

Faculty Senate
Committee To Examine
The Crisis in Scholarly Communication
And
Journal Subscriptions

OPPORTUNITIES FOR PURSUING
A NEW STRATEGIC VISION
FOR THE UNIVERSITY LIBRARY

Report
February 3, 1999

The challenge for Iowa State University is to maintain access to significant scholarship and information for faculty, students, and staff at a time when both the volume and price of scholarship and information have increased nearly threefold in the last decade alone.

Executive Summary

The Iowa State University's Strategic Plan calls for strong library resources and a delivery system of information in support of research and the curricula, including both on-campus and distance learning. Moreover, it calls for international leadership in the integration and optimal use of information technology—for the University Library this involves continued development and enhancement of library services and emphasis on the effective use of state-of-the-art technology in teaching, learning, and information delivery systems.

In short, for the University Library to continue meeting its strategic goals, it must offer strong local collections, comprehensive access tools to global electronic information, influential local application of technological advances, and strong public services to support university faculty and students in their scholarship, instruction, and learning. The community the library serves expects far more than the library can now offer. The current crisis in scholarly publications and journal subscriptions is jeopardizing the university's ability to provide information and supporting services for its constituents.

It is important to recognize that the University Library has made impressive strides over the past four years in meeting its strategic goals and objectives. During this time, the library has benefited from legislative support for acquisitions inflation, several large one-time central funding measures for major library initiatives, increased campus networking infrastructure, and support from the ISU Computation Center. During the library's recent five-year program review and the university's recent accreditation process, the library received very high marks. However, despite its many significant achievements, we believe that the University Library has lost its competitive edge in two essential and intertwined areas as it supports Iowa State University's aspiration to be the "Nation's Premier Land-Grant University." The first is the infrastructure support for electronic resources as part of the university's information technology goal. The second is the library acquisitions budget for its journal and monograph collections.

The Electronic Library

The University Library is clearly lagging its peers in the ability to provide a sufficient array of electronic resources. These resources represent a full range of electronic materials from full text journal titles to cartographic titles. Increasingly the name given to this alternative "library face" is the Electronic Library, and by far its largest and fastest growing segment is journal and other serial literature. In the not too distant future, we expect that the vast majority of journal literature will only be available electronically. We firmly believe this is a critical time for Iowa State University to surpass its peers in the design and content of our proposed Electronic Library, not merely to catch up with them quantitatively.

Realistically, the overall acquisitions budget cannot be increased enough to make a dramatic difference in meeting all information needs and the standing of the library with its peer institutions. However, our realistic opportunity is to ensure the competitiveness of the university through our Electronic Library—this is strongly in keeping with the university's stature and objectives in information technology. In the longer run, by building a premier Electronic Library, we will be providing a competitive research collection, which clearly will support our instruction, learning, research, and outreach campus goals as well as our vision for information technology.

Summary of Report and Recommendations

This committee report presents our vision for a premier Electronic Library and a brief description of the current state of the University Library's journal collection and the national crisis in scholarly communication. The report then details twenty-seven recommendations that relate to three central topics:

- Building the Electronic Library,
- Providing quality access to journal information, and
- Discussing mechanisms that help address the crisis in scholarly communication.

The report defines the first steps the University Library, the University Administration, and the University Faculty should take to stabilize the infrastructure for local, national, and international scholarly communications. Several of these recommendations, if approved, have budgetary implications for FY2000 and beyond.

The report's key recommendations involve building a competitive Electronic Library, ensuring the stability of our current core research collection, and responding to the enormous challenges of the crisis in scholarly communication:

The Electronic Library:

- Increase the library's abilities over the next three years to build a competitive Electronic Library collection,
- Acquire, whenever feasible, electronic-only versions of specific titles, and
- Ensure an adequate software and hardware infrastructure for the Electronic Library.

The University Library's Core Research Collection:

- Reduce the current cancellation project to enable the library to retain some of the journal titles that are the most strongly contested, especially those that are inter-departmental and support interdisciplinary programs, and
- Agree that, except for unforeseen and extenuating circumstances, there will be no further university-wide cancellation projects for five years.

The Scholarly Communications Crisis

- Expand the participation of the University Faculty, the University Administration, and the University Library in national initiatives to resolve the scholarly communication crisis.
- Influence the national debate on the changing nature of scholarship within individual disciplines.

The leadership and support for pursuing and achieving this new strategic vision for the library must come from all quarters, but most importantly from the University Library, the University Administration, and the University Faculty.

Measuring progress towards these goals is an essential part of achieving this new strategic vision. Various measures are available, including growth in numbers of and budget for electronic resources, comparative rank with peer institutions, stability in the local collection, and participation in national initiatives related to scholarly communication by the University Library, the University Administration, and the University Faculty. The University Library, working closely with the University Library Committee, should propose specific measures to the Provost as part of the focus on developing new management data and criteria for future management decisions.

The Faculty Senate Committee to Examine the Crisis in Scholarly Communication and Journal Subscriptions hopes that the timing of this report will provide opportunities for all concerned parties to begin addressing these issues during the current fiscal year. The committee will continue working on its charge during Spring Semester 1999 and will have longer-range recommendations to submit to the Faculty Senate by the end of this semester.

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Vision of the Electronic Library

The rapid expansion and pervasiveness of electronic information resources have resulted in a dramatic shift in faculty and student expectations. They increasingly look for immediate access to valuable information resources to support their research and learning, regardless of physical location. Clearly, electronic information provides enhanced access through the provision of new resources, more powerful indexing, and access to information resources outside of actual library physical facilities. Of increasing importance to the success of the university's distance learning and extension programs is the accessibility of these resources off the central campus. The vast array of electronic resources now affects all types of library materials, whether they are indexing and abstracting tools, journals and newspapers, books, government information, manuscripts, cartographic materials, photographs, films, etc.

