WAYNE STATE UNIVERSITY LIBRARIES
LIBRARY AUTOMATION PROJECT
PRELIMINARY SYSTEMS DESIGN

EXECUTIVE SUMMARY

February 20, 1984

Introduction

The Wayne State University Library System includes six separate library buildings. On the main campus, there are the Neef Library (Law), the Purdy Library (Humanities/Social Sciences), the Kresge Library (Education), and the Science Library. Futher away are the Federal Mogul library storage building on Cass and the Shiffman Medical Library on the Medical Center campus. Other library resources at Wayne include the Reuther Library and the Pharmacy and Allied Health Library.

Over 1,426,000 users a year enter the Wayne State University Libraries. These users, many of who are repeat student users, account for approximately 300,000 circulation transactions per year. In addition, Library staff provide services for the community, including students from other Detroit area colleges and universities. In support of these users, the Libraries have developed collections of over 1,900,000 volumes, including over 1 million monographic and 25,000 serial titles, plus 1,400,000 pieces of microform.

Currently, there is no public online catalog of the holdings of the Wayne State University Libraries. Only one consolidated, or union, card catalog exists, and it is located in the Purdy Library. Users must consult that catalog, as well as the catalogs at each library building, to determine the holdings and locations of the materials in the Library System. The libraries already have over 300,000 of their bibliographic records in machine readable form via participation in the national OCLC bibliographic network since 1975.

Parts of the circulation system at Wayne have been automated locally, i.e. overdues and class reserves. The software for these systems was written over 10 years ago, has not been brought up to current standards, and will soon need to be reprogrammed to accommodate the University's latest communications operating system.

Acquisitions functions at Wayne are currently automated using Nonesuch software on a Wang minicomputer system. The Nonesuch system has served the libraries well for three years and can handle our anticipated workload for an additional year or two. It would have to be re-designed to interface with automated circulation, online catalog, and serials control systems.

Summary information about Wayne's serials holdings has been entered into the OCLC database and is available via OCLC terminals. In short, three separate computer systems (including OCLC) are being used by Wayne's libraries.

Across the street from the Purdy/Kresge Libraries is the Main Library of the Detroit Public Library System. The Detroit Public Library, a major research resource has over 2,500,000 volumes in its collections. Currently enrolled Wayne State University students are given circulation privileges at the Detroit Public Library. Over the years, library collections at Wayne State and at Detroit Public have been developed with collection sharing assumptions. A recent random sample of titles owned by Detroit Public revealed only a 35% overlap between monographic collections. The serial collections have a 33% overlap.

The Shiffman Medical Library has long standing as a regional medical information resource. Its roots go back to a medical collection from the Detroit Public Library that was donated to the University with the provision that services continue to the community. In 1978, a self-supporting regional processing center was begun at Shiffman to create machine readable bibliographic records for hospitals in the Metropolitan Detroit Medical Library Group. Many of the hospitals participating in this center are affiliated as teaching hospitals with the Wayne State School of Medicine. WSU's nursing, health sciences and medical students and faculty use many if not most of the over 40 hospitals libraries in the Greater Detroit Area, with a combined holdings of over 500,000 volumes.

Each of these library groups — Wayne State, Detroit Public, and the Medical libraries — had independently arrived at the need to automate to improve services and to better control library resources. Preliminary discussion between them indicated a strong desire to evaluate the feasibility of automating jointly. The benefits of creating a computerized library network in the Detroit area were readily apparent including:

- a shared bibliographic data base of the collections of each library to improve services to users of all libraries.

- a shared circulation system to enable users of all libraries to know the availability of materials in the area.

- shared costs of the hardware and software needed for a central computer site to be cost-effective for all.

- shared central site personnel and operating costs to be cost-effective for all.

Wayne State's Library System was allocated funds to begin automation in its FY 1984 budget. It is important to the Libraries to have evidence of an automated library system by Fall 1984. However, it is also important to the Libraries to vigorously pursue and play a leadership role in the creation of a Detroit area computerized library network.

