RMG Consultants, Inc.

Papers on Library Automation

The Three Most Common Mistakes Made by Library Managers and Vendors of Turnkey Systems

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LIBRARY MANAGERS' THREE MOST COMMON MISTAKES

The three most common problems that libraries consistently face when undertaking automation are inadequate planning, decisions about data conversion, and contracts.

1. Inadequate Planning

Until a library has gone through a very careful planning process with its key staff and managers, and has identified its needs and goals for automated systems and services, it cannot state with confidence its requirements for automation. Until requirements can be stated at a meaningful level of detail, it is not possible to estimate schedules and budgets for the project that will be necessary to provide the agreed-upon systems and services. Until reasonably long-term automation requirements are stated (for a period of at least five years), it is not possible to determine if systems and services implemented in the short-term will have the growth potential to address longer-term goals and requirements. To systematically address automation needs, goals, and requirements is in itself a complex planning process that should be designed to include individuals in the library environment who make or are affected by decisions to automate.

The problem for libraries -- and the most common mistake that library managers make -- is inadequate planning for library automation. Libraries need to plan thoroughly for library automation. Libraries often lack planning processes that are designed to identify basic needs, goals, and requirements. To engage in library automation without a well-defined, well-understood, and mutually supported plan is a basic and unfortunately common mistake that library managers make.

2. Decisions About Data Conversion

It may be that more money is wasted on data conversion than on any other aspect of library automation. Data conversion is essential for effective system implementation. However, most data conversion projects are undertaken without stated library automation goals and plans. The alternatives for bibliographic data conversion are numerous and complex, and most librarians and many of the vendors who sell conversion services do not understand the costs, advantages, and disadvantages of various approaches and methods. It is quite common for library managers to choose a data conversion method without knowing the full costs of the data conversion project they are getting into, or the costs or advantages of alternatives. Library managers often make the mistake of embarking on a data conversion project without having evaluated alternatives, or without having stated fully the goals, plans, and budgets of the project. In many library automation projects (from the smallest public libraries to the largest university libraries), the cost of bibliographic data conversion and the application of machine-readable labels for purposes of circulation control can cost more than hardware and software for an integrated library system (that includes an online public access catalog). To convert bibliographic data without well-defined plans that include considerations for labeling materials (for circulation control) often proves to be an expensive and long-regretted oversight.

3. Naive Contracts

Librarians still buy automated systems and services that they do not understand. In particular, the technical aspects of turnkey systems are too poorly understood. It is a common mistake for librarians to sign contracts that do not have warranties for: 1) growth in the sizes and functional capabilities of systems, 2) increases in the numbers of terminals and transaction volumes, 3) addition of future subsystems, 4) increased processing power and data storage capacity, and so forth.

Conclusion

Library automation is complex. Education and planning are the keys to successful library automation projects. Libraries should not invest in data processing systems and services without carefully assessing alternatives. Identifying, understanding, and evaluating alternatives are the basic steps in avoiding wrong approaches and unneeded expenses.

THREE COMMON MISTAKES BY VENDORS OF TURNKEY SYSTEMS

RMG's staff of library automation consultants frequently observes three types of mistakes that virtually all vendors of turnkey systems make: they misunderstand library requirements, they make serious misjudgments in system design and development, and they fail to communicate effectively with their library clientele.

1. Library Requirements

Libraries are complex social organizations, characterized by complicated interactions and relationships with their users. Bibliographic data are extraordinarily complex, posing continual problems for the maintenance of bibliographic quality and authority control in library databases and catalogs. The data processing capabilities required to describe, store, and interrelate the various records required within a library environment (e.g., patrons, loans, schedules, books, serials, authorized names and subjects, orders) are formidable challenges for either

manual or computer systems. It has taken the library automation industry more than a decade to understand the fundamental system requirements for some library functions. Even today, when libraries with unusual requirements attempt to obtain suitable systems from the turnkey market, there is sometimes a reluctance or inability on the part of vendors to appreciate the differences between their products and the libraries' stated needs.

In product development, vendors often emulate the evident capabilities -- and unwanted constraints -- of manual systems. Too little attention is then devoted to understanding basic user requirements and designing systems with data processing capabilities that go well beyond the limits of traditional manual systems. Similarly, vendors make incorrect assumptions about how libraries will use automated systems. Vendors do not fully anticipate how some capabilities and features will be used. Faulty or incomplete notions of system applications usually lead to library frustration and vendor re-programming.

