The Impact of Library Automation—A Public Librarian’s Perspective

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I am speaking today on library automation’s impact on library organizational structure, staff, and the public from the perspective of a librarian with experience in technical services management and supervision in medium and large public libraries. Certainly my background colors my perspective somewhat.

While I am introducing myself to you I should add a couple of caveats. Although I am enormously proud of my particular library and will use some “how we did it good” examples, for the most part I have discovered through the literature and discussions with other librarians that our good ideas have worked elsewhere too. This just goes to show that no idea is really new.

In addition, when I conceptualize successful library automation and discuss its impact, I tend to think in terms of integrated systems, a series of functions that appear to the user (preferably both public and staff) as if they are in one system available from the same device. This ideal is rarely achieved by staff who must transfer records from a bibliographic utility to a local system and may have separate acquisitions and serials control or other functions to interface. At least one would hope, however, that these transformations appear transparent to the public and are done without rekeying of data from system to system. To have the greatest beneficial impact on staff, organizational structure, and the public, an integrated system must be the goal of any library automation plan.

The Management Team Approach

I have always worked in an environment where staff at all levels make contributions to the decision-making process and where a management team approach is applied not just at the top, but throughout. A real working team takes time to build, but will flourish where the following factors are present:

1. An administrator who is willing to listen to staff, willing to respond, and sometimes even change course when a better idea percolates from the ranks, and who gives credit where credit is due.

2. Middle management and first line supervisors have been involved from the start in the planning process and are themselves skilled communicators so that the two-way communication link is boosted rather than broken (as is too often the case) at this middle level.

3. At least some staff members in each unit are identifiable as informal group leaders who are willing to share ideas, lend information and enthusiasm to others in the work unit, and act as spokespeople for their compatriots.

4. All staff elements, in short, operate in an atmosphere of open, two-way communication. They trust each other to let that process work.

5. All levels trust enough to know that, at some point, a decision must be made, and all (or at least most) agree to abide by that decision and work to its successful conclusion; and,
6. The communication cycle remains open to feedback so that corrections can be made as necessary.

The reason I've made what may seem like a diversion to talk about the management team process and open communication is because I believe these are the most important factors in making a successful automation project.

I could talk all day, extolling the beneficial impact of automation and entertaining you with some of its pitfalls; however, the results are so inexorably linked to the process of getting there that one cannot be discussed without the other. Discounting some measure of good or bad luck, you plan for what you get.

The Change Process

An integrated computer-based library system impacts and changes every aspect of a library's organization and service. Charles Lowry says it very well:

Libraries are fundamentally nineteenth century institutions. They have, for over a century, been labor-intensive craft workshops. They are organized around specialized skills and knowledge applied to complex manual filing systems. Today the library is being transformed into a capital-intensive, high technology light industry.4

One irony is that once the change has taken place—that is, once the process has thawed original skepticism, change has transpired and a new way of doing things has refrozen into place—people become resistant to further change.5

Unfortunately, in the age of automation, change is a continual process where whole systems transform every five to seven years and, in my experience, "enhancements" throw monkey-wrenches into people's set way of doing things every few months. A recent example comes to mind. In Stockton we have just begun to use a collection agency to take care of delinquent patrons with forty dollars or more in long overdue materials or fines. For the first two years after automating circulation, the public was very good about returning materials and paying fines because they thought the system would get them if they didn't. Gradually that changed as the "hard core" two or three per cent of registered borrowers discovered that nothing ever happened to them if they tossed our computerized forms in the circular file. We decided to jolt them out of complacency through an outside service. While the public has responded surprisingly well, the imposition of a new procedure on top of the automated billing process caused considerable consternation among front-line circulation staff.

This is an example of a procedure imposed from above that had to be retrofitted into an existing automated procedure in a way that is not ideally integrated. Although we provided what we thought was clear documentation on the procedure, annoyed and frustrated staff left the circulation desk on the first day with a whole raft of questions that, while included in the fine print, needed to be underscored. In particular, we had used a signal for a "manually delinquent" patron in the computer system (a pre-automation record) also to mean one sent to collection. Staff members, used to seeing this online signal for only one reason, got confused when it suddenly meant something else, too.