Project Background

In October of 1983, Wayne State University Libraries began the preliminary system design for an integrated Library System with the formation of a Library Automation Planning Group (LAPG). The Group, chaired by the Acting Assistant Director for Library Operations of the University Libraries, included representation from all libraries in the Wayne State University Library

Library System. The objectives of the project were to:

- develop an overview of functions and technical specifications against which to evaluate systems

- evaluate currently available automated library systems to identify suitable candidates for Wayne

- develop detailed functional and technical specifications

- develop an overall time table for procurement, installation, implementation, and maintenance of an Integrated Library System

The results of the project to date are:

- a preliminary report including an evaluation of automated library systems, detailed features lists, terminal estimates, and time line

- demonstrations of four state-of-the-art automated library systems (2 demonstrations are scheduled for March)

- the draft of a Request for Proposal for an Integrated Library System (30% done)

- evidence of   progress on the pre-implementation tasks identified on the time line

Sub-groups, composed of key library staff who are knowledgeable about the functions to be automated, provided the major input to the detailed features list developed.

In November, the LAPG was joined by a liaison from the Detroit Public Library's automation team. At the end of January, key representatives from Detroit area medical libraries and from two other interested libraries, the University of Detroit and Wayne County Community College, joined the LAPG.

In mid-January, representatives from the Computing Sevices Center and from the Office of the Senior Vice President of Administration and Finance joined the LAPG.

This expanded LAPG is currently working on the development of a Request for Proposal, as well as the pre-implementation tasks identified on the time line. Work is also underway to determine the requirements for and feasibility of a library automation network among the libraries represented.

This Executive Summary provides a management overview of the planning effort thus far toward an Integrated Library System. The Summary includes key aspects of the functional and technical specifications, the procurement and implementation plan, and an overall time table with cost estimates.

4

Assumptions

The Library Automation Planning group moved forward based on the following assumptions:

1. Library Automation proposal will be submitted for appropriate University review and approved by March 1, 1984;

2. Moving forward towards implementation all required University-policies and procedures will be followed;

3. The Library Automation System will not duplicate existing WSU systems and will not be in conflict with any planned system;

4. The Library Automation System should meet WSU hardware requirements in order to facilitate the need to integrate with the planned Administrative System;

5. The purchase of the Library Automation System's software will be from a source that includes a shared cost of software R/D and maintenance by other research libraries using the same software package;

6. The hardware will be maintained by the manufacturer's maintenance program;

7. The assumptions above will minimize operational and maintenance dependence on the WSU Computing Services center protecting it from becoming overloaded by library projects;

8. The Libraries will purchase from Computing Services technical design, data communication linkages and equipment on a negotiated basis. It is assumed that a close working relationship will be maintained, with the fine details to be worked out between those units.

9. The Library Automation System will be flexible enough to expand and support select Detroit area libraries and cooperative bibliographic databases;

10. The responsibility for the development, implementation and maintenance of the Library Automation System rests with the Director of Libraries with the cooperation, advice and assistance of the Director of Computing Services and Senior Vice President for Administation and Finance.

<u>Integrated Library System</u>

An Integrated Library System is one that will integrate the various library functions to be automated into one computerized system. In general, it includes the following:

- four main library functions, i.e. public catalog, circulation control, acquisitions, and serials control;

- these four functions rely on the same data without the need for rekeying, thus creating a single functional database;

- all functions are fully interactive with each other, with access through the same terminals;

- the database is composed of bibliographic data as well as other data necessary to carry out library-related functions (e.g. borrower files for circulation and financial records for acquisitions)

A brief description of each function follows:

- Online catalog

  The system will support an Online Public Catalog for the holdings of the Wayne State University Libraries, and eventually of the Detroit Public, hospital, and other libraries. Access terminals will be located in these libraries and later in offices and laboratories throughout Wayne State University.

  The catalog will enable the online identification of materials in their individual libraries and collections. In addition, users may determine the availablity (e.g. in circulation, on order) of materials.

  Database creation and maintenance will be facilitated via the tape load and direct transfer of records from the OCLC database in Columbus, Ohio.

  Functions of the Online Public Catalog include: (a) database creation and maintenance; (b) authority control for names and subject; (c) searching by name, title, subject, call number, etc.; (d) search results printing; and (e) statistical and management reports.

● Circulation control

The circulation component will provide control of all functions related to the loan of materials from all participating libraries.

This system may replace the present overdues and class reserves systems maintained at Wayne's Computing Center. It will control the loan of books and other materials to students, faculty, and others, using bar code labels on materials and on user identification cards. Availability of materials will display to users through the Online Public Catalog.

