Unit 2 □ Computer Based Acquisition Control

Structure

2.0 Objectives
2.1 Introduction
2.2 Benefits
2.3 Infrastructure
2.4 Sub-systems and their Functions
2.5 Selection Criteria
2.6 Interfaces with Other Library Automation Sub-system
2.7 File Structure for Acquisition System
2.8 Exercise

2.0 Objectives

The objectives of the Unit are to illustrate :

- Rationale of computer based acquisition system
- Requirements for infrastructure
- Sub-system of a computer based acquisition system
- File structures for acquisitions systems

2.1 Introduction

Libraries have automated acquisitions for a variety of reasons, including lowering unit costs, improving services, speeding the order-cataloguing process, accessing ordering and in-process information, collecting and organizing acquisition data, and linking with other systems both inside and outside the library. Automated acquisition system vary in complexity from order/receipt operations to fully integrated modules that are interactive with library system, including such functions as cataloguing, serials, circulation, and reserves.

The Acquisitions module must be fully integrated with all system modules and must support an unlimited number of material types/formats, funds, vendors, orders, claims and transactions, without added cost. The system must be dynamically updated in real time to maintian the currency of all records and statistics.

2.2 Benefits

The acquisition of documents (books/serials/CD-ROM etc.) is an important activity of any library. The acquisition function includes tasks that require human judgment and routine/clerical works. Computer based acquisition can greatly improve effectiveness and efficiency of library's housekeeping operations. The benefits are :

- Reduce drudgery and error proneness of works, which are of routine nature.
- Enhance information sharing : It reduces data redundancy and ensures consistency of data across the system
- Improve efficiency and timeliness : The various processes involved in the acquisition function can be performed more effectively and efficiently in a computer based acquisition system
- Provide various Management Information Reports : Provide valuable financial and other inputs for management decision making.
- Monitor status of items/activities : computer based system facilitate effective and efficient handling of claims, reminder, alert, receipt, cancellations, and tracking of on-order items etc.
- Optimize staff time and efforts : In an automated system, routine clerical works are left to the machine and thereby enable professional staff to concentrate more on intellectual work and customer care.

2.3 Infrastructure

The infrastructure necessary for a computer based acquisition system include :

- Access to external databases and sources of information
- Internal files and Databases

2.3.1 Access to external databases and sources of information

Verification of bibliographic data of proposed books is an important activity during acquisition. User supplied bibliograhhic data may not always be sufficient for taking decisions and procurement. The bibliographical verification process facilitates import of bibliographic data into the system. Such access leads to fuller and more accurate records in the acquisition files and enhance the quality of catalogue.

The kind of external databases to be accessed depends on the nature of the library and availability of resources. Another important decision in acquisition is whether to depend on resource sharing arrangements to obtain access to the publication. Access to the union catalogues of library networks/consortium or to OCLC becomes important in such situations.

2.3.2 Access to internal files and databases

In case of an integrated library automation environment, access to the following types of internal files/databases is important for acquisition, notification to individual requester, maintaining uniformity in entering author names, subject terms and publisher name etc., and to avoid unitended duplicate acquistion by verification against on-order and in-process files. The following files are examples of typical requirements :

- Library's Catalogue
- User/Membership file
- Exchange file
- Currency Table
- Budget file
- Order file
  - Current
  - Historical
- In-process file
- Vendor/Publisher Directory
- Authority Files
  - Personal Name
  - Corporate Name
  - Subject
  - Publishers
  - Place Names

2.4 Sub-systems of a Computer based Acquisition System and their Functions

A computer based acquisition system is expected to perform certain managerial and clerical functions. Systems are generally designed to manage regular orders, exchanges, receipts, non-receipts, invoice processing etc. The Acquisitions module must be fully integrated with all system modules and must support an unlimited number of material types/formats, funds, vendors, orders, claims and transactions, without added cost. The system must be dynamically updated in real time to maintain the currency of all records and statistics. The selected functions of a computer based acquisition systems are :

2.4.1 Pre-order searching

During pre-order searching, the Acquistions module must allow staff to display records by searching any word in any field of a bibliographic record. The system must clearly display item status, including items with on-order status : items charged, on hold, in the library stacks, etc. and detect multiple orders during the order creation process.

