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Planning for Automation: Microcomputers in the Law Library*

S. Blair Kauffman**

Introduction

Over the past decade, successful law library administrators have found the automation of some library tasks necessary and desirable for providing comprehensive and cost-effective library services to their constituents. Use of bibliographic utilities, such as OCLC and RLIN, for cataloging and interlibrary loans has become commonplace, and the use of remote data bases, such as LEXIS and WESTLAW, for legal research has become an important adjunct to the law library. Following the initial success of these systems, many law librarians have turned their attentions to other functions that might be improved through automation.

Until recently, the law library administrator’s automation options were quite limited and usually costly. Book vendors and bibliographic utilities offered some options, such as automated acquisitions and serials control systems. Law libraries also had the option of participating cooperatively or with a host institution in large mainframe-based systems. Frequently, these larger automation projects gave the highest priority to functions such as circulation control, which are not of primary concern to most law libraries. Although several law library administrators have followed through on these options with some degree of success, many others have wondered whether the initial and ongoing expenses of these systems, as well as the potential loss of control and autonomy, were worth the projected benefits.

With the advent of the microcomputer and the proliferation of library applications software, law libraries of all sizes have been presented with affordable options for automation. Relatively inexpensive microcomputer equipment can be used to store and manipulate data that, until several years ago, could be handled only by the larger minicomputers and mainframe computers. The number and sophistication of the library applications software packages that can be used on these microcomputer-based systems is steadily growing, and the relatively low cost of these software packages makes them affordable to most law libraries. Through the use of multiuser operating systems or local area networks combined with hard-disk storage devices and

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integrated software packages, microcomputer-based systems can now be used to simultaneously perform numerous library functions. Because microcomputer users are able to maintain control of all functions in-house, this automation option is especially attractive to many law library administrators.

In adapting microcomputers for law library use, administrators are faced with a new set of considerations, no matter how large or small the automation project. These considerations include: determining what functions to automate and what systems and vendors to utilize, how to present convincing proposals for automation, and how to successfully implement an automation plan. This article presents a logical five-step plan that can be followed to successfully carry out most law library automation projects.

I. Determine What Functions To Automate

The first step in developing an automation plan is to analyze those library functions that might be improved through automation. The key to this step is the needs assessment: a studied analysis of how particular library tasks are performed manually. This study should disclose the resources and costs currently devoted to carrying out a particular task, as well as reveal desirable tasks not being met satisfactorily by the current system.

A. Preliminary Considerations

Although the needs assessment is the key to determining which functions to automate, the library administrator should focus on several preliminary considerations. These include reviewing the library’s medium- and long-range plans in light of the institution’s automation environment and identifying library functions ripe for automation.

When developing long-range automation plans, the library administrator should consider the law library’s current automation environment, which includes both the law library and the host institution. Integrating the automated functions within the library into a single system is a worthy goal. Thus, if the library is currently using OCLC, it is desirable for other automated functions to interface with OCLC. This ability to integrate functions is one of several criteria that may be used later to evaluate various automated systems.

The law library administrator also should consider the automation environment of the law library’s host institution. For example, if the law library has access to a mainframe computer, the law librarian should become familiar with the costs, problems and benefits of using this system. If the law library


2. Some of these preliminary considerations are discussed by Wolpert, supra note 1, at 171-73.
is affiliated with a larger university library, the law librarian should consider any large-scale automation plans that may be in progress there. These options may need to be compared to maintaining a manual system or using an in-house minicomputer- or microcomputer-based system when determining how best to serve the law library’s own long-term objectives and goals.

B. Identify Functions Ripe for Automation

To identify functions ripe for automation, the law librarian should consider those activities for which computers are most suitable as well as those functions for which applications software already has been developed. Generally, library applications software is available for those activities most suitable for automation.

Computers are best suited for performing repetitious activities that involve few exceptions, such as acquisitions, serials check-in, and circulation. For each of these functions, library applications software has been developed and is currently available; therefore, it is not necessary to hire a programmer and pay the initial development costs to automate any of these activities.

C. The Needs Assessment

Once the library administrator has studied the law library's automation environment and identified the library functions suitable for automation, a systematic needs assessment should be conducted. Although the primary purpose of this analysis is to determine the cost of performing particular library functions manually so that they can be compared more readily to automated systems, a frequent fringe benefit is the improvement in manual procedures brought about by streamlining those functions studied. In a larger library, a consultant or systems librarian with special training or expertise as a systems analyst might conduct the needs assessment; however, special expertise is not a prerequisite, and in most law libraries, staff can conduct adequately a needs assessment in-house.

The first stage in conducting a needs assessment is to compare what staff members are supposed to be doing with what they are in fact doing. To some extent, written job descriptions and procedure manuals may disclose what staff members are supposed to be doing; however, these written documents are generally superseded by practice. On-the-job observation and interviews with staff members will disclose how the job is actually performed.