The borrowers file for Wayne will be created and updated from tapes of the student, faculty, staff, and alumni name and address files at Wayne's Computer Center.

Functions to be performed include: (a) borrower file creation and maintenance; (b) charging, discharging and renewal of loans; (c) hold and recall components; (d) overdues, fines, and fees management (e) class reserve component; (f) materials booking; and (g) statistical and management reports.

● Acquisitions system

The Acquisitions system will provide control of all functions related to the ordering, receipt and payment of library materials for all participating libraries.

The new system will replace the present Nonesuch mini-computer based software acquisitions system. At this time the original investment in the Nonesuch System has been amortized.

The new system will provide specialized and current fiscal control, maintain an online vendorfile, and provide for historical records. Items on order will display to users through the Online Public Catalog.

A direct link to the OCLC database for the transfer of records for materials on order will be available. Eventual direct links to the University's Financial Accounting System and to the library's vendors systems will be achieved.

Functions to be performed include: (a) materials selection and review; (b) order preparation; (c) vendor and fund file creation and maintenance; (d) receiving; (e) fund accounting; (f) claiming and canceling; (g) serial and standing order control; (h) statistical and managment reports and (i) foreign currency exchange.

- Serials control

  The Serials system will provide control of all functions related to the receipt, claiming and binding of serial issues for all participating libraries. Wayne's serials database will be created from information available on Wayne's OCLC tapes.

  Functions to be performed include: (a) receipt and check-in of serial issues; (b) claiming of issues not received; (c) control of binding of completed volumes, and (d) statistical and management reports.

Technical Requirements

The hardware for Wayne's Integrated Library System will be dedicated, stand-alone equipment, consisting of a central processor, direct access storage devices (disk), mass storage (tape), peripheral equipment (CRT workstations, printers, bar code scanners), and telecommunications equipment. It is highly likely that the successful bidder to the Library's Request for Proposal will require a mainframe computer configuration, e.g. an IBM 4341 or equivalent.

Other hardware requirements include:

- expandability

- capability of tape loading from the University's Amdahl equipment

- capability of eventual direct linkage to the Amdahl

The software acquired will depend, of course, on the outcome of the Request for Proposal process. If a mainframe configuration results, software needed will include programs to control and operate the computer, to manage telecommunications and to provide the applications. Database management software may also be required separately from the application software. It is very likely that the Computing Center already has licenses for some of the operating, telecommunication, and even database management software. Additional licenses for the Library's hardware may then cost less. The Library is also requiring that the successful bidder have the system operational at an institution the size of Wayne or larger.

Some of the terminals must be capable of handling Roman and transliterated nonRoman alphabets and the full ALA (American Library Association) character set. Special terminals for public access and for circulation workstations with bar code readers will be required. The Library will benefit from Computing Center expertise on terminal, and other hardware, purchases. Access to the Integrated Library System should eventually be provided from crt's in offices and laboratories throughout the campus. The Computing Center should eventually be able to provide the capability of routing messages to the Library's computer that come to it from these crts.

The Library has identified a potential site in the Purdy building (Room 231), for the computer room. It is over 400 square feet and an interior location suitable for the necessary site preparation. Basic requirements for this site have been identified, including flooring, lighting, air conditioning/filtering, power, safety and fire precautions, and security.

Since the hardware for the Integrated Library System will be dedicated and stand-alone, the computer room should be located in the library. An Integrated Library System is a unique computer application. To an outsider, the library application appears very similar to other administative computer applications. However, the bibliographic data base is not like a parts list; the circulation system is not just another version of inventory control; the acquisitions needs differ from standard purchasing in a great many ways.

In the field of automation, the library's needs are really special. The system needed calls for an eventual networking environment with libraries in the Detroit area. Direct linkages are required to the OCLC national bibliographic database and to library materials vendors. Eventually, direct linkage to the University's computers should be available for transfer of name/address, and financial information. Wayne's Library will have the ultimate responsibility for making this Integrated Libary System work. Other libraries in the Detroit area want to work with us. It is important for their participation that Wayne's Library has the authority over, as well as the responsibility for the performance of, the hardware.