Role of Electronic Information

Given the explosive growth of the Internet, faculty and students depend more and more on electronic information for their scholarship and learning, be it access to peer research results or up-to-the-minute financial reports. While Internet-based materials are timely and convenient, they also are volatile and have mixed quality. This suggests that the role of the Electronic Library will become even more critical to effective scholarship over the next five to ten years. As electronic media gain in importance to the ISU community, our students and faculty will look to the library for powerful, efficient tools to organize, collate, search, and present peer-reviewed documents and other materials, as well as to continue to preserve historical materials (paper and electronic).

Libraries are starting to provide more access to digital information not from files stored in their own libraries or on their own campuses but from centralized servers that are networked to publishers, government agencies, universities, and scholarly societies that can be located anywhere around the world. Rather than selecting scholarly resources on an item-by-item basis, librarians are turning to a new breed of "aggregators" for collection development at a macro and integrated level. Reference tools, electronic journals, and digital archives of historical material now come in a variety of "bundled packages" from such institutions as Johns Hopkins University Press, the American Chemical Society, and Academic Press.¹ Even though information technology is dramatically changing libraries, the library must continue its multiple roles in evaluating and selecting materials, providing access to such materials, ensuring that they are archived, and organizing them so that library users can find and use them effectively.

The University Library must be poised to transform itself by embracing these new technologies while continuing to assert its role in disseminating useful scholarship materials to the community. However, the library is not alone as an agent for change. Priority areas at ISU include distance learning and learning communities (streaming video and web-based delivery mechanisms), multidisciplinary collaborative research (immersive environments and high performance computing), and strategic initiatives, such as bioinformatics (vast distributed databases).

All of these areas require continued and significant investments in the information technology capabilities both on campus and with national networks. As for the library, they require that we provide the software tools to allow electronic access to valuable library resources to the ISU community any time, any place. All of these areas require attention to how we serve information to faculty offices and laboratories, to the residence halls, and off-campus. The library both will be a significant driver of these required capabilities and will benefit from a coordinated plan at Iowa State to create the needed resources.

Rapid Growth of Electronic Titles

Publishing trends indicate that within five to seven years virtually all major academic journal literature will be available electronically. Between 1991 and 1997, the number of electronic journals and newsletters increased from 110 titles to 3,414 (of which 1,049 are peer-reviewed titles).² For the most part these now represent journals with print counterparts—however, this will change as new journals increasingly become available only through electronic means. The financial dilemma facing all parties is that this rapid growth is happening at a time when publishers and vendors have no clear answers on how to price these products. For the present, libraries are forced by many publishers to purchase both print and electronic versions at a higher price than just the print edition, thereby exacerbating an already difficult financial picture.

Meeting Campus Needs and Expanding Costs

Not surprisingly, the University Library has received some criticism from faculty members for not providing access to electronic resources commonly held by other research libraries. Often the individuals are new to the campus and come from universities where many more electronic resources are freely available. These “missing” resources may represent current print resources that are now available electronically or totally new electronic resources.

A current example of such a resource is Lexis-Nexis. This is a very important research tool for legal and journalism courses (including courses in Economics, Journalism, Agriculture, Mechanical Engineering, Human Development and Family Studies, Business Administration, Exercise and Sport Science, Water Resources, etc.). The new pricing of Lexis-Nexis represents commercial price gouging at its most dramatic. From September 1997-August 1998, before its acquisition by Reed-Elsevier, we paid an educational price of \$5,400 for access on two library workstations. Now the former educational price is no longer available, and the new consortial price offered by the publisher is \$30,062.

Catching Up With Our Peers

At present, the University Library is far from competitive among its peers in providing electronic access. The most recent Association for Research Libraries (ARL) data, from FY97, show this clear lack of competitiveness in both overall acquisitions expenditures and expenditures for electronic resources. The library falls at the bottom range of total materials expenditures among our peer land-grant institutions and in the middle range of the Big 12 institutions. The library's expenditures for electronic resources place it virtually last among its peer institutions.

Another way to look at the library's expenditures is as a percentage of the total university education and general expenditures (E&G). This places library expenditures in perspective in terms of the overall size of the university budget. Iowa State's percent of 1.12 for all library materials ranks it second among the peer land-grant institutions, but places it seventh among the Big 12 institutions. In the area of electronic resources, Iowa State's .07 percent for these expenditures ranks it seventh in the peer land-grant group and ninth among the Big 12 universities. See Appendices A-D for the institutional comparative data.

- Peer Land-Grant Universities and University of Iowa Expenditures for Electronic Resources

Among our Peer Land-Grant Universities and not including the University of Iowa, Iowa State is ranked ninth out of eleven schools. However, the relative ranking and comparative expenditures are sometimes misleading because many of these institutions (including Purdue) also benefit from statewide purchases of core electronic resources that are not reflected in these reported institutional expenditures. Assuming this adjustment, we would be ranked last. University of Iowa's relative ranking is sixth in this same peer group.

- Big 12 Universities and University of Iowa Expenditures for Electronic Resources

Among ARL Big 12 Universities and not including the University of Iowa, Iowa State is ranked seventh out of the ten institutions that are ALR members. However, Texas Tech's expenditures (ninth) do not reflect statewide purchases, which if counted would raise their expenditures above ours. Assuming this change in ranking, at best we are ranked eighth out of the ten schools. University of Iowa's relative ranking is third in this peer group.

