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# Selection and Implementation of Integrated Systems in Ohio Libraries

*A survey of Ohio libraries identifies trends in library automation.*

Carolyn Radcliff & Jeffrey Gatten

Ohio has long been a leader in library automation. From the founding of OCLC in the late 1960s to the current project creating a single state-assisted university libraries information system, Ohio has been a pioneer in applying technology to libraries.<sup>1</sup> Individually and cooperatively, Ohio's libraries have been at the forefront of library automation.

In Ohio, as elsewhere, the degree of automation among libraries varies greatly. Some Ohio libraries are operating their second or third integrated system, while many others are considering the purchase of their first. Automation is becoming more accessible as the cost of technology decreases and cooperative efforts make joint purchases possible.

Interestingly, few studies have been conducted that examine the processes used to select and implement integrated library systems. Public and academic libraries in Ohio were surveyed regarding these processes in relation to satisfaction with the integrated systems.

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## Limitations of the Study

The study was limited to public and academic libraries in Ohio with holdings of more than 50,000 volumes. Law and health sciences libraries were excluded, as were regional or branch campus libraries.

The survey responses reflect only the knowledge and impressions of library directors or their designees. Other staff members may think differently about the selection and implementation processes. Similarly, satisfaction with the system may differ among staff members.

In addition, this study evaluated only those issues related to the selection and implementation of integrated systems and excluded other methods of automating library functions, including CD-ROM-based systems and the automation of single functions only.

## Review of the Literature

Automation in libraries has evolved from early in-house developmental efforts, through commercially developed modules, to the purchase of fully integrated systems. Articles were first published about the development of local systems, then about the purchase of stand-alone components, and now center on integrated systems and networking. Automation surveys are conducted regularly by the Association of Research Libraries, *Library Journal*, and *Canadian Library Journal*.

An early study (1973) of twenty-seven automated libraries described the state of mechanized circulation, acquisitions, and cataloging activities. These libraries were working independently on automating individual library functions.<sup>2</sup>

As automation of individual modules became the primary focus of automation efforts, studies were done that concentrated on these modules.<sup>3</sup> Acquisitions and serials control were the modules most often purchased separately. However, this trend has diminished as vendors have added these and other modules to their integrated systems.

Camp et al. studied 210 academic libraries in 1986 and found that 85 percent of them had some type of online system, including membership in a bibliographic utility, interlibrary loan network, or a union list of serials. While fewer than 10 percent of them had integrated systems, over half the libraries without a system were planning to implement one. The authors found that there was a positive correlation between the size of the library and the presence of automation — that is, the larger libraries were more likely to be automated than the smaller ones.<sup>4</sup>

Also in 1986, the Association of Research Libraries conducted a study of twelve of its members in order to examine the ways in which automation decisions were made. The participants demonstrated a variety of approaches to automation, including in-house development, vendor-delivered systems, software-based systems, and combinations of these options.

Prepurchase and design decisions were made using a variety of processes. Committees were widely used, with different committees established for different stages of the project. Libraries that purchased systems generally used Requests for Proposals (RFPs). Most libraries did not use consultants, probably because of the expertise available in the libraries.<sup>5</sup>

The annual survey of the automated library systems marketplace in *Library Journal* reports on the previous year's performance of vendors and identifies trends in library automation. The survey covering 1989 noted a slowing growth rate of installations and an increasing emphasis by vendors on foreign markets.

Libraries are demonstrating forethought in their planning, which includes linking microcomputer workstations to integrated systems, linking integrated systems to each other, and sharing access to other electronic resources. "For many libraries, the traditional automated library system will serve as a foundation (rather than the primary focus) for a larger network of information technologies and services."<sup>6</sup>

## Selection Process

Despite the plethora of literature on library automation, there is little information about the processes used by libraries to select an integrated system. The process of automating is a complicated one, with many factors affecting the success of the decision.

Information on which processes have been successful or unsuccessful would be of great interest to libraries about to undertake the selection and implementation of an integrated system. Thus, this study was conducted to provide insight into the selection and implementation processes that contribute to system satisfaction.

## Methodology

A questionnaire was distributed to directors of academic and public libraries in Ohio with holdings of more than 50,000

volumes. Libraries were identified using the number of volumes per library reported in the State Library of Ohio's *Statistics of Ohio Libraries 1989*.<sup>7</sup> In two cases where there were no listings for the number of volumes, the *American Library Directory* was used to obtain the information.<sup>8</sup>

Library directors were asked about the type and size of their libraries, plans for integrated systems, and the percentage of and sources for machine-readable records in their libraries. Respondents were also asked to indicate whether their libraries had or were in the process of obtaining an integrated library system. The concept of an "integrated library system" was defined as that which "uses a common database, central processing unit, and access for at least two library functions."

