Unit 1 □ Planning and Implementation of Library Automation

Structure

1.0 Objectives

The objectives of the Unit are to :

- Discuss benefits of and barriers to library automation
- Identify basic modules and functions of library automation activities.
- Outline strategy for the planning and implementation of library automation in a library.
- Enumerate library automation standards related to technology.

1.1 Introduction

Planning for an automated system should be part of an overall long-range plan for the library. It is a mistake to let the automation project drive the library's priorities and become an end in itself. Automation should always be used as a means to achieve overall better member service. Libraries must plan to use a local library system as a vehicle for achieving access to resources outside that system. The Internet has created universal connectivity to information resources heretofore unknown and/or inaccessible and Z39.50 interoperability standards and "gateways" has enabled users of individual local systems to access the resources of other systems-anywhere and anytime.

Moreover, the traditional definition of "publishing" has been stretched by the creation and instant availability of informational home pages and Web sites worldwide. Given such increased complexities and heightened levels of expectation, libraries must learn all the more how to plan for the introduction of automation in an organized and systematic fashion.

1.2 Library Automation

Library automation is the use of computer to perform such traditional library activities as acquisition, cataloguing, and circulations. Now-a-days, it encompasses related fields such as information retrieval, inter library loan services, access to online/internet based resources, and access to external databases.

1.3 Benefits of Library Automation

The benefits of application of computer in housekeeping operations and providing information services in a library are :

- Improved library management. Automation improves library services and increases productivity, efficiency, and accuracy in performing a variety of library operations.
- Linking items of library material in all service points to catalogue records
- Increase the opportunity for inter library loans
- Increase job satisfaction and professional development for library professionals.
- Provide a cohesive package of library services to library members in the library building and online, by coordinating computers, communications, content, and staff competencies.
- Maintain and improve access to worldwide library resources and services via library-automated systems.
- Provide digital tools for library members to access, retrieve, evaluate, and use information resources.
- It allows members to use search strategies that exceed those that can be used with card catalogues. Card catalogues can be search only by author, title, and subject. OPAC can search by using Boolean operators (AND, OR, NOT) and by combining search strategies (e.g. title and author, subject and author etc.)
- OPAC users may limit their search results by such features as publication date, type of material (magazine, book, and video), language, or reading level, and they can sort bibliographics by author, title and publication date.

- The Windows-based OPAC allow for hyperlink searching, a new feature that was not possible in character-based systems (i.e. DOS). Through a hyperlink search a user can find related records in the automated system's database under the keyword or subject.

- It allows members to search the library's collection from locations outside the library's walls. Members who are equipped with a computer and a modem can dial into the OPAC from home, an office, or another remote location.

- Most automation software is compatible with the Z39.50 standard. Having this standard allows users to search OPAC on the Web using common interfaces and/or search features. This means that regardless of the automation software, operating system (Windows 98, Windows XP), or computer platform users have, they can search these OPAC using common search interfaces.

- It provides users with timely access to library materials. Library materials can be placed on shelves as soon as items are processed

- It eliminates routine tasks or performs them more efficiently. The circulation function, which includes check-in, checkout, overdue notices, and inventory, is tedious, repetitive and time-consuming. Automating these functions can save a tremendous amount of time.

- It expedites and simplifies the inventory of library materials. The automated inventory is performed by scanning each item's barcode using a hand-held device (scanner), downloading scanned items into the automated system, and generating a variety of customized reports.

- It encourages cooperative collection development and resource sharing (inter-library loan). Automated media centres and libraries can develop a union catalogue and join bibliographic consortia. A user who does not find an item of interest in the library's local OPAC may identify the libraries in the union catalogue or consortia that have it. Such an item can be borrowed through inter-library loan or by checking to out from a designated library.

- It enables libraries to import MARC (Machine Readable Cataloguing) records. Records can be exported from one system and imported into a new automated system without incurring costs for retrospective conversion. Exploring records is essential for migrating from one automated system to another.