In retrospect, implementation of this new procedure would have been much smoother if we had started to involve front-line people earlier and, once manuals were prepared and read by all, used examples from the documentation in staff meetings to role-play how to handle patrons in various situations before staff were confronted with them.

In a happier example of how change can be best accomplished, our cataloging and acquisitions staff have formed a strong cooperative bond that allows new ideas to bubble to the surface from any staff level and provides cooperative support so that when one section is besieged with work or wants to try a new procedure, the other chips in to fill the void.

While this kind of synergistic, open atmosphere can take place in a non-automated environment, it is certainly aided and abetted by the automation process. These sections share common goals: to make information about materials on order, in process, or in the collection accessible as soon and as accurately as possible; and to get materials ordered, received, and processed as efficiently and effectively as possible. As we automate it becomes clearer that the acquisitions and cataloging workflow is one continuum and needs to be handled as such. Procedural changes in one area very often impact on the other.

Recently acquisitions and cataloging collaborated to enter adult order list materials online prior to the order meeting and to create the paper list for branch and reference selection use by downloading from our newly installed Bowker BIP+ on CD-ROM. This is just one step along the lengthy path toward a fully integrated acquisitions system. The project was conceived at the staff level and carried out entirely as a joint effort of the cataloging and acquisitions sections. Plan-

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ning took place in cataloging and acquisitions staff meetings which are jointly attended by their section heads. Well in advance, the idea was presented to public service staff. I also took the concept to a coordinators' team management meeting. After the fact, feedback was received at an adult order meeting and minor adjustments made to the process. Despite all the groups to whom we presented the idea, the process worked quickly, and within a couple months the project was accomplished.

This example illustrates a number of points about the effective change process in automating library procedures:

1. Let ideas surface from the ranks;
2. Let the idea-generators do the planning, with appropriate managerial overview;
3. Make sure administration and all impacted staff are well informed prior to implementation and at various points in the implementation process;
4. Work incrementally; don't bite off more than can be chewed at one time.
5. Work cooperatively to share the planning and implementation. This will increase the likelihood of streamlined, integrated procedures.

**Automation Impact: Organization and Staff**

Automation has brought about a number of substantial organizational changes. Research shows that some libraries that automate do no more than change job descriptions to add the fact that computers are now used as work tools. Others have combined public and technical services units, as is the case at the University of Illinois. Still others have expanded the centralized role of Technical Services to encompass data base and automated system management wherever it comes into play.  

Stockton has steered the latter course. As planning commenced for circulation control and acquisitions, the units primarily responsible for these functions joined the Technical Services fold. Automation at the operational level is linked to the Circulation Section. The Technical Services Management Group, including the heads of Acquisitions, Cataloging, Circulation/Systems and myself, share expertise—and among us we have over eighty years of library experience—to problem-solve and share ideas for future developments.

To accommodate automation there were some reclassifications upward—from Library Page to Computer Operator and Circulation-Page Supervisor, a high level clerical position, to Circulation/Page Supervisor—Systems Manager, a professional position. We have made some mistakes, mostly by loading extra-heavy workloads on people now responsible for automation. (My reading tells me that is not uncommon.) However, the structure is basically sound and has served quite well over the past several years. We are open to further organizational changes as the need arises. It has certainly facilitated automation planning and implementation to date and, as in the earlier example of acquisitions and cataloging cooperation, has allowed some streamlining in operations.

**Staff Changes**

What about changes at the staffing level? I'll start with what I know best, my own job description as Technical Services Coordinator. I am expected at the same time to be "the staff expert" in all things automated, and the chief trainer, documentation specialist, publicity release writer, and yes, even radio and TV personality at times when the latest library innovation is being touted. This is a schizophrenic, and sometimes humbling role because I must think computerese at one moment and basic English the next.