The State of Scholarly Communication And the ISU Journal Collection

The University Library is not alone in the challenge to its effectiveness in providing collections and services. The shattering reality is that our library's situation merely reflects what has become nationally known as the "scholarly communication crisis." From 1986 to 1996, while the Consumer Price Index increased 44% and the price of health care increased 84%, the cost of monographs increased 62% and the cost of scholarly journals increased 148%.³ At the same time, the number of serial titles increased from 103,700 to 165,000, a 60% increase.⁴ During this decade, we have seen the free marketplace among scholarly publishers, particularly those in the sciences, virtually disappear, thereby eliminating any true competition. Ultimately, we cannot resolve our local crisis without participating in solving the extremely complex issues facing the entire academic community.

An increasing amount of scholarly information is being published in electronic form, and the cost of this information is rising at a greater rate than the cost of its print counterparts. Libraries find their resources stretched to their limits as they try to meet the challenge of just maintaining the traditional print titles, and they are unable to adequately realize the benefits of electronic information. A variety of measures are needed to address these problems.

To put this in a local perspective, since the University Library's last journal cancellation project in 1991-92 (a 13% reduction), the library acquisitions budget has again been unable to fully absorb:

- The explosive growth in the number of electronic information resources (whether electronic journals, indexes, and abstracting resources or new multi-media resources available through the Internet),
- The annual increases in the costs of its journal subscriptions, and
- The growth in the total number of journals of interest to faculty and students.

We are now in the last stages of conducting a major journal cancellation project, whose goal is to reduce journal expenditures by 14% or \$550,000. Most troubling is that the purpose of this project is not to identify new dollars to spend on needed new resources (whether electronic or print). Rather, it will merely place the library's "financial house" in order so that we can maintain an essential core journal collection and a basic monograph collection for library users. As indicated in Appendices A and B, our total library materials expenditures places Iowa State University tenth out of its peer land-grant institutions and fifth out of the ten ARL Big 12 institutions. Unless steps are quickly taken, two clear results of this cancellation project will be first to further reduce the competitiveness of our library collection among those of our peer institutions and second to acknowledge our lack of leadership in the national information arena.

Recommendations

I. Building a Nationally Recognized Electronic Library

The virtual bricks and mortar of the Electronic Library include both its scholarly content and its technological infrastructure. The transition to electronic information comes at a difficult time when both the physical library and the electronic library are essential to our information needs.

Access to library collections through electronic means is now a standard and an increasingly important benchmark in evaluating library collections as they meet learning, teaching, and research needs of students and faculty as well as the outreach functions of a land-grant institution. Iowa State University must be competitive nationally in the recruitment and retention of faculty as well as the recruitment, retention, graduation, and career placement of its undergraduate and graduate students. An increasingly important factor in this success is and will be the University Library's ability to provide electronic access to its journals, books, and other essential information resources.

This section includes two recommendations calling for increasing the acquisitions base budget to support the Electronic Library. One involves increasing the base budget for electronic resources and the other involves redirecting internal acquisitions funds to the purchase of electronic resources. Over the next three years, the effect of both recommendations would be to direct at least \$1,100,000 towards the Electronic Library, thereby improving the competitive position relative to institutional peers and providing electronic access to important resources to the ISU community.

A. Increase the acquisitions base budget to support the Electronic Library.

Recommendation 1: Make a nationally competitive Electronic Library a strategic objective as part of our leadership in information technology.

To provide the full-range of content necessary for a competitive Electronic Library with our peer institutions, a significant increase in the funding available for acquiring these resources is required.

Given the current journal cancellation project it is

clear that the current acquisitions budget has little flexibility to meet these needs. Changing to electronic versions of current print titles and purchasing new electronic titles will require increased funding in addition to typical inflationary increases. Certainly within the next three years, this change will involve resources that are beyond the current means of the acquisitions budget.

The University Library's electronic resources expenditures in FY97 were .07 percent of the university's total E&G expenditures. In both the peer land-grant group and the Big 12 group, the highest ranking university spent .18 percent of its total E&G expenditures on electronic resources (North Carolina State University and University of Kansas). In order for Iowa State to reach the level of .18 percent, the FY97 electronic expenditures of \$322,004 would need to be increased by \$506,006 to reach a total of \$828,010. Bringing the \$506,006 figure to FY2000 dollars is difficult, but if one assumes a 6 percent inflation adjustment for FY98, FY99, and FY2000, the necessary increase would be \$602,661.

The University Library's aspiration to lead the peer institutions in library resources, particularly in electronic library capabilities, is in keeping with the university's goal to achieve a leadership position in information technology. This is instrumental in achieving the status of the best land-grant university.

New base-budget requirements of \$600,000 (\$200,000 annually for three years), as estimated above, will advance the university in electronic library capacity. Furthermore, the University Library will continue its reallocation of internal funds to \$500,000 (see I.B. below). Within three years, these combined funds will total \$1,100,000, and will allow the library to maintain a highly competitive position with our peers and achieve the strength necessary to sustain this position.

An increase in funding for electronic resources will assist in:

- Catching up to our peer institutions in providing core electronic resources,
- Expanding the number of electronic resources (with or without print counterparts), and
- Participating in new scholarly initiatives, such as the ARL SPARC Initiative, that may eventually help drive down the prices and/or price increases for electronic and print journals.⁵

B. Reallocate resources from print to electronic formats.

Recommendation 2: The University Library should make it a priority to acquire electronic-only versions of specific titles, whenever feasible.