The next stage is to determine all of the human and physical resources consumed for each task and to quantify all elements of each function being considered for automation. Quantification is necessary for establishing current costs and for determining the size of data files required in an automated system. For example, the annual cost of manually checking in serials can be calculated by quantifying the total number of serials received annually,
the average time spent checking in each serial, and the pay rate of the staff member performing this function. Similarly, the annual cost of manually claiming serials can be calculated by quantifying the total number of serials claimed, the average time spent claiming each serial, and the pay rate of the staff member performing this function. Finally, the required size of data files for an automated system can be calculated by quantifying the total number of serial records maintained and the amount of data maintained on each record. Statistical reports, interviews, and observation can be used to gather this information.

The third stage is to identify time requirements for the performance of transactions and to note the consequences of slow transactions. For example, in serials check-in, the library administrator can note the consequences of not claiming items within a certain time period, such as sixty days, and determine whether the current manual system meets these requirements.

Next, the administrator should determine any critical relationships between activities to ensure that an automated system will fit into the current library milieu. For instance, if a manual acquisitions system uses a five-part order form, determine where each part goes and what function it serves, so that these features can be replicated by an automated system. Interrelationships can be readily determined using simple flowcharting techniques. 3

The final stage in the needs assessment is to develop lists of both the mandatory and the desirable features in a system performing the functions under consideration. The manual system currently may perform most or all of the mandatory features identified, but you may want additional features that even an improved manual system cannot provide. For serials control, examples of mandatory features include the ability to: accommodate all serials subscriptions and growth, display serial records when called up by title or other fields, automatically claim issues not received, and handle payment records. Desirable features might include an integrated fund accounting system, bindery information, and the ability to interface with other systems. The mix of mandatory and desirable features will vary for each library.

In many instances, a number of library functions will be analyzed during the needs assessment. You then may want to rank the functions to be automated according to the law library's current objectives and goals. 4 In any case, the results of the needs assessment should be incorporated into a medium-range plan for the law library, estimating work load and growth rates for each function and enumerating the resources necessary to maintain basic services, upgrade services, and institute new services. 5

3. Examples of system flowcharts are included in J. MATTHEWS, CHOOSING AN AUTOMATED LIBRARY SYSTEM: A PLANNING GUIDE 19-24 (1980).
4. Identifying library goals and objectives and establishing automation priorities are addressed in D. SAGER, PUBLIC LIBRARY ADMINISTRATORS' PLANNING GUIDE TO AUTOMATION 5-22 (1983). Most of Sager's suggestions are equally applicable to nonpublic librarians.
5. Id. See also J. MATTHEWS, supra note 3, at 24.
II. Survey Available Systems and Develop Cost Estimates

A. Appoint a Procurement Team

The second step in preparing an automation plan is to survey currently available automated systems that appear to meet the requirements of the needs assessment and to develop an estimate of acquisition, upkeep, and implementation costs. To assist with this task, the library administrator should appoint a procurement team. Although the primary purposes of the team are to evaluate automated systems, develop cost estimates, and make recommendations, the procurement team also may become a source of support for an automation plan, both within the library and with upper-level management. Therefore, even though some knowledge of, interest in, or aptitude for automated systems is desirable for members, the team also should include key staff members who will be involved in implementing the project and upper-level managers who may be helpful in winning support for the system. The best size for the procurement team is from three to eight members, because groups larger than eight tend not to work as effectively. Appointing a library staff member as chairperson will ensure that control of the team is kept within the library. In a smaller library, this individual may be the library director; regardless, the chairperson should be responsible for scheduling and calling meetings, preparing reports and other documents, and resolving disputes between team members.

The preferred method for acquiring an automated system is: (1) identify the needs to be met by the system, (2) identify and select the software that can best meet these needs, and (3) purchase hardware to support the software. Because the library's needs should have been identified in the needs analysis, the procurement team role begins at the second stage; they should evaluate software that meets the library's needs and review available hardware options.

Prior to the appointment of a procurement team, the library administrator may have undertaken a preliminary evaluation of options, including gathering information on suitable systems. This information should be presented to the procurement team at the outset. The options considered for satisfying

7. Id. Others have suggested that committees function effectively with as many as twelve members. See D. Sager, supra note 4, at 14.
8. Several law libraries have purchased microcomputer equipment on which to experiment and have then hired programmers to write specific applications software. It is certainly less expensive and probably less trouble first to purchase prepackaged applications software to perform those functions for which a need has been determined and then to purchase compatible hardware. With the large amount of library applications software currently available, this is the method recommended. See L. Woods & N. Pope, The Librarian's Guide to Microcomputer Technology and Applications 47 (1983).
the library’s targeted needs are likely to include: improving manual systems; using available local resources, such as the university’s computing center; using remote systems, for example, bibliographic data bases or private vendors such as OCLC or Faxon; and establishing a minicomputer- or microcomputer-based system within the library. Some options may be dismissed because they do not meet minimum service or cost requirements, while others may be presented to the procurement team to be ranked according to expense, associated labor costs, ease of installation and use, and ability to enhance essential services.

