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A Realistic Blue Sky System

INTRODUCTION

A conference is just an admission
that you want somebody to join you in
your troubles.

—Will Rogers

This particular conference has a long history of providing the opportunity for librarians to join together in their troubles/concerns. In this spirit, the author would like to share, if not her troubles, at least some concerns.

My first experience with computers was in 1974 when, on the second day of employment, my new boss said, "Oh, by the way, that thing sitting in the middle of the cataloging department is our new CLSI computerized circulation system. It was delivered last week. It will be your responsibility to load the data and get the system up and running." I had to learn fast, and have been learning ever since; in the process, I have become somewhat of an expert on the relative merits of various database management systems, or at least qualified to discuss what you may want and/or need a system to do. It is important to have computer people around to help evaluate the technical aspects of the hardware and system software. They may also be needed to run the system once it has been selected. But, in the final analysis, if the applications programs do not support the activities of your library and do what you want done, it really doesn't matter if you have a Cray supercomputer with the latest operating and database management systems or a Brand X microcomputer from a mail order house.

So, how do you know if a system is the right one for your library? How much power is enough? It is a long, detailed and often laborious

process to arrive at an answer. Among other things, it involves system specification, vendor scrutiny, and vendor selection. The first step, system specification, is the focus of this paper.

SYSTEM SPECIFICATIONS

There are several ways to write system specifications. The safest way to be sure that a system will meet your library's needs is to involve your staff and to write the specifications yourself. This will involve three steps:

1. Analyze and identify areas in critical need of change/support;
2. Blue sky; and
3. Compromise, which means prioritize or rank those areas identified in step 1.

Analyze and Identify Critical Areas

The first step in this process is to analyze what you are currently doing and why. That, you may say, is easy. There are written policies and procedure manuals for your library, and each department has its own manual covering their specific procedures. But when was the last time those manuals were updated? How many employees have come and gone with their own interpretations of what was written down? How many staff have been trained by someone who had their own interpretation of what was meant and who, in turn, trained someone else and further distorted the original intent? It is very easy to say that you know what is being done because it is written down, but it is quite possible that many things are being done that are not in the manual. It is also likely that some things which are done are a very distorted version of what is in the manual. This is particularly true if the manual is more than six months old.

How do you find out what is really going on in your library? There are a number of ways:

- Ask your staff to write down exactly how they do their jobs.
- Ask them to do this without reference to the current manual, if there is one.
- Ask them to explain why they do what they do.

You will gain some valuable information this way. You will not only discover what is being done but also why it is being done that way. You will also discover just exactly how much your staff understands

the mission, goals, and objectives of the library, and you will be amazed at the number of procedures which exist in a vacuum because your staff has little or no idea of the overall picture of your operation.

At this stage, you also need to identify and examine your priorities. What things are working smoothly in your manual or current automated systems? What things are not? For instance, is your current circulation system operating smoothly or is it a chaotic mess? If it is working smoothly, you may not want to give it a high priority for replacement. Is your card, microfiche or book catalog simply beyond redemption? If so, this may be your high priority problem, but if it is working smoothly, it will receive a lower priority rating. Is your acquisition process in such disarray that you have little control over funds? This may or may not be a serious problem in your library. Is the scheduling at the reference or circulation desk getting to be so complicated that it takes up half or more of one person's time? This is quite often a problem in a large library. Is the budget totally out of control because you have a poor manual procedure for monitoring it? Or, do you have to wait three months for a computer report from a city, state or university agency before you know where you stand? For many libraries, this is a critical issue. Are you far behind in writing quarterly, annual and other reports? Some libraries do not stress such reports as heavily as others, so this may or may not be a problem for you.

Do you have one or more building projects going on either at your main or branch libraries? It is reasonable to expect the builder to keep you updated, but they don't always do so. Do the patrons of your bookmobiles or other outreach type services get short shrift because it is impossible to get them materials in a timely fashion because there is no en route access to the library's holdings? There are ways to handle this problem, including portable radios, terminals, or cellular phones. Do fund-raising activities need more detailed and up-to-date records than a manual system allows? This can be a critical need, especially if you rely heavily on endowed funds for operating expenses or to finance capital expenditures such as a new automated system. Is the maintenance of your main and/or branch libraries a problem because of inadequate repair records? In my experience, this is a very thorny problem, especially with bookmobiles. Are some functions already automated? Decide what you are going to do with those systems as you look toward a new one. Are they going to be phased out, linked, or integrated? These are just a few of the questions which you need to ask yourselves.

