology*.** Over the past twenty years, scholarly communication has been transformed by technology. Libraries have gone from print indexes to librarian-mediated online searching, from CD-ROM user-friendly systems to highly powered Web-based systems that provide index entries, abstracts, and the full text and image of the article.

With emerging developments in the implementation of the Z39.50 standard for systems interfaces, libraries today are increasingly able to search across multiple databases simultaneously and to receive merged retrieval sets. The effect on indexes and abstracting services is that where in the past library users searched specific "brand name" indexes because the title of that index implied its subject content and perhaps the quality of the database, in the future the user will supply only the search argument and the subject content. The search engine will automatically anticipate and provide the appropriate index. Thus, the measure of quality assurance and customer loyalty associated with a particular brand name will be masked, and perhaps made meaningless by technology.

This same phenomenon may extend to electronic publishing. The name recognition of scholarly journals was created by packaging articles together under a cover title. The title of the journal denoted a certain mark of excellence (or lack thereof) in a fixed world. This brand name loyalty may become far less meaningful in a dynamic electronic environment. What is occurring today is only beginning of how technology will affect not only the content but also the methods for pricing of the electronic information. As Esther Dyson has noted

... as the Web expands the big effect will be that intellectual property is likely to lose a lot of its market value. ... In the past ... [t]here was a limited amount of content and people had a limited amount of time, and both were pretty much matched a current price levels. ... [Since the Web], there's much less cost associated with the distribution of content. ... [In addition], *everybody* can get up on the Net. ... You no longer need a publishing house to get a book published. .... [S]ince the supply of content is increasing, the costs of duplication and distribution are diminishing and people have the same amount of time or less, we are all going to pay less. ... [In this new market, content producers] need to figure out how to be paid for producing content because the business models are changing.(5)

Changes in Higher Education. It should go without saying that the prospects for the future of the academic library are inextricably tied to the future of the college or university. Libraries are often described as being "the heart of the university," but a more meaningful question for the future is not whether the library will continue to be the heart, but how healthy is the body in which the heart resides? It will do little good to have a sound heart if that body is aged, infirm, sclerotic, or marginalized by society. While this should be obvious, it never ceases to amaze me that the library profession has paid so little attention to the world that is swirling around us. In addition to the diminished public support for higher education noted earlier, consider the following:

- There is increasing competition to provide advanced education from other providers. In *The Monster Under the Bed*, Davis and Botkin assert that the responsibility for providing education is now passing to business.(6) They note, for example, that the Arthur Andersen company, *"runs an education system comparable in budget to the University of Virginia's and larger than the budgets of Purdue University, Syracuse University, or the University of South Carolina."*(7)
- "Rumbling" observes that for-profit educational providers have emerged "in competition with traditional colleges and universities. Unfettered by the traditions of the academy, ... [they] are proving that they can provide educational programs to satisfy a consumer movement increasingly concerned with attaining the credential[s] .... of postsecondary education. ..."
- Peter Drucker notes that *"Already we are beginning to deliver more lectures and classes off campus via satellite or two-way video at a fraction of the cost. The college won't survive as a residential institution. Today's buildings are hopelessly unsuited and totally unneeded."* Drucker continues that "*Thirty years from now the big university campuses will be relics. Universities won't survive. It's as large a change as when we first got the printed book."* Drucker concludes that *"Such totally uncontrollable expenditures, without any visible improvement in either the content or the quality of education, means that the system is rapidly becoming untenable. Higher education is in deep crisis. ... It took more than 200 years (1440 to the late 1600s) for the printed book to create the modern school. It won't take nearly that long for the [next] big change."*(8)
- Even closer to home for librarians, the tenure system is becoming harder to support financially. A front-page story of the *New York Times* noted that university presses are becoming more market sensitive, and therefore publishing fewer of the type of books that whose void they previously existed to fulfill. A large part of the reason is that the captive audience for academic publishing -- academic libraries -- can no longer afford to buy all of these books. While the system has not completely broken down, "financial pressures are making economically marginal books increasingly harder to justify."(9)

The confluence of these factors is causing a massive shift in higher education that should be the cause for serious introspection by academic libraries. Academic libraries are facing increased competition for their allocation of the university budget.

Faculty appetites for resources, developed in an era of greater resources, are unaccustomed to living with less. Rather than generating new, non-tuition based revenue sources, the primary coping mechanism on campus has been to engage in a death spiral of reallocating revenue and decreasing expenditures, taking from the might-have-beens to the still-hope-to-be's.

