

RATIONALE, EVALUATION  
AND  
RECOMMENDATION  
REGARDING THE  
AUTOMATION OF CIRCULATION  
AT THE  
JOHNSON COUNTY LIBRARY

Maurice J. Freedman  
Library Consultant  
158 Landsdowne Avenue  
Westfield, New Jersey  
07090  
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Norene McDonald, Director of Technical Services, Chair of the Library Automation Committee and Project Coordinator, is the person who most singly contributed to the success of this project.

The Library Automation Committee is to be recognized for its many hours of labor, analysis and discussion, all toward the end of getting the Johnson County Library the best available automated circulation control system under the most favorable conditions.

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## EXECUTIVE SUMMARY

### 1. RATIONALE

The Johnson County Library (JCL) has been using a version of the Detroit Public Library circulation control system, a manual system originally developed the year the Stock Market crashed. In view of its manifold deficiencies, one should not wait for another such occasion to replace it with an automated circulation control system.

One of the most important reasons for JCL to automate its circulation process is to maximize collection utilization. Presently each branch has its own catalog and thus a user of that branch can determine what is held there; but no one at a given branch has access to or knows what is available at any other branch or in the entire JCL. With an automated circulation system, a given user will have access to the full resources of the system, regardless of whether they are in the smallest or largest branch, and can have the items desired brought to them by an efficient courier system installed for that purpose. This relieves individual libraries of the burden of attempting to amass perfect collections, and promotes a greater efficiency in the utilization and storage of materials. If the item desired is not available at the patron's branch, but is available somewhere else, the item can be brought promptly to the patron. This will revolutionize service.

The library's resources will be much more fully utilized. materials in given branches will be used frequently by patrons

at an given branch whereas in the past it was impractical for the patron to access these materials.

Another reason to justify automation is the tremendous and positive effect it will have on the morale of the patrons and the staff. The library users will no longer be penalized for using the library, i.e. filling out circulation slips; they will receive reserved materials in a prompt and expeditious manner; they will be informed simply and immediately of the status of desired items wherever they are in the entire library system; and they will be notified promptly and efficiently of overdue items, as well as be told, if desired, all of the items and fines charged to them as of a given date.

As to the staff, they will no longer be burdened with the demoralizing labors associated with an antiquated, inaccurate and tedious circulation system. This means that they will now be free to do work which will be far more useful to the library and its users and satisfying to themselves.

The labor intensive maintenance of paper files; the clumsy and duplicative reserve routines; the errors in fine calculation; the negative public relations and laborious efforts associated with the creation and dissemination of overdues; the virtual inability to prevent delinquent borrowers from using the library (except at renewal); and the 'poverty of statistical data and management information are all exemplary reasons to abandon the manual system in favor of automation.

Still another reason to automate emerged during the 1970's and is even more accurate, if possible, going into the 1980's: the cost of data processing equipment is decreasing in relation

to the equipment's unit size, speed and power, while the costs of human labor are rising radically as a result of inflation and other factors.. In view of this consideration there must ultimately be advantages to be gained by automating. Coupled with the already intense pressures created by the presently deficient system, automation can come none to soon for JCL.

A final reason to support this shift to automation has already been alluded to: the elimination of the especially onerous penalty placed on the library user for borrowing materials. The user must handwrite the author, title and call number of each book he or she wishes to borrow on a circulation slip. The more books the user wishes to borrow, the more work is imposed upon him or her. Any system which eliminates the need for the patron to donate so much labor to the library each time he or she wishes to borrow a book will be welcomed by the patron and save the Library further embarrassing explanations regarding its antiquated circulation system.

## 2. The Evaluation Process

The evaluation process was multi-step. The overall responsibility for specification, evaluation and recommendation lies with the Library Automation Committee, chaired by Norene McDonald, Project Coordinator. The Committee includes representatives of JCL's administration and staff, as well as a data processing and a library consultant as resource people.

Essentially the process began with draft specifications for a Request for Bids which everyone eventually commented upon

and revised. A Bidders Conference was held at which time potential vendors stated their concerns. Another revision was circulated, and finally a Request for Bids was officially submitted to vendors for their proposals.

Two companies submitted bids, CL Systems, Inc. (Newtonville, Massachusetts) and DataPhase Systems, Inc. (Kansas City, Missouri). Their respective bids were analyzed separately and then by the full committee. Note that the evaluation and assignment of scores to specific vendor proposals was done on a consensus basis. All members of the Committee, in principle, agreed with all of the scores and evaluations and the recommendation ultimately decided upon - the consensus process. The library consultant was requested to write all of this up in a formal report to the Board.