If the option of using a minicomputer-or microcomputer-based system is to be explored further, team members ought to review information on available software packages and turnkey systems. This information may include articles, conference proceedings, and opinions of vendors and users. The procurement team then can focus its attention on those systems most likely to meet the library’s needs. After determining several potentially useful systems, the team can request copies of user manuals, demonstration disks, and other information from the appropriate vendors for in-depth review.

**B. Evaluate Software**

Basic criteria for evaluating software include: (1) functional quality, (2) ease of use, (3) hardware and software requirements, and (4) availability of user support and documentation. In the final analysis, cost also will be a consideration. But at this stage, the procurement team should be concerned primarily with evaluating all software packages that meet the library’s needs. Hardware and software requirements can be determined by reading the literature and talking with vendors. However, judging functional quality and ease of use require previewing the system and talking with other users.

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10. Id. at 73-84.


12. These criteria are the same as those recommended by R. Walton, supra note 6, at 70-71. Additional suggestions for evaluating software are included in Kelley, *Software—What’s Available?*, in *Microcomputers in Libraries* 65-74 (1982).

13. R. Walton suggests eight questions to ask current users of a particular system, including:

1. What equipment and software is being used? 2. What was added after the micro was
1. Functional Quality

Functional quality refers to the system's ability to perform the jobs defined in the library's needs analysis. It also may refer to the software's flexibility: its ability to interface with other automated systems currently in use or under consideration. At the very least, the chosen software has to meet the mandatory needs identified in the needs analysis.

The procurement team must evaluate how well the system performs using the number and size of records the library plans to automate. Performance quality can be rated by looking at such factors as the number of searchable fields, the speed at which a given task can be performed, and the ease of changing from one field to another. Performance may be affected significantly by the number of records included in the database or by the number of functions being performed simultaneously on the same system. Therefore, in evaluating functional quality, it is best to simulate as closely as possible the library's actual requirements.

Functional quality of a system is best evaluated by talking with other library users, preferably in other law libraries, and by watching the system operate. It is probably unwise to be the first user of a particular system. Although software developers or vendors frequently supply prospective customers with a demonstration disk in order to show how a software package operates, demonstration disks should not be relied on as accurate measures of functional quality. Demonstration disks are made to sell software packages, not to disclose the system's flaws; they are useful for understanding how the system works, but not for a final evaluation. It is better to talk with other system users or to evaluate the system in operation under conditions that more accurately resemble those of your own library.

2. Ease of Use

The degree of skill necessary to use competently a particular automated system is sometimes described as how "user-friendly" or "user-seductive" the system is. User-friendly systems can sometimes be irritating to the sophisticated user when the system's "friendliness"—unwanted help screens and menus—interferes with quick and efficient use of the system. On the other hand, on-line user aids and prompts are helpful to those who may otherwise feel uncomfortable using a terminal. Ideally, the system should offer

acquired, and why? 3. What are the user's overall impressions of the hardware and software? 4. What patterns of use are followed with the system, e.g., which programs are most popular? 5. What is the experience level of the staff, and how long did it take to gain proficiency with the system? 6. Does the software have any bugs or has the equipment suffered breakdowns; and what has been the kind of user support and service provided? 7. Has the library developed any of its own policies, procedures or documentation to be used with the system? 8. If the library were to start over, what would be done differently?

R. Walton, supra note 6, at 73. For additional suggested questions, see J. Matthews, supra note 3, at 48-49.
optional user aids on-line which (as with WESTLAW) can be bypassed by more sophisticated users. Unfortunately, many software packages lack this option, even though most library applications programs are menu-driven and fairly simple to use. For those programs requiring more expertise, consideration must be given to the technical skills of the intended users. In any event, exercise caution in acquiring a system that may be difficult for new personnel to learn to use.

3. Hardware and Software Required

If the law library already owns minicomputer or microcomputer equipment, software choices may be severely limited; this factor, then, will be the primary consideration when evaluating software. Evaluating and choosing software prior to hardware will allow the procurement team the greatest number of options; however, even if the library has not yet invested in hardware, the procurement team will need to consider hardware and operating system requirements for the software packages it evaluates.

Software packages sometimes are developed to perform the same functions on different hardware configurations. For example, different versions of the same serials control system can be run on IBM, Apple, or TRS-80 microcomputers; however, the cost and performance quality of the software package may vary significantly, depending on which version is used. Therefore, the procurement team should consult the software developer to determine which hardware configuration is recommended. If multiuser capability is desired, this may further limit the equipment configurations available for consideration.