As this reallocation process continues, the library -- and therefore scholarly communication -- will become more vulnerable. If society is questioning whether the university is essential for the common good, the omens are bad for libraries. An elemental principle of academic library funding is that because the library exists for the collective good, the expenses should be paid from a collective fund. As higher education repositions itself to meet the demands of the individual rather than to provide for the common good, the operational reality for academic libraries of "responsibility-centered accounting" (a system that says that every program pays its own way) will force academic departments to choose between the survival of their own departments and that of the library (as if the two somehow exist in separate universes). Under these circumstances, many academic departments will choose self-survival. In this devolving zero-sum scenario, the library is the likely loser.

No doubt there are some who will respond that all of this is nothing more than a Jeremiad. The worst won't occur, or at least it won't occur quickly. The changes predicted by Peter Drucker, for example, will not occur over the next couple of years but more likely over the next couple of decades. Nonetheless, the long-term trends in higher education should be a wakeup call to the profession. While academic institutions and their libraries have been around for hundreds of years, that is no guarantee of permanent survival.

An analog to the insular thinking that the higher education and scholarly communications community are currently engaged is mirrored in the steel, rubber, and automobile industries of the United States in the 1960s. Those industries continued to produce the product they thought best rather than what their customers wanted. They did not renew their investment in their infrastructure, but chose to drain the old one dry. There is sobering evidence that the higher education, academic publishing, and academic library communities may follow this same path. Having over-built higher education to a level that can no longer be sustained nationally, a institutions few will thrive, most may survive, but more than a few will likely realize their demise.

Changes in Scholarly Research and Publishing. As noted in the earlier quote by Esther Dyson, the Web has changed the economic foundations of intellectual property. Probably the major reason why publishers were so slow to provide their publications electronically is that they did not know or understand how to price information in the new electronic environment. This economic crisis is occurring at a time when technology is dramatically changing the ways that scholars share their research results. In some disciplines, scholars are disseminating information quickly on the Web rather than waiting for the protracted publishing processes that makes publication irrelevant by the time of availability. Traditional print publishers are feeling new pressures to make information available more quickly and in more formats, and what they should fear the most is that the Web has made it possible for small businesses to enter the fray with a much less capital investment than was necessary to get into print publication.

The lack of widespread adoption of electronic publishing thus far has had little to do with human distaste for change, the inadequacy of the current technology, or even the high investment cost to retool for digital publishing. The chief inhibiting factor has been *economic uncertainty.*Publishing is a conservative industry, and publishers are reluctant to take the leap of faith because they are afraid of losing money during the transition period from the print to digital age. Publishers are unsure of development costs, pricing models and product marketability, and they don't know which charging mechanism makes the most sense under which circumstances. The long term viability of all of these structures is as yet unproven, including electronic subscription surcharges added to print subscription costs, document-transmission-based pricing, per-byte transmission-based pricing, subscription-based pricing, and licensing agreements. Librarians, who share the publisher's penchant for risk aversion, are concerned that they not get locked into the wrong pricing mechanism too soon. In essence, none of the partners of the scholarly communications community is willing to take a risk.

In this uncertain economic future, publishers are not even sure of their prices, but in what business they are in. In the past, information integrators, such as Dialog or Lexis/Nexis, marketed other people's content for an electronic market. As print publishers entered into electronic publishing a few years ago, they began to rethink this approach. The publishers recognized that their electronic distributors were keeping most of the revenue while the holders of the intellectual property, the publishers, made relatively less. Publishers decided to connect directly to the Web, and they tried to cut out the commercial service *"as the sole conduit between a publisher and its customers."*(10)

While some major publishers are continuing to pursue this strategy, it may not survive, especially for journal publishing. As more publishers release electronic versions of their journals, the value of the traditional middleman may become desirable once again. The reason can be illustrated easily: library clients do not come into the library and ask to see all of the journals published by a single publisher such as Elsevier or Academic Press. Clients usually ask for journal articles by author, by title, or by subject, but very rarely even know the publisher. Library users want access to the *content* of these publications, *not* the distributor. Publisher-driven services may be around as transition products in the short run, but even the major publishers are likely to find it desirable to enter into the integrator business themselves or into partnerships with access services to provide links to an expanded range of electronic texts.

