TECHNOLOGY PARTNERSHIPS: THE PALNI SUCCESS STORY

by Larry Frye, Vince Lucas, and Lewis Miller

HISTORICAL CONTEXT

When one digs deep into library history, a desire to cooperate is found to be one of the basic and early values. Over 100 years ago, American library leaders were extolling the benefits of library cooperation. This desire was part of the impetus for some of the early bibliographic tools and development of union lists which could be shared among libraries. Many of our younger colleagues in librarianship have never seen or heard of the *National Union Catalog, Pre 1956 Imprints*. Yet at one time not so long ago, this was an indispensable tool in library cooperation. In today's fast paced library world, it is sometimes difficult to realize how important these early efforts were to the dreams of library visionaries.

Libraries have often been early adopters of new technologies. But, until the 1960s and the beginnings of the computer age, these technologies and bibliographic tools were limited in their ability to effect wide-scale resource sharing. With development of the MARC standard concurrent with the growth in computing power, libraries entered a new age of resource sharing. These two factors created an environment primed for new approaches to library cooperation. While OCLC is today's success story, it is worth noting that there were numerous cooperative efforts attempted during this period. OCLC was particularly successful for a variety of reasons and true to the library vision of cooperation many of these other efforts were and continue to be merged into the OCLC vision. It also should be noted that without the technology, OCLC would not have been possible.

EARLY DEVELOPMENTS

It was within this context of resource sharing and technology advances that the Private Academic Library Network of Indiana (PALNI) was conceived by the Indiana private academic library community. In the mid-1980s, these libraries faced the labor-intensive and costly task of automating their catalogs and the acquisitions, cataloging, circulation and serial functions. Although, thanks to grants from the Kellogg Foundation, these schools had joined OCLC and since 1977 had been adding their current holdings to the OCLC union catalog, there were many older records not in their databases. It was in this context that Wabash College Library Director Larry Frye suggested to his colleagues that they consider approaching the Lilly Endowment for a joint grant to add their older records to the OCLC union catalog. Frye and Richard Snyder (Anderson University), Evan Farber (Earlham College), Walt Morrill (Hanover College), and Grady Morein (University of Evansville) volunteered to form a steering committee. All 29 libraries were asked to donate $50 to employ a grant writer. One library with a very limited operating budget raised the money from bakesales! INCOLSA Executive Director Barbara Markuson agreed to serve as the technical advisor.

In 1984, the INCOLSA Executive Committee approved submitting a grant request to the Lilly Endowment to test different retrospective conversion methods at the libraries of five INCOLSA members: four private colleges and one seminary. Conversion options were: (1) online OCLC inputting using clerical staff for data entry (Earlham and Taylor University); (2) online OCLC inputting using student workers (Concordia Theological Seminary); (3) OCLC microcon program with clerical staff (University of Evansville) and (4) OCLC microcon inputting with student workers (DePauw University).

Based on the success of the retrospective conversion test project, 29 private academic library directors persuaded their presidents and deans to allow them to participate in an INCOLSA grant proposal to the Lilly Endowment to add all their pre-1977 bibliographic records (1,731,023) to the OCLC union catalog. The library directors at Indiana University and the University of Notre Dame provided support letters for the grant application.

At about this same time, Indiana library directors in public universities, plus Notre Dame, requested grant funding from the Lilly Endowment for planning a resource sharing network. On behalf of the private college colleagues, Larry Frye wrote a letter of support for their grant application. This proposal was funded and resulted in SULAN (State Universities Library Automation Network).

Up until that time, no consideration had been given to establishing a consortium such as SULAN. Each library director was primarily concerned with completing bibliographic record conversion in order to be ready to automate their own library. But in the

summer of 1989 Dr. Hank Hector, Deputy Commissioner of the Indiana Commission for Higher Education, proposed to Dr. William Bonifield, Vice President for Education at Lilly Endowment, that the Endowment consider funding private college libraries joining the SULAN automation network to improve resource sharing. Throughout 1990, Dr. Bonifield hosted a series of meetings of Indiana private college presidents, deans and library directors to discuss the proposal. Some schools who were already involved in joint projects with nearby SULAN schools (Bethel College, Holy Cross College and Saint Mary's College with the University of Notre Dame; Saint Mary-of-the-Woods College and Rose-Hulman Institute of Technology with Indiana State University), the Indiana Institute of Technology, and the University of Evansville accepted the Endowment's invitation to submit grant proposals to join SULAN.