For each software package evaluated, the procurement team should make note of the following hardware requirements: type of equipment needed or recommended; amount of internal random access memory (RAM) required; type and amount of disk storage needed for the data base planned; and any needed or recommended special peripheral devices, such as modems or letter-quality printers. The procurement team also should make note of the required

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14. One writer has suggested the following rule of thumb:
1. If the application is simple and common—use packaged software.
2. If the application is simple and unique—buy modular software and modify it in-house.
3. If the application is fairly complex and unique—buy modular software and hire a competent programmer to modify it.
4. If the application is very complex and unique—hire a competent programmer to develop custom software for you.

Kelley, supra note 12, at 67. Most law library applications now fall in the former rather than the latter categories. At any rate, it is best to evaluate available software first. See L. Woods & N. Pope, supra note 8, at 47.

15. The Checkmate serials control system, marketed by CLASS (California Library Authority for Systems and Services), is available in different versions that can be run on the IBM PC or TRS-80 microcomputers. Another, more expensive version is available for the XENIX multiuser operating system of the TRS-80. And yet another is available from Gaylord for the Apple IIe microcomputer.
operating system and any other software programs that may be necessary to properly use the package being evaluated.

4. User Support and Documentation

The amount and quality of user support and written documentation is an important factor in the evaluation of software. User support refers to the assistance provided to end users by the vendor or developer of a software package; this may include training for system users and ongoing reference assistance for solving system problems. Written documentation may include system specifications, program documentation, and documentation of testing, but it refers primarily to the quality of written manuals or guides provided for the end user. Because these guides will be an important source for learning how to use the system effectively, the procurement team should request (or purchase if necessary) a copy of the operator's manual for inspection.

In evaluating software, the procurement team should consider manufacturer restrictions on the use or copying of the software, plans for upgrading the software, and the method for and limits on modifying the software. To prevent the piracy of software packages, some developers have placed physical restrictions on making copies. This can cause a problem if the original is damaged, so the vendor's policy for obtaining duplicates should be investigated. Software packages typically are upgraded frequently to correct unforeseen problems and to keep them competitive. The procurement team should query the vendor regarding any upgrades currently planned and the costs and policies for obtaining copies. Finally, the user may be interested in modifying a particular software package to meet a unique need. In this case, the procurement team should make note of the language in which the software is written and check for policies that may prohibit or restrict software modification.

C. Investigate Hardware Options

Although the software chosen will limit the equipment choices available, there still should be a number of hardware options from which to choose.

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16. Boss lists and describes five components that should be sought in the documentation of either custom-developed or packaged software. R. Boss, supra note 9, at 40-41.

17. For example, Lotus 1-2-3 copy-protects its program, but provides the purchaser with an extra system disk as an authorized backup. Additionally, Lotus replaces damaged disks free for the first year and at a charge of $15.00 thereafter. Mason, Software: Increasing Capabilities, 109 Law. J. 956, 957 (1984).

18. Frequently, vendors will correct errors found by users and incorporate system enhancements into software upgrades. See L. Woods & N. Pope, supra note 8, at 57. These upgrades may be made available to the purchaser by trading in the earlier version and paying a premium. Although a particular upgrade may not include enhancements or other changes considered necessary or desirable by the purchaser of the original, failure to purchase one upgrade may waive the owner's right to purchase subsequent upgrades.
Different versions of the same software package may have been developed for different types of microcomputer systems. In this case, because functional quality may vary with different versions, the procurement team should consider any recommendations of the software developer for preferred equipment. The procurement team also should consider the availability of other software that the library may want to use on the same equipment now or later. And finally, the procurement team should determine whether a multiuser version of the software (if available) is preferred.

Once a particular microcomputer system has been identified as most suitable for the library's needs, the procurement team may want to consider compatible configurations of equipment. For instance, a significant amount of library applications software is available for IBM and IBM-compatible microcomputers. Many people believe superior quality can be obtained at a lesser cost by purchasing non-IBM equipment. However, system compatibility is a poorly defined term; software specified for a particular brand of microcomputer equipment may not function properly on hardware claimed to be compatible. Therefore, to assure compatibility, the software chosen should be tested on any questionable equipment.

The procurement team also should investigate optional hardware peripherals, such as surge protectors, backup storage devices, and other related equipment. Surge protectors and battery-powered backups protect the system from loss of data caused by power surges or brownouts. If an important library function, such as serials control, is planned for automation, investment in these hardware peripherals may be considered mandatory. Special backup storage devices for saving data, such as cassettes for backing up data stored on hard disks, also may be necessary.

Finally, the procurement team should consider the extent of warranty coverage, the cost of maintenance contracts, and the availability of service for any equipment considered. Generally, the coverage of warranties for microcomputers is limited to ninety days; the library will want assurance of service past this period. If a service contract is available, this typically amounts to 1 percent of the purchase price per month. It may be less expensive to pay outright for service required. At any rate, an important consideration may be a guarantee of service with a specified turnaround time. If service is available only for some kinds of equipment, this may limit the number of configurations seriously considered.

19. Many others simply don't want to support a monolith such as IBM; at a recent software fair on the campus of Northern Illinois University, several librarians seen by the author were wearing "Stop IBM" buttons, prepared in the manner of international directional signals.

