Serials Automation
Micro-Computer Based Serial Systems

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Abstract

Automation in libraries is not new, but serials automation is still relatively untried. There are a number of reasons for this, not least the complexity of automating serials control. This paper will examine some of the possible reasons for choosing a microcomputer system and identify some problems and pitfalls which may occur on the way. While no attempt will be made to give an overview of microcomputer systems currently on the market, reference to such systems will be made.

1. Introduction

Libraries come in all shapes and sizes with collections and services to suit their user groups. As a general rule, however, it is suggested that serials play a more important role and that their control is more complex in commercial and industrial libraries than in academic libraries, and in academic than in public libraries. This being the case, there is a likely inverse relationship between the size of the library (in terms of staff, total stock and budget) and the complexity required of the serials control system.

It has also been noted that many of the stand-alone microcomputer serials systems are "highly sophisticated, frequently more so than serials modules within integrated library systems" (Woodward and Graham, 1990:140). In other words some microcomputer systems better reflect the complex serials control needs of the smaller industrial library than do the modules of integrated library systems. This fact coupled with the lower budgets for automation available in the smaller libraries may lead one to conclude that small libraries with complex serials control requirements should purchase a stand-alone microcomputer system. The main advantage of choosing such a system would be to ensure that, as far as possible, you get what you require in terms of functionality, without the system being chosen for you on the basis of its compatibility with the most attractive OPAC!

There is not, however, a clear dividing line between special libraries and other kinds of libraries, nor between microcomputer systems and integrated library systems; many of the latter running on both micro- and mini-computers. A study of our latest directory (Dyer and Gunson, 1990) revealed that in the UK the breakdown of microcomputer systems notified to us at that time was as follows:

Table 1: Serials control software as listed in Dyer and Gunson, 1990	
Stand-alone microcomputer systems	5
Integrated library systems with serials module	10
Integrated library systems without serials	4

A stand-alone system, as its name suggests, has no facility to integrate with other housekeeping functions, typically being developed and marketed by serials suppliers, whose concern is primarily with serials control not with other aspects of library automation.

Foster (1990) argues that vendors of integrated library systems view serials control as the "last frontier" of automation. Certainly the fact that there were at least four integrated microcomputer systems which did not offer serials at that time indicates this. It would appear, however, that suppliers are now looking more closely at their serials control offerings. Indeed at the time of writing Equilibrium's serials control module was being re-written to be available later this year (Fryer, 1991).

The decision, therefore, is not clear cut. As integrated library systems improve their serials control modules, they may well begin to satisfy an increasing number of serials control requirements. In addition, of course, they offer other functions and the ability to integrate the serials data with them. For example in Equilibrium and CALM the fund accounting cost centres are shared with the acquisitions function. Reader data can also be held

in common avoiding redundancy and ensuring consistency. Other reasons for choosing to automate using an integrated library system include the saving of time and effort in learning more than one system and the cost reduction which can be brought about by using existing hardware.

It is vital therefore that libraries consider carefully their real needs in serials automation to ensure that they purchase a system able to meet them, but which is not overly complex, and robs them of the possibility of future integration with other automated functions within the library.

It is the aim of this paper to stimulate thinking on the reasons for choosing to automate in order to assist the decision for or against a microcomputer serials control system.

2. Why automate?

Reasons for choosing to automate serials include the increased demand from library managers and institutional accountants for detailed analyses of serial titles for collection development purposes and accurate financial information for budgeting purposes both of which are difficult and time consuming manually (Woodward and Graham, 1990).

Other advantages include performing some tasks faster than previously, thus improving customer service and enabling staff to become involved with other areas of library work. This is especially beneficial, if there is a small staff. The degree of improvement will, however, depend on how the library currently performs certain functions. Serials check-in is usually performed fairly efficiently manually, so time savings may need to occur elsewhere to be significant. Typical time-consumers are claims and the production of statistics and reports. Coffey (1988) argues that for her library, time was saved in the easy production of statistics, reports and circulation labels.

The functions needed will vary according to the type and size of library and different serials management and use. For example, a library which holds only a few hundred titles with a policy of discarding most of them within a few years and with no binding policy will have different requirements to a library which subscribes to thousands of serials and needs detailed fund accounting.

The larger the collection, the greater the amount of irregular, foreign and grey literature (Woodward and Graham, 1990). These are serial publications which take time to control manually, but which also require complex automated systems to control them.

The number of titles in itself may be no indicator as to the library's requirements, the frequency of the titles having a significant impact on check-in.

Having established the main objectives for automating, it is necessary to consider the individual functions in some detail.