2. System Design and Development

It is no surprise that the perfect library system has not been developed. Besides failing to understand libraries' requirements, vendors often develop capabilities that are convenient to provide, rather than truly responsive to genuine library requirements. Such shortcuts have led to costly mistakes for both vendors and customers.

The most dramatic examples of such short-sighted product development are the systems that were originally conceived as circulation systems and designed with no particular concern for bibliographic quality, MARC format requirements, or expansion potential. Libraries throughout the country have painfully discovered that brief "circulation record" databases cannot be upgraded or easily and inexpensively replaced to serve as the basis for online catalogs. Neither can some circulation system hardware configurations be expanded; instead, these must be replaced in order to provide the additional processing capacity for online public access catalogs or other desired modules.

In other cases of inadequately researched product development, vendors add features or major modules to their software with little understanding of how the new capabilities will affect the performance of their customers' systems. The result if often poor system performance and a consequent need to belatedly develop more efficient (and sometimes completely re-designed) versions of the same software.

Poorly conceived, but expedient, system designs can also create operational difficulties. Some vendors develop systems that have limited potential for incremental growth, causing libraries to run out of capacity for adding more modules, increasing the number of terminals, or handling significantly greater volume. When vendors choose computer operating system software that imposes these constraints, it is usually because the software provides "easier" programming languages or "better" database management facilities that allow the vendor to develop software more easily than would otherwise be possible.

Such self-serving design decisions can also lead to a lack of integration within systems. Problems can arise in moving from one function to another within different subsystems. Vendors with short-sighted system designs suffer many such complications. These vendors over-tax the flexibility of their systems when they try to add capabilities not originally anticipated or understood. If a system is not developed from its inception according to comprehensive requirements and designs, then ease of use can be very difficult to maintain.

One other area of system design is particularly troublesome. Mistakes in telecommunications seem almost the rule rather than the exception. Rarely do vendors analyze alternatives to determine the least costly solutions, or seek designs that enhance system reliability. Some of the more complex telecommunications systems have been difficult to implement, trouble-shoot, diagnose, and repair. Vendors often seem to lack the expertise and interest required to provide dependable, low-cost telecommunications systems.

3. Communications

The fields of librarianship and data processing each have their own jargon (it is interesting to watch neutral parties judge which is worse). Furthermore, the complexities of library system requirements and product designs have led to a special language of library automation, with vendor dialects for various product lines. It is little wonder that librarians and vendors sometimes have trouble communicating. It is difficult for vendors to find personnel who are knowledgeable of libraries, data processing, and library automation, and who are schooled in library systems requirements and specific product designs. Such knowledge on the part of library systems designers is crucial. Additionally, vendor personnel must have the human relations and communications skills necessary to explain library automation amicably to librarians, who

can vary from the unknowing and uncaring to the extremely knowledgeable.

It is increasingly important for a vendor's staff to be able to communicate effectively with librarians, board members, students, faculty, interested citizens, administrators, and others in a library's environment who will approve of, use, or be affected by an automated library system. Failure to listen is a frequent cause of communications problems, especially when vendors' answers do not address the level or intent of library questions. Also, problems in communication can regularly be found in vendors' proposals, system documentation, and training sessions. One of the most important goals for system evaluation and contract negotiations is to assure that the library understands the product and services being considered. Without this understanding, problems with deficient training, inadequate or unwritten operators' manuals, and late delivery of promised software or documentation will continue to prevail throughout the industry.

Increasingly vexing is the lack of vendor consultation with libraries regarding system specifications and performance measures. Ill-conceived system parameters and a lack of mutual understanding can lead to unwanted and sometimes bizarre results, not only in system products (e.g., notices, reports, CRT displays), but in system files and processing activities. Communications is the key to overcoming and/or avoiding this type of problem.

Conclusion

Generally, I am proud of the library automation industry. I have watched the turnkey vendors develop their products and organizations, and go through good times and bad. (Many of the mistakes in systems requirements, designs, and development that I have addressed are standard difficulties in the data processing industry.) Overall, I believe most of our vendors do a good job.