Along with the hardware comes responsibility for the provision of adequate operations and maintenance support. The Library will require the successful bidder to provide maintenance for the applications software, via a software maintenance contract. Hardware maintenance can also be contracted. However, the Library will need to provide an adequate staff to operate the computer room and the telecommunications system. And, for a mainframe configuration a programmer/analyst and at least one additional programmer will be needed to maintain and upgrade system software. If staff at the Computing Center are already maintaining the same software, the Library should not have to duplicate their work, if at all possible. The Library is currently holding some vacant positions open in order to be able to hire the necessary support staff. Other support provisions include creation and maintenance of a tape library and off-site storage of tape data files.

System Procurement and Implementation Plan

At the end of this Summary is a two year Procurement and Implementation Timetable in the form of a bar chart. This timetable assumes that procurement will be done via the Request for Proposal method. The library plans to require a specific and detailed contract that documents the vendor's acceptance of the responsibility for the proposed system to meet the library's stated needs. The anticipated volume of transactions, file sizes, and number of terminals, with appropriate response times, will be specified. The system will be expected to handle anticipated growth for at least five years without the need for additional hardware or software.

The four functions of the Integrated Library System will be implemented one at a time. The Online Public Catalog will be the first component that is operational. It will provide the basis for the bibliographic database with which the other components interact. Circulation will then be implemented. The next goal is for the Acquisitions component to be operational by the beginning of FY 86. After that, the Serials component will be brought up. The final full-load acceptance test will be done when all the components are operational.

Here is a more detailed list of the procurement and installation steps being followed:

STEP	BRIEF DESCRIPTION	ESTIMATED TIME	DATES
1	Study systems	1 1/2 months	Oct.-Nov. 1983
2	Develop features list	1 month	Nov.-Dec. 1983
3	Write specifications and conduct demonstrations	3 months	Jan.-Mar. 1984
4	Send specifications to systems	2 months	Mar.-Apr. 1984
5	Evaluate responses	1 month	May 1984
6	Develop contracts	1 month	June 1984
7	Begin installation and testing of hardware & software; load database	2 months	Sep.-Oct. 1984
8	System reliability testing	1 month	Nov. 1984
9	Bring up online catalog	2 months	Dec. 1984- Jan. 1985
10	Functional acceptance testing of online catalog	1 month	Feb. 1985
11	Bring up circulation	3 months	Feb.-Apr. 1985
12	Functional acceptance testing of circulation	1 month	May 1985
13	Bring up acquisitions	2 months	June-July 1985
14	Functional acceptance testing of acquisitions	1 month	August 1985
15	Bring up serials control	2 months	Sep.-Oct. 1985
16	Full-load acceptance testing	1 month	Nov. 1985

Other tasks identified on the time line include:

- Site preparation

  To identify and prepare sites for Fall 1984 installation of computer equipment and workstations for the online catalog and circulation components.

- OCLC Archive tape preparation

  To load Wayne's OCLC archive tapes of machine readable bibliographic records by December 1984.

- Retrospective conversion of bibliographic records

  To develop a plan of action to retrospectively convert all pre-1975 monographic titles into machine readable form. This will be a 10 year project and is scheduled to begin in Spring 1984. After it is completed, the online catalog will completely replace the card catalog.

- Authority file conversion

  To acquire authority records on tape, prepare it for loading, and load the tape by December 1984.

- Item level record conversion

  To prepare the records for all locations of all copies of circulating materials for loading into the system. Loading of those items on the archive tapes should be completed by February 1985, when circulation is scheduled to begin.

- Bar coding circulating materials

  To apply machine readable bar codes to all circulating materials by the time the circulation component is operational. Much of the bar coding should be scheduled for summer and other periods of lower collection use.

- Borrower ID cards and files

  To plan for bar coded borrower ID cards and create name/address tapes for loading into the borrowers file by February 1985. University-wide ID cards are highly desirable.

- Staffing

  To develop staff for operating the system, hiring new staff as necessary.

- User education

  To prepare users for online systems and help them learn to use the public access components.

- Workflow analysis and design

  To flowchart manual operations, compile various policies, and prepare for and document new workflows and policies during implementation.

- Acquisitions file conversion

  To prepare for loading load necessary acquisitions files, including vendors, funds, open orders, for FY 1986.

- Serials file conversion

  To prepare and load necessary serials detailed holdings and bindery records by November 1985 or later.

Detailed lists of steps for each of these tasks are included in the Preliminary Report, January 1984, of the LAPG.