2.4.2 Fund accounting

The Acquisitions module must allow :

- Temporary freezing of funds with override capability
- Freezing new order but permitting payment on outstanding orders
- Freezing both new orders and further payment
- Each fund to be subdivided (categorized) by up to five levels
- Each subdivision to be used to group accounts together as an online workstation query
- Each subdivision to be used to group accounts together to report on cumulated spending in the different categories
- Remaining allocations to be carried over from one fiscal year to the next, if desired
- Creation of new accounts at any time
- Input of an initial allocation when an account is first created
- Update of an account at any time
- Closing out an account at any time, so long as there are no outstanding encumbrances against it
- Multiple distribution methods, including :
  - By library-defined holdings code directly to requestor's address
  - indirectly to requestor with shipment to library for processing

For each fund, the Acquisitions module must maintain the following information, which must be available through online display, without the need to generate a report :

- The original budget allocation
- Amount of orders outstanding (encumbered)
- Amount of orders paid, the free balance
- Cash balance, the number of items on order
- Number received

- Number paid for
- Number of orders placed for the fund

2.4.3 Vendor Records

The Acquisitions module must support an unlimited number of vendor records, accessible by vendor name (complete), vendor name (truncated), and vendor code. The vendor record must include at least order and remittance addresses, library-supplied vendor claim period indicator, and performance statistics.

The vendor file must include performance statistics updated automatically and in real time, available online and through reports that includes, but is not limited to :

- Average receipt period in days
- Number of claims sent
- Number of copies cancelled
- Number of copies claimed
- Total amount ordered
- Amount encumbered
- Amuount invoiced
- Amount paid
- Total number of orders
- Number of copies not received
- Number of copies paid
- Average order price
- Average price paid
- Supply times

Vendor records must support up to three distinct addresses per vendor, such as ordering, service, and marketing, and also provide notes/comment fields for Library staff.

2.4.4 Selection Records

The Acquisition module must support selection lists with access controlled by user login and password. It facilitates online approval management of resource selection procedures. It should automatically link purchase requests to items contained in a selection file, which can be hidden from public view and made accessible only to authorized users.

2.4.5 Order Records/Invoice Records

Selection lists that, when approved, can be used to create actual orders for Ordering/invoicing. The Acquisitions module must support an unlimited number of

order records. Order records must be searchable by bibliographic information, including item ID. Orders must be searched, browsed, or exactly matched by order ID, author, call number, periodical title, series, subject, title and title control number. Packing list and requisition numbers must also be searchable. Order line searching must also supported. Acquisitions staff must be able to specify the fiscal cycle and acquisitions to search. The Acquisitions module must :

- Prevent assignment of duplicate order numbers, whether entered manually or assigned automatically
- Support electronic submission of orders
- Support electronic data interchange (EDI)
- Accommodating multi-institutional and multi-fund shared acquisitions
- Automatically determine how to handle a partial receipt of ordered items, based upon Library policies.
- Support an unlimited number of invoice records.
- Facilitate search and retrieve invoices by : invoice ID and optionally, a vendor ID, or a check number. Staff must be able to specify whether to display summary information, extended information, amounts, dates, and/or numbers associated with invoices.
- Link order records to the corresponding bibliographic record
- Report the current status of any and all titles ordered or received
- Use status information to signal for a variety of activities, such as produce purchase order, delete order, produce open order report, etc.
- Enable an authorized operator to access orders through the catalogue, vendor, account, and requestor
- Support MARC record order.

2.4.6 9XX Ordering

Acquisitions module must enable the Library to download MARC records (via the web) from materials vendors and use the imported records to create orders automatically within the Acquisitions module. Vendor must describe how it supports 9XX ordering for vendors and must specify which MARC tags can be used as the source for order data.

2.4.7 Electronic Data Interchange (EDI)

System must enable libraries to use advanced electronic data interchange (EDI) and X12 transaction set technology to manage their interactions with vendors and suppliers. A number of groups and organizations have proposed or implemented EDI messaging for acquisitions. Some of the benefits associated with implementing EDI-based messaging include :

- Reduction in manual labour and paper processing required
- More timely shipment and delivery of orders items
- Improvement in the availability of price information, particularly for serials
- More efficient invoicing and payment procedures, as keying of data is avoided
- More timely information can reduce the number of claims required, particularly for serials

While considerable gains have been made in developing the standardized formats necessary to support EDI-transactions for the purchase of books and serials, the implementation of EDI-based systems has been slower than anticipated. The following outlines some of the obstacles that may be slowing the adoption of EDI by libraries and the book and serial sector.