The next step, after identifying the problems which your library faces, is to identify those which automation can solve, which would be better solved by some other method, which should be part of an overall system, and which would be better suited as independent, stand-alone systems. For instance, the monitoring of the building project(s)

might be better handled by an independent project management package which runs on a microcomputer. On the other hand, budget monitoring could and probably should run on your acquisitions system, since a sizeable chunk of the budget is for materials. The materials budget will be controlled by the system, so why not let it control your whole budget?

“Blue Sky” and the Online Public Access Function

In the process of discovering and identifying your priorities, you can begin the second step, which is to “blue sky.” *Blue sky* simply means to think about an ideal system. This step has little relation to what is really possible, affordable, or any other practical consideration. It is important at this stage to constantly caution your staff that the ideal system does not exist; however, it is equally important to decide what is desirable before looking at systems and hardware. With the rapid developments in the field of automation, many things which were not technologically possible five years ago are now feasible—so go ahead and dream. By the time your specifications are finished and money is available, it is quite probable that at least some of the things which are not possible now will be then.

One note of caution here. At this point, cost or size of the computer to support your blue sky system should not be considered. Not everything you want will be affordable or technologically feasible, but you should clearly identify and state on paper what is desirable before you begin the compromise process which reality will impose upon you. Besides, you might be surprised at how much of what you want is feasible and affordable right now. (As a good friend of mine always says, “If you don’t ask, you surely won’t get it!”)

How is “blue skying” done for an online public access function or automated catalog? The first thing to consider is the patron’s point of view. After all, the patron is the one for whom you are designing it. It would be most helpful if you could include some of your more knowledgeable patrons in this effort. If that is not possible, do the best you can to forget everything you know about library practices, theory, automated systems, and searching techniques. (For other functions such as acquisitions, you can “blue sky” from the librarian/staff point of view because these functions will be used primarily by staff. However, do not forget that in an integrated environment some of the information from those functions will be available to patrons.) The one thing you must keep firmly in mind is that patrons want what they want, when they want it, whether or not they know what it is they want. There are at least seven areas which you will need

to consider: search strategies, extended features, circulation status, gateway services/networking, downloading data, user-friendly search levels, and remote access.

Search Strategies

From the patron's point of view, the first thing you want is a system which will allow the database to be searched for a known or unknown item. This may sound relatively simple but it is actually fairly complex. What is known about the item—author, title, subject, call number, or all or any combination of this information? At a minimum, the system should allow searching on each of these fields or any combination of them such as author/title, author/author, author/subject, title/subject or subject/subject. But what if, for instance, a patron wants information about William Shakespeare but does not understand how the library has handled it? Is he an author, title, or subject? A patron might very well assume that an author search should be used because, after all, Shakespeare is an author. If a patron does an author search, he or she will find all the materials by Shakespeare and may conclude that the library has no material *about* Shakespeare. A search by title will find some things about him, but only a full subject search will find the wealth of material which the library owns. A universal search function would allow the patron to enter the information available without specifying whether it is an author, title, or subject. With data entry occurring only one time, the system would retrieve all items which contain the search term(s) and tell how many subjects, authors, and titles it has found. Patrons could then choose to look at one or all of the categories and their attached titles. This is particularly important when dealing with corporate bodies and conferences which may or may not be treated as authors by the library, and which many users would never think of as authors. Another consideration is that patrons normally do not think of people's names in surname-forename-initial order. A system which allows author searching in only that sequence is not very responsive to the user's needs. The user should not have to know that the author's surname is a double or hyphenated one, or that the official entry for T. S. Eliot was at one time Thomas Stearns Eliot. After all, most patrons are not versed in the 1949 LC Rules, AACR1 or AACR2, some or all of which may be represented in your library's database. They should be able to type in a subject as they think of it, i.e., ESP, not extrasensory perception; or Civil War, not United States—History—Civil War, 1861-1865.