20. See Starfire & Suydam, Compatibility—What It Is and Who Has It, BUS. COMPUTING, April 1984, at 33, for a discussion of levels of compatibility for microcomputer hardware and a ranking of systems considered compatible with the IBM PC.
D. Develop Cost Estimates

After suitable software packages and hardware systems have been identified, the procurement team should develop some preliminary cost estimates.21 The estimates for software should include upkeep and maintenance charges, license fees, costs of user manuals, and related charges, in addition to cost of the applications software. (Sometimes the cost of the operating system software is included in the estimate for system hardware; be sure it is accounted for somewhere.) The estimate for hardware also should include the cost of maintenance and service contracts, as well as any necessary or desirable hardware peripherals. Other costs to be considered include: site preparation and installation; training and consultant fees; additional necessary furniture, such as printer stands and terminal tables; record conversion expenses; increased personnel expenses; supplies and documentation; and added insurance expenses.

III. Develop a Proposal for Financing

The third step in preparing an automation plan is to develop and present a convincing proposal for financing to upper level management. Because a significant proportion of automation costs are one-time capital expenditures rather than continuing operating expenses, the library administrator should consider alternative funding sources, such as grants and gifts, as sources of financing. Another method of reducing the large initial outlay for capital equipment is to use alternative financing plans, such as leasing the equipment or acquiring it on a lease-purchase plan. Regardless of what funding and financing plan is settled on, good budgeting principles should be adhered to in developing the proposal; that is, the budget proposal should be clear and simple, but supported with ample and convincing documentation. Much of the work for this presentation already will have been completed during the first two steps of the automation plan.

A. Capital versus Recurring Expenses

One-time capital expenditures account for a significant proportion, but certainly not all, of the costs of most automation projects. These one-time expenses include the cost of the computer equipment, peripherals and furniture; software packages; initial training of personnel and conversion of records; and site preparation and installation of equipment. On the other hand, recurring expenses include the cost of equipment and software maintenance, software modifications and upgrades, added or upgraded personnel, supplies and telecommunications, and insurance. It is sometimes possible to find special

21. Factors to consider in developing system cost estimates are included in L. Woods & N. Pope, supra note 8, at 52-55. See also D. Sager, supra note 4, at 72.
alternative sources of funding for the capital expenditures associated with an automation project.

B. Alternative Funding Sources

Alternative funding sources that the library administrator should consider for the support of an automation project include grants and gifts. Although many law librarians may consider both sources unlikely, colleagues from even small law libraries successfully have funded projects this way. For example, several years ago, the Law Enforcement Assistance Administration (LEAA) awarded grant money to the Washoe County Law Library in Reno, Nevada, for making WESTLAW available to court personnel for one year. The library purchased a microcomputer to be used for accessing WESTLAW. At the end of the one-year grant period, Washoe County Law Library retained the microcomputer, using it for other library functions in addition to accessing data bases such as WESTLAW. Had the grant money not been used to purchase microcomputer equipment, it would have been exhausted from the expenses of leasing a terminal by the end of the grant period.

Gifts from alumni or other law library supporters also may be a source of funds for an automation project. Microcomputer equipment is inexpensive enough to enable one library supporter to make a significant contribution. Larger projects are good candidates for support from a particular graduating class or a “friends of the library” organization.

Alternative funding may be available from sources other than grants and gifts. For example, at least one law library has used extra capital funds from a building project to purchase automation equipment. In determining what funding sources might be available, the law library administrator will have to consider carefully his or her own library environment.

C. Methods of Financing

Three methods available for financing automation equipment are: buying it outright, leasing it, or acquiring it through a lease-purchase plan. The least expensive method is to purchase the equipment outright. Budgeting and spending such a large amount at one time, however, may be difficult. Therefore, the cost should be amortized over the equipment’s useful life, perhaps five years, to reflect more fairly the cost.

23. The Southern Illinois University School of Law Library applied capital funds appropriated for and remaining after the construction of a new law school building to purchase minicomputer hardware for the law library. Telephone interview with Laurel Wendt, Associate Law Library Director, Southern Illinois University School of Law (May 30, 1984).
24. See D. SAGER, supra note 4, at 40-45. See also J. MATTHEWS, supra note 3, at 53, for a reprint of a table comparing the advantages of lease and purchase arrangements.
Renting or leasing equipment reduces the initial cost, but in the long run, costs will be higher, because the user will be paying for financing as well. This method helps protect the user from investing a substantial amount for equipment that soon may become obsolete. On the other hand, at the end of the lease term, the user will not have an asset to show for the money paid out. The user should check carefully the terms of any rental or leasing contract to see what obligations are undertaken by both parties. These contracts frequently are made through third parties, such as banks, rather than through the vendor.