However, the administrations of the majority of the private colleges and seminaries were reluctant to have their institutions join SULAN. The library directors shared those concerns. The principal issue was governance. What power would each college have in decision making in a state university-dominated system? At the end of the last meeting at the Endowment, Goshen Library Director Devon Yoder proposed that the library directors explore forming their own independent college library resource-sharing network. He asked colleagues to suggest to him who should direct that effort. They chose Larry Frye from Wabash, David Dickey of Taylor, and Yoder of Goshen. Barbara Markuson, INCOLSA, agreed to continue to serve as an advisor.

Library directors asked their presidents to approve their school's participation in another INCOLSA proposal to the Endowment for a planning grant to explore establishing such a resource sharing network, with links to SULAN. A vendor selection process would be conducted so that accurate start-up and annual operational costs could be determined. Directors stressed that the study would also include proposing governance models and would address equitable funding among the schools of such a consortium. Each president submitted a letter of support for that grant application. Dr. Ron Leach, then Director of Indiana State University Libraries and the SULAN chairperson, submitted a letter supporting this grant application. The Lilly Endowment funded the request.

In January 1991, Rob McGee (RMG Consultants, Inc. of Chicago) was hired as project consultant. Dr. Robert Hodge, Director of Information Services at Taylor University, known for his expertise in computing and telecommunications, joined the steering committee. All the library directors approved the committee's proposed plan to create one union

catalog, contract with INCOLSA to manage the system, and use the emerging Internet as the communications link. Indeed, in conversations with the Indiana Higher Education Telecommunications Network (IHETS), the private academic library directors agreed to contribute approximately $400,000 dollars toward the deployment of their statewide Internet communications infrastructure if grant funding was received.

With McGee's assistance, Requests for Proposals were sent to automation vendors. Every library director reviewed the vendor responses and helped draft questions of further clarification for the three vendors selected as finalists. Front line librarians then joined the directors on module evaluation teams (opac, cataloging, circulation, acquisitions and serials) to interview the vendors and use their product live online. Bill Doemel, Director of Computing Services at Wabash College, organized a team of computer center directors to interview each vendor's computer/ telecommunications experts. More than 50 library and computer center staff members were involved in the selection process. Based on the recommendations of the evaluators, the library directors awarded the contract to Data Research Associates (DRA) contingent upon grant funding.

In January 1992, twenty-five presidents and their library directors met at Christian Theological Seminary to discuss the outcomes of the network feasibility study and the vendor selection process. After a presentation by Rob McGee and lengthy discussion, Larry Frye asked the presidents if they would: a) approve the proposed bylaws establishing a non-profit corporation to govern the network; b) within two weeks appoint a member of each president's college library staff to that corporation's board of directors; and c) allow the library directors to request that the Lilly Endowment fund all the initial equipment and a three-year declining Endowment share of the annual costs (year one 100%, year two 50%, year three 25%), with the schools assuming full annual funding of the network in the fourth year of operations.

The president of one of the smaller-enrollment and less-financially-endowed colleges stated that this joint venture was the only way her institution could implement such technology and keep her students from becoming information have-nots. She urged her more financially secure colleagues to please support the proposal. One of those presidents replied, "I believe my dear colleague just moved that we approve the three recommendations offered by our librarians. I second her motion." To everyone's amazement, the motion passed unanimously.

In April 1992, the Endowment approved a $4.8 million dollar grant to PALNI contingent upon its gaining non-profit corporation status from the IRS. Dr.

Bonifield asked the Endowment's attorney to assist the group in obtaining that IRS 501-C3 status. The IRS granted that status six weeks later!