Jam for the Future: Plans for Action

In years past, even one of these external factors alone would have been difficult to comprehend or accommodate, but it will be the confluence of all of these factors that will unalterably create the jam of tomorrow. The scholarly communications community, including librarians, must cope with changing societal views of higher education, new forms of scholarly communication and access, constantly changing technology, substantial shifts within higher education and scholarly research, and dramatic economic uncertainties in both traditional and emerging electronic publications. Academic libraries stand at the end of this chain.

To survive these major shifts, it is necessary to develop a comprehensive and flexible plan of action. Although it is probably the most critical of the four factors, I will not address here how to plan for the changes in society. Of the four, societal changes are the ones over which academic librarians have the least control. The best librarians can do to meet these challenges is to control costs and to make the most effective use of the allocated resources.

The other three factors are ones in which libraries can make a difference. In response to these three factors, there are four specific measures academic libraries should undertake:

- respond to technological change by redefining the academic library organization;
- respond to changes in higher education by changing library productivity measures from volume to outcome, and strategically realigning the library materials and access budget; and
- respond to changes in scholarly publishing through increased external collaborations.

Redefine the Organization by Recognizing the New Technological imperative. The mission and organization of the academic library must respond to the changing mission of the university and the economic realities of the scholarly community it serves. As universities reassert the importance of teaching, the services and collections of the library should change accordingly. Unquestionably technology will be both the primary enabler and driver of changes in scholarly communications, and therefore to library collections and services. The World Wide Web has already caused a fundamental change in the nature of information and how it is delivered, and its democratization of technology is the reason that information is being exploited more than ever before as an institutional competitive advantage. Students and their parents are expecting the campus not just to house impressive library buildings, but to provide state-of-the-art technology-based information resources and services.

The truly successful academic library of the future will be the one in which librarians engage with other intra-institutional partners to provide technologically advanced access to scholarly resources. These partnerships may be collaborations on projects or may be formal mergers of academic libraries and campus computing operations. To position themselves in the emerging electronic information environment, libraries and librarians must be tightly aligned with the campus technology infrastructure and the technologists who create and maintain it.

Over the past five-to-ten years, two trends strengthened this a co-dependent relationship. First, libraries have become highly technologically advanced. New information services require a high level of technological sophistication that is easier to obtain through partnering than through replication. Second, as libraries were becoming more technologically advanced, technologists were beginning to recognize that the true purpose of the technology infrastructure was not technology for its own sake. The increased demand for increased network bandwidth has been caused by the growing campus demand for more and different types of information. To predict and plan network growth, technologists must understand not only the technology itself, but also the nature of the information being transmitted.

In this environment, the long touted convergence of the interests of librarians and technologists has come into its own. While in the 1980s there were probably fewer than a dozen such organizations, a list of institutions I compiled recently includes about 80 four-year institutions of all sizes with merged library and computing operations. There are multiple conditions necessary for the success of these newly merged organizations. The colleges or university must have a solid understanding of what they hope to accomplish through such a merger. The decision must be followed by a comprehensive strategic planning process to expand upon that vision. There also must be a consensus for redefining the underlying information and technology infrastructures.

A formal merger is not always essential for the academic library to reposition itself for the future. Formal mergers can yield great benefits, but merged organizations are not necessarily appropriate or the best first step in every situation. Increased collaboration may not need to be a complete disconnection from the past, but can result from a natural evolution within the host institution. The idea must be jointly supported by both operations, with each perceiving that they can do more together than they can accomplish separately. The component organizations must possess organizational maturity, as evidenced by the self-confidence of the staff to let go of the past to advance to the next step, a pervasive spirit of teamwork, and a willingness to debate openly broad possibilities without feeling unduly threatened or to protect turf. Formal mergers provide a framework to bond the operations together. If that formal bond does not exist, but collaboration is desired, the component organizations must develop their own structure to build consensus and trust and an agenda for collaboration on specific projects. Although it may be easier to collaborate when the operations under a single roof, collaborations without mergers can be successful and even desirable in many cases.

Change Productivity Measures from Volume to Outcome. One outgrowth of the research university since World War II has been the building of extremely large research library collections. Research universities begat research publishing, which begat research libraries, which begat large collections. Although undergraduate research does not require mega-research collections, great libraries have become synonymous with great size. Faculty, who typically did their own graduate work at large research institutions, have come to expect this mass to be present wherever they go to support their own research. In the effort to replicate massive collections everywhere, the library became the bottomless pit of the university budget. Although there has been some recent shift in this regard, that change was driven more by economic conditions than by the improved availability of just-in-time access services or because the library as a profession began to question seriously the assumption that bigger was better.