- It reduces (in integrated systems) the amount of time spent on material acquisitions, serials management, budget administration, and record keeping.

- It motivates members, equips them with problem-solving and information retrieval skills and provides them with lifelong learning experiences. In

addition, it reinforces a positive attitude about the media centre or library and improves the image of the librarian or information professional. Members view the media centre or library as an indispensable place for gaining access to global information and consider the librarian or information professional a powerful information provider.

1.4 Barriers to Library Automation

- It is time-consuming. Planning, selecting, and implementing an automated system requires a signficant, long-term commitment of staff time. Once selected, implementing an automated system must be maintained on a regular basis.

- It is costly. Start-up costs, software, hardware, network cabling, wiring, furniture; ongoing expenses, such as supplies for printers and barcode labels; annual maintenance and technical support; and conversion of a library's shelf list into a machine-readable format (MARC) may be more than what many libraries may afford.

- The demands of the automated system may not leave staff adequate time to provide new services or to work with students, or other educators. In fact, automation eliminates some tasks but generates new ones. Training scholars/ pupils to use the system, ongoing troubleshooting of hardware and software and database maintenance place demands on the library professionals.

- Access to the automated system is unavailable during system downtime. This will hamper user access to the collection, especially if the card catalogue or the shelf list no longer exists in the library.

- Training is the neglected part in library automation activities. The traning for handling the software is usully provided by the developers and the cost is included in the price of the software. This vendor provided training is one time and it is certainly not sufficient for successful implementation of the automation programme. Additional training may also be necessary for system software, backup software, and successful management of network. Staffs do need hardware training. The management must appreciate the fact that the training is a continuous process.

- Retrospective conversion of data is a problem for many old and large libraries. As mentioned earlier, manpower saved in other activities could be utilized. Otherwise, out sourcing may be the only option. However, active participation of staffs can only ensure quality of the work.

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1.5 Modules and Functions

Planning for library automation covers various facets : automation of library functions, use of electronic resources within the library (e.g. CD-ROMs), accessing remote electronic resources (e.g. the Internet), Office automation (e.g. word-processing, spreadsheets, databases, etc.), and member services (e.g. computer laboratory, multimedia center). Major modules are :

- **Acquisition Module :** It includes tasks such as : periodical material requests, purchase orders, material receipt, budget, vendor performance tracking, and record keeping.

- **Cataloguing Module :** This module performs various cataloguing tasks such as : original cataloguing using the Machine-ReadableCataloguing (MARC) protocol, editing, copying, saving, and retrieving catalogued records. When a record is saved in the cataloguing database, the record automatically appears on the OPAC, and a brief copy of the record is also generated automatically for the circulation module.

- **OPAC Module :** The OPAC function allows searching by author, title, subject, or keyword; searches using Boolean operators (AND, OR, NOT); hyperlink searching (i.e. to find related records under specific words or subjects of interest that appear in a record); Wild card/character searching (i.e. word truncation); and combined search strategy options (e.g. author-title; author-subject). The OPAC module is the only one that is inseparable from cataloguing. The library cannot have the OPAC without the cataloguing module, because the cataloguing module is the database that houses all material records and makes them available to the OPAC. Therefore, the cataloguing module is the heart of the automated system.

- **Serials Module :** The serials function is achieved in the serials module. It covers tasks such as periodicals (Journal) subscriptions, acquisitions, routing, claiming, cancellations, budget, tracking vendor performance, and record keeping.

- **Circulation Module :** Performs the tasks involved in the circulation function, such as : material check-in, check out, inventory, overdue notices, holds and reserves, fines, and statistical reports.

- **Inter library Loan Module :** The interlibrary loan function is accomplished in the interlibrary loan module. This module performs various tasks for the borrowing and lending of materials among libraries.