At that time, Larry Frye suggested to his library director colleagues that they would be remembered in library history if their soon-to-be-operational network was named PANIC (Private Academic Network of Indiana Colleges). They were not amused. However, PALNI (The Private Academic Library Network of Indiana) was then indeed unique in American library history. Library directors from private independent colleges and universities who often compete for the same students, seek funding from the same foundations, and have some really intense rivalries (especially in athletics), worked together on a series of grants to the Lilly Endowment to plan and implement that network. Furthermore, their college presidents agreed to create a not-for-profit corporation to govern the consortium. In addition, the consortium included three graduate theological schools in the state not affiliated with any of these colleges: Associated Mennonite Biblical Seminaries, Christian Theological Seminary, and Concordia Theological Seminary. PALNI was the culmination of a decade of collaborative work among the state's private college library directors in acquiring the latest technology to improve services for their students and faculty.

IMPLEMENTATION

From its inception, PALNI has employed a variety of computer and telecommunications technologies to encourage and facilitate cooperation among PALNI libraries. At the same time, PALNI's success in deploying and using these technologies can be attributed directly to the cooperative efforts of all of the PALNI campuses, including both the library staff and the computer center staff on each campus. In a real sense, the PALNI system and network are themselves a model of how many independent organizations can cooperate effectively in pursuit of a set of common goals.

The Indianapolis office of the Indiana Cooperative Library Services Authority (INCOLSA), itself a cooperative library membership organization, serves as the "home base" for the PALNI Project. PALNI as an organization contracts with INCOLSA to manage the project and operate the system, and PALNI Project staff maintain their offices at INCOLSA. The first two PALNI Project staff members were hired by INCOLSA in late 1992 to oversee initial implementation of the system. As the project moved steadily from implementation to full production, project staff levels were gradually increased to six full-time employees.

Current INCOLSA staff assigned to the PALNI Project includes a Project Director, a Database Administrator, a Library Systems Analyst, two Computer Systems Analysts,

and a Unix Systems Administrator. Fortunately, the PALNI Project has been able to recruit and retain a highly qualified staff with a strong mix of specialized computer and library skills. Project staff have a combined total of more than 60 years of experience working for or in libraries, with most of that experience focused specifically on developing and implementing library technologies. The ability to share staff is a clear and important benefit of the PALNI Project. It simply would not have been possible for each individual PALNI library to retain the kind of specialized mix of library and computer skills represented collectively by the PALNI Project staff.

The PALNI central computer system, which supports the PALNI online union catalog and runs the DRA library automation software, is located in a computer room at INCOLSA. The principal system is a Digital Equipment Corporation (DEC) Alpha AXP 7610 computer system with 512 Mbytes of memory, 100 Gbytes of online disk storage, three high capacity tape drives, and a high-speed line printer. Though now almost six years old, the DEC Alpha system continues to deliver excellent performance to member libraries, and frequently experiences peak loads of as many as 250 concurrent online users.

Twenty-one of PALNI's twenty-six libraries use the online cataloging component to maintain their electronic library catalogs. Students, faculty, and staff of PALNI institutions can search the database of any one of the PALNI libraries and also can search the combined union catalog of all PALNI libraries when they prefer. Similarly, all of the twenty-one full PALNI member libraries share use of the PALNI authority control, circulation control, acquisitions, and serials control subsystems.

The five "resource-sharing" members of PALNI maintain their own local automated library systems. Each of these resource-sharing libraries has full search-access to the PALNI online catalog, using either standard telnet or Z39.50 client/server protocols. At the same time, each PALNI resource-sharing library runs its own Z39.50 server software, and offers other PALNI libraries full keyword search access to its online catalog. In the near future, PALNI expects to implement new Z39.50 client software that will be able to transparently broadcast a user's search to each of the PALNI resource-sharing Z39.50 servers, as well as to PALNI's own central Z39.50 server. Search results from each of the servers will be merged and returned to the user as a single hit list, in effect creating a single "virtual" union catalog which includes the databases of all 26 PALNI libraries.

In addition to the central DRA system, PALNI uses the OCLC SiteSearch World Wide Web-to-Z39.50 gateway software to provide integrated Web access to a wide range of Z39.50 servers and databases on the

Internet. Specifically, PALNI uses its SiteSearch gateway to give faculty, students, and staff access to 30+ full-text and journal citation indexes either made available through the State of Indiana's Inspire Project or purchased cooperatively by PALNI from OCLC and other database vendors.