This *"research-and-publication complex,"* with the academic library as the captive audience, created a situation ripe for high levels of serials inflation. Even though library materials expenditures are a relatively small part of most university budgets, this unbearably high inflation, which was consistently much higher not only than the Consumer Price Index but even the growth rate of tuition, stood out on most campuses like a blister needing to be pricked. The response on some campuses was virtually to give up even trying to keep up. On some financially hard pressed campuses, the library materials and access budget (previously known as the acquisition budget) increased significantly over the past five years, but even in ARL libraries that have had substantial increases, the rate in rise of the budget was almost always exceeded by the rate of rise in the cost of serial subscriptions. Over a protracted period of time, the purchasing power of most (if not nearly all) academic libraries fell behind the rate of inflation in the publishing industry. The tactical response on most campuses was The Great Serials Cancellation Project, which I will discuss in greater detail below.

The essential problem in this cycle was that the measure of quality of libraries, and the research library in particular, were measures of consumption, such as the size of collections, staff, and total budget. The quality of academic libraries in general should be measured upon service responsiveness and the effectiveness of organizational output. In academic disciplines, the professional accrediting agencies develop criteria by which to budget the quality of the program. Accreditation standards generally have moved away from activity measures to output measures. If library professional organizations want to advance the cause of academic libraries, they should be developing new standards so that the measure of a research library would be based not upon the size of the library or its expenditures, but upon how the library is positioned to advance the mission and productivity of its host institution. Unfortunately, realistically the professional associations are far more likely to perpetuate the systems in which they are already highly invested.

The opposing view would assert that the more a library spends, and the more it houses locally, the more information it can provide immediately to its clients. The argument is made that *some* library must collect these materials or else the entire library community would lose. These theories have some merit but they have highly limited scalability. There are exceedingly few libraries, and certainly nowhere near all of the current ARL libraries, that might pretend to have such truly comprehensive collections. What the library world has created is an unreasonable benchmark against which most other academic libraries are judging themselves. In addition, while immediacy of access is undoubtedly convenient, in most scholarly research it is usually more important to have availability regardless of the source than to have physical proximity to the material in its original published form.

What quality of service measures might be developed that could have an impact upon scholarly communications? Perhaps there could be a standard measure of response time for a library to secure information on demand. Another measure could be the richness of the mix of electronic resources the library can access and the relative speed of access. Yet another might be whether library clients receive the journal articles they are seeking within minutes, days, or weeks. The new measures need not be solely metrics. For example, the library could document its responsiveness to its clientele both through informal measures, such as faculty or student focus groups, as well as through standardized formal surveys.

If qualitative and quantitative criteria for judging libraries change in this manner, how would the profession determine what constitutes a research library? Perhaps the best measure to define the academic library is to consider the mission and recognition of the host institution. An externally validated institutional criterion, such as the Carnegie Classification of the university, is probably more valid than the criteria developed within the library environment over the past few decades. Certainly the external measurement is more valid than volume counts or size of staff, both of which encourage profligacy not efficiency nor effectiveness. Ultimately, what is most important is to determine in advance the measures of success, and to keep a constant monitor on whether the services being provided are meeting or exceeding client expectations.

Strategically Realign Library Materials and Access Budget. At one time, academic library acquisitions budgets kept pace or even exceeded the rate of inflation. However, beginning in the 1970s, a fundamental change occurred as publishers began to increase dramatically the cost of journals. At first, the publishers justified the increases on rising printing and production costs. The next explanation was the necessity to discriminate between the price for library and personal subscriptions because library subscriptions resulted in fewer personal subscriptions and therefore lost revenue for the publisher. The blame has also been placed at the feet of U.S. dollar exchange rate. Publishers also claim that more articles of value are being submitted for publication each year, and the number of journal titles and page count had to increase to accommodate this rush of quality. The most recent argument for serials inflation has been the high capital investment to retool in electronic publishing technology.

All of these arguments had some validity, but even in combination, they cannot explain why the escalating cost of academic serial subscriptions outstripped nearly any other sector of the economy. Even health care industry costs have been rising of late at a lower rate than library serials. Libraries inevitably have had to cope with these increases. When sizable increases from the university were no longer justifiable nor forthcoming, the first tactic to which librarians turned was the serials cancellation project to keep total expenses within budget. A variation was the serials cancellation project in which the library cut a bit extra to enable the purchase of new journal subscriptions. In the early 1990s, the new library jargon of access replaced ownership, and just in time replaced just in case. During this period, large scale serials cancellation projects became almost a library indoor sport. To make the experience more palatable, a portion of the cancellation target was often set aside to pay for commercial document delivery services to fill the void created in local coverage. Both serials cancellation projects and provision of commercial document delivery services were good *tactical* strategies, but they did not go far enough to constitute a *strategic* approach. A more effective long-term strategy is complete budget realignment.