1.6 Planning and Implementation

Planning is a task or activity that is requied on continuous basis for the management of library automation. Planning for library automation has been defined as planning for "integrated systems" that computerize an array of traditional library functions using a common database. While this is still generally true, rapid technological change is forcing a re-examination of what it means to "automate the library." As physical, spatial and temporal barriers to acquiring information are crumbling, libraries must plan for a broader and more comprehensive approach in providing automated services. Results of planning would be :

- It provides basic framework for actions and services

- It minimizes ad-hoc decisions

- It helps in identifying and differentiating the essential priority actions and not so essential actions

- It helps concentrated and cohesive actions by a group towards achieving the ultimate goals.

- It helps to draft a financially elastic budget, which is capable of readjusting itself to a reducing or enhancing of financial resources.

The term implementation encompasses aspects of evaluation, selection, acquisition, training and installation of software, hardware and training of library professionals and members. Library automation involves several changes. Automation may change

- Roles of different staff members

- Organizational structure

- Workflows, and

- Service patterns etc.

Staff needs to know about the automation plan and how it would impact his/her work/lives. The possibilities of job enrichment of operational staff as a result of automation should be highlighted and planned for well in advance of the actual acquisition and installation of the system.

It is absolutely essential that the library plan in consultation with a committee of representatives of users, the management, repesentatives from library, in addition, a consultant may be included. However, the planning comittee to function efficiently and effectively, there is a need for information, which may either be readily available

or may have to be collected. The different stages of planning for library automations may be classified as follows :

- Pre-Planning Phase
  - ◆ Phase I : Data collection and needs assessment
  - ◆ Phase II : Examination of automation options
- Planning Phase Proper
  - ◆ Phase III : Development of Bibliographic Databases
  - ◆ Phase IV : System Specifications and Requirements
  - ◆ Phase V : Analyze Proposals and Select the Vendor
  - ◆ Phase VI : Start Negotiation with the Top Vendor
  - ◆ Phase VII : Implement the System
  - ◆ Phase VIII : Monitoring and Evaluation

1.6.1 Phase I : Data Collection and needs assessment

One of the most important planning tools involves collecting basic statistical information on the library and its operations. This data will be used for varieties of purposes throughout the planning process, including for preparing preliminary cost estimate, identification of storage requirement and hardware and software requirements. If certain data are not available, reasonably estimated data will be sufficient. Large amounts of time need not be devoted to determine a perfectly exact number. The tasks involved are :

- Study, analyze, and document the current system including review of policy and procedure manuals, training manuals and work flow patterns
- Communicate with users and staffs. Identify core staffs. Conduct surveys about staffs, management and users.
- Collect and compile narrative and statistical information necessary to describe library system and its operations.
- Assess the library's service mandates
- Assess the library's operating environment including physical facilities, budget, user relations, and inter library cooperation/cooperative responsibilities.

It may be necessary to collect data on number of users, user's licenses, number of online users, collection size by types, growth of collection and users, description of any co-operative arrangements involving the library, and needs for peripheral equipment needs by applications (Acquisition, Technical Processing and OPAC etc).

In addition, it is important to take stock of any existing automation in the library by compiling the following data : percentage of collection that has catalogue records in machine-readable form; description of collection without machine-readable records, by category (e.g. monographs, audiovisuals); description of currently-automated library functions (if any); estimates of the location and number of workstations (to show where you intend to have equipment in any future system); and, specifications for any existing equipment to be re-used with any future system (if any).

At the same time that this data is being assembled, it is important to assess user needs and set service priorities. This can be accomplished by undertaking a focused, strategic planning process designed to involve the library's "stakeholders".