Since the initial database load of about 100,000 University of Indianapolis records in early 1994, the PALNI database has grown to include almost 1.5 million unique MARC bibliographic records of 21 libraries. It also contains 570,000 authority records and 3 million MARC Format for Holdings (MFHL) records. PALNI was among the first sites to use DRA's MARC Format for Holdings standard. MFHL has proven to be very valuable to a cooperative catalog like PALNI's in that it has allowed each PALNI library to retain local notes and other library-specific information in the shared union catalog, and it also groups multi-copy and multi-volume items together to ease patron access.

PALNI is now in the process of implementing on-going authority control for the PALNI database, and will use Library Technology, Inc.'s Authority Express Program to provide automated, up-to-date authority control on all new material that is added to the database.

One of the innovative design features of the PALNI system has been its use of the Internet as its primary, statewide, telecommunications infrastructure. Specifically, in 1993, with initial funding provided by PALNI, the Indiana Higher Education Telecommunications System (IHETS) implemented the statewide INDNet Internet network. Using TCP/IP networking protocols, INDNet interconnects the PALNI central site and the various PALNI campuses throughout the state, and also gives each of the campuses full access to the Internet.

PALNI and INCOLSA jointly maintain two 1.5Mbps connections to the statewide INDNet backbone, while each PALNI campus is responsible for providing its own connection to the same backbone. Early on, PALNI's use of the Internet as its primary network infrastructure raised some unique issues and concerns about potential network reliability problems. On a daily basis, the PALNI library staff depend on having reliable access to the PALNI system to perform their jobs. Even a brief network problem can have a disruptive impact on an affected library, and there were concerns about whether the Internet could deliver the level of reliability required. Fortunately, very few reliability problems have materialized. Overall, the INDNet backbone network has proved to be quite reliable. For example, a review of network downtime statistics shows that, over the six month time period from July 1 through December 31, 1998, most campus connections to PALNI were working at least 99.6% of the time, and most network outages were less than 10 minutes in duration.

A more serious issue for most PALNI libraries concerns response time problems that arise when their campus connection to INDNet becomes saturated. Most libraries have found that the PALNI library applications themselves function well over a single 56 kbps connection to INDNet. However, because PALNI institutions also use their INDNet connections for campus-wide Internet access, most campuses have had to upgrade their INDNet connections to full T1 speeds just to maintain adequate response time and performance for the library.

Just as the PALNI system depends on the network infrastructure provided by the INDNet statewide Internet backbone, it also depends on the Local Area Network infrastructure in each library and on each campus. The computer centers on each campus are responsible for operating and maintaining a suitable campus TCP/IP network that gives the library full access to the INDNet backbone and PALNI.

The DRA Classic system is primarily a terminal-based system, and most of the library applications used by PALNI expect that users will be connecting to PALNI from DEC VT terminals. When the PALNI system and network was first deployed in 1994, PALNI installed more than two hundred DEC VT 420 and 510 terminals across all of the PALNI libraries. VT terminals in each library are connected to each campus TCP/IP network using terminal servers, and access the PALNI system via telnet.

While this system represented the state of the art when it was first implemented more than 5 years ago, it has begun to show its age. Most PALNI campuses have gradually been replacing their VT terminals with networked PCs equipped with telnet software and VT terminal emulation software. In many cases, PALNI libraries have installed public-access PCs which provide access to local library information resources, as well as Web browser access to various journal indexes and full-text databases (e.g., via PALNI SiteSearch), and telnet access to the PALNI Online Catalog. Using campus networks and standard telnet protocols to connect libraries to the PALNI system has had an important side-benefit in that full access to the system is automatically available to any desktop computer on any PALNI campus.

CURRENT ACTIVITIES/FUTURE PLANS

The initial goals of PALNI were to (1) automate certain functions within member libraries such as the catalog, circulation, acquisitions and serials; and (2) to implement agreements among members to facilitate resource sharing. The accomplishment of these two goals in the last seven years has been the major work of PALNI central site staff and member libraries. As these functions have successfully come on-line in the librar-

ies, the membership has discovered that its experiences in cooperation have provided it with a powerful instrument with which to negotiate its way through this new information age.