Typically most library materials and access budgets increase incrementally. An incremental budget is built by taking the current year expenditures and adding an inflation factor, such as 10%. For serials, it presumes that whatever the library bought last year it continues to be the most valuable purchase for next year. What incremental budgeting lacks is a comprehensive assessment of needs and or development of priorities by and across disciplines over a multi-year period. Incremental budgeting fixes past use and need patterns, and budget requests to the university are justified not upon what current needs or use, but solely upon what it would cost the same materials next year that were purchased last year. Jam yesterday *ipso facto*becomes jam tomorrow.

With incremental budgeting, if past purchases and expenditure patterns by discipline or format stay relatively stable over time, and if these patterns of need are not subjected regularly to longitudinal study, the core collection becomes petrified into future practice. It is possible to ameliorate this problem partially through the wrenching serials cancellation project, but every time a library does this as a project rather than as a practice, it not only is highly disruptive to faculty and library staff alike, but it also gives the appearance that the library is not managing its own resources (which, in fact, it is not).

Over those next five to ten years, libraries will continue to need to purchase information (whether print or electronic), but the disciplinary coverage, format and frequency of that information will change dramatically. A much better budget model would be for the library to assume that it is starting from scratch, and to base both the general budget and the title-specific selections upon an articulated set of assumptions about the expected changes in campus programs and in scholarly publishing. Faculty and librarians could then work together to allocate the budget to provide the necessary resources expected to be needed five or ten years hence. For example, the library could consider the estimated growth in electronic databases or electronic journals in each discipline, or the expected rate of replacement of print with electronic publications. Using the current budgeted funding level as the baseline, and with a vision of the allocations in five or ten years, the library could establish the annual budget changes necessary to move the library from where it is today to where it wants to be.

Strategic budgeting such as this would prepare the library and campus by incorporating annual shifts into an ongoing budget process. As a budget strategy, this would be preferable to the current serials cancellation projects that, when they occur, leave faculty the impression that the idea for the project suddenly had sprung full blown from the head of Zeus. A strategic budgeting approach requires more discipline on the part of the library, but this budget realignment over time will make it far easier to identify which current major expenses should be targeted for reallocation.

Unfortunately, some of the early pricing strategies being employed by publishers for electronic journals is creating a powerful countervailing and insidious system. Rather than have planned review and realignment of the library materials and access budget, journal publishers would much prefer to continue the current spending patterns into the future. An increasingly popular pricing scheme is the surcharge on the print price whereby the library receives the electronic journal for the cost of the current print subscriptions plus an electronic access surcharge. For this surcharge the library may receive access to additional titles on the publisher's list, titles that were possibly of insufficient importance to the library to initiate a subscription in the past. The surcharge method is insidious for a few reasons. First, the price now requires the library to pay not on a title-by-title basis for the titles it wants but rather for a package of titles from that publisher. This is similar to the "fully loaded" model for selling cars in which consumers gets stuck purchasing features they don't want just so they can get the ones that they do want. Second, the pricing scheme is based upon an assumption that the library's subject coverage for the titles carried will not change, and that current print subscription coverage will be an adequate predictor of future electronic needs. Third, the surcharge method establishes your current expenditures as the baseline for price negotiations, and the only place to go is up. The combination of these factors is what is worst. If the library continued to receive only print journals, and if two years later the library wished to cancel 20% of the titles it receives from that publisher, it will see the price savings automatically. However, what will happen under the surcharge method two years later? Will the library be able to renegotiate the baseline? If so, under what criteria? And if the purchase price has been negotiated by a consortium, what guarantee does the individual library have that it will receive the best deal under the renegotiated price?

The long-term implications for these seemingly acceptable deals is quite troubling. Publishers may wean themselves from the surcharge model within just a few years, but by then the pattern will have been set and the damage will already be done. The electronic journal price quoted then will based upon a base price developed from a print plus electronic price. The new electronic base price is thus assured of being higher than the print only base price. Past spending and past budget practices will determine future outcomes. For libraries to avoid this scenario, it is incumbent upon the profession to develop alternative pricing models for electronic journals that provide value to both publishers and librarians. The frank and welcome admission by Springer Verlag that they do not yet know how to price electronic journals should be seen by librarians as an opportunity to engage in a partnership with the publishing industry to develop a better commercial pricing model based upon a mutually beneficial pricing methodology.