1.6.2 Phase II : Examination of Automation Options

A library planning to automate should undertake a process by which representative staff and users can identify service needs and objectives. The purpose of such an effort is to allow participants to articulate their interests and concerns, share perspectives and learn about possibilities in a collaborative setting. Group interaction is an important contributing factor in the success of the goal, which is to develop and sustain library automation in the years ahead. The goal is to determine what services could best benefit from automation. It is necessary to :

- Determine which functions should be automated and in what order of priority. Hence, it is necessary to know how the services are currently organized and being performed, and whether they are being done efficiently.
- Need to study and analyze current procedures. It involves identification of
  - Repetitive processes, which occupy large amount of staff time.
  - Processes, which require retrieval of information from large difficult to maintain files.
  - Most popular services with the users
  - Current workflow patterns
  - Volume of activities
  - Space and equipment are used
  - Cost to perform
  - Current problems/needs in each area.

Library is an integrated system. The various modules of library activities are OPAC, Cataloguing, and Circulation System etc. The tasks involved at this phase are :

- Set priorities for what services to automate in a phased approach
- Begin defining the steps for a phased and coordinated plan to automate

- Analyze hardware, software, and telecommunication needs
- Identify start-up and ongoing costs for automation plan
- Develop a budget for automation

If needs and priorities are clear, functions can be automated in phases, allowing for more effective use of frequently scarce funding. Moreover, it is a way to develop credibility with funding agencies and be able to take advantage of "sudden" funding opportunities. Finally, evaluations of systems and options will be easier and more productive if the highest functional priorities can be matched against the corresponding modules available in the marketplace.

1.6.3 Phase III : Development of Bibliographic Databases (Retrospective Conversion)

The goal is to establish a complete database of library's holdings that can be ready to load when the new library system is installed. The tasks involved are :

- Identify, describe and document existing shelf list files and begin to standardize the data they contain.
- Verify existing bibliographic information in all shelf list records
- Institute quality control measures to assure consistency of entries within the shelf list file. Locate and add necessary missing bibliographic information to the records
- Inventory the collection
- Implement standardized cataloging practices including book mark etc.
- Prepare specifications for treatment of bibliographic data and item data (including authority control needs)
- Prepare and distribute a Request for Proposals for (RFP) Vendor
- Evaluate proposals and select a vendor
- Organize staff and define procedures for working with vendor to resolve bibliographic record conflicts.

The creation of a high-quality machine-readable database provides the cornerstone upon which all-present and future automation efforts rest. Hardware will become obsolete, software will be replaced, but a well-constructed and well maintained database will be the library's transportable and viable link from system to system. Moreover, as library users begin to access not only their local system but systems in other libraries as well, the quality of respective databases will influence both the outcome of search strategies and the availability of materials. Database readiness has several important facets :

- Catalogue records must be carefully converted from manual to machine-readable formats;
- Collections must be prepared for conversion through effective and ongoing weeding and inventory programmes;
- Once converted, collections must be properly maintained as titles are added, withdrawn, transferred and re-cataloged; and,
- Standards-for bibliographic, item and member records as well—must be adhered to. In particular, adherence to well-established and accepted standards of description for bibliographic information in a machine-readable database is critical because :
  - Without standards, files cannot easily be transferred from one automated system to another and,
  - It is essential for libraries wishing to participate in resource sharing arrangements with other libraries, which will require such adherence as a condition of participation.

1.6.4 Phase IV : System Specifications and Requirements

It is very difficult to compare systems sensibly and pragmatically solely by randomly looking at systems, talking to sales representatives, reading literature or comparing broad cost quotations. For this reason, libraries use a formal document-often known as a "Request for Proposal," or RFP—that organizes and standardizes the information provided to and requested from the various system vendors. Utilizing an RFP to solicit written responses from vendors makes it possible to systematically compare functionality, cost, maintenance, support, and all the other issues that are involved in system procurements. The process can save you money and will result in a wiser decision. Prepare an RPF with specifications for an automated system that will meet the service objectives and requirements for the library. Compare relative differences from one system to another.