A variety of evaluative criteria were established: (1) Scores on proposals; (2) Costs; (3) Financial Report; (4) Hardware/Software Analysis; (5) Past Performance/References; (6) Application Support; and (7) other considerations. The evaluations for each of these criteria follow in summary form:

1. Overall DataPhase had the best scores, that is, most closely met the requirements specified by the Johnson County Library.
2. For example DataPhase scored a total of 619 points as opposed to 544.5 points scored by CLSI.
3. DataPhase satisfied the JCL requirements 193 times to CLSI's 162 times, and did not satisfy JCL's specifications 44 times, while CLSI was less than satisfactory 75 times.

4. Lastly DataPhase exceeded CLSI's score in every one of 5 sections of the RFB tabulated. In the critical area of circulation functions, DataPhase outscored CLSI in 6 of 9 areas.
  
5. The next criterion considered was cost. With the exception of the purchase price for a combined system for all of the area libraries (JCL, Johnson County Community College Library, Olathe Public Library and Kansas City (Kansas) Public Library), DataPhase offered lower purchase prices than CLSI.
  
6. Two reasons are suggested to militate against JCL's implementing the low bid for the system serving all of the area libraries:
  - (1) JCL will have to procure a computer and disk storage capacity well beyond its own needs.
  - (2) There is some reason to question the capacity of CLSI's offered computer to successfully operate with all of the area libraries sharing it. There is a possibility of unsatisfactory response time.
  
7. Maintenance costs for the first year are essentially in DataPhase's favor with the only significant difference occurring when all of the area libraries are using the system.

8. one is referred to Tables V and VI for the specific cost figures.  
(See pp. 35, 36.)
  
9. A confidential report submitted by a financial analyst concerning the finances of the two companies recommended DataPhase because of its seemingly better control over its debt structure. The analyst noted that both companies were qualified to meet JCL's needs.
  
10. Ken Rodney, the data processing consultant, gave them equal grades in his formal statement in the following areas:
  - (1) The hardware is manufactured by outstanding companies and the equipment is reliable.
  - (2) The configurations proposed appear to be adequate to do the job required by the library. (This statement is somewhat negated in 6. (2) above).
  - (3) Both systems are expandable.
  
11. In the area of hardware and software maintenance, Mr. Rodney gives higher grades to DataPhase which is both local and offered quicker response times.
  
12. DataPhase's application programs are in a high level language, one which permits library staff to develop and write new programs and applications. CLSI's is beyond the competence of all but experienced programming personnel because it is a low level language.

13. CLSI did not clearly indicate that it would deliver its software (source code) to JCL upon being awarded the contract. DataPhase did comply with this specification.
  
14. Several clients of each company were contacted for references on the performance of the respective systems and maintenance support:
  - (1) Each vendor had at least one client thoroughly satisfied with its services.
  - (2) No clients were found who substantially criticized DataPhase's performance.
  - (3) At least 2 separate large installations of CLSI have had significant problems.
  - (4) One large DataPhase installation was extremely happy and has stayed right on its development and implementation schedule since 1977.
  
15. Both vendors offer strong application support. Based on DataPhase's higher scores it is clear that CLSI has more application support work to do than DataPhase to meet JCL's requirements.

16. The fact that DataPhase is located in Kansas City, Missouri adds some other considerations, tangible and intangible, to the merit of its selection as the successful bidder:

- (1) Because it is so close, response to service needs, parts replacement, etc. should tend to be better than if it were not local.
- (2) The fact that the company would want its local (and literally, in terms of its officers, its "home") installation to be a showplace is an intangible consideration that certainly should be in JCL's favor if this recommendation is accepted by the Board.

In view of this array of supporting reasons, and the unanimous agreement of the Library Automation Committee including its data processing and library consultants that DataPhase has submitted the best Bid, it is recommended that the Johnson County Library Board accept the DataPhase Systems, Inc. Bid as most responsive, and subject to satisfactory negotiations, a contract be signed with DataPhase to supply Johnson County Library with the automated circulation control system it proposed.

## CONTRACT NEGOTIATION

The final step in the procurement of an automated circulation system is the negotiation of a contract mutually satisfactory to both parties. A variety of problem areas and concerns are enumerated and discussed. For summary purposes, only a few, perhaps the touchiest, will be highlighted:

- (1) A method must be established that will afford the library some degree of consideration when the vendor fails to perform and full payment to the vendor has already been made.
- (2) Standards for acceptance, liability, down-time, etc. must be negotiated.
- (3) A satisfactory payment and performance schedule must be established.
- (4) All of the RFB's specifications, excepting those changed or eliminated must be written into the contract.