2.4.7.1 Organizational/Attitudinal barriers

- Disparate User Community : In order to purchase materials, libraries must interact with a very diverse group of partners that includes publishers, wholesalers, subscription agents and automated library system vendors. As each of these groups has different interests and objectives, bringing these groups together to work toward a common goal represents a significant organizational challenge. Without the co-operative efforts of this community, it is difficult to attain the support necessary to move toward EDI implementation.
- Acquisitions is sometimes less a priority than other areas of library operations. Acquisitions are often considered a 'housekeeping' function that may be less a priority than patron-oriented services such as reference and circulation. When decisions are made to fund automation projects, the acquisitions function has traditionally been given a low priority. This situation may improve has many of the other library processes are now supported by well-developed automated systems. This could help to shift the priority towards automating the acquisitions process.
- Organizational Challenge for Libraries : Implementing an EDI-based acquisitions function may require libraries to alter the work flows patterns in the acquisitions department, train staff in new procedures and acquire staff with systems training to maintain the new system. This requires considerable planning and coordination on the part of library management.
- Lack of Education : Education is required on the part of both librarians and members of the book and serial industry. They require a basic understanding of the existing EDI standards and the benefits which can be accrued through EDI implementation. While progress has been made in this area, these efforts must continue. Education is important in order for librarians to specify their requirements for EDI-based systems to the vendors of library automated systems.

2.4.7.2 Technical Barriers

- Reliance on other parties to develop supporting software : For the most part, libraries do not have the expertise to develop software to support their operations, so they are dependent on library software vendors to develop the supporting software. Software vendors, on the other hand are often reluctant to invest in product development for an uncertain market.
- Automated library systems tend to be based on proprietary architectures : The tight integration of existing library applications with proprietary architectures often makes it difficult to integrate these systems with EDI interfaces such as translation software without the assistance of the system vendor. The library is again dependent on the vendor's priorities and time scales in order to begin operations.
- Adding EDI-capabilities to existing systems : Integrated library systems tend to have a single database that underlies all operations and users are connected to various views of the database. It may be difficult to integrate the EDI data with existing database.

Other library operations involving communication with external systems include invoicing and payment activities. Libraries receive invoices and generally process them for payment by confirming the details, i.e that the items invoiced have actually been received. Often, however, the library does not actually make the payment. Instead a centralized finance function within the library or within a larger organization such as a university or a municipal government is actually responsible for allocating and transferring funds. The library is thus often involved in a complex set of transactions between invoicer, purchaser and payer. These transactions are normally asynchronous and thus lend themselves for consideration as candidates for EDI.

2.4.8 Claiming/Cancellation of Orders

The Acquisitions module must be able to automatically generate a claim/ cancellation letter to the appropriate vendor regarding copies/volumes canceled and the reason. The Acquisitions module must be able to transmit claims and cancellations via letter, email, or X12.

If an order passes its library-defined 'date to claim', the system must automatically add a claim segment to the appropriate outstanding line items on the order. Each claim segment must include a claim reason, number of copies claimed, times claimed, part or volume claimed (for multi-part items), date mailed, vendor response, date of vendor response, and claim status (OPEN, RECEIVED, CANCELLED.) The system must update elements in the claim segment automatically.

2.4.9 Currency control

The Acquisitions module must support currency control (order records from vendors who require another nation's currency.) The currency control feature must

automatically calculate foreign currency purchases in local currency and allows the Library to maintain currency exchange tables. Exchangs table should be at Library's discretion. An unlimited number of currencies must be supported.

- Payment
- Claiming
- Cancellation of orders
- Routing
- Statistics and report compilation. Acquisitions statistics must be available in real-time as well as by statistical report(s).