With established budget priorities and a reasonable projection of any future budget growth, the library can then begin the process of budget reallocation to move the library toward achieving its new goals. By taking this strategic step to meet expected areas of need rather than to react to past purchasing patterns, libraries can use their most potent tool -- the budget -- to reformulate the scholarly communications world.

Increase external collaboration and seek consortial pricing. As the final step in securing jam today, librarians must not only make maximum use of local campus resources, but also expand those resources through collaborations with other academic libraries work together to do more together than they can do alone. There is a new type of consortium emerging, different from those that grew out of the network model in the 1970s, which were multi-state, multi-type networks brokered OCLC or other bibliographic services. Beginning in the mid-to-late 1980s and accelerating in the 1990s, these new academic library consortia developed to fulfill at least two purposes: (1) to seek a reduced purchase price for electronic information resources, or (2) to provide union catalog access and reciprocal borrowing based upon current library holdings. Although some of the older networks are trying to reinvent themselves to become one of the new types of consortia, these newer organizations typically have a much more focused community of interest. Where the earlier networks formed based upon geography to serve multiple types of libraries, many of the newer consortia are structured sometimes over larger geographic regions to meet the specialized needs of specific types of libraries, such as small liberal arts colleges or of large research libraries. The new consortia may be geographically limited to a single state, but they also may be located in multiple states (such as the CIC) but with a focused membership.

Although the interest of the consortium may be to reduce a common costs (such as for the purchase of databases), these new consortia are not simply purchasing clubs. The most successful consortia represent a *institutional strategic alliance in which* a heightened level of resource sharing binds the member institutions together.

There is no one model for these new consortia. There is a wide range that run on a continuum from high decentralized organizations to highly centralized ones. Each model can be valid depending upon the values, objectives, and political realities of the membership. The model a consortium picks is likely to evolve over time as the members become more comfortable with each other and the agenda that develops. The amount of centralization will affect not only how member institutions interact with each other (their internal governance), but also relationships with external parties (such as contractors, vendors, or publishers). Each consortial model also requires tradeoffs. As a general rule, the more decentralized the consortium, the greater the degree of autonomy each member retains. However, the greater the individual autonomy the less the consortium can achieve as a whole. If the authority is highly centralized, the consortium is more likely to have dedicated staff that can perform the ongoing work. Centralized consortia also may have a sponsoring agency to advocate (with the state legislature, for example) for external funds. These funds can provide assured purchasing power for the consortium, which in turn will get the attention of suppliers and vendors because they will always much more interested in working with a *flexible* central authority that can not only negotiate prices but can also pay the bill.

To further illustrate the differing models, I will explore four points on the continuum. Each type of consortium has its own development agendas, affected by when and how it was created, funded, and managed. These generalizations obviously cannot apply in all cases, but I will use the following types: *loose federations, multi-type/multi-state networks, tightly knit federations*, and *centrally funded statewide consortia.* The comparative differences are shown in the chart in Figure 1 below.

	Loose Federation	**Multi-type, Multi-state Network**	**Tight Federation**	**Centrally Funded (State) Agency**
Examples	Local or regional consortia	AMIGOS, NELINET, PALINET, SOLINET,	PALCI, TRLN, CIC	OhioLINK, FSLA, SUNY, Galileo, VIVA, California
How formed?	Grassroots; institutional consortium	Member libraries	Member libraries	State agency generates or coordinates
Community	Common	Separate	Focused	State colleges

of Interest & Governance **Structure**	membership profile (size of library or budget, university mission) or very diverse. Governed by member libraries or sponsor, with group chaired by a member. No central staff.	governing board elected by members. Dedicated staff employed by network. Formally incorporated.	membership profile (e.g., research libraries) or heterogenous (e.g, statewide). May be formally incorporated. Dedicated staff (e.g., executive director) that coordinates program development.	and universities within a state. Reports to state agency, but consortium may have its own governing board. Central staff expedites or dictates development agenda.
Funding source	No consortial funding.	Funded by membership fees or surcharges for services provided.	Institutional funding, perhaps supplemented by foundation or grant funding.	Central state funding, augmented by local institution funds or external funding.
Cooperative purchasing	Request group price. Purchases funded by each member, with no commitment to participate. Typically low discounts granted.	General purchase agreement based upon unknown number of participating members.	Minimum number of participating institutions specified in advance, which yields better vendor discounts.	Central agency secures contract and pays all or most of cost. Members jointly agree on services to purchase based upon shared interests.
Resource Sharing	May have reciprocal non-cost ILL or on-site borrowing privileges. No consortium union catalog.	Probably no joint ILL agreements or on-site borrowing privileges. No consortium union catalog.	May share a common library catalog (built on common software or using a Z39.50 interface. Full reciprocal ILL onsite borrowing.	Union catalog available built on common platform. Centrally funded databases and perhaps interlibrary lending.