A variation on leasing is to acquire equipment through a lease-purchase plan. These agreements generally allow the user an option to purchase the leased equipment at a later date and to apply all or a portion of the lease payments towards the purchase price. As with a lease, lease-purchase plans typically are done through a third party (at some universities they may be available through the academic computing center). The library administrator should check the terms of the agreement carefully.

D. Budget Presentation

After separating estimated capital from operating expenses and considering the various funding and financing alternatives, the library administrator should prepare a budget proposal that adheres to the format and style required by the host institution and that follows general budgeting principles. The presentation should be clear and simple, but supported with ample documentation, perhaps in the form of a budget narrative with accompanying reports or studies prepared by the administrator and the procurement team. The documentation should present the various alternatives explored for meeting the needs identified in the needs analysis, demonstrate the cost-effectiveness of following through on the automation alternative chosen, and show how the automation plan will assist the library in meeting its objectives and goals.

The library administrator should guard his or her credibility in making any budget proposal. Although automation projects rarely reduce costs, they may help keep costs down in the future while maintaining or even improving the level of library services. This argument may be successful with many finance officers; however, the administrator should be careful not to oversell an automation project and then be expected to work miracles. As a rule, one should estimate benefits conservatively and costs liberally.

IV. Select a Specific System and Vendor

Once a financial commitment has been guaranteed, the library administrator will enter into a contract for a specific system with a vendor. This is a three-stage process. The first stage is to draft the system requirements or specifications and include them in a request to the vendor for proposal or purchase contract. The next stage is to evaluate the proposals received and to select a system and a vendor. The final stage is to draft and enter into a contract.

A. Draft System Specifications

Although proposals and bidding processes vary among institutions, the key to a good bidding document is the specifications. In some institutions, the proposal process is initiated by issuing a Request for Proposal (RFP) to qualified vendors.26 RFPs describe a problem and allow the vendor some latitude in proposing solutions. In many instances RFPs will not be issued directly by the law library; rather, they will be prepared by the host institution’s purchasing department from other materials (such as a Request for Purchase form) supplied by the law library. The RFP will follow a set format, stating procedures for the receipt of proposals, criteria for evaluation, and so on. From the law librarian’s perspective, the most important section of this document probably will be the requirements section, which sets out the system specifications.

The purchase contract is similar to, and sometimes confused with, the RFP.27 Purchase contracts usually are issued when the specifications desired by a library are known more clearly. Both the RFP and purchase contracts include a right of refusal clause.28 Again, it is likely that the purchasing department will prepare this document according to a fixed format from materials supplied by the law library. The most important section, again, is likely to be the specifications.

To begin drawing up system specifications, the library administrator first should identify mandatory, desirable, and acceptable features.29 Much of this work should have been completed at the needs assessment stage and may need merely to be refined here. Vendor specifications and the specifications provided by other libraries may be useful as guides; however, don’t rely too heavily on either for preparing a particular law library’s specifications. Vendor specifications are likely to be too narrow, while the specifica-

26. The proposal process is described in D. SAGER, supra note 4, at 88-91. See also Hegarty, supra note 25, at 109, and J. MATTHEWS, supra note 3, at 43-47.
27. See D. SAGER, supra note 4, at 90.
28. The right of refusal clause reserves to the law library the right to refuse any or all proposals. See, e.g., Kennedy, Library Administrative Concerns of Hardware Acquisition, in MICROCOMPUTERS IN LIBRARIES 61 (1982).
29. See R. BOSS, supra note 9, at 105. See also L. WOODS & N. POPE, supra note 8, at 49.
tions of another library are likely to be oriented towards the unique procedures and needs of that institution. Additional considerations for identifying software and hardware specifications follow.

Frequently, the procurement team already will have identified a particular software package as best meeting the library’s needs; nevertheless, it may be necessary to go through the bidding process to satisfy institutional requirements or to identify additional software packages. All software specifications clearly should address: functional capabilities and performance criteria;30 any limits imposed by hardware or operating systems; amount of user support, training and documentation desired or expected; upgrades and maintenance requirements; and availability or deliverability. Because functional capabilities are critical to a usable software package, they should be well-defined. Performance criteria, such as response time, data base size, and functions or users to be supported simultaneously also should be clearly set out.

Hardware specifications may address in some detail categories covering hardware resources, interface capabilities, expansion capabilities, mass storage devices, keyboards, printers, terminal requirements and related devices.31 Additionally, the administrator should consider including provisions that address warranty periods, maintenance contracts or support, delivery dates, installation responsibilities, and methods of payment.

B. Evaluate Proposals

After issuing an RFP or purchase contract, evaluate different vendor proposals to find the one which best meets the law library’s needs. The evaluation process involves two stages: first, proposals are validated to ensure that they meet the mandatory requirements set out in the specifications; second, the remaining alternatives are rated.32 Proposals not validated, either because they currently are not capable of functioning as specified, or because they cannot perform as required, should be eliminated. Current capabilities can be validated by checking the literature and interviewing users. If necessary, the vendor can be asked whether there are alpha and beta (first and second user) test sites. Although it is probably wise to avoid being the first-time user of a system, this may not be enough to eliminate a system from consideration—especially if there are few proposals for evaluation. Actual performance under a simulated work load can be validated either by vendor testing (or benchmarking) or by on-site (or acceptance) testing. To permit time for acceptance testing, final payment for a system should not be due until at least thirty days after the system is installed.