The PALNI board has begun planning for implementation of a new, next-generation system over the next few years. At this stage, many of the details of the new system are still being developed. However, it seems likely that the next PALNI system will be standards-based, will employ a client-server system architecture, will offer graphical interfaces to all components of the system, and will offer users a much tighter level of integration among all subsystems.

When the shared circulation agreement was adopted in 1995, it was designed to allow individual faculty and students of any PALNI institution to go to another institution's library and check out materials directly. Currently, a committee of PALNI librarians and staff are working with central site staff to test a module which will allow students and faculty to place direct requests for materials from another PALNI library without using an intermediary such as the interlibrary loan staff. Materials requested in this way will be delivered through WHEELS to their home library. The spirit of cooperation and the availability of appropriate technology makes this possible.

Because of PALNI's success in 1996 in negotiating a shared license agreement with Encyclopedia Britannica, a group of PALNI directors began further exploration of consortia purchase of information databases. In another example of library cooperation, this PALNI initiative was placed on hold in early 1997 so as to not compete with the joint INCOLSA and Indian State Library effort to negotiate the development of a suite of databases to be made available statewide. Three members of the PALNI board served in this project (Larry Frye, Steering Committee; Tom Kirk, Database Committee; and Lewis Miller, Technical Specifications Committee).

With the successful launch of Inspire in January 1998, PALNI moved quickly to capitalize on the rapidly changing climate of on-line database developments and pricing. Inspire met the member needs for general use information databases, thus freeing up funds which the libraries had previously used for these purchases. The membership was polled to ascertain how much of their savings they would be willing to commit to joint purchase of new databases. Particularly attractive to all members was the fact that the PALNI database committee would now be able to focus on the specialized needs of PALNI members. In response to these needs, PALNI acquired the First Search base package, plus ATLA Religion, CINAHL, General Science Abstracts, Humanities Abstracts, MLA, PsycINFO, and Social Science Abstracts. Thus in less than six months, PALNI libraries were able to leverage their funds to obtain a quality and quantity of information resources not even dreamed of seven years ago when the organization was first incorporated.

Currently, a PALNI user group of reference librarians is meeting semi-annually to explore new avenues of cooperation and to provide opportunities for continuing education. Several other workgroups have formed on an ad hoc basis to solve particular issues. These include the cost sharing work group which worked out an equitable funding formula which all members supported in 1996, and the PALNI interface design group which worked with PALNI staff to develop the current PALNI Web interface. Another committee is currently exploring the feasibility of a union list of serials for PALNI libraries and options for joint off-site storage of little used materials. Behind the scenes there continues to be a large group of PALNI volunteers who work on technical issues in cataloging, authority control, serials, and acquisitions. The work of all of these groups is vital to the continued vitality and success of PALNI.

The world of higher education has witnessed dramatic changes since the beginning of this decade. Since 1992, the PALNI libraries have often been on the leading edge of this change. The PALNI board is very aware of the need to remain faithful to the missions of their institutions. There is a need at this time for PALNI to take a step back from its past successes and take a strategic look at its future. Planning is underway for a series of PALNI retreats which will accomplish this task. It is anticipated that at appropriate times these retreats will include invitations to the college and seminary presidents, chief academic officers, and computer center directors to join the planning effort. The support of all of these individuals was critical for the launch of PALNI in 1992 and continues to be important for the future of library cooperation.

Since coming online for the first few PALNI libraries in 1994, the PALNI system has become an important information resource for PALNI libraries. PALNI's cooperative acquisition and use of computer technologies reduced the initial cost of providing basic automation services on most PALNI campuses. At the same time, by contributing to a union catalog, by agreeing to reciprocal interlibrary lending agreements, and by jointly purchasing third party databases, PALNI libraries have all benefited directly from expanded resource sharing opportunities.

Cooperation has allowed the PALNI libraries to harness the power of technology for the benefit of all its members. Cooperation will continue to be a key ingredient to the future growth and success of this organization as it works to achieve information equity for its members and their users.

ABOUT THE AUTHOR:

Larry Frye, Library Director at Wabash College, was the first chair of PALNI. Vince Lucas is the Project Manager of PALNI. Lewis Miller, Library Director at Butler University, is the current chair of PALNI.