It is necessary to break the collected data into functional specifications and technical specifications. Functional specifications describe the capabilities that are expected from the system. Technical specifications deal with standards that must be adhered to guarantee minimum system performance. An RFP document should include these essential elements, among others :

- Background information on the library;
- A description of how the proposals should be arranged and submitted;
- Instructions on receiving vendor business and financial information;
- Criteria the library will use to evaluate vendor proposals;

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- Questions regarding vendor training and documentation;
- Write functional and technical specifications.

Also, vendors should be asked to describe :

- How they will create bibliographic, item and borrower databases;
- Their system maintenance programmes and services;
- Their site preparation requirements;
- Their delivery and installation methodologies;
- Their system performance guarantees; and
- Their pricing and cost strategies, in detail

1.6.5 Phase V : Analyze Proposals and Select the Vendor

Upon the receipt of vendor proposals, it will be time to begin the process of system evaluation and selection. Goal is to analyze vendor responses to RPF and to select a vendor to implement a system. This process involves a number of key steps :

- Try to weed out proposals that are flawed, e.g., where the vendor fails to reply to any of the functional specifications or the system is missing a module for a high-priority function.
- Begin in-depth reading of the "surviving" proposals, carefully noting both deviations from the requirements as defined by the RFP and any aspect that is handled unusually well. Make a list of any parts of the response that are not clear and require further clarification.
- Schedule system demonstrations. They are an important component of the evaluation process. Allow the vendors to show off the vendor's system in the most attractive light; however, be prepared with a list of what you want to see along with questions you would like answered. Use the same list with each vendor. This permits more effective cross-comparisons.
- Contact some of each vendor's current clients-sites of the same library type, and of similar size, where the hardware and software modules that have been proposed to you are currently in use.
- Assign point values to the criteria listed in the RFP and assign scores to the different proposals. The system with the highest score becomes the number one finalist, the system with the second highest score number two and so on. To maintain a negotiating edge, it is better to cut to two vendors rather than one.

1.6.6 Phase VI : Start Negotiation with the Top Vendor

It Involve legal counsel, together with library personnel, in drafting or evaluating a contract. Compare list of necessary contract elements to actual contract. Set up a Contract Negotiation Agenda. Bring negotiations to a successful and favourable conclusion. The goal is to purchase a library automation system. The purposes are to :

- Interpret and clarify the differences between a vendor's response and the library's specifications.
- Formalize pricing and payment schedules, warranties, vendor bankruptcy, software infringement, and maintenance conditions.
- Safeguards conformance to any legal requirements necessitated by library's parent organization etc.
- Consult legal expert to analyze terms and conditions.

1.6.7 Phase VII : Implement the System

The goal is to install the selected system. After the system selection process is completed, the library and the vendor will have to negotiate and sign a contract. Library will want to

- Test the system and make sure it suits its needs.
- Make provisions for system maintenance, and
- Train both staff and users as much as possible to prepare them for when the system is up and running. There is often a tendency to focus on the hardware and software aspects of planning, and to ignore the human aspects of automation-training and public relations. Without these, however, library staff or library users may not accept even the most carefully designed system. Public relations allow to :
  - Make users aware of the new system and services;
  - Motivate them to use the system; and,
  - Train them in using the new system and services effectively.

Planning the shift from the existing system to the new system can take one of the approaches depending on complexity of the selected software and preparedness etc.

- Phase implementation : The new system consists of different functional modules. Modules may be installed at different point of time.
- Parallel Implementation : Both manual/old and new systems are operated simultaneously for certain time until the reliability of the new system is established.

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- Pilot Implementation : The system may be installed on a smaller scale. This enables better understanding of problems and complexities of the new system.
- Complete Replacement : The old/manual system is replaced on a specific date. This requires highest level of preparedness on the part of the library and good understanding of the new system.