My boss, Ursula Meyer, Director of Library Services at Stockton-San Joaquin County Public Library, is an excellent weathervane of what the impact will be of an automated system on the typical non-technical staff member or the average library user. She particularly keeps me humble in my role as chief automation communicator. She says I sometimes have a pained expression on my face when I try to explain technology to her in lay terms. As I said, bridging the communication gap is often hard to do.

"CD-Who?"

Ms. Meyer recently looked very puzzled as I described the Acquisitions Section's desire to purchase Bowker's BIP* in CD-ROM and all the wonderful things they could do with it. "Now wait a minute," Ms. Meyer said, "Who is CD-Rom—some famous Indian author?" Well, it sort of keeps one humble and teaches patience in the face of the non-technical majority.

In order to plan and implement technology successfully, the Technical Services Coordinator must be in constant communication/negotiation with staff at all levels, the library management team, vendors, and other integrated library system users. Electronic mail helps in all of these communications.

In addition, I spend substantial portions of time as a futurist planning the next phases of automation five or more years in advance. While I
do not possess a crystal ball, I am greatly aided in this pursuit by a microcomputer. Automation has also meant delving into the field of high finance and capital budgeting in order to find the means to fund system growth. Negotiation skills are required to deal with a raft of vendors and suppliers.

“They don’t let you off the farm”

Not all of the changes in my job description have been rewarding or without stress. I am one of five people on the library staff trained to be a computer operator. I know just enough to be dangerous! This makes me subject to the tyranny of the machine and the telephone as we frequently need to respond to telephoned requests to fix a “stuck” terminal or some more substantial system problem. Sometimes I feel like a mother hen as I take my turn watching the system over lunch hours or during a particularly difficult bout of system illness.

A couple years ago I ran into John Berry, Library Journal Editor, at a California Library Association Conference. He commented that he hadn’t seen me around lately. My response was “Well, you know, once you automate they keep you down on the farm.” (It is indeed a pleasure to be let out long enough to come to North Carolina!)

“The State-of-the-Art Blues”

In addition, my reading habits have changed of necessity. I used to be able to snuggle up in an evening with a good novel (as well as a good Library Journal or Wilson Library Bulletin). Now everything must be skimmed because so much must be digested to keep current with the state-of-the-art. The reading regimen now includes such fascinating titles as Computer World, Digital News, Digital Review, and a couple of my personal favorites, the Systems Librarian and Hennepin County Library’s abstracting service Online Catalog News. Alas, novels are mostly being saved for my retirement.

The Section Heads in Technical Services and their professional staff members also have expanded roles in the age of automation. In the past, procedures changed slowly. Supervisors could maintain pristine procedure manuals. Training was concentrated primarily in the first six months of employment. Acquisitions librarians and catalogers actually had time to select books and catalog them.

Now, in addition to the usual supervisory activities, section heads are faced with constant staff retraining on increasingly sophisticated and technical bibliographic formats, input standards, and local integrated system features. Workflow must be re-analyzed and staff brought into the implementation process with each system enhancement. Supervisors and other professional staff in Technical Services share liaison relationships with other library divisions and sections in order to inform and to share decision responsibilities concerning procedural changes emanating from Technical Services that now—more than ever—impact staff in all parts of the library.

As professional staff have had to increasingly take on the roles of managers, data base developers, trainers, and communicators, many of the acquisitions and cataloging responsibilities once in the domain of the professional are now handled by paraprofessional library assistants. Library assistants not only play a significant role in the procedure planning process, but are often the pioneers who dig in to see how these plans work—and to offer revisions when they don’t.

In acquisitions, library assistants, under general supervision, are responsible for making selection suggestions, preparing selection and order lists (now partly via BIP*), negotiating best rates with book jobbers, corresponding with jobbers when there are problems, and maintaining fund accounting information. As acquisitions automates, more of this work will be done online at both paraprofessional and clerical levels. Acquisitions librarians will use the systems increasingly to analyze collection usage patterns, vendor performance, and fund balance information.

