Planning and Evaluating Library Automation Systems

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Abstract

This paper examines the critical issues of planning and evaluating library automation systems as it affects both academic and research libraries in Nigeria. Automation is complicated and disruptive, that is why critical attention must be given to its proper planning and evaluation, so that the desired results can be achieved. Procedures for proper planning and evaluating of the most important modules in a phased approach that will usher in ability to concentrate on monetary and human resources according to a planned and coordinated implementation schedule are hereby suggested.

Introduction

Planning for an automated system, no matter how big or small, 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 patron service. Careful planning for technology will ensure that library automation project is "sustainable", i.e. enhances the organisation's ability to meet its service mission without disrupting the organisational stability of the institution. One could make a strong case to support the claim that the major potential benefits of automated systems in libraries are the data they can provide to improve the management of the library's resources. In other words, the automated system should be seen primarily as a management information or decision support system. Speaking specifically of automated acquisitions systems, not the least of the benefits of automating is the enhanced ability to monitor processes, to collect, structure, analyse, and report critical or useful data previously unavailable or extremely difficult or costly to obtain.

But Johnson's (1991) survey clearly shows that better management information is not seen as a major objective of automation in academic libraries and that automation is not considered to have had much effect in improving management control or decision making. By the same token, the vendors of automated systems for libraries do not emphasise this capability and perhaps fail to recognise the true potentials of their own systems in this respect. Hawks (1986, 1988) provides a useful summary of fairly routine data that can be obtained from present automated systems. She identifies five major types of management reports. While she is dealing specifically with acquisitions systems, the areas she identifies are applicable, in a broad sense, to automated library systems in general.

1. Funding accounting

2. Vendor performance
3. Collection management
4. Order control
5. Systems management

Of all these, only the collection management reports are unique to the library situation and even these can be considered as merely special forms of inventory control reports in the environment. Systems management reports are reports providing data on the system itself - how much it is used, how it is used, where it is used from, and so on.

Fund accounting reports (how much money was allocated to a particular fund, how much is already spent, how much is committed, how much remains) and order control reports (what items are on order, from where, when the order was placed and so on) are complete routines today in libraries of all sizes. They are not unique to the library situation and need not concern us further. The vendor performance reports are less routine and, indeed, it was very difficult to collect data of these kind in a systematic way prior to the adoption of automated acquisitions systems.

Reasons for Hiring a Consultant to Assist with Automation Planning

The purpose of hiring a consultant is to support a library's planning for automation that would include, among others the following.

(a) Developing an infrastructure for communicating with all participants in the planning process
(b) Defining the problem to be addressed through automation
(c) Needs assessment
(d) Determination of staff needs and financial resources
(e) Project budget preparation
(f) Assistance with technical aspects of planning that go beyond the library's staff experience or expertise
(g) Vendor and system performance evaluation
(h) Contact and purchase negotiation

Project Management

The expenditure of money for a consultant will more than pay for itself in avoiding delays, facilitating staff effectiveness and getting the most from the planning process. The important thing to remember is that when you hire a consultant, you are entering into a partnership with a knowledge professional with the skill and experience necessary for a successful project. You do not give up autonomy in decision making, nor are you hiring an extra hand to do all the planning work for you. It is a partnership in which you and your staff will be expected to contribute a great deal.

Technical Consideration

Gathering the data necessary for describing library's needs can be complex. A consultant can bring proven data collection method to your needs assessment and evaluation process. Describing your needs accurately is important to ensure that the system you purchase is not under-configured from the outset and will guarantee that your performance expectations are compatible with the system purchased and adequate for long - term growth.

Basic Steps in Planning Library Automation Project

Phase I: Data collection and needs assessment. The goal is to access the library's need for automation. The data collected will be used for a variety of purposes throughout the planning process.

Tasks

(1) Study, analyse, and document the current system including review of policy and procedure manuals, training manuals, work flow diagrams.

(2) Begin to communicate with staff and users about library automation.

(3) Collection and compilation of narrative and statistical information necessary to describe library system and its operations.

(4) Assessment of the library's service mandates.

(5) Assessment of library operating environment including facilities, budget, community relations, inter-library cooperative arrangements.

Phase II: Examination of automation options. The goal is to explore what services could best benefit from automation. Next is to determine which library functions should be automated and in what order of priority. To make this determination, you need to know how the service is currently organised and being performed and whether it is being done efficiently.