The library as an altenative to, or in conjunction may require a performance bond with a benchmark test. The performance bond needs to be incorporated and fully described in the RFP. Typical performance test involves :

- System Reliability Test
- Functional performance acceptance tests
- Full-load response time test

The tasks involve in this phase are :

- Customize the vendor's system to the library's policies
- Site preparation
- Installation of hardware and software
- Acquire the necessary forms and peripherals equipment
- Load and index the bibliographic databases
- Load and index the user databases
- Train staff, realign workflow and space
- Activate the system
- Evaluate operation and do appropriate testing
- Accept the system

Given the challenge of working on a library automation initiative, there are two parallel opportunities for information professionals. One role is on the data processing and systems implementation side, working hand-in-hand with the IT group (people that control the hardware and networks). The other is on the content management side. Often, due to limited resources one person has to serve both roles.

1.6.8 Phase VIII : Monitoring and Evaluation

Once the system has been installed and in operation for reasonable time period, its performance should be evaluated. Some of the parameters are :

- Type of Routine reports available : Order, Overdue notice, Alert, Claims, Reminders, Accession Registers, Fund Control
- Continuous development of the software
- Robustness of the software

- Errors encounters and response time taken by the Vendor
- Response time, Disk space utilization and quality of Backup

Computer technology and software applications are changing and evolving at an incredibly rapid pace. In general, a life cycle of five years is considered to be acceptable for a computer system before some significant upgrade (installation of additional hardware and/or software providing for increased capability or capacity) or replacement will be necessary.

Because computer and information technology represent a fundamental change in the way libraries do business, libraries must make an ongoing commitment to keeping pace with change. Therefore, like automated systems, plans must also change with time. Plans must be regularly revisited and updated as the envoriment and needs change. In general, a library should conduct a major re-examination of its plan every five years, and should review its plans on an annual basis.

1.7 Basic Library Automation Standards related to Technology

The following standards and guidelines address a variety of technical issues in the area of library automation. In addition to the core elements of a library automated system (Public access catalogue, cataloguing, circulation, acquisitions, and serials), remote access, imaging, and full-text document management are involved. Because these standards address only a limited number of topics, they are not sufficient by themselves for developing a comprehensive set of specifications.

1.7.1 Z39.50

Z39.50 is an international standard for communication between two computers systems, usually library or information systems. It is a type of software that makes it possible to search multiple disparate library catalogues and other other resources in one search, and bring back one set of results. Z39.50 version 3, introduced about two years ago, displays holdings status of result sets, a necessary component for interlibrary loan. Version 2.0.0. 3 should support ISBN searching.

There is also a client component to Z39.50 for searching library catalogues and downloading records. Bookwhere, a product by Web Clarity, is an example of a Z39.50 client; it can be configured to search multiple Z39.50 resources such as the Colorado Virtual Library, The Library of Congress, and any other database that have a Z39.50 server. The benefits are :

- Broadcast searching— The Z39.50 server allows libraries to be part of a "virtual union catalogue" such as the Colorado Virtual Library where multiple libraries can be searched simultaneously.

- Bibliographic resource sharing— A Z39.50 client allows libraries to share cataloguing resources
- Interlibrary Loan-resource sharing is possible with Z39.50 version 3. Users can view library holdings and shelf status in real time
- Most of the key automation vendors have Z39.50 servers that you can purchase as a separate piece or that comes bundle with other modules. Check with your automation vendor to find out where they are with Z39.50 server and client implementation.

1.7.2 Inter-library Loan Standards

This standard is a protocol for performing inter-library loan transactions between disparate online catalogues. Z39.50 retrieves the bibliographic record, while ISO 10160/61 allows you to place a hold on the record.

1.7.3 Circulation Interchange Protocol

Though not implemented to date, the Circulation Interchange Protocol standard will support circulation transactions between different library systems. The circulation of print and electronic materials, remote member authentication, member borrowing, online payment, and controlled access to electronic documents are some of the functions this protocol will support. This standard will be based on the standard interchange protocol (3M SIP), implemented to support self-checkout machines and developed by the 3M Corporation.