The University Library should begin an aggressive plan to move from print to electronic format, whenever feasible (financially and technologically). The library will continue its internal reallocation

process to support its electronic resources until it reaches an annual expenditure of at least \$500,000 within its current acquisitions budget structure. For now the commercial marketplace does not make this a straightforward process. Iowa State University as well as other universities and national groups have two major concerns in this area:

- The commercial marketplace must resolve the pricing structure that now only serves to drive the costs up since frequently both print and electronic versions are required when the electronic version alone is desired.
- Publishers, librarians, and others must solve the archival issue for long-term storage of scholarly electronic materials. Currently, we still depend on an "archival" print or microform copy in an accessible location (locally, regionally, or nationally).

C. Establish a technical infrastructure to ensure full access to electronic information resources to the campus community, regardless of location.

1. University Library

Recommendation 3: The University Library should have adequate funding to support the software and hardware requirements for the Electronic Library.

The majority of the past funding for the library's public software and hardware infrastructure has come from soft funding (e.g., grants, end-of-year presidential funding, special presidential/provost project funding, and development funds). The library does allocate

some state funds internally and receives funds from the Student Computer Fee revenues to support its hardware and software needs; however, these funds do not cover the real and ongoing funds needed to support the necessary public infrastructure.

2. Campus

Recommendation 4: Ensure a coordinated mechanism for handling core authentication and authorization services, allowing appropriate access to library resources by students, faculty, and staff through the Internet.

Many campuses have moved to a ubiquitous authentication capability, through which one can verify that an individual is an employee or student. The ISU Computation Center supports such a service. While it is heavily used by the student community and many faculty and staff, it is

currently optional. By making such a service universal, we can allow access to library resources to the ISU community both on- and off-campus. Currently, many universities also are seeking to create an authorization capability. By authorization, we mean the ability to provide access to resources is based not only on the identity of the individual, but also on particular attributes of the individual. Based on costs and licensing requirements, many of our electronic resources may only be used within the University Library and/or by the university community (on or off campus). To accommodate these requirements, we must have authorization and authentication systems to define our community.

Iowa State University has an excellent opportunity to provide leadership with respect to these services, allowing our faculty, staff, and students the most flexible access to the widest range of library resources. If designed appropriately, faculty on travel and students in residence halls and off-campus housing will have access to all the electronic materials available through the campus Intranet. This will not only strengthen learning communities and research groups, but will allow ISU to provide materials to students reached through distance learning initiatives.

II. Quality Access to Journal Information

University resources will never be sufficient to acquire all needed information resources to support new initiatives and programs, but a way must be found to fund our core needs and improve our purchasing capabilities to achieve and maintain a leadership position.

The teaching, research, and outreach functions of Iowa State University cannot be accomplished without providing quality access to journal and monograph information. Generally journals provide current information that is not available from other sources, and there often is no substitute for a specialty journal. Unfortunately, the continuing steep rise in the price of journal subscriptions and the steady increase in the number of journals being published have led to a great disparity between library acquisitions budgets and journal costs. Moreover, rising costs in monographs and shifting monograph expenditures to serials expenditures to meet the rising costs of serials have greatly affected the numbers of monographs purchased in ARL libraries. From 1986 to 1996, the average number of monographs purchased has dropped 21%.⁶

The ISU Library has used a variety of strategies to deal with this situation, including canceling journal subscriptions, reallocating funds from books to journals, partially subsidizing interlibrary loan, and entering cooperative agreements with the Iowa Regents Universities, Big 12 Plus Libraries Consortium, and Big 10 libraries.

The following recommendations offer a variety of ways to provide optimal access to journal information. Some involve new resources; others look at making the best use of existing resources and finding new ways to leverage the \$680,000,000 ARL libraries collectively spend on their research collections.⁷ Most of the measures call for faculty, students, and staff as well as library personnel to accept new ways of doing their work.

A. Add New Resources to the Library Acquisitions Budget

1. Decrease the size of the current cancellation project.

Recommendation 5: Reduce the current cancellation project by adding \$80,000 on a permanent basis to the FY2000 Library Acquisitions Budget.

A series of cancellation projects has shrunk the number of journals (in all formats) held in the University Library's local collection. The goal of the current cancellation project is 14% of the total cost of journal subscriptions or \$550,000. The first round of recommended titles to cut has been reviewed by faculty, staff, and students, and at this stage the number of "contested" titles and the number of general complaints are higher than during the last cancellation project. As of now there have been over 440 contested titles, or 20% of the titles recommended for cancellation in the first round of review, with a total cost of \$230,000. Within this \$230,000, titles worth \$81,996 had multiple protests by faculty and the library is making every reasonable effort to retain them.

There is a grave concern within the Faculty Senate and by individual faculty that this project is digging deeper into local access to journal information than we can afford as a research institution. A reduction in the scope of the cancellation project in the amount of \$80,000 (a 12% base reduction) would allow the library to retain those titles that have the strongest importance to our teaching, research, and outreach programs.

2. Continue to pursue state funding for acquisitions inflation.

Recommendation 6: Continue to work closely with the Board of Regents and the other state universities in strongly supporting legislative appropriations for inflationary increases for the acquisitions budget.

Over the past several years, the Board of Regents, Iowa State University, the University of Northern Iowa, and the University of Iowa have been successful in obtaining state funding for acquisitions budget inflation. Often these have been the only inflationary increase (outside of salary and benefits) that the state has funded. These general inflationary increases remain essential to maintaining the strength of our current collections.

3. Include library resource components in new university initiatives.

Recommendation 7: Add library resources as appropriate to new university initiatives.