Need to study and Analyse the Current Procedures

Questions to ask are which processes are repetitive and occupy much of staff time? Which services require retrieval of information to maintain files? Which services place the biggest load on staff? Which services or processes are most popular with patrons? For example, if the library circulates thousands of books a month, then, circulation will be one of the first task to automate. It the library does not circulate a lot of books but manages thousands of periodicals, then a strong serials control system will be most important.

OPAC (Online Public Access Catalog) is important and because it depends on a quality database, the cataloguing function will move up in order of priority.

Automation is complicated and disruptive. If you can evaluate the most important modules to bring up in a phased approach you will have the ability of concentrating on monetary and human resources according to a planned, coordinated implementation schedule.

For each functional area, determine:

- current workflow patterns and procedures;
- how much space and equipment are used;
- volume of activity;
- cost to perform; and
- current problems or needs in the area.

Problems

(1) Set priorities for what services to automate in a phased approach.

(2) Begin defining the steps for a phased and coordinated plan to automate.

(3) Analyse hardware, software, telecommunication needs.

(4) Identify, start-up an ongoing costs for automation plan.

(5) Develop a budget for automation.

Phase III: Bibliographic database development. The goal of this is to establish a complete database of all library holdings that can be ready to load when the new library system is installed.

Tasks

(1) Identify, describe, and document existing shelf list files and begin to standardise the data they contain.

(2) Institute quality control measures to assure consistency of entries within the shelf list file.

(3) Make an inventory of the collection.

(4) Verify existing bibliographic information in the shelf list records.

(5) Locate and add any necessary missing bibliographic information to the records.

(6) Implement uniform standardised cataloguing practices and consistent culturing practices.

(7) Prepare specifications for treatment of bibliographic data and item data (including authority control needs).

(8) Prepare and distribute a request for proposals for vendor supplied data conversion project (including authority control).

(9) Evaluate proposals and select a vendor.

(10) Organise staff and define procedures for working with vendor to resolve bibliographic record conflicts.

Phase IV: System Specifications and Requirements. The goal of this is to prepare specifications for an automated system that will meet the service objectives and requirements for the library system. It is necessary to take the data you have gathered and break it into functional specifications and technical specifications.

Functional specifications describe the capabilities that you want in a system.

Technical specifications on the other hand deal with standards that must be adhered to in guaranting minimum system performance.

Tasks

(1) Write narrative to describe the library system including statistical description of users, their use of services, community growth, projected five year growth of demand for library services.

(2) Write functional specifications for a system.

(3) Write technical specifications for a system.

(4) Develop criteria by which proposals will be analysed and evaluated.

Phase V: Analyse Proposals and Select Vendor. The goal of this is to analyse vendor responses and to select a vendor to implement the system.

Tasks

(1) Evaluation of vendor proposals.

(2) Draft interview questions for vendor supplied contracts.

(3) Call vendor referees and interview them.

(4) Select top two or three proposals.

(5) Arrange for vendor on site demonstrations /presentations.

(6) Have selection committee make site visits to systems that have actually implemented system from top vendors

and ask them to talk about their experience working with the vendor.

(7) Draft a list of questions to ask each vendor during the presentation.

(8) Analyse results of presentations/ demonstrations.

For Presentation

- Request that high priority modules be demonstrated first.
- Request the display of a targed full MARC record.
- Ask if the version that is being demonstrated for each module is the same as the version in current release i.e. what you would be getting if you bought the system today.
- Watch for cumbersome or awkward operations within or between functions.
- In addition to the canned Demo, ask that specific searches, operations, be performed that are analogous to real situations in your library. Ask each vendor to perform the same operations.

Phase VI: Begin contract negotiation with top vendor. The goal of this is to purchase a library automation system.

- Purpose is to interpret and clarify the differences between a vendor's response and the library's specifications.
- To formalise pricing and payment schedules, deal with non performance issues and remedies as well as warranties, vendor bankruptcy, software infringement, and maintenance expectations.
- Safeguard conformance to any legal requirements necessitated by the library's parent organisation or governing board.

Tasks

(1) Involve legal counsel, together with library personnel, in drafting or evaluating a contract.

(2) Compare list of necessary contract elements to actual contract.

(3) Set up a counsel negotiation agenda.

(4) Bring negotiations to a successful and favourable conclusion.