1.8 Cost

Speaking of funding, planners need to be aware that there are certain cost elements involved in the installation and operation of any automated system. These may be summarized as follows :

- Planning and Consulting Costs include direct, out-of pocket costs (e.g., hiring a consultant) and indirect costs (e.g., training staff) associated with getting started.
- Purchase of the System includes the cost of acquiring the initial system hardware and software, as well as the cost of preparing a site for the computer system.
- Telecommunications costs are those fees paid to telephone companies for connecting remote terminals or workstations to a central computer system and Internet facility.
- Conversion costs are those associated with the creation of machine readable bibliographic and, for circulation systems and member records.
- Ongoing Operating Costs include :

○ Bar code labels

○ Maintenance fees

○ Utility costs

○ Miscellaneous supply costs

○ Telecommunications costs

○ Salaries and benefits (if extra staff are hired)

1.9 General System Requirements

The following table presents parameters for evaluation of library management software at functional modules independent step.

Parameters	Descriptions
System Architecture	• The system must employ client/server architecture
	• The system must place no limit on record size, other than the limits imposed by the MARC 21 standard.
	• The system must be fully self-contained and capable of being operated by library staff with no dependency on vendor services for its routine operation.
	• The system server proposed must operate under the Library's choice of operating system.
	• The system must permit distribution across multiple servers.
	• The system must be an open system, with no dependency on the use of specific models or models of equipment operating systems, RDBMS etc., to ensure the future viability of the system.
	• The system must keep a log of each transaction which alters the database. Logs must be data and time stamped so as to allow the system to reconstruct activity for any period.

Parameters	Descriptions
Software Licensing	• Vendor must include an unlimited license for web OPAC users connecting from OPAC workstations within the library, from other libraries, and from PC's in members, homes, offices, classrooms, etc. • Vendor must license the software for perpetual use for a fixed fee without additional royalties or service fees, except for ongoing software maintenance.
Programming Language	• The system's client applications must be written in C or similar programming language (s). • The system must offer Application Programming Interfaces (APIs) that enable the Library to develop custom interfaces to all modules. APIs training and documentation must be quoted as an option.
Source Code	• If Vendor ceases to be in the information mangement software business, or if the Vendor should be declared bankrupt by a court of competent jurisdiction, the Library shall have the right to access, for its own and sole use only, for maintenance use only, one copy of the source code. • The library waives any claims to ownership or part ownership in the licensed source code or any modifications made to the source code.
Hardware Requirement Sever Client Network	• Vendor must describe server platforms that may be used with the proposed system. • Vendor must provide minimum requirements for staff PC workstations. • The system must support a variety of TCP/IP network configurations. (The Library must provide actual network). • The system must have the ability to support wireless LAN and WAN configurations that support TCP/IP.

Parameters	Descriptions
RDBMS/Applications/ Database Management	• System must be available with the Library's choice of a Vendor-developed or vendor independent relational database management system. • Full-text indexing and a full-text database search feature must be available to provide easy retrieval of records.
Industry Standards/Protocols	• The system must support the folowing formats for bibliographic data : MARC 21, UNIMARC, and CCF etc.
Record Formats	• Vendor must list other national and international standards with which the proposed system complies.
Z39.50 Bath Profile	• The system, both clients and server, must be fully Z39.50 version 3 compliant and certified for bath Profile Level 1 compliant, across all Functional Areas defined in the Profile
Security/Access Control	• The system must provide security at database, workstation, and individual operator levels. • The system must provide secure access control based upon unique user login, for types of record (e.g., fund, order, and member) as well as by function performed upon the record (e.g., Display, Add, Edit, Delete.) • The system must check each user's access privileges at login, and automatically disable or enable client functions (in real time) based upon the user's profile.
Services System Implementation/ Data Migration	• Vendor must facilitate migration of the Library's present databases to the proposed system so that the system must be fully operational on 'Day One.' • Migration must include bibliographic records (titles), items/copies, authority records, circulation transactions (charges, bills, holds), acquisitions (vendor, orders, funds), serials (control, check in, chronology)