The cost of additional library resources needed by new university initiatives is typically omitted from these proposals. When the library is subsequently asked to respond to a new initiative's need for journals, monographs, and related information resources, its only alternatives are to reallocate funds from another area or to fail to respond to these needs. Including library resources in the budget for the new initiative would assist in solving this problem. Awareness of the need for library resources is especially important for multidisciplinary initiatives, where single-field journals often need to be augmented by new multidisciplinary resources. We believe

that such consideration is especially appropriate where university cost sharing is involved in the support of new initiatives.

4. Increase library development activities in the area of acquisitions funding.

Recommendation 8: Broadly encourage departments and colleges systematically to add library acquisitions components to their development initiatives.

The University Library's current capital campaign efforts include \$1,500,000 for priorities in acquisitions and electronic resources. Potential library donors are not often attracted towards contributing to acquisition causes, and the library

has no natural constituency of donors to draw upon. As a result, the library has had limited historical success in this area. Clearly, the library must continue to place heavy emphasis on its development efforts in this area. However, if library development initiatives also were coupled more systematically with college and department development initiatives, it would increase potential endowment funding for library acquisitions. For example, recently the University Library and the College of Veterinary Medicine have been successful in obtaining development funds to support veterinary medicine acquisitions. These joint efforts have resulted in an expansion of library resources that also are of interest to other related disciplines. Increased annual endowment revenues would decrease the library's heavy reliance on state funding, particularly for book acquisitions and other one-time purchases.

5. Expand library partnerships with other campus units to support journals.

Recommendation 9: Explore ways that the library could expand its cooperative partnerships with departments and colleges, including development of joint grant proposals and support for targeted library resources.

In the past, several departments have joined the library in paying for particular journals or have taken permanent responsibility to subscribe for a journal. These partnerships enhance the local collection and provide expanded resources for library users.

B. Make Good Use of Current Library Resources

1. Collect better management data.

Recommendation 10: Continue to collect and analyze data on the annual cost of subscriptions.

Recommendation 11: Investigate alternative usage data collection methods.

The University Library now can produce coded lists of journals that have been defined as being of primary interest to a particular department or program. With the ability in the new library management system to link these codes to pricing information, the library should be able to gather more complete data and conduct more complex

analyses of that data. Subscription price may be supplemented by comparative indices like cost per page (or per other information unit) and trends in annual price changes.

Another part of management data is journal usage. Usage information is difficult to obtain without some intrusion on the current open-access policies. Yet, such information is critical to making informed decisions regarding less central titles. This

issue should be explored more thoroughly, considering procedures that have been applied at other comparable research libraries.

2. Use consortial purchasing.

Recommendation 12: Explore consortial purchase or license of both undergraduate library resources and research resources with academic institutions and other groups.

Recommendation 13: Explore statewide consortial purchase or license of basic resources to benefit the libraries of Regents Universities as well as public, school, and governmental libraries.

The University Library currently attempts to take advantage of the savings offered by consortial purchasing in agreements with the Regents Universities libraries, Big 12 Plus Libraries Consortium members, and Big 10 libraries. Not all publishers offer discounts for consortial purchases, and the savings while real are not great. However, obtaining even small discounts would serve to make better use of available dollars.

Many states, including Kansas, Nebraska, Minnesota, and Wisconsin, have set up statewide arrangements for purchasing or licensing basic undergraduate resources. These arrangements typically are funded by general state funds, thus freeing libraries to reallocate local funds used for these titles to new resources.

3. Expand use of article-based access.

Recommendation 14: Conduct a demonstration project involving article-based access for a particular college, set of departments, or group of programs that would provide information on the funds and procedures needed to provide article-based access on a broad scale.

Access to journal information through titles purchased for the local collection (print and electronic) and through interlibrary loan are the two traditional forms of access. The University Library currently subsidizes virtually all interlibrary loan fees associated with faculty and student requests. Libraries are increasingly turning to user-initiated article-level access, which involves obtaining needed articles through purchase

from document suppliers and direct purchase from the journal publishers. These documents may be delivered in both print and, increasingly, electronic formats. Savings in expenditures are possible when the library cancels an existing subscription and instead provides article-based access for that title. This method of access contributes most effectively to making good use of current resources if the demand for articles from a journal is low and the cost of its subscription is high. If applied carefully, this allows the campus community access to a far wider array of resources at a moderate cost.

Providing article-based access involves many new operations for the library, including estimating demand for a journal's articles, authenticating users, developing billing and payment procedures, and providing training for users. Students, faculty, and staff also have to develop new skills to use article-based access.

4. Institute regular reviews of journals in subject areas.

Recommendation 15: Conduct frequent reviews within departments and programs to update the core and supporting journal lists for each area.

To make good use of current resources in subject areas, library staff should conduct frequent and regular reviews of journals assigned to those areas. Such evaluations could result in the development of core lists for particular areas and programs, thus

allowing frequent reallocation of funds from less highly valued titles to new journals needed by faculty and programs within a specific subject area. More systematic assessments should be made of faculty judgments on the worth of journals in their areas. A process of routinely surveying faculty regarding the relative value and perceived use of area journals may build both an adequate set of data and also a continuing awareness of the issue. More ambitious quantification of relative value may include appropriate citation analyses.

C. Expand the Role of the University Library Committee

The University Library Committee is appointed by the Provost and is advisory to the Dean of Library Services. We recommend to the Provost and the Dean of Library Services that its charge be expanded to include responsibility for continuing study of the problems in scholarly publishing, specifically focusing on journal subscription costs exceeding expected inflation increases and other resources. These new charges would include:

- Advising on adequate sources of information,
- Taking an active role in recommending criteria for future major purchase adjustments, and
- Informing the library users of relevant issues regarding access to scholarly information.