Phase VII: System Implementation. The goal is to install the selected system. Bench mark test is typically conducted after a vendor has been selected but before the system is actually installed in the library and prior to any payments by the library to the vendor, a bench mark test may be necessary if the system being proposed exceeds the capabilities of any of the vendor's system that are currently installed. Bench mark tests require careful planning and preparation and should be devised with legal counsel. A detailed "script" of transactions to be performed at each terminal should attempt to reflect the library's "real" operating environment. Bench mark tests are costly and time consuming and should be automatically required of every vendor.

A performance bond may be required by the library as an alternative to or in conjunction with a bench mark test. Performance bonds require that the vendor place a specified amount of money with a third party until system has been installed and accepted by the library.

Typical Performance Tests

- System reliability test: confirmation of the fact that the system is fully operational.

- Functional performance acceptance tests: verifies that the system capability can perform in the system's documentation.
- Full-load response time test: determines whether the system can perform within required response-time tolerances under a full transaction load. The maximum response time required by the library must be carefully determined. The vendor and the library together usually develop the testing of the system during the contract negotiation and these tests result expectations are incorporated into the contract.

These type of tests usually extend from 60 to 90 days after the library's bibliographic and patron databases have been loaded. These type of tests should never be performed with test data supplied by the vendor.

Problems

(1) Customise the vendor's system to the library's policies.

(2) Site preparation.

(3) Installation of hardware and software with initial performance test.

(4) Acquire the necessary forms, supplier and other peripheral equipment.

(5) Load and index the bibliographic databases.

(6) Train staff, realign workflow and space.

(7) Activate system.

(8) Evaluate operation and do appropriate testing.

(9) Accept system.

Evaluation

Whichever changeover procedure is adopted there will be some relief when the system is finally up and running, but it must be recognised that this is not an ends in itself. Time must be made to appraise the project's success or otherwise. It is perhaps best to do this after a year or so, when much of the heat should have disappeared from the situation and constructive comments can be made. Future plans should also be outlined at this time. At this stage, a more formal method of evaluation may be required. Evaluation needs to be carried out with sensitivity and tact. Interviewing the staff and users and holding formal meetings to discuss the system are two methods that may be used. The nature and the size of the library will obviously have an impact on the appropriate method chosen. A number of things need to be evaluated such as:

- the implementation and how it went, especially the ability to keep to the time of the implementation schedule;
- the extent to which the new technology meets the goals and objectives set for it; and
- job satisfaction with the new roles.

Each of these sections can be broken down into smaller units as befits the library.

Part of the evaluation may take the form of a testing period. Immediately after installation, there is a trial period during which "bugs" in the system can be removed and various adjustments made. Difficulties in using the system or errors should be reported and logged. This is an essential part of the overall plan. Quinlan (1987) comments that the trial period should not be shortened to offset delays in earlier parts

of the project. Above all, the process of communication should continue: the systems librarian will want to make adjustments to the computer programme and users will have their own ideas to contribute, especially as their confidence in using the system grows.

On informal level, evaluation can be achieved by watching operators at work. Clayton (1987) admonishes that techniques for measuring systems' performance may hint at "big Brother" tactics. When the time taken to perform task and productivity are under scrutiny, staff must be aware of the reason for it or they will misconstrue management's aims. If tasks are taking an inordinate amount of time this is probably due to a yet unidentified faults in the system. The mutual benefit to all in isolating these faults should be stressed. The best way of avoiding suspicion is to involve the staff in the evaluation exercise. Sensible suggestions must be followed up whenever possible.

A less tangible, though equally important, gauge of the system's performance is employee's morale, which in turn reflects their job satisfaction. Staff themselves may not be aware of the causes of their anxiety. Things to look out for are: any sudden, enexplained increase in absenteeism or poor time-keeping; irritability, headaches and increasing complaints from and between staff.

The reaction of the library's clientele is also significant. Complaints and praise alike can be valuable indicators, though here there is an even greater communication probelm - unless people feel very strongly they are unlikely to voice their opinion effectively. Comments on books is one way of establishing views, though these are open to abuse. Marchant (1982) states that as a library expands the librarian's direct contact with its users decreases. Library staff should therefore play an important part in reporting reader feedback. This assertion brings the discussion in full circle: staff are unlikely to relay readers' comments unless they already have confidence that their own remarks are given serious attention.

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