30. See Hegarty, supra note 25, at 103.
31. A detailed checklist of microcomputer hardware specifications is included in R. Walton, supra note 6 at 71-72.
32. See Hegarty, supra note 25, at 102-104.
The rating of proposals should reflect a number of considerations. The most obvious factors include the degree to which specifications are met, start-up costs, and continuing costs. Additional important considerations may include the system’s deliverability (how soon it can be installed), its flexibility (how well it interfaces with other systems), the amount of training and vendor support provided, and the reputation and stability of both the system and the vendor.

Proposal evaluation methods range from the purely subjective to the detailed and apparently scientific. Although the subjective “method” should not be employed, it may not be worth spending time on an overly detailed study merely to purchase a simple microcomputer system. Some judgment should be made so that the level of effort expended is proportional to the importance of the decision. Presented here are merely some simple methods of analysis.

Three commonly employed methods of cost-benefit analysis may be useful for the evaluation of proposals: (1) minimize cost for given benefits, (2) maximize benefits for given costs, and (3) maximize net benefits.\(^3^3\) The first method, sometimes referred to as the cost-only method, is not recommended highly because it fails to give a value to desirable benefits not included in the specifications. The second method, maximizing benefits for a given cost, is useful when the library has a set amount of money with which to work. For example, if the library has $10,000 to invest in an automation project, the library administrator may want a system that provides the most benefits within this price range.

The third method, sometimes referred to as the least-total-cost method, is generally the most useful for comparing all features of competing systems. This method of analysis uses preassigned values for all desirable features in a system.\(^3^4\) For instance, values may be assigned for vendor training and support. These values are subtracted from the costs of systems having the desirable features. The net costs of different systems and vendors can then be more readily and fairly compared. Features for which dollar values cannot be assigned, such as vendor stability and reputation, may be excluded from this stage of analysis and saved for final review.

C. Enter Contract

After the library administrator has identified suitable systems and vendors, it is time to negotiate a contract for sale, installation, and services. More than one contract may be involved; there may be separate contracts

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33. Cost-benefit analysis is discussed in more detail in King & Schrems, Cost-Benefit Analysis in Information Systems Development and Operation, in A Reader on Choosing an Automated Library System 70 (J. Matthews ed. 1983).
34. See Hegarty, supra note 25, at 105-106.
and vendors for equipment, for software, and for service. In any case, remember that a vendor’s standard contract is merely an offer and should be entered into only when system specifications, oral promises, and other provisions favorable to the library have been incorporated. If the vendor is unwilling to be flexible, perhaps another vendor or system might be more suitable for the library.

Some provisions to consider for inclusion in the contract are:

- definitions of terminology;
- responsibilities regarding site preparation and installation (including delivery dates);
- responsibilities for the conversion of records and loading the data base;
- training and user documentation to be provided;
- warranty coverage and periods (generally ninety days for microcomputers);
- user support and maintenance or service contracts (specifying charges, turnaround time for service, and whether replacement equipment is to be provided);
- payment schedules;
- and the definitions of, remedies for, and law governing disputes.

Regarding payment schedules, the vendor is likely to want full payment as early as possible, yet it is in the library’s interest to delay payment until the equipment is installed and functioning properly. Final payment should be delayed for at least thirty days after installation to allow time for acceptance testing. If possible, the final payment amount should exceed the standard percent rate in order to allow the library more leverage with the vendor should problems arise after installation.

V. Implement the System

The keys to successful implementation of an automated system are planning and staff involvement. Studies have shown a direct correlation between staff involvement in the planning process and the acceptance of an automated system. Because acceptance is a prerequisite to the ultimate success of any project, planning for implementation should occur early and involve staff members to the maximum.

35. See J. Matthews, supra note 3, at 55. See also Spanner & Mack, Sharpening Your Clause, in A Reader on Choosing an Automated Library System 143 (J. Matthews ed. 1983).
36. See Brandon, Staying Out of Court, in A Reader on Choosing an Automated Library System 150, 153 (J. Matthews ed. 1983). See also J. Matthews, supra note 3, at 56-62.
37. See L. Woods & N. Pope, supra note 8, at 59-60.
38. R. Boss, supra note 9, at 111.
A. Involve Staff

Ideally, staff members should be involved from the earliest stages in the law library's automation plans. They certainly will be made aware of automation plans to some extent at the time the needs assessment is conducted, and some members are likely to become part of the decision-making process by being placed on the procurement team. Thought should be given to how other members might also become involved, through participating in record conversion (or preparing records for conversion), viewing system demonstrations, and similar activities.40

Staff members who view automation either negatively or positively should also be identified. Those who fear automation should be consoled and assured if their fears lack basis in fact.41 On the other hand, if a position will be eliminated, this should be made known as soon as possible. Employees who view automation positively may be placed on a microcomputer training committee (swat team) or otherwise used to promote the system42 although some caution and good judgement will have to be exercised to prevent the creation of a new elite that may upset an otherwise harmonious working environment.