General Benefits & Disadvantages	Little risk or investment of time, but yields minimal benefit. Little agreement on electronic resources to purchase. Requests to resource vendors yield minimal return.	Least common community of interest. Fragmented programmatic agenda. Little incentive for members to cooperate. Generally poorest database discounts from vendors.	Flexible programs, but vendors may limit discounts. Z39.50 interface used to minimize capital investment in new systems. Some staff available to expedite agenda without trying to control it.	Staff available to further agenda, but central administration may dictate agenda and policies or operate inefficiently. Central funds augment what each campus would be able to purchase solely from campus funds.

As can be seen on this chart, the *loosely-knit consortium* is very flexible and has low overhead, but it also generates a low level of return. While these consortia involve little risk or investment of time, it is difficult for them to achieve all but the simplest of outcomes. With perhaps few common interests, there is only limited or no group purchasing power.

The *multi-type/multi-state network* probably has the least common community of interest, which translates to a low level of cooperation among the members. Vendors generally provide the poorest database discounts because the network cannot guarantee a specified level of participation. The programmatic agenda of the consortium is likely to be highly fragmented.

At the next stage, the *tightly knit federation* has some of the flexibility of the loosely knit federation, but is not encumbered by the fragmentation of membership of the multi-state, multi-type consortia. Publisher discounts are likely to be greater than either of the earlier two types of consortia, and there is more likelihood that tightly-knit federations will develop a more defined and beneficial programmatic agenda over time. The tightly-knit consortium may have dedicated staff to expedite the work of the group and to develop an agenda rather than control it. A tightly-knit federation also may have a sponsoring agency.

Finally, the *centrally funded statewide consortium* has a sponsoring agency and a separate source of funds. Staff are available to further the programmatic agenda, but the central administration may formulate or mandate the agenda and policies. In some cases, the central authority may operate inefficiently, but with a central source of dedicated funds, member libraries have more of an incentive to collaborate than with any of the other models.

Library consortia hold great promise for positively affecting the way in which universities conduct scholarly research and for improving the ability of libraries to control the costs of scholarly communication, but getting a consortium started presents unique challenges. Within the last year, one such federation emerged within Pennsylvania. The new Pennsylvania Academic Library Connection Initiative (or PALCI) [http://www.lehigh.edu/~inpalci] joins together thirty-seven private and public institutions to accomplish two major agenda items: to form a Z39.50-based union catalog that enables direct patron-initiated circulation transactions, and to secure membership discounts for electronic information products, such as abstracting and indexing services and the emerging electronic journals. The initiative has a two year lifespan, after which time members will reassess its worthiness and decide whether it should continue.

The PALCI development agenda had to take into account some stark realities. First, while Pennsylvania has "state sponsored" institutions (such as Indiana University of Pennsylvania) that fall under the umbrella of the State System of Higher Education, and while there are "state related" institutions (such as Penn State or the University of Pittsburgh) that receive only a small portion of their budget from the state, there was no apparent central coordinating agency or sponsor that spoke collectively for higher education in the Commonwealth. Second, the geography is a handicap. It takes more than six hours to drive from end-to-end, and the western and eastern parts of the state have not necessarily been aligned in the past. Unlike most states, Pennsylvania has no convenient city at its geographic center at members might logically meet. This geography meant that it would be difficult for member-driven committees to carry out the work of the consortium. A third reality was that with no central sponsor to lobby the legislature, and with a very poor statewide history for funding libraries of any kind, seed money from the state for statewide services (such as replacement library systems or central databases for non-state funded institutions) was highly unlikely, at least until some value could be demonstrated.