1. Expand relevant management information.

Recommendation 16: The University Library Committee should advise the library on the collection and evaluation of objective data relevant to major journal cancellation projects.

One of the most troublesome aspects of past journal cancellation projects has been an absence of relevant objective information to guide faculty and staff decisions. Several kinds of new information may be useful for ongoing purchases as well as future special cancellation projects (see II.B.1).

2. Begin contingency planning for future journal purchase adjustments.

- a. Develop new parameters for journal cancellation projects.

Recommendation 17: Recommend that, except for unforeseen and extenuating circumstances, there will be no further university-wide cancellation projects for five years.

Recommendation 18: The University Library, with advice from the University Library Committee, will recommend to the Provost procedures to be used in future journal cancellation projects. The Provost will make the final decision following a consultative process.

If the current disparity between increases in journal prices and increases in library acquisitions budgets continues, future cancellation projects are inevitable. With the severity of the current project, students, faculty, and staff need a period of stability in the journal collection (both print and electronic formats). Given the dramatic growth we envision in the use of electronic materials, this period of stability provides us the opportunity to put our full attention into the planning and implementation of our next-generation library capabilities, involving faculty in defining requirements for the future in a positive way.

The University Library, in response to financial necessities, has initiated all previous journal cancellation projects. In those projects, reduction targets were assigned evenly across the several subject areas, reflecting the absence of any legitimate criteria for differentiation. The 1998-1999 project was preceded by an examination of

relative inflation among areas, and the University Library Committee agreed with the library administration that there were no compelling objective data that would lead to considering separate area targets. Common intuitive ideas were not shown to be accurate (e.g., average inflation of biological science journals was not noticeably different from that of social science journals).

If discriminations among subsets of journals are to be part of the ongoing analyses of journal purchases, some less-broad criteria must be developed. For example, it is clear that certain publishers have much greater costs per page and rates of inflation. In general, commercial publishers, as compared to scientific and professional society publishers, contribute a much greater share of the increases in journal costs. This suggests that future decision-making must include the cost and value of individual journals, based on the management information that will be collected by the library staff.

These and other factors require further discussion and analysis. The University Library, in consultation with the University Library Committee, should carry on that process and recommend to the Provost a model for making future journal purchase adjustment decisions. Among the factors likely to be included in that model are faculty judgments of need and worth, price history, indexing access, and availability from other sources.

b. Educate library users about scholarly publishing issues

Recommendation 19: The University Library Committee, in agreement with the University Library, shall design a program of educational information on scholarly publishing issues. Relevant information should be directed to all library users.

Faculty, staff, and students have been largely unaware of the crisis in scholarly publishing and journal subscriptions. Working closely with the University Library, the University Library Committee should be charged with overseeing and aiding in conducting a program of relevant education on the many dimensions of changes in scholarly publication. In addition to super-inflation of some printed journals,

rights and alternatives related to copyright, issues related to electronic journals, and other new publication venues must be communicated to library users.

III. Scholarly Communication Crisis

What is at stake is the future of affordable exchange of scholarship essential to the generation of new knowledge, ideas, and creative works.

Permanently solving the crisis in scholarly communication will require fundamental change and restructuring in scholarly publishing, our notion of copyright, and our academic culture. Unfortunately, traditional library practices of canceling journals and buying fewer monographs are deepening the crisis because publishers merely raise their prices in reaction to reductions in purchasing. As a result, there are fewer repositories of our scholarship, making it more difficult for scholars to obtain the information necessary for their research and creative activities. The emergence of digital information systems can provide viable mechanisms for change in how we communicate our scholarship, but only if we are willing to make the cultural changes necessary to take advantage of what digital information technology can offer.

The following recommendations represent the first steps that we could take to address the serious issues surrounding scholarly communication facing both the academy and the university.

A. Expand University/Library participation in national initiatives related to the scholarly communication crisis (e.g. those with AAU, NASULGC, ARL, etc.)

Recommendation 20: The University Library should continue to expand its participation in national ventures to encourage the creation of more competitively priced, high quality journals that would directly compete with those journals that are increasing at exorbitant inflation rates.

Iowa State University alone cannot influence the national costs of electronic resources. We must work collectively through any number of organizations. At all levels there are opportunities to participate in organized group efforts. The University Administration and the University Library have a number of specific opportunities at hand that may influence the national arena.

Appropriate university administrators might explore opportunities within AAU and NASULGC to influence the national/federal agenda related to a broad range of issues related to the crisis in scholarly communication, including copyright ownership, the redefinition of scholarship, and other avenues for evaluating and disseminating scholarship. In the short run, the University Library should:

- Support the Association for Research Libraries' SPARC initiative through membership dues and support of the journals developed through partnership initiatives,
- Reexamine with the faculty our support through subscriptions of substantially higher priced journals that are in direct competition with the SPARC-supported initiatives, and
- Participate in the Association for Research Libraries' other initiatives related to copyright, fair use, and scholarly communication.

B. Increase faculty participation in national initiatives related to the crisis in scholarly communication.

Recommendation 21: Faculty should take journal-pricing practices into account as they:

- ***Select publishers for their work,***
- ***Agree to review manuscripts or edit journals, and***
- ***Become involved with new publication ventures.***

Recommendation 22: Faculty should use their influence on editorial boards to contain costs and allow information sharing in all formats.

Recommendation 23: Faculty should encourage their scholarly associations and societies to produce quality journals at reasonable prices.

Recommendation 24: Faculty should begin to retain the copyright of their articles with support of the university.