Total Project Cost Estimates

So far, cost estimates for the various components of the automated Wayne State Integrated Library System have been done in ranges, from minimum to maximum costs. Estimates for a Detroit area computerized library network have not yet been completed. Data gathering is now underway in the participating libraries to determine the requirements for the network.

Cost savings from the implementation of an Integrated Library System have not yet been estimated. This needs to be done to determine saved dollars available from the existing library budget to support the automated system on an annual basis. Areas for potential savings include:

- not buying, creating, filing, or maintaining catalog cards and their equipment

- discontinuing McBee card circulation supplies and equipment

- discontinuing use of locally developed Overdues and Reserves programs at the Computing Center

- discontinuing Nonesuch acquisitions system in FY86

Also, areas elligible for cost recovery need to be identified, e.g. borrower ID cards could be paid for by a student fee assessment.

WAYNE STATE UNIVERSITY LIBRARIES

LIBRARY AUTOMATION PROJECT
PRELIMINARY COST ESTIMATE

FEBRUARY 20, 1984

	Initial Cost		Second Year		Ann. Maint.	
	Lower	Upper	Lower	Upper	Lower	Upper
. Procurement/Installation						
Hardware	$197,000	$355,000			$9,850	$17,750
Software	96,000	225,000			15,000	30,000
Telecommunications	50,000	60,000	$15,000	$20,000	25,000	30,000
Terminals (Year 1: 50-75; Year 2: 61-86)	130,000	195,000	159,000	224,000	9,750	12,700
Installation Fees	10,000	15,000	2,500	5,000		
Supplies	5,000	7,500	2,500	3,000	5,000	7,500
. Site Preparation						
Computer Room	50,000	75,000			2,000	3,000
Workstations (@$400)	20,000	30,000	24,400	34,400	1,200	1,600
. OCLC Archive Tapes						
Editing	50,000	60,000				
Purchase Serial Tapes			2,500	3,500		
. Retrospective Conversion (10 year project; 35,000 - 50,000 in 1st year; 75,000 - 100,000 per year after; @$1)	35,000	50,000			75,000	100,000
. Authority Files ($.03/record)	9,000	12,000				
. Item Record Conversion (300,000 records @ $.03-.05/record)	9,000	15,000				
. Bar Coding (2 million items @ $.03-.05)	45,000	75,000	15,000	25,000	2,000	3,500
. Borrower ID Cards & Files						
ID Cards (@ $3)	75,000	105,000			15,000	22,500
File Creation (@ $.50)	7,500	10,000			2,500	3,750
. Staffing						
Computer Operator	6,700	8,400			20,000	25,000
Programmer Analyst	10,000	11,700			30,000	35,000
Programmer (4 mos. in 1st year)	8,400	10,000			25,000	30,000
. User Education	2,500	3,500			1,000	2,000
. Workflow Analysis	500	750	240	400		

	Initial Cost		Second Year		Ann. Maint.	
	Lower	Upper	Lower	Upper	Lower	Upper
Acquisitions Files (100,000 @ $.03 - .05/record)			$3,000	$5,000		
. Serials Files (20-25,000 records @ $.50/record)			10,000	12,500		
. Contingency Fund	$25,000	$50,000	15,000	25,000	10,000	15,000
TOTALS	876,600	1,373,850	249,150	357,800	248,300	339,300

TOTAL PROJECT COST:	Lower	Upper
Initial Cost	$876,600	$1,373,850
Second Year Cost	249,150	357,800
Annual Maintenance (4 years)	993,200	1,357,200
	2,118,950	3,088,850
Cost per year over 5 yrs.	423,790	617,770

WAYNE STATE UNIVERSITY LIBRARIES

LIBRARY AUTOMATION PROJECT

PRELIMINARY SYSTEMS DESIGN

TIMELINE

1983   1984   1985

O N D J F M A My Je Jy Ag S O N D J F M A My Je Jy Ag S O N

A. Procurement & Installation

B. Site Preparation

C. OCLC Tape Preparation

D. Retrospective Conversion

E. Authority File Conversion

F. Item Level Record Conversion

G. Bar Coding Materials

H. Borrower ID Cards & Files

I. Staffing

J. User Education

K. Workflow Analysis and Design

L. Acquisitions File Conversion

M. Serials Holdings Conversion

1b 2/20/84