One is referred to Chapter 4. if perusal of all of the gory details is desired.

## CONCLUSION

A satisfactory rationale and justification has been provided for eliminating the present antiquated circulation system, and reaping the service, morale, and public relations benefits of a successfully installed automated circulation system in its place. The DataPhase Systems, Inc. proposal was the best offered overall in the considered judgment of the Library Automation Committee and its consultants, and is accordingly recommended to the Board for its approval.

## Chapter 1:

### WHY AUTOMATE?

#### I. The Present System

This simple question can be answered by comparing the currently employed circulation system with the proposed minicomputer based systems offered in today's marketplace.

The Johnson County Library (JCL) uses a circulation system similar to the one developed at the Detroit Public Library the year the Stock Market crashed, 1929. Although functioning, the JCL system has much to be criticized and little to be praised.'

A brief description of the system is in order before examining some of its salient features.

The basic circulation record is a slip filled out by the patron at the circulation desk which includes his or her writing out the author, title and call number of the book to be circulated. In exchange for this slip, a pre-numbered transaction slip is placed in the book. The circulation clerk writes this number on the slip filled out by the patron, thus creating a numeric link between the book and the patron created slip. This latter slip, the circulation slip or record, is then filed away in transaction number sequence. When a book is returned, the transaction slip is removed from the pocket of the book. Then the patron created slip I is removed from the circulation file when the numbered transaction slip is matched to it.

Overdues are simply determined by default, that is, all slips remaining in the circulation file after a given date are overdue. These overdue slips are removed in order to have notices prepared and sent to the delinquent borrowers whose names and addresses were embossed on the back of the circulation slips at the time the item was charged.

This is essentially a simplified version of the system used by JCL, but the basic processes have been indicated. It is now possible to examine specifically some of the deficiencies of this system, and how it tends to limit or detract from the, otherwise fine services provided by the Johnson County Library.

A.     ACCESS

The JCL system provides no significant access to the circulation records it maintains. Since the circulation slips are filed by transaction number, it is virtually impossible to find the status of a book by its author, title or call number, nor is it possible to determine for a patron the books charged to him or her.

B.     PAPER FILES

Since the records kept consist entirely of paper, there is a great deal of manual labor. The circulation slips must be arranged in numeric order prior to filing, and the transaction slips after having been pulled from returned books must be sequentially ordered before they can be compared against the circulation files.

Both of these tasks are labor intensive and errors are easy to make and often happen.

C. PATRON ROLE

The patron must fill out the basic charge record, a time-consuming laborious task, especially for the heavy library user. In effect the greater the use, the greater the penalty. Frequently these patron records must be rewritten by staff because of illegibility. This particular feature must surely be one of the most negative experiences JCL's patron's have in using the library.

D. RESERVES

It is almost impossible to keep track of reserves. Each week a 40 page typewritten list is circulated to each branch which indicates the items currently on reserve. At each branch, all returned items are searched against this list in order to catch those returned items which have been reserved. In addition to being extremely time-consuming, it is also duplicative or redundant. In principle it is possible for each branch to catch the same book thus taking them all out of circulation, when only the first copy returned is needed.

E. FINES

All fines are tabulated by human beings, and thus errors can and do take place.

F. OVERDUES

The process of preparing overdue notices is both inefficient and costly, and creates ill-will toward the library. Three overdue notices are sent. The first is sent two weeks after the book is overdue and does not indicate which item(s) is (are) overdue. The second notice, a bill, is mailed to the patron 3months later and does indicate which item(s) is (are) overdue. The final notice is sent after six months and only lists the amounts of money owed. The library receives calls after the first notice by patrons wishing to know which items are overdue. Finding the information needed is time consuming, and it is not always found. A second notice after three months is expensive to produce -- the information is manually typed and the patron frequently is irate because of the great time lapse between notices.

G. DELINQUENT BORROWERS

It is almost impossible to catch delinquent borrowers except at the time they renew their cards. Lists of delinquent borrowers used to be prepared and kept at the charge desks of each branch.

It was time consuming to check each borrower against the list, and also problematic in that the lists would not remain accurate for very long. Consequently borrowers would be falsely accused of owing money which they recently would have paid to the library. These delinquent lists were discontinued for these reasons.