What if a patron knows the exact author or title of an item, e.g., *East of Eden*? The patron does not want the system to retrieve all the titles which have those words somewhere in the title. Only that book, its location, and its availability status are wanted. On the other hand,

what if only part of an author/title/subject is known? A system should be able to retrieve that for the patron, too. For instance, entering "The Marketing of Alaska" should retrieve the title "Lost Frontier: The Marketing of Alaska"; entering "Public Prayer and the Supreme Court" should retrieve the title "The Supreme Court and Public Prayer"; and entering "Henri Rousseau" should retrieve, among other titles, "Portrait of a Primitive: The Art of Henri Rousseau." In other words, both adjacency searching and keyword searching are needed. Also necessary is Boolean searching which is easy enough for the computer-phobic patron. Patrons may want to search titles which are alternate titles or located in contents notes or added entries. Furthermore, they may want to search subjects using their own terminology and logic, not just the Library of Congress's.

Extended Features

What extended features would patrons like to have in an online catalog? These items are ones which might be considered curlicues by some and downright essential by others. For instance, a poor speller might like a system with a spelling checker, which would open a window next to the unknown word and ask if perhaps it is misspelled. Another patron might want a system which uses a microcomputer or workstation with a color screen and at least an EGA (Extended Graphics Adapter) monitor so that all languages can be displayed on one terminal screen. Another desirable feature could be a template that allows a patron to enter a search in any alphabet, whether roman or non-roman. Additional features could limit searches by language, date of publication, kind of material, level of material, and place of publication and/or holding library, at a minimum. You may very well think of others.

Circulation Status

Circulation status is a must in an online catalog. Patrons need to know before they go to the shelf that the material is there. They do not want to go looking for material which is checked out, on order, lost, missing, received but not processed, etc. The system should be able to automatically place a hold on the title if it is checked out, on order, or received but not processed; or to place an interlibrary loan request if the material is lost or missing.

Gateway Services/Networking

If the library does not own the item or have material on the subject a patron wants, you might like to continue the search onto other libraries' databases and/or onto OCLC or other commercial databases, or any CD-ROM databases which are available locally, without changing or modifying the search strategy which was used on the local system.

Downloading Data

Once items have been searched for and identified, and citations and/or abstracts retrieved, the system should, at the very least, be able to print that composite list. Even better would be the capability to download from all the various databases onto a floppy disk which users could take with them to upload onto their own databases. Better yet, an Integrated Scholarly Information System would allow for the manipulation and integration of data from several databases on that floppy, rather than just downloading ASCII files and then leaving it to the users to figure out how to manipulate/integrate them on their own.

User-Friendly Search Levels

Patrons want a system which will hold their hands the first few times they use it so that they are not panicked by it nor made to feel stupid. A built-in tutorial would be nice. But if, after the first few uses, patrons feel comfortable with it and do not want all that handholding, they would like to be able to shortcut some of the long-winded instructions and fly on their own (to a limited extent). The "help" button should still be available at any time and anywhere in the system. Patrons may even become so expert at using the system that they really don't want any help at all—just a blank screen on which they can enter a search strategy. The system should be consistent in instruction/procedure, i.e., the same keys will always serve the same functions. Color-coded keys can also help the patron know easily and quickly which one to push. The bottom of the screen might have icons which show which options are available—red, green, yellow, etc. with their corresponding definitions. The top of the screen might have a status line that tells patrons what information they entered into the system and what the system is currently retrieving. The information could be displayed under the patron's search term even though the Library uses another term. This would be informational only, as the system would have already retrieved the relevant citations. The system should also allow the patrons to look back at their searches at any time in a particular session at the terminal and see their results. Scholars who have been given the authorization could have the system keep historical records of their searches so that, when they access the system the next time, they can verify online what they have already searched and view the results rather than relying on memory or jotted notes. Other patrons could enter areas of research/subject interest and have the system tell them every time they log on what new materials have been added in these fields since they last used the system.

Remote Access

What kind of access is appropriate or needed? Patrons might want to access the system from home, office, car, boat, or airplane. However, personal terminals may not have the capabilities of graphics and color that the dedicated terminals do. So some kind of screen display is needed which will make sense on a personal computer. A nondedicated terminal may not be able to display the ALA character set or non-roman characters; thus, some kind of transliteration or translation table should be included so that patrons don't get gibberish on their screens.

Other Factors

The list of considerations may seem practically endless. Only a few of the things which an online public access function might/should do have been identified. Priorities and specifications need to be thought out for every function which you want supported by your system. (For instance, if you want an acquisitions function, you will need to proceed through this same process.) When the process is completed and the specifications are written down for each function that you want in a system, the result will be a document which represents your wildest dreams come true.

Compromise

The final step in the process of specifying a system is to be realistic. This is actually a three-step process.