In addition, directors were asked to complete a series of questions about their integrated systems and the processes used to select and implement the

systems as well as their levels of satisfaction with the processes used and the systems themselves. They were also asked to consider how they might change the selection and implementation processes and if they would choose the same system over again.

Questionnaires were mailed to 205 library directors. The number of responses was 161 (78.5 percent). Questions were designed to examine the areas of selection processes and satisfaction with selection processes; implementation processes and satisfaction with implementation processes; and satisfaction with the installed system in relation to the selection and implementation processes. Summary descriptive data is presented in Table 1.

## Results

One hundred and seven (66.5 percent) of the responses were from public libraries

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and fifty-three (32.9 percent) were from academic libraries. This proportion of response accurately reflected the population as originally identified (67.8 percent public and 32.2 percent academic). Ten percent of the libraries reported volume holdings of 700,000 or more, 19.4 percent indicated holdings between 200,000 and 699,999 volumes, 30 percent indicated holdings between 100,000 and 199,999 volumes, and 40.6 percent of the libraries reported volume holdings between 50,000 and 99,999. One library did not indicate size.

Ninety-one (56.5 percent) of the libraries indicated that they currently have or are actively involved in the process of selecting and implementing an integrated system. Among the academic libraries, nineteen (35.8 percent) indicated that they have installed integrated systems. Of the public libraries, forty-nine (45.8 percent) have installed integrated systems.

Sixteen libraries reported holdings of 700,000 volumes or more, fifteen (93.7 percent) of which have integrated systems. Integrated systems exist in thirteen (41.9 percent) of the thirty-one libraries with 200,000 to 699,999 volumes, in nineteen (39.5 percent) of the forty-eight libraries with 100,000 to 199,999 volumes, and in twenty-one (32.3 percent) of the sixty-five libraries with 50,000 to 99,999 volumes.

### Integrated System Plans

When asked about plans for an integrated system, thirty-two libraries (19.9 percent of all respondents) reported that they planned to purchase a first system in 1990. Twenty-nine (18 percent) libraries plan to purchase a first system sometime in 1991 or 1992, and twenty (12.4 percent) libraries plan to purchase sometime after 1992.

Nearly half of the responding libraries either do not have plans to purchase a first system, or did not respond to this question. Eighteen (11.2 percent) of respondents are planning a significant upgrade (i.e., the addition of functions not currently available or the addition of a CPU) in 1990, and seventeen (10.6 percent) are planning to upgrade in 1991 or later.

### Machine-Readable Records

Of the 155 libraries responding to questions about machine-readable records, seventy-two (46.5 percent) indicated they

Table 1. Summary Table of Automation in Ohio Libraries

Response	n
<u>Type of Library</u>	
Public	107
Academic	53
No Response	1
<u>Volumes</u>	
700,000+	16
200,000 - 699,999	31
100,000 - 199,999	48
50,000 - 99,999	65
No Response	1
<u>Records in Machine-Readable Form</u>	
76% - 100%	72
51% - 75%	19
26% - 50%	14
0% - 25%	50
No Response	6
<u>Geographic Extent of System</u>	
Main Library Only	10
Main & Branch Libraries	26
Multi-Institutional	20
Cooperative Efforts	11
No Response	94
<u>Computing Environment</u>	
Mainframe	30
Minicomputer	27
Microcomputer	6
No Response	98
<u>Major Functions Installed</u>	
Circulation	53
Cataloging	48
Online Public Catalog	36
Acquisitions	28
Serials Control	17
<u>System Selection Process</u>	
Used Consultant	18
Used Committee(s)	26
Used RFI	27
Used RFP	29
Other Methods	18

Table 2. Relationship Between Selection Process Satisfaction and System Satisfaction

Implemented System	Selection Process			
	Very Satisfied	Satisfied	Dissatisfied	Very Dissatisfied
Very Satisfied	16	4	0	0
Satisfied	6	18	4	1
Dissatisfied	0	1	0	0
Very Dissatisfied	0	1	0	0