#### H. STATISTICS and MANAGEMENT DATA

Virtually no useful information is readily obtainable from the JCL system except the total number of items circulated. Little other useful data can be obtained except by using sophisticated sampling data. And it is practically impossible to determine how often or, the last time a given item in the collection has circulated.

#### II. AUTOMATION

The currently available minicomputer based circulation systems successfully and easily deal with all of the problem areas indicated while providing a host of additional benefits and services. It will be most useful to view these as we did the manual system.

Simply the automated system uses the speed, the storage capacity, and the manipulative ability of today's on-line interactive computer systems to capture, store and process library information in a rapid and useful manner which ultimately enriches and enhances library service.

A. ACCESS

At any time, the status of a book can be determined immediately by author, title or call number. In addition, a patron can easily and simply be told all of the books charged to him or her and when they are due, regardless of how many books are charged out and whether they were borrowed on the same or different days.

B. PAPER FILES

All paper files are eliminable. Since all of the data is stored in the computer and is retrievable on demand in either a video display or computer printout, there is no need for paper files. Thus all of the labor intensity and errors associated with the manual system are eliminated.

C. PATRON ROLE

The patron now only needs to present his or her card, the books to be charged, and carry them away. All of the burden placed on the patron is removed -- he or she need no longer handwrite circulation information for the library. The elimination of this step will provide the foundation for massive public acceptance of the automated circulation system.

D     RESERVES

Reserves are expeditiously handled. The computer keeps track of them and will automatically trap the first copy returned of a reserved title. A light goes on and a sound is made, alerting the clerk to the reserve status of a returned item. In addition the computer will keep track of all of the reserves for a given item in the order they are placed, assuring that they are filled in proper sequence and no individual accidentally gets unfair treatment. of course, the 40 page typewritten list and the manual checking of returns are eliminated.

E     FINES

Fines are automatically calculated and thus errors in calculation are eliminated.

F.     OVERDUES

The computer will automatically produce overdue notices which indicate the items outstanding. All typing is eliminated, plus the taking of phone calls requesting the items overdue associated with the first notice. Since the computer generates the notices, the second and third ones can be produced in a much more timely manner than three to six months. Note also that the complex and voluminous manual files associated with the overdue process are totally eliminated.

G. DELINQUENT BORROWERS

As with reserved books, the computer automatically signals the clerk a light goes on and a sound is made -- when a delinquent borrower attempts to charge a book. No longer will the library have to wait for the delinquent to renew his or her card to collect fines or suspend the person's library privileges.

H. STATISTICS and MANAGEMENT DATA

The computer makes it possible to determine how often a given item or materials in a given subject classification have circulated, the last time a given patron borrowed (or returned a book, or much other valuable data. It will also notify the library to purchase additional copies of a book when too many reserves accumulate for it. This merely touches upon the kind of data which can be obtained which will allow the library to rationally manage and utilize the materials comprising the Johnson County Library.

III. OTHER IMPLICATIONS

One of the most important reasons for JCL to automate its circulation process is to maximize collection utilization. Presently each branch has its own catalog and thus a user of that branch can determine what is held there; but no one at a given branch has access to or knows what is available at any other branch or in the entire JCL.

With an automated circulation system, a given user will have access to the full resources of the system, regardless of whether they are in the smallest or largest branch, and can have the items desired brought to them by an efficient courier system installed for that purpose. This relieves individual libraries of the burden of attempting to amass perfect collections, and promotes a greater efficiency in the utilization and storage of materials. If the item desired is not available at the patron's branch, but is available somewhere else, the item can be brought promptly to the patron. This will revolutionize service.

The library's resources will be much more fully utilized. Materials in given branches will be used frequently by patrons at any given branch whereas in the past it was impractical for the patron to access these materials.

The last implication to be discussed, although others can be drawn, is the tremendous and positive effect on the morale of the patrons and the staff. The library users will no longer be penalized for using the library, i.e. filling out circulation slips; they will receive reserved materials in a prompt and expeditious manner; they will be informed simply and immediately of the status of desired items wherever they are in the entire library system; and they will be notified-promptly and efficiently of overdue items, as well as be told, if desired, all of the items and fines charged to them as of a given date.

As to the staff, they will no longer be burdened with the demoralizing labors associated with an antiquated, inaccurate and tedious circulation system. This means that they will now be free to do work which will be far more useful to the library and its users and satisfying to themselves.

#### IV. CONCLUSION

The service benefits demonstrated in the foregoing justify the acquisition and implementation of an automated circulation system and the discontinuation of the present Detroit based system.