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In cataloging, library assistants provide a large share of the cataloging production, thanks in part to the increased availability of copy on the OCLC system. They are maintainers of bibliographic and name authority accuracy in both national and local data bases as they perform bibliographic verification and OCLC “production” activities.

The roles of typist clerks, on the other hand, have become more circumscribed as a result of automation. Terminal time spent in searching for cataloging copy, inputting data, and labeling are scheduled; and there are many fewer off-desk tasks with the elimination of card files. The potential for terminal fatigue and increased job dis-
satisfaction have been partly assuaged by finding new off-terminal assignments for typist clerks. They substitute at the circulation desks on a regular basis, a job which now requires behind-the-scenes typist clerks to have increased public contact skills. They assist in acquisitions, where the implementation of automated procedures is showing increased need for merged workflow between the two sections. They have also taken on some tasks previously handled at the library assistant level such as added copy routines and statistical recordkeeping.

Of course, the rest of the library staff, and the library organization as a whole, have been unalterably impacted as well. Here's a sampling:
— Every policy and procedure, from confidentiality of records, to circulation, to collection development, to communications and delivery have been rewritten. It's most fortunate most are maintained in word processing because they now change so often.
— Procedures that used to be a "branch option" are now consistent library-wide.
— All staff, with the possible exception of a few pages and the library director, correspond with each other via electronic mail. Next to the circulation system, the electronic mail component has done more to revolutionize the library's way of doing business than anything else. It is a key communication tool.
— Microcomputers have sprung up in most branches and sections for word processing, specialized database management programs, and spreadsheet statistical reports, as well as for circulation system backup.

Costs and Productivity

A couple of commonly asked questions are:
Does library automation increase productivity? Does it cut costs? To the first question I would respond, yes, and to the second, not really.

While some libraries have been able to trim staff and cut operational costs, it is inadvisable to use this as a selling point for automation. Some positions may be eliminated as a result of attrition, but the more realistic goal is to make more positions available for direct public service. In general, this has been possible as cataloging and branch clerks have been freed from filing, circulation staff have eliminated manual overdues typing, and reference assistants have stopped doing as much reserves recordkeeping.

I did a budget comparison of our last pre-online system year, 1982/83, versus FY 87/88 and found that technical services sustained a slightly ahead of inflation 7.7% increase per year. The personnel component of this total was up a more modest 4.8% per year, and supply costs actually went down. The budget area that caused the overall 7.7% increase, however, was the services category, an item that rose 141% between 82/83 and the current year. This budget category includes OCLC and COM catalog costs, system software and some hardware maintenance, and a replacement fund for equipment.

"But You Just Got Half a Million Three Years Ago..."

The real budget jolt is in the initial and subsequent capital investment. A library may be able to cost justify over several years the first computer phase. Often this is a circulation component, the easiest to cost justify. The problem is, even in the best planned circumstance, it doesn't stop there. Every five to seven years you'll be back to the funding source for a new or expanded system which will be absolutely essential in order to handle expanded transaction levels or additional software packages. A new generation of computers comes out every three or four years, and you will want to migrate to it at some point. This replacement request will be particularly hard to cost justify. Start early; it may take two or three years. Remember that you face certain disaster if you push the old system over certain murky defined limits.

Despite the capital funding blues, it is some comfort that the biggest part of the operating budget, staffing, can, and in our case, has been, kept in check through automation. Automation has made staff tremendously more productive. Over a five year period the circulation services from our Central Library Adult Circulation Section has jumped fifty per cent. Cataloging now handles sixty three per cent more titles per year than five years ago and processing has increased productivity by eighty one per cent. We take in three times as much in fines and replacement money for lost materials than in pre-automation days. I have estimated that since I got a microcomputer and electronic mail link-up at my desk, my productivity has increased by twenty five per cent or better. It is really on the basis of these productivity and services gains that one justifies new and expanded automation.

Our experiences correspond with those noted in the literature. I would particularly recommend to you Kenneth Dowlin's The Electronic Library and Joseph Matthew's A Reader on Choosing an Automated Library System for further examples of automation's benefits for the library, its staff,
and public. 10, 11

Automation's Impact: The Public

Now, finally to some observations on automation's impact on the library's clientele. Not all of these experiences have been so pleasant.

