Module 2
Introduction to Library Automation

Lesson 1
What is Library Automation?

Rationale

ICTs have changed the way information is created and distributed. They have also changed the way libraries select, acquire, organize and deliver information. Librarians must adapt to this change and acquire skill in using automated library systems. This lesson will introduce the information professional to library automation.

Scope

- Library Automation
- Automated/integrated library systems
- Standards
  - MARC
  - Z39.50
- Online public access catalog (OPAC)/WebOPAC
- Available ALS/ILS
- Benefits of library automation
- Potential difficulties in implementing library automation

Learning Outcomes

By the end of the lesson you should be able to:

- Define library automation
- Define an automated/integrated library system and identify its general features
- Be aware of standards
  - MARC
  - Z39.50?
- Define an online public access catalog/Web catalog
- Be aware of available ALS/ILS
- Identify the benefits of library automation
- Identify potential difficulties in implementing library automation

What is Library Automation?

Library automation is the application of ICTs to library operations and services. The functions that may be automated are any or all of the following: acquisition, cataloging, public access (OPAC and WebPAC), indexing and abstracting, circulation, serials management, and reference.

What is an Integrated Library System (ILS)?

An integrated library system is an automated library system in which all of the functional modules share a common bibliographic database. In an integrated system, there is only one bibliographic record for a book. All transactions involving this book are linked to its bibliographic record. For a discussion of ILS go to:

www.odl.state.ok.us/servlibs/l-files/glossi.htm
en.wikipedia.org/wiki/Integrated_library_system

What are the Advantages of an ILS?

- There is no duplication of records since the bibliographic database can be viewed before new records are encoded.
- Opportunities for errors are reduced since the record is entered only once.
- Library staff and patrons can view the status of the material from the OPAC or WebPAC.
- Library staff use the same masterfile for cataloguing, circulation, the OPAC and other services as needed.

What are the General Features of an ILS?

- Functional modules-- most systems offer: cataloguing, OPAC and circulation. Some ILS also have additional modules such as acquisitions, serials management and WebPAC.
- Operating systems—Some systems have proprietary OS. Most systems use Windows. Some use LINUX, an open source OS.
- Database systems – major systems normally make use of DBMS offered by vendors like Oracle and Informix. Open source systems are also available and downloadable from the Internet.

What are the General Features of an ILS?(2)

- Library automation standards
  - Database structure—MARC21
  - Protocol—Z39.50
  - Search features
- Network architecture – major systems run on client-server architecture and use TCP-IP to communicate across networks (LANs and WANs)

The Cataloging Module

- Used for the creation, storage, retrieval and management of bibliographic records and/or indexes.
- Usually there are two different interfaces for search and retrieval of the electronic catalog : one used by the catalogers that allows them to maintain the library database (the main cataloging module), and one provided for users that allows them to search and display the results – the Online Public Access Catalog (OPAC).
- A third interface for search and retrieval of the catalog which may or may not be present in some systems is the WebPAC

What is MARC?

- The Machine-Readable Cataloging (MARC) formats are standards used for the representation of bibliographic and related information for books and other library materials in machine-readable form and their communication to and from other computers.
- MARC 21 is the new standard for MARC. For more information about the MARC 21 standard visit the following site: http://lcweb.loc.gov/marc/marc.html

What is the Importance of MARC?

The MARC format allows libraries to:

- Describe resources in the format that will enable the library to correctly print, display, catalog records.
- Search for and retrieve certain types of information within specific fields
- Have a common format that makes sharing bibliographic resources with other libraries possible
- Easily migrate into another library system without need for re-encoding records.

What is Z39.50?

- Z39.50 is generally defined as the information search and retrieval protocol standard used primarily by library and information related systems.
- The standard specifies a client/server-based protocol for searching and retrieving information from remote databases simultaneously using a single interface.
- Read more about Z39.50 by reading this article: "Z39.50. Part 1 - An Overview," from *Biblio Tech Review* at
  http://www.bibliotech.com/html/z39_50.html
  http://www.loc.gov/z3950

Why are Standards Necessary?

Standards are necessary for networking and for information exchange. For example:

- MARC 21 and Z39.50 allow searching, retrieval and exchange of records across platforms
- Unicode allows encoding, searching and retrieval of information in different scripts.

The Online Public Access Catalog (OPAC)

- The OPAC is an electronic catalog. It is the equivalent of the card catalog but it is searchable online.
- The OPAC could also be Web based called a WebPAC. The WebPAC is used by libraries to share bibliographic information

The Circulation Module

- The basic components of an integrated library system are the cataloguing module, the OPAC and the circulation module.
- The circulation system is the transaction module that allows the system to loan out and receive returned materials. The transactions are automatically linked to the cataloguing module to enable users to find out if materials are available for loan or have been borrowed.

What are the Other Modules in an ILS?

- The basic modules are cataloguing, circulation and the OPAC
- Other modules which may be present are:
  - Serials management
  - Acquisitions
  - Interlibrary loan
- For a discussion of ILS modules please go to “Integrated Library System Reports: Vendors info.” URL: http://www.ilsr.com/search2.cfm

An Integrated Library System with Web Access

Acquisition

Cataloguing

Indexing
and abstracting

WebPAC

Web Server

LAN Server

OPAC

Circulation

Reference

Serials

Off-the-shelf or Customization?

- There are many commercial systems that are available off-the-shelf. These systems observe standards for ILS. However, the needs of libraries are not always met by these systems.
- There are also open-source systems that can be downloaded from the Internet.
- Some are not open-source but are also free.
- Many libraries still develop their own ILS.

Commercial Library Systems

Access the following sites to know more about the integrated library systems available on the market:

- AcqWeb's Guide to Automated Library Systems, Library Software, Hardware and Consulting Companies http://acqweb.library.vanderbilt.edu/pubr/opac.html
- Integrated Library System Reports: Vendors info http://www.ilsr.com/search2.cfm

Open Source Library Systems

The open source model is a collaborative programming infrastructure that co-opts copyright law by freely releasing source code to the general public for any use, modification, and redistribution without licensing restrictions…(*Open Source Initiative* 2003)

- Avanti
- PYTHEAS (OSDLS)
- Learning Access ILS
- phpMyLibrary
- GNUTeca
- OpenBiblio
- Firefly
- Greenstone
- Koha

Benefits of Library Automation

- Improved productivity/efficiency
- Better use of information resources through improved access
- Improved resource sharing through the virtual catalog or network
  - Facilitates interlibrary loan
  - Reduces duplication
  - Avoids duplication of cataloguing effort
- Optimizes the use of human and other resources
- Enhances the national and regional information infrastructure

Benefits to Staff

- Development of new patterns of communication among staff, especially between computer services and library staff
- Empowerment of the staff in making decisions
- Acquisition of new skills and knowledge

Potential Difficulties

- Fear of adverse impact on employment
- Apprehension that the technology could be too expensive
- The library staff have to undergo extensive training. New knowledge and skills are needed.
- Lack of support from the management, may be owing to budget constraints
- The need to convert data into machine readable form

Conclusion

- Benefits outweigh disadvantages
- ICTs are here to stay and society is becoming an information society demanding the use of ICTs to improve access to information.