Faculty play a key role, being both the producers and the major users of scholarly material. Inattention to publication matters has resulted in the irony of faculty working to produce scholarly products and giving them away, and then libraries and faculty paying whatever the publisher demands to get them back.

Because of the pressures on all faculty to publish high quality material in the best possible venue, perhaps the greater burden falls on senior faculty to take appropriate initiatives to solve some of these problems. Points of faculty influence include choices in where to submit articles, in whether to accept service as peer reviewer or editor, and in refusing to give up the copyright to their work. Faculty should consider the pricing practices of journals when making these decisions. Additional influence may be exerted in scientific societies to consider user costs as

Recommendation 25: The Faculty Senate should take proactive roles in encouraging faculty participation in national initiatives related to the crisis in scholarly communication and developing guidelines for faculty to consider in their own scholarly and professional service activities.

they launch new publishing ventures and to permit interlibrary loan of materials in all formats.

The Faculty Senate should take a strong leadership role in promoting these faculty initiatives as it is only through these changes that we, as members of local and national academic communities, can clearly influence and help solve the crisis in scholarly communication.

C. Understand the role of promotion and tenure within the crisis in scholarly communication.

Recommendation 26: Faculty should revise their department and college promotion and tenure documents taking into account the redefinition of scholarship in the university's new promotion and tenure document.

The criteria faculty use to evaluate each other for promotion, tenure, awards, and compensation reflect our scholarly culture. The ISU faculty have redefined scholarship in the new university promotion and tenure document in a way that could make an impact on scholarly communication.

Recommendation 27: Faculty should use their influence within their scholarly societies and associations to begin discussing the changing nature of scholarship and the national impact that change could have on evaluation criteria.

We also have national opportunities to redefine scholarship within our own disciplines. Locally and nationally, there is growing interest in refocusing our scholarly culture from its emphasis on “quantity” to growing emphases on “quality,” the impact our scholarship has on our disciplines, and more summative scholarship.

Interestingly, the potential effects this might have on scholarly communication include reducing the rapid growth in the number of journals, the size of individual journal issues, and the current population of journals. These are all major factors in the rapidly escalating costs of scholarly communication and represent ways to contain real publishing costs.

Further, faculty should examine the heavy dependence on historical reputation of journals as an important criterion to judge the worth of colleagues' work and instead emphasize the content rather than the “container.” The difficulty here is the reluctance of faculty to publish in appropriate, less-costly, competing publishing venues if a major emphasis within their evaluations is placed on where the material was published. The result of such a change, if accompanied by acceptable peer review, could be a reduction in the stranglehold the major commercial publishing conglomerates have on scholarly communication.

IV. Conclusion

This report summarizes the main dimensions of the crisis in scholarly communication and journal subscriptions and presents twenty-seven recommendations to address that crisis. The specific activities that are suggested will require the strong support of the University Administration, the University Library, and the University Faculty. Together, they can make a difference and enable Iowa State University to have a library that can support its goal of becoming a premier land-grant institution.

APPENDIX A

1996-1997 Total Library Materials Expenditures as a Percent of University E&G At Peer Land-Grant Universities and University of Iowa⁸

UNIVERSITY	TOTAL UNIVERSITY E&G EXPENDITURES	TOTAL LIBRARY MATERIALS EXP.	LIBRARY MAT. AS % OF UNIV. E&G
Minnesota	\$1,262,014,065	\$9,510,723	0.75%
Ohio State	\$1,021,528,664	\$8,601,351	0.84%
Wisconsin	\$1,097,663,648	\$8,506,716	0.77%
Illinois	\$801,611,164	\$8,054,952	1.00%
Arizona	\$697,786,725	\$7,728,721	1.11%
Texas A&M	\$833,407,557	\$7,275,280	0.87%
North Carolina State	\$552,916,473	\$6,916,560	1.25%
Iowa*	\$630,075,839	\$6,833,303	1.08%
California-Davis	\$781,392,000	\$6,167,201	0.79%
Michigan State	\$788,377,538	\$5,646,685	0.72%
Iowa State	\$487,980,034	\$5,468,055	1.12%
Purdue	\$632,223,782	\$5,153,483	0.82%

* The University of Iowa includes its medical school data.

Note: The majority of these institutions (including Purdue) have access to electronic resources (usually undergraduate core materials) intended for statewide library access that are paid for through central state appropriations. These expenditures are not reflected in these data.

APPENDIX B

1996-1997 Total Library Materials Expenditures as a Percent of University E&G At ARL Big 12 Universities and the University of Iowa⁹

UNIVERSITY*	TOTAL UNIVERSITY E&G EXPENDITURES	TOTAL LIBRARY MATERIALS EXP.	LIBRARY MAT. AS % OF UNIV. E&G
Colorado	\$424,060,017	\$8,064,613	1.90%
Texas	\$878,750,245	\$8,055,708	0.92%
Texas A&M	\$833,407,557	\$7,275,280	0.87%
Iowa	\$630,075,839	\$6,833,303	1.08%
Kansas	\$310,573,774	\$5,913,712	1.90%
Iowa State	\$487,980,034	\$5,468,055	1.12%
Nebraska	\$347,099,713	\$5,228,962	1.51%
Texas Tech	\$248,073,246	\$4,958,887	2.00%
Missouri	\$510,784,185	\$4,712,461	0.92%
Oklahoma	\$251,662,000	\$4,673,416	1.86%
Oklahoma State	\$270,500,830	\$3,249,580	1.20%

* Baylor and Kansas State are not members of ARL.