"This is the police; let me have your records..."

Since automating our circulation procedures the library has been subjected to some attempts by law enforcement officials to get the records of various individuals. While this problem is not unique to computerized libraries, it has been heightened by the expectation that records are now online and available.

Anticipating this problem, Stockton established a confidentiality of patron records policy prior to automating, but found to its dismay that, when the boys in blue first arrived, the California code backing up our policy had loopholes. Specifically, the courts interpreted that it only prohibited the public from access to other people's library records, not such government officials as police. In 1986 the California Government Code relating to confidentiality of library records was tightened to close some of the loopholes. 12 North Carolina appears to have a 1985 bill, Chapt. 486, House Bill 724 on Confidentiality of Library User Records which some of you may want to compare to the California Law.

Jonathan Pratter, a law librarian, points out that in matters of confidentiality, you're damned if you do and you're damned if you don't. The librarian may be fired by an irate city manager for refusing to reveal records to the police, or, get sued for a breach of privacy if s/he does cave in. In some states s/he may even face a fine for a misdemeanor if patron records are revealed. 13

"Tail Wagging the Dog"

In addition, even under the best planned circumstances, automation is such a costly and time-consuming process that it may be seen at times to public service staff and the people they serve as if it is a case of "the tail wagging the dog."

In Stockton, automation has not been free from patron complaint. A few people have accused us of devil worship for using barcodes on library cards. The single biggest complaint to date has revolved around our change from a date due card, which fit conveniently into a book pocket, to date due book marks. With no pocket to hold them, the book marks do tend to slip out and get lost. However, at the risk of turning a deaf ear to the public, it is one change we have not taken back because of the cost savings in supplies and staff time once put in to pockets and book cards (part of the eighty one per cent productivity gain in processing.)

Incidentally, our library director has not missed the opportunity to point out the irony that with a $600,000 computer system we have gone back to the days of hand date due stamping. I have maintained that the more automated options are too expensive.

On a Happier Note...

Automation that is well planned has a positive effect on the public. I've already mentioned some of the productivity benefits that in most automated libraries will mean increased availability and circulation of materials, and much more prompt patron notification. Stockton has also experienced a reduction in the length of time it takes to fill reserves, although we have not documented the exact impact.

The Online Catalog

In Stockton, information about materials that used to be available only from a central card catalog is now equally available to branch library

Jack Prelutsky entertained several hundred librarians at the NCLA Children's Services Section Breakfast.

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users through a computer-output-microfiche catalog. When we add online public access (OPAC), component users will also instantly get status information, perhaps the single most important OPAC feature.14

As we develop our online catalog component, however, we are mindful, particularly, of the following findings of the 1982 Council on Library Resources (CLR) Survey and subsequent analyses of online catalog user needs:15

1. Users want more and more terminals. We have revised our estimates of OPAC terminal requirements upwards to where we anticipate at least one and one half times the number of terminals compared to COM catalogs now available to our users. We recognize, however, that the users' appetite for terminals, like the desire for best sellers and videos, is probably insatiable.

2. Users want terminals outside the library. Stockton already has a successful online link to several social service agencies and chambers of commerce for an information and referral subsystem of an online system. There is interest from other agencies for hook-up. We should also be placing terminals in various government agencies.

When it comes to public home access, our planning is proceeding cautiously, however. There are security issues to consider, as well as estimates to calculate of numbers of lines necessary for dial-in users. Can we afford the extra transaction load and cost for more lines? We must prepare rules for home computer use, determine whether there will be a charge of any kind, prepare guides and publicity. There's a concern about what kinds of questions, and how many are asked, from users wishing system access. What kind of training can we offer the home user, if any? Who will be assigned to respond to the "invisible" users' questions? I have more questions than answers about home users of the online catalog. The mind boggles at Dowlin's estimate of six thousand external users for the Pikes' Peak system.16 I shudder at descriptions of the kinds of questions remote site users expect library staff to answer—questions such as "My screen shows garbage, what did I do wrong?"17 Is a reference librarian supposed to know how to answer this?