2.5 Criteria for Selection of System

As a minimum, automated acquisition system should perform the same activities required in a manual acquisition system but with added requirement that the system perform these operations more efficiently. When selecting a system, librarian should consider the following points :

- The size of the system, that is, whether or not it will handle the required number of orders, funds etc.
- The cost of installation and maintenance
- Compatibility with other system
- Functions, that is, whether it offers the functions required
- Ease of operations
- Evaluation of its performance in live situation, if possible

2.6 Interface

An integrated system recognizes that each of the subsystems is closely related to other subsystems. Each of the function modules needs to provide interfaces to other subsystems, it means exchange of data and utilization of common resources (Acquisition and Serials Control share same vendor database, Acquisition and Circulation share same member database). The acquisition subsystems should have interfaces to the following areas :

- Cataloguing
- OPAC
- Circulation system

2.7 File Structure

Several factors have to be considered while designing a computer based acquisition system in an integrated environment. Certain decisions, like the following ones, have to be taken in advance :

- Files to be maintained
- Data elements in the records of each file
- Record format and media

The system flow chart below may have to be revised depending on the local procedure and/or mode of procurement etc. However, it is evident that information/ data flows both ways, and different types of relations exist. For example in

- Suggestion-Approval Phase : User may suggest a book and the library committee decision may be conveyed to the user. The library may request the user to supply additional information. That is, data is flowing both ways.
- An user may request only one book [one to one relationship], s/he may request more than one book [one to many relationship]
- However, different users may request more than one book [many to one relationship].
- A vendor may supply books and serials [one-to-many relationship].

In an integrated system, same file can be used in more than one module. For example, Acquisition and Serials Control Systems will share the same vendor file. The user file will be shared by the Circulation Control System and Acquisition Control System. Hence, all aspects of possible applications and corresponding data requirements must be taken into account at time defining database structure. Computer based acquisition module will have same module specific files and will access certain common files. In an integrated system acquisition control system, the following files may be maintained and/or accessed :

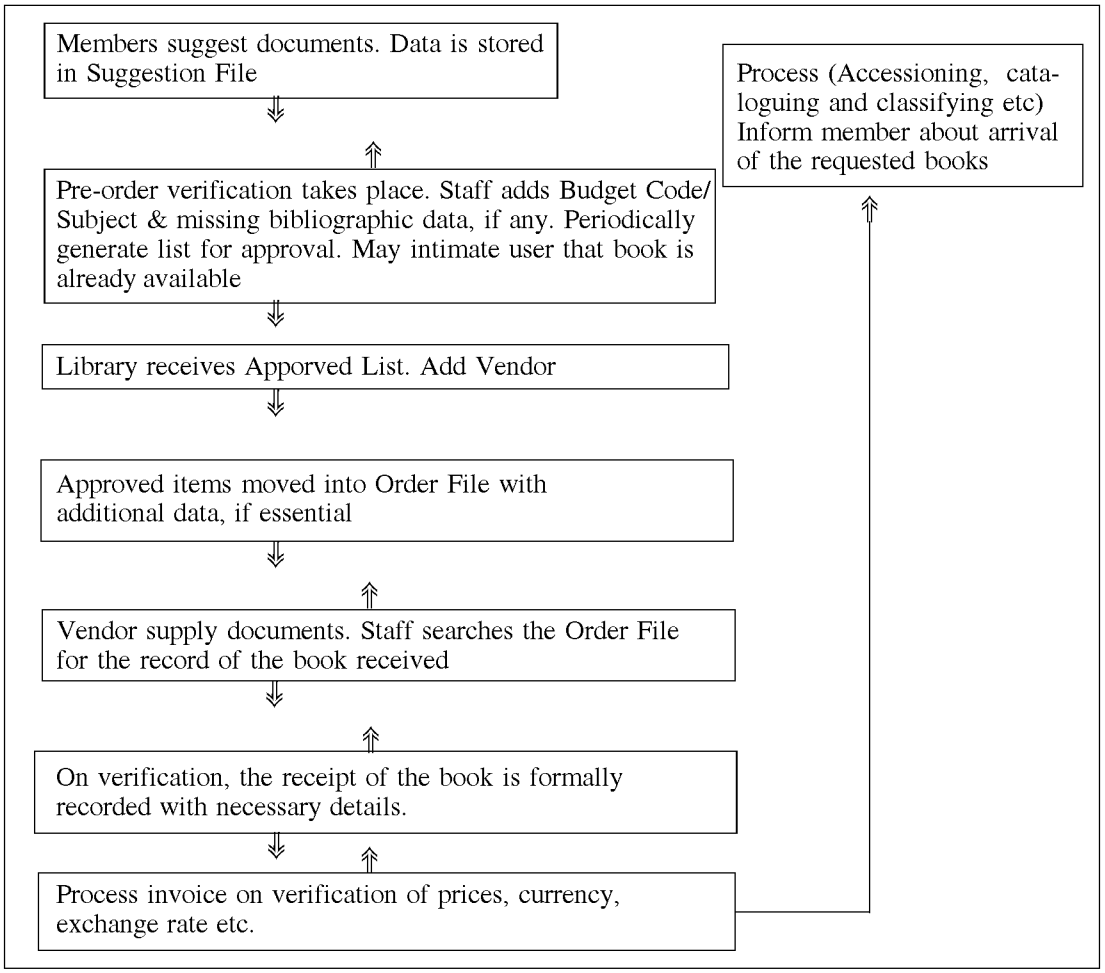
- Member
- Vendor
- Order
- Budget
- Currency
- Exchange Rate
- Bibliographic
- Suggestion
- Approval
- Invoice
- Subject