1. Look at any local requirements. Your library's parent body—be it city, campus, or company—may be committed to one particular brand of computer. Or, they may be committed to a particular operating environment such as Unix. If so, you must add that requirement to your specifications. This may or may not severely limit the systems which you can consider.
2. Look at what systems are available. There are several ways to examine systems. One is to go to ALA's annual and midwinter conferences, state library conferences, or other conferences where automation will be featured in the exhibit area. Another is to go to nearby libraries which have systems and see how the individual system works there. A third alternative is to ask vendors to visit your site and do a demonstration. However you go about it, you will want to evaluate the demonstration system in light of the priorities of the blue sky specifications you have drawn up. It will become apparent in a fairly short amount of time which specifications will need to be modified in the cold light of reality. You should now examine your list of priorities and specifications and identify those items which are mandatory and those which are optional.

3. Weigh cost, needs, and budget against your specifications. If a microcomputer is all you can afford and your library is small enough to be supported by a micro system, then you will need to do an in-depth evaluation of those systems. If, on the other hand, your library can afford a mainframe and you need its power, then you will need to evaluate those systems in light of your specifications. If a minicomputer-based system is what you can reasonably afford, you will need to visit with those vendors which come closest to meeting your specifications. You may find that, even though you thought you needed a mainframe system, many of your specifications which are mandatory can be met by a minicomputer-based system. It may be that only a few of those items labeled mandatory or optional will be unsupported. Unsupported specifications need to be looked at very closely to determine if they are absolutely essential. A move to the next level of computing, i.e., a mainframe, may not be worth the increased cost and complexity of system operation. By the same token, a micro- or supermicro-based system may meet the majority of your mandatory needs. You will need to carefully evaluate whether it is worth the cost to buy the mini-based system with its more complex operating environment, or whether it is more cost-effective to select a cheaper system. Of course, there is always the possibility that you need a mini- or mainframe-based system and you simply cannot afford it. This is perhaps the hardest decision of all: Do you compromise and take what you can afford, knowing it does not meet your needs? If you do this, you should carefully evaluate what the system will do and what you will ask it to do. The other possibility is that you will delay acquisition of a system until you can get one that more closely meets your needs. That is not a question which can be answered easily. You must consider the local situation, the politics involved, and the likelihood of future financing.

One word of warning here. Assuming that you have a reasonable financial latitude, you should still keep in mind that some things truly are mandatory and are worth the cost. Do not compromise your system to the point that it does not meet your needs. On the other hand, do not insist on something which is of marginal value. Only you can make that decision within the context of your local environment. What is marginal to one library may be absolutely essential to another. For instance, in my library it is considered essential that the system have the capability for an universal search. For your library and its patrons, you might consider that a nice feature but not worth the money which it will take to acquire a mainframe to support it. It is also considered

essential at my library that the ALA character set and non-roman alphabets be displayed for patron use. It might be that in your library that not only is this not desirable, but it might even be a disservice.

CONCLUSION

At this point, my answer to the question, "How much power is enough?" is: It depends. It depends on what you want your system to do; what external factors there are in your local situation, such as commitment to a particular brand of computer; what you can afford *and* how much you are willing to compromise to come within your budget; what your time frame for installation is; what bibliographic information or other data is in your database; what clientele you serve; and what the political climate of your governing body is. In short, it depends.

To summarize, have fun and dream the most impossible dreams—then be realistic about what is possible now. Don't throw out those blue sky specifications. Use them to push the vendors to develop and deliver better products. To borrow a phrase from test pilots: "Push the envelope." Test pilots push a new airplane to the very limits of its power and endurance. It is the only way to prove and improve airplanes. New technology is developed to correct the errors. Similarly, consumers and users must push systems and their vendors to their ultimate limit and set new performance standards and, when these are largely met, push the vendors again. This means that some of you will need to serve as test sites for new systems. It can be dangerous to be a pioneer, but no progress is made without risks. Some of the new systems will be successful. If you are the test site for such a system, you will become a hero because of your farsightedness. If the system fails, you may have to pay a price—anything from censure to loss of employment. The only consolation is that you will have advanced the state of the art. If you keep "pushing the envelope" in system development, in five to seven years—when you are ready to upgrade or replace your now brand new system—you will find many of those old specifications are standard equipment.

Know what you want to accomplish, then look for the means to achieve it. This is the way to encourage development and help your "blue sky" system become a reality.