B. Plan for Integration

To encourage successful implementation of an automated project, several planning documents should be prepared, including a written integration plan and user policies and procedures.

The integration plan should address site preparation and installation, orientation and training of staff members, and conversion of records.43 Site preparation may not be a significant concern for some libraries using microcomputers;44 nevertheless, some factors should be taken into consideration before the equipment arrives. These include the security and safety of the site; the presence or absence of proper telecommunications and electrical outlets; and the size, cleanliness, and temperature of the site.45 If a multiuser system is to be installed, the location of additional terminals also will need to be considered. Generally, the larger the system, the more critical these considerations will be.

40. See R. Walton, supra note 6, at 79-83. See also Urbanek, Staff Training and Automation: Issues and Concerns for Library Managers, in Microcomputers in Libraries 157 (1982).
41. Library jobs are seldom lost as a result of automation. R. Boss, supra note 9, at 101. On the other hand, some employees may have legitimate fears regarding the hazardous health effects from spending many hours before a terminal. R. Walton, supra note 6, at 80.
42. Six models of staff training, including the “swat team” approach are discussed in Miller, Technology: Staff Issues, in Microcomputers in Libraries 147 (1982).
43. See R. Walton, supra note 6, at 81-82.
44. The Maine State Library keeps its microcomputer equipment stored on a book truck. It is wheeled to temporary workplaces in the library when scheduled for use. Wismer, Microcomputers with a Bald Face; Or You’ve Got to Begin Somewhere, Online, Sept. 1983, at 52, 54.
The amount of orientation and training for staff members will be determined to some extent by the support provided by the vendor. The contract should specify the number of hours of vendor training to be provided and the qualifications of the trainer. It may be possible to videotape the vendor training and use this to support subsequent in-house orientation and training programs.\footnote{Matthews, Implementing the System, in A READER ON CHOOSING AN AUTOMATED LIBRARY SYSTEM 201-203 (J. Matthews ed. 1983).}

The contract also should make clear the responsibilities of the library and vendor for record conversion.\footnote{The library administrator should consider ongoing as well as retrospective conversion of library records to machine-readable form. A number of methods are available; nine are discussed briefly in J. MATTHEWS, supra note 3, at 73-74.} In some cases, the vendor or a third party will convert the library's records to machine-readable form. If the library has this responsibility, a procedure for record conversion will have to be worked out and staff assigned to the project. Much of the preliminary work of preparing records for conversion may be done before the installation of equipment. To avoid monotony and involve more staff in the automation project, the actual inputting of records should be shared among staff members.

Two types of policies and procedures may be prepared for system users: one addressing general use of the system and another covering review of new applications proposals.

At a minimum, general user policies should address procedures for logging on and off the system and for reporting and resolving problems.\footnote{See R. WALTON, supra note 6, at 82.} If the system is capable of supporting more than one task, it may be necessary to establish task priorities, schedule times for access, and set out guidelines for personal use. Those functions for which an automated system is acquired should receive the highest priority; however, if the system will support additional functions, time should be allotted for these uses as well. For instance, employees should be allowed to block out work time to use the system at periods that don't interfere with primary tasks; applications not directly related to work could be scheduled during lunch and after hours. Should personal use be allowed, guidelines covering the use of supplies also will need to be drafted.

Task review policies also may be drafted as guidelines for reviewing new library applications proposals.\footnote{Id. at 83.} These policies should address the required format and content of new proposals. For example, they may require a project abstract followed by a detailed project description covering project design, resources required (such as software), and a timetable for implementation; they also may require a specification as to how data is to be input and maintained and how performance objectives are to be measured. The purpose of providing guidelines for new proposals is to ensure that all relevant information is considered and that the project is viable. These guidelines will help ensure that the automation project is successful.
of task review policies is to establish a systematic and fair method for reviewing new proposals for automation. Considering the size of many law libraries, such policies may not be necessary and may merely work to stifle suggestions. Again, it is left to the individual administrator to judge the potential usefulness of these procedures within a particular library environment.

**Conclusion**

Automation offers the promise of freeing librarians and, especially, support staff from the drudgery and monotony of repetitive clerical tasks, offering more time for other necessary tasks as well as the more truly interesting work of librarianship. Microcomputers have put automation projects within the reach of even the smallest law libraries. However, in viewing this utopia, the library administrator should remember the oft quoted saying, "To err is human; to really foul things up requires a computer." To prevent utopia from becoming a nightmare, the law librarian should plan carefully, taking into account the scale of the decision being made.