The following table is an illustrative example of required data files with individual data elements :

Member File • Name • Position • Member-ID • Address • Contact Address	**Exchange File** • Currency • Conversion rate • Date	**Order File** • Order Number • Order Date • Bibliographic Item Code • Vendor-ID • Copies
Vendor File • Name • Vendor-ID • Address • Contact Deatails • Contact Person	**Invoice File** • Invoice Number • Invoice Date • Invoice Currency • Invoice Amount • Vendor-ID • Payment Details	
Budget File • Budget Title • Budget Code • FinancialYear • Allocation • Expenditure • Balance	**Subject File** • Subject Terms • Subject Code	
Currency • Name • Currency-Code	**Bibliographic File** • Bibliographic Item Code • Other elements are based on Standard Cataloguing Code like AACR2R etc]	
Suggestion File • Bibliographic Item Code • Member ID • Budget Code • Suggestion ID • Price • Date • Copies • Recommendation	**Approval File** • Suggestion ID • Approval ID • Bibliographic Item Code • Budget Code • Order Type • Vendor Code • Date • Price • Copies • Recommendation	

The data that is collected and stored in the different files is used by routines of the software to perform various operations and processes : marinating suggestion file, provision for online access to suggestion file for approval, placement orders and monitoring supply of ordered items etc.

The system flow chart of a typical acquisition system is shown in the following figure.



References and further Reading List

1 2005 Request for Proposal for a Client/Server Electronic Library System (http://www.libraryhq.com/rfp.doc). Visited last : 12/08/2005.

2 2005 Library acquisition functions (http://www.cc.nctu.edu.tw/~claven/course/LibraryAutomation/acquisition.ppt) Visited last : 25/09/2005

3	2004	Haravu (LJ). Library automation : design, principles and practice. New Delhi : Allied Publishers, 2004.
4	1997	Cohn (John M), Kelsey (Ann L) and Fiels (Keith Michael). Planning for automation : a how-to-do-it manual for librarians. 2nd ed. New York : Neal-Schuman Publishers, Inc., 1997.
5	1997	Meghabghab (Dania Bilal). Automating media centers and small libraries a microcomputer-based approach. Englewood : Libraries Unlimited, 1997.
6	1995	Electronic Data Interchange : An Overview of EDI Standards for Libraries (1993). International Federation of Library Associations and Institutions. (http://www.ifla. org.). Visited last : 25/06/2005.
7	1989	Saffadv (William). Introduction to automation for librarians. 2nd ed. Chicago : ALA,1989
8	1984	Genaway (DC). Integrated online library systems : principles, planning and implementation. NY : GK. Hall. 1984.
9	1983	Rao (I.K. Ravichandra). Library automation (DRTC Refresher seminar 14, DRTC, Bangalore, 1983)

2.8 Exercise

1. Identify the common elements between manual and automated acquisition system.
2. Discuss the importance of different infrastructure for implementing computer based acquisition system.
3. Identify salient functions of an computer based acquisition system.