3. Subject access to library materials must be provided and access point improved. I believe that no online catalog is complete without a cross-referencing structure and an online authority control maintenance process for names, subjects, and series entries. This process must include linkage to bibliographic records so that authority file changes will, at the same time, correct bibliographic records. This process must be melded into ongoing staff workflow, even if the library initially buys an authority and cross-referencing structure for its catalog from a commercial service. It is an expensive process, but necessary.

4. Users also want to find information using their own terms. This means providing boolean and keyword access, and indexing more fields than are currently accessible in most online systems. The impact on computer capacity in terms of storage and random access memory must be carefully assessed.

5. Finally, users want command charts, manuals, training sessions, and online help. All of these need to be carefully planned. Documentation must be worded simply. Online user training must be melded into ongoing assignments and will particularly impact on reference staff.

Summary

Stockton has not yet reached its goal of a fully integrated library system; we're working on it, and the impacts have already been substantial. With good planning and a little bit of luck, we hope to achieve what Dowlin expresses as the real goal of the electronic library: an efficient and effective full service community information center.18 Making the library indispensable to people is the key to a library's continued and improved success.

Automation can assist library staff to make this happen. We must always keep in mind, however, that the machine is a tool. It takes good people to make an efficient, effective full service community information center!

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2. Charles Martell, "Automation, Quality of Work Life and Middle Managers," Library Administration & Management 1 (September 1987): 135-136. Martell observes that middle managers are often resistant to automation because they have not been involved in the planning process and thus become unwilling conduits for change.
3. Jane Burke, "Automation Planning and Implementation: Library and Vendor Responsibilities," Human Aspects of Library Automation, ed. Debora Shaw (Urbana-Champaign: University of Illinois, 1986).48 Burke advises, "Do not necessarily pick the person who is easiest for the management team to get along with. Pick the ringleader. Pick the person who has the most

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influence among the paraprofessionals and clerical staff. Pick
the people who are the most respected by their peers and who,
as they become convinced, can help convince others."
5. Burke, p. 57.
6. See Margaret Myers, "Personnel Considerations in Library
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services administrators.
See also Association of Research Libraries, Office of Man-
agement Studies, Automation and Reorganization of Technical
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1985, pp. i-ii. Finds that 46 of 82 ARL library respondents are
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See also Karen L. Horny, "Fifteen Years of Automation: Evolu-
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study of organizational change in an academic library
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Michael Schuyler, 11 issues, $29.00/yr. Address: Box 10846,
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Division Secretary, Technical Services Division, Hennepin County
Library, 12601 Ridgedale Dr., Minnetonka, MN 55343.
9. Several recent articles delineate similar changes in technical
services staff responsibility as a result of automation. See, for
example, for a public librarian's perspective: Lizbeth J. Bishoff,
"Who Says We Don't Need Catalogers," American Libraries 18
(September, 1987): 684-686. For an academic librarian's per-
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186.
11. Joseph R. Matthews, A Reader on Choosing an Automated
Library System (Chicago: ALA, 1983).
15. See especially Joseph R. Matthews, Gary S. Lawrence and
Douglas K. Ferguson, eds., Using Online Catalogs: A Nationwide
Survey (New York: Neal-Schuman, 1983) and Joseph R. Mat-
thews, ed., The Impact of Online Catalogs (New York: Neal-
Schuman, 1986).
16. Kenneth E. Dowlin, "I Am Not Willing to Destroy My Library
in Order to Change It," Library Association Record 85
(December, 1985): 450.
17. Sally Wayman Kalin, "The Invisible Users of Online Cata-
logs: A Public Services Perspective," Library Trends 35 (Spring
18. Dowlin, "I'm Not Willing...", pp. 449-450.

Bill Sugg was only one of the many who enjoyed Forsyth County Public Library's hospitality Wednesday night. 

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