N = 51

Pearson chi-square significance = .01770

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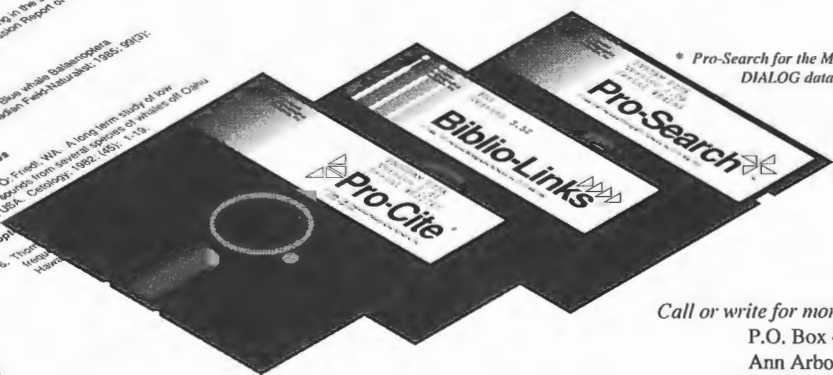
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**Table 3. Implementation Process Satisfaction and System Satisfaction**

Implemented System	Implementation Process			
	Very Satisfied	Satisfied	Dissatisfied	Very Dissatisfied
Very Satisfied	11	9	1	0
Satisfied	9	18	2	0
Dissatisfied	0	0	2	0
Very Dissatisfied	0	1	0	0

N = 53

Pearson chi-square significance = .00074

have between 76 percent and 100 percent of their records in machine-readable form. Nineteen (12.3 percent) libraries have between 51 percent and 75 percent of the records converted, and fourteen (9 percent) libraries have between 26 percent and 50 percent of their records converted. Fifty (32.3 percent) libraries indicated they have between 0 percent and 25 percent of their records in machine-readable form.

One hundred and four libraries reported plans to have first or additional records converted to machine-readable form. Of these 104 libraries, thirty-nine (37.5 percent) plan to use OCLC as a source for those records; twenty-nine (27.9 percent) plan to use a CD-ROM product (e.g., Bibliofile); eleven (10.6 percent) plan to use a commercial service such as Blackwell North America or Utlas, and thirty-three (31.7 percent) plan to use an in-house process. Six (5.8 percent) libraries plan to obtain machine-readable records from sources others than those itemized above.

### Installed Systems

Twenty-three different systems or combinations of systems were reported in use in sixty-eight libraries. Thirteen libraries indicated that at least one part of the system was developed in-house, with five libraries reporting that they had developed the largest part of their systems in-house.

The most commonly reported installed function was circulation (fifty-three libraries). Forty-eight libraries have a catalog module, thirty-six an online public access catalog, twenty-eight an acquisitions module, and seventeen have serials control.

Forty-eight libraries use a management reports module, forty-seven have a reserves component, thirty-one an authorities control component, thirty-one a collection development component, and twenty-nine use their integrated systems for interlibrary loan.

Twenty-five have the capability to use keyword and Boolean searching, and twenty-five use electronic mail. Materi-

als booking is a part of fifteen systems. Six libraries reported using their systems to provide gateway access to external databases and five have some type of document delivery component.

Five libraries have systems that provide other functions, including newspaper indexing. Keyword and Boolean searching is the most often mentioned capability that libraries plan to install (twenty-eight libraries by 1992).

When asked about the geographic extent of their systems, ten libraries said that their systems are in the main libraries only, and twenty-six reported that their systems are in branches as well as the main library. Twenty libraries reported that their systems are multi-institutional, and eleven libraries said that their systems are part of cooperative efforts.

### Computer Environment

Sixty-three libraries responded to a question regarding the local computing



environment. Of these sixty-three, thirty (47.6 percent) indicated that their systems run on mainframe computers, twenty-seven (42.9 percent) that their systems run on minicomputers, and six (9.5 percent) that their systems run on microcomputers. Fifteen (23.8 percent) libraries reported that they share the computer they use with another agency (e.g., university administration).

Twenty-one libraries indicated having between one and ten public terminals, twenty-two have between eleven and thirty public terminals, and sixteen have more than thirty public terminals. Twenty-one libraries reported having between one and ten staff terminals, twenty between eleven and thirty staff terminals, and eighteen have more than thirty staff terminals. Thirty-eight libraries offer dial access into their catalogs.

### Reasons for Not Automating

Among the reasons cited by the sixty-nine libraries that do not have and are not in the process of acquiring an integrated system, lack of funds was listed by 62.9 percent of the libraries answering this section. The other reasons were: waiting for cooperative effort with other libraries (34.8 percent), lack of personnel expertise (23.2 percent), and waiting for better systems (17.4 percent).

Six libraries indicated that lack of support from a governing board was a factor in not having an integrated system. Only four library directors indicated that they perceived no need for an integrated system in their libraries. Forty-two percent indicated that there were additional reasons for a lack of an integrated system.