None of these problems alone might have been too troublesome, but the whole was greater than the sum of the parts. It became clear that only a true grassroots effort was essential. To get PALCI off the ground, each member was required to commit $6,000 per year per institution for a two year period. This fee not only was a demonstration of a real institutional commitment to the project, but also enabled PALCI to secure the services of a full-time executive director to achieve the development agenda. An executive committee governs the effort,(11) and the executive director reports to the chair of the executive committee. Given that there was no central funding, and given the impossibility of having all 37 member libraries purchase and convert to a single library system, PALCI sought other technological solutions to provide a union catalog through which direct patron initiated borrowing could be enabled among all member libraries. Therefore, PALCI members decided to develop a Z39.50-based union catalog that would work with any of the member library catalogs that were Z39.50 compliant. PALCI recently signed a letter of intent with a middleware vendor (CPS) to provide the necessary Z39.50 software. A live testbed should be available to the faculty and students on five campuses for the fall 1997 semester. If that testbed demonstrates technical and operational viability, PALCI will seek external funding to enable all members to become operational on the system in 1998.

Perhaps the most tedious task PALCI faces is negotiating database purchase agreements. In the albeit short experience in this field, it is clear that offers from different vendors for similar products have been very difficult to compare. As a voluntary federation without a central authority, members may pick and choose the offers they like, which runs contrary to most consortial pricing agreements in which the producer offer its best price to a guaranteed critical mass of participants. Nonetheless, PALCI has begun to negotiate some agreements, and expects that the need will continue to do so.

Building library consortia from scratch is not easy, but if the academic librarians in Pennsylvania can overcome the historical problems of history, geography, lack of sponsorship and external support, then there is hope that any state can succeed if it is truly committed and well-organized.

CONCLUSION

There are a number of obstacles that must be overcome to ensure the continued viability of the library in the scholarly communications process, and of the entire process itself. Dramatic and fundamental changes are occurring within and technology that are radically altering the face of higher education, academic libraries, and scholarly publishing.

In the past, libraries and scholarly publishing each had a rich -- and mutually dependent -- relationship. This was the jam of yesterday. Changes in technology and in interlibrary cooperation seem to point the way to future success. Libraries that strive to have a bit of jam today must not lose sight of the academic library mission and vision, which should be the guiding lights for moving forward. Librarians must also extend that vision by making some strategic changes in the profession and on the campus. Changing performance measures is one way to change how academic libraries and their host institutions look at the services that academic libraries require. By strategically realigning the library materials and access budget, libraries can use a significant collective purchasing power to generate the jam of tomorrow. Finally, by increasing external collaborations, libraries can work together to achieve a level of success collectively that will be impossible if undertaken alone.

To achieve this will take professional vision, dedication, and a good measure of luck. It requires leaders who are not afraid to lead and take risks. It requires creative staff who are interested in moving positively and professionally. Such vision and creativity will lead the profession into dangerous territory. Fundamental changes in the environment cause most people to become more cautious. Each new solutions seems only to create new problems. Collaboration inevitably requires compromise, some of which can be healthy, but too much of which can be burdensome beyond belief. However, the profession will make no progress unless there is a collective will to try something new. You cannot have jam tomorrow if you don't start making some jam today. Perhaps at Tara "tomorrow is another day," but as the White Queen reminds us, when one ventures through the looking-glass, today is *not* any other day.

NOTES

1. Pew Higher Education Roundtable. "Rumbling." *Policy Perspectives*. v. 7, no. 1 (November 1996): 2.

2. Susan Lee and David Roth. "Educonomics." *Forbes* (Nov 18, 1996) v. 158, no. 12: 108.

3. Pew Higher Education Roundtable. "Rumbling." *Policy Perspectives*. v. 7, no. 1 (November 1996): 3-4.

4. Susan Lee and David Roth. "Educonomics." *Forbes* (Nov 18, 1996) v. 158, no. 12. p. 108.

5. Claudia Dreifus. "The Cyber-Maxims of Esther Dyson." *The New York Times Magazine*(July 7, 1996): 16, 18.

6. Stan Davis and Jim Botkin. *The Monster Under the Bed : How Business is Mastering the Opportunity of Knowledge for Profit.* (New York: Simon & Schuster, 1994), 64.

7. Davis and Botkin, 93

8. Robert Kenzner; Stephen S. Johnson. "Seeing things as they really are." *Forbes* (March 10, 1997): 7.

9. Peter Applebome. "Profit Squeeze for Publishers Makes Tenure More Elusive," New York Times (November 18, 1996): A1. Quote at B11.

10. Diane Caruso. "Digital Commerce." *The New York Times* (April 17, 1995): D7.

11. The author is the current chair of the PALCI Executive Committee.