Parameters	Descriptions
	• Vendor must agree that the Library and the Vendor will mutually determine the details of the final implementation plan. • Vendor must indicate any limitations or qualifications to the format in which Vendor must receive records in order to be migrated. • Vendor must include a "gap" file or another process by which the databases may be brought up to date during the interval between export of the initial databases and completion of system installation and training.
Training/Consulting/ Documentation	• Vendor must provide a brief description of training courses. • Vendor must list the number of training days proposed, by type of training course (e.g., staff, administrative). • The Library must have the option of videotaping training sessions for future library staff training purposes. • Vendor must include a description of the complete documentation package available with the system. • The cost of one set of complete documentation on all hardware devices, if purchased from Vendor, and all system and application software modules must be included in the Vendor's proposal. Documentation updates for all appropriate manuals must be provided on a regular basis as additional capabilities, enhancements, or improvements are made to the system.
Software Maintenance	• The proposed system must carry a minimum one year warranty under which software maintenance must be provided without added cost • Maintenance of proposed software must be available from the Vendor on an annually renewable contract basis.

Parameters	Descriptions
	• Vendor must provide a software maintenance programme to include all future software updates and system enhancements applicable to system modules • Major system upgrades must be developed and relesed annually, so the library will receive the latest enhancements, regardless of the version of Vendor's system that the library orginally installed. • Software enhancements must be made available without further charge to all licensed libraries maintaining an annually renewable software support contract with Vendor.
Equipment Maintenance	• The proposed system must carry a minimum warranty (three years for server; one year for any peripherals quoted) under which equipment maintenance must be provided without added cost. • Vendor must agree to place any required service call for hardware related problems to any maintenance subcontractor proposed.

1.10 Library Management Checklist

There are certain libraries who have already procured library management software. It is responsibility of such library to evaluate the current system to a modern client/server system. One library may have to change the system if responses to the following questions are mostly negative.

Company

- Many years of dedicated experience in serving the technological needs of libraries.
- Steady revenue growth
- Customer base representing libraries like the present one
- No "Legacy system", i.e., the customers continue to use the original system updated annually with the latest technological advances.

Technology

- Choice of fully developed UNIX or Windows 2003 Server platforms
- Chioce of RDBMS
- Full-text bibliographic search facility
- Centralized software and configuration management of all desktop clients in the network
- Easy windows wizards for all system administration functions

Flexibility

- Simple "interview wizards" to enable easy system setup and customization
- Unlimited size of parameter tables (Accession series, document formats, user categories, document types etc)
- Facility for global changes for parameter tables
- Ability to establish additional fields
- Fully documented API

Management Reports

- A variety of report templates
- Additional reporting via API and SQL
- Graphical report interface

OPAC/Web Gateway

- OPAC with Internet access
- Facility for customization of OPAC
- Icon based search facilities

Digital Media Archive

- Simultaneous searching of all formats
- Full-text and natural language searching
- Object should be stored in their native formats.

Client Design

- Server based client profiles enabled individual profiles to be moved automatically from one client PC to other PC
- Client are updated automatically with push technology
- Customization option for each user preferences.

Cataloging/Authority Control

- Z39.50 copy cataloging with automatic holdings posting to central network like OCLC/INFLIBNET etc.
- Automatic generation of authority headings for all necessary access points.

Acquisition

- Pre--Processing in cataloguing
- Divides order amounts and percentages among funds

Serials

- SICI based check-in of issues

Circulation

- Automatic e-mail notices/alerts for fines, reserved copy collect notice etc.
- Phone notification for all notices

Approval Processing

- Library oriented computerized suggestion and approval facilities.

References and Further Reading List

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1.11 Exercise

1. Discuss the benefits and barriers of library automation.
2. Describe functions of major modules of library automation activities.
3. Discuss basic library automation standards related to technology.