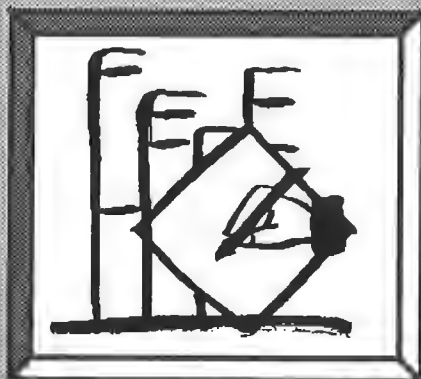
### Selection and Implementation Processes

Forty-three of the respondents indicated that they were directors during the selection process, and forty-seven were directors during implementation. Eighteen libraries reported using a consultant during the selection process and eleven used a consultant during the implementation process. Forty-five libraries used one or more committees at some point during the selection and implementation processes. Requests for Information (RFI) were used by twenty-seven libraries, and Requests for Proposals (RFP) were used by twenty-nine libraries. Eighteen libraries used other processes, including site visits and vendor demonstrations.

Of the fifty-seven libraries that answered questions about the length of time

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they spent on the selection process, thirty-three (57.9 percent) reported that the process took up to a year. Twenty libraries (35.1 percent) spent between one and two years on the selection process, and four libraries (7 percent) took longer than two years.

When asked about the implementation process time frame, forty-four libraries responded, with sixteen of them (36.4 percent) indicating that they took less than a year to implement their systems. Nineteen libraries (43.2 percent) took between one and two years, and nine (2 percent) libraries took over two years to implement their systems. In addition, eighteen libraries indicated that their implementation processes were not complete at the time they submitted the survey.

### Satisfaction with Selection and Implementation Processes

While the sample size was not large enough to determine the statistical significance of the survey results, some suggestive results were obtained. First, of all the selection processes used, including consultants, committees, RFI, and RFP, only the use of an RFP appeared to be relevant to satisfaction with the selection process. Of those libraries that were "very satisfied" with the selection process, nearly two-thirds used an RFP.

Second, in the case of satisfaction with the implementation process, the use of committees appeared to be relevant while the use of consultants was not. Nearly two-thirds of the respondents were very satisfied used one or more committees during this process.

### Satisfaction with the System

Respondents were asked about their satisfaction with their systems. Out of fifty-nine who answered, fifty-four (91.5 percent) were either satisfied or very satisfied with their current systems. Five (8.5 percent) were dissatisfied or very dissatisfied. Forty-one (69.5 percent) respondents indicated they would choose the same system again, and ten (16.9 percent) indicated they would not.

Several respondents mentioned that they could not answer if they would

choose the same system because the market is different now, and they would need more information before deciding.

The relationship between satisfaction with the selection process and satisfaction with the system is difficult to establish, but of those libraries that were very satisfied with the system, sixteen (80 percent) were also very satisfied with the selection process (Table 2).

In addition, it might be assumed that the relationship between satisfaction with the implementation process and current satisfaction with the system would be equally high, but of those libraries that were very satisfied with the system, only eleven (52 percent) were also very satisfied with the implementation process (Table 3).

### Conclusion

Several trends in library automation have been identified through this survey. First, almost all of the participating libraries reported that an integrated system is now or will be their chosen method of automating library functions and services.

Second, cooperative efforts are permitting more libraries to enjoy the advantages of an integrated system, either through joint purchasing agreements, or by presenting an opportunity for libraries to join established networks.

Third, there is a trend toward more functionality in integrated systems. Whereas a few years ago vendors did not offer — and libraries did not expect — much beyond the four major functions of an integrated system (cataloging, acquisitions, circulation, and public catalog), today libraries have installed or are planning for numerous secondary functions such as management reports, collection development, and document delivery.

Lack of funds continues to be a major reason for not automating library functions. Perhaps in part because of a growing understanding of automation on the part of library staff, lack of staff knowledge or expertise does not appear to be preventing automation in libraries, nor is it a hindrance in the successful selection and implementation of integrated systems.

The use of RFPs during selection, and the use of committees during implementation, appear to be relevant

when looking at satisfaction with the system. While system satisfaction cannot be directly predicted by the presence of these activities, it would be useful to examine the selection and implementation processes more closely when attempting to identify the keys to a successful automation.

It also would be useful to explore the selection and implementation of integrated systems in libraries outside Ohio. With more libraries participating in joint automation ventures, investigation into the decision-making processes of such ventures would be an appropriate extension of this study.

### Notes

1. The Ohio Library and Information Network, also known as OhioLINK, is a project sponsored by the Ohio Board of Regents. OhioLINK will link academic libraries to a union bibliographic database, act as a gateway to electronic information resources, and facilitate cooperative collection development and resource sharing among its member institutions.

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