Note: The majority of these institutions (including Nebraska and Texas Tech) have access to electronic resources (usually undergraduate core materials) intended for statewide library access that are paid for through central state appropriations. These expenditures are not reflected in these data.

APPENDIX C

1996-1997 Expenditures for Electronic Resources as a Percent of University E&G At Peer Land-Grant Universities and the University of Iowa¹⁰

UNIVERSITY	TOTAL UNIV. E&G EXP.	BOOKS	JOURNALS	TOTAL ELEC. RES. EXP.	ELEC. RES. % OF E&G
Arizona	\$697,786,725	\$332,038	\$710,736	\$1,042,774	0.15%
N. Carolina State	\$552,916,473	\$119,594	\$883,667	\$1,003,261	0.18%
Wisconsin	\$1,097,663,648	\$44,008	\$950,890	\$994,898	0.09%
Minnesota	\$1,262,014,065	\$307,005	\$517,377	\$824,382	0.07%
Texas A&M	\$833,407,557	\$37,383	\$701,932	\$739,315	0.09%
Iowa*	\$630,075,839	\$102,924	\$522,430	\$625,354	0.10%
Michigan State	\$788,377,538	\$160,785	\$448,800	\$609,585	0.08%
Ohio State	\$1,021,528,664	\$41,766	\$481,745	\$523,511	0.05%
Illinois	\$801,611,164	\$47,230	\$427,706	\$474,936	0.06%
Iowa State	\$487,980,034	\$32,894	\$289,110	\$322,004	0.07%
Purdue	\$632,223,782	\$30,000	\$270,818	\$300,818	0.05%
California-Davis	\$781,392,000	N/A	N/A	N/A	N/A

* The University of Iowa includes its medical school data but not law school data.

Note: The majority of these institutions (including Purdue) have access to electronic resources (usually undergraduate core materials) intended for statewide library access that are paid for through central state appropriations. These expenditures are not reflected in these data.

APPENDIX D

1996-1997 Expenditures for Electronic Resources as a Percent of University E&G At ARL Big 12 Universities and the University of Iowa¹¹

UNIVERSITY*	TOTAL UNIV. E&G EXP.	BOOKS	JOURNALS	TOTAL ELEC. RES. EXP.	ELEC. RES. % OF E&G
Texas	\$878,750,245	\$60,585	\$743,577	\$804,162	0.09%
Texas A&M	\$833,407,557	\$37,383	\$701,932	\$739,315	0.09%
Iowa	\$630,075,839	\$102,924	\$522,430	\$625,354	0.10%
Colorado	\$424,060,017	\$9,510	\$574,758	\$584,268	0.14%
Kansas	\$310,573,774	\$43,159	\$505,356	\$548,515	0.18%
Nebraska	\$347,099,713	\$62,273	\$329,117	\$391,390	0.11%
Oklahoma State	\$270,500,830	\$16,300	\$311,754	\$328,054	0.12%
Iowa State	\$487,980,034	\$32,894	\$289,110	\$322,004	0.07%
Oklahoma	\$251,662,000	\$7,950	\$250,951	\$258,901	0.10%
Texas Tech	\$248,073,246	NA	\$205,283	\$205,283	0.08%
Missouri	\$510,784,185	\$12,570	\$163,143	\$175,713	0.03%

* Baylor and Kansas State are not members of ARL.

Note: The majority of these institutions (including Texas Tech) have access to electronic resources (usually undergraduate core materials) intended for statewide library access that are paid for through central state appropriations. These expenditures are not reflected in these data.

References and Endnotes

¹ Branin, Joseph J. and Mary Case “Reforming Scholarly Publishing in the Sciences: A Librarian Perspective.” *Notices of the American Mathematical Society*, 45, no.4 (April 1998) 483.

² ARL data from an “ARL Briefing for the National Commission on Libraries and Information Science” presented at a meeting of the Big 12 Plus Library Consortium and the National Commission on Libraries and Information, Kansas City, Missouri, April 8, 1998.

³ Ibid.

⁴ Ibid.

⁵ SPARC, the Scholarly Publishing & Academic Resources Coalition, is a new alliance of libraries that seeks to foster expanded competition in scholarly communication. By partnering with publishers it hopes to create a more competitive marketplace, reduce the prices of journals, ensure fair use of electronic resources for libraries and education, apply new technologies to improve the process of scholarly communication and to reduce the costs of production and distribution.

Current SPARC supported ventures are:

Phys-ChemComm (American Chemical Society--\$353 a year)

In competition with:

Chemical Physics Letters (Reed Elsevier--\$8,000 a year)

Evolutionary Ecology Research (Dr. Michael Rosenzweig, who began *Evolutionary Ecology* resigned from its editorial board and began this new electronic journal with an editorial board made up of all former editorial board members of *Evolutionary Ecology*—approximately \$260)

In competition with:

Evolutionary Ecology (Wolters Kluwer--\$777 a year)

Organic Chemistry Letters (American Chemical Society--\$2,300 a year)

In competition with:

Tetrahedron Letters (Elsevier Sciences--\$8,000 a year)

⁶ ARL data from an “ARL Briefing for the National Commission on Libraries and Information Science” presented at a meeting of the Big 12 Plus Library Consortium and the National Commission on Libraries and Information, Kansas City, Missouri, April 8, 1998.

⁷ Ibid.

⁸ *ARL Statistics 1996-97*. 1998. Washington, DC: Association of Research Libraries.

⁹ Ibid.

¹⁰ *Report on the 1996-97 ARL Supplementary Statistics. Preliminary Data*. 1998. Washington, DC: Association of Research Libraries.

¹¹ Ibid.