3. Functions

3.1 Retrospective conversion

In order to use an automated system, the bibliographic data must be converted into machine-readable form. This can be done in a number of ways and several factors need to be considered in selecting the best option. A key criterion is that the bibliographic record, once created becomes the most lasting part of the serials control system and a considerable investment. Quality of bibliographic description and compatibility with other systems to enable a possible future transfer are, therefore, vital. It is important to be sure that the output can be in MARC format and that the records are of sufficient quality to be able to form the basis of another system. Boss (1987) advises librarians not to choose a system which would limit the format and quality, for example to make it difficult to record data such as alternate titles, subject headings or country of publication, or to restrict the title length.

- a] Keying in locally

Do you want to try and fit the extra work into your daily routines? If you are a small library, do you have the capacity to do this and what effect would it have on your staff? If you choose this route the staff will need to feel part of a team and appreciate for themselves the need for retrospective conversion (Broadway and Qualls, 1988);

What about cataloguing standards? They may have been inadequate in the past and so new standards may need to be set to ensure consistency (Sommer, 1990);

How many terminals would be needed?

If the original cataloguing details are only held on the Kardex system used for checking in how are you going to key in data to the new system without disrupting the normal check-in procedures?

- b] Downloading from a bibliographic utility

Some suppliers have a database which can be searched and from which records can be downloaded, (Swets, for example, has a database of 500,000 serials [Cook, 1991]). The costs and hit rates will vary from supplier to supplier.

Rough estimates of downloading times can be difficult. Janto (1988) had estimated that at a rate of 20 records per hour, the conversion of her law library of 2,100 records would take 2-5 months, but had overlooked the fact that, in the law field, monographs are counted as serials

because they are supplemented serially and therefore changes from monographic to serial records were needed. The whole project took longer than anticipated.

Does the database contain the titles you want? EBSCO claims that their retrospective conversion service which matches titles against CONSER (the Cooperative ONline SERials program) and MARC-S tapes has a hit rate of 96% for a "typical American University list". (Serials news, 1989a; Serials news, 1989c). But are you a typical American University or are you a specialist institution with an unusual set of serial titles?

What, too, of the accuracy of the database and of the bibliographic standards? For example, on the Swets database, the Journal of Biochemistry and its supplement are held together under a group title. It may be that the library only wants the main title.

Can the microcomputer system accept downloaded records? Oasis, for example, has interfaces for CD-ROM and online database access.

- c] Delegating the task
  It may be possible and advantageous to have the vendor do it for you, especially in a library with low staff numbers and budget but high numbers of serials. Some vendors, such as Faxon, provide customers with a database complete with bibliographic and invoice details of any title ordered from them. This may be helpful if you obtain a large number of your serials from a single source, but what if you use a range of sources? Other vendors may offer bibliographic records keyboarded or downloaded for the customer. However, Geyer and Botta (1989) offer words of warning, concerning the (in)accuracy of the database and lack of standards.

3.2 Serial definition

The facility for a full bibliographic record should be available if required and, in addition, one or two other important features should be noted:

- Is an ISSN needed to be able to create a record? If so, how will you cope with devising and recording dummy ISSN's if any serials do not have one?
- Can title splits and merges be catered for? For example, American Import/Export Global Trade which has had seven title changes since 1974 and 3 in 1987 alone (Serials news, 1989b);
- What about other difficult serials that your library takes? The following (Serials news, 1989b) would set a challenge to most systems:

- Journals of Gerontology, which is four journals in one cover, with four editors-in-chief, four advisory boards and four sets of instructions to authors;
- Japanese Technical Abstracts which has ten separate titles, e.g. Japan Biosciences, Japan Chemistry, etc.

3.3 Ordering

It should be possible to order items from the publisher, from any supplier, or to receive unexpected and unordered gifts. In addition, a destination other than the library may be useful. OASIS, for example, allows for serials ordered to be sent directly to readers.

Surprisingly, online ordering from serials suppliers is still only in its infancy. Currently, paper is the order of the day for Swets, although online ordering is planned, and electronic mail is used by Blackwell's. When I spoke to Blackwell's representative, I was told they were hoping to announce Connect at this conference. Connect is a facility to interrogate the Blackwell's database online and integration with ISIS is planned later. The Sydney library system has a facility to interface with major subscription agencies for the electronic transmission of orders and claims (Woodward and Graham, 1990:139).

3.4 Check-in

One reason for automating serials control in some libraries is to speed up the check-in process. According to Janto (1988) the time taken for check-in in her library was cut in half following automation.

One of the things that speeds up check-in is the rapid access to serial details.

Useful access points are:
- title words
- alternate title words
- ISSN
- CODEN
- title abbreviations.

Barcode check-in is available on Microlinx and being developed by other suppliers. Blackwell's representative, however, anticipates that upwards of 3,000 serials titles would need to be taken before barcode check-in is of value to a library because of the complex set up requirements (Inger, 1991).

Check-in is often completed with a minimum number of keystrokes, the next expected issues having been predicted by the system. Prediction can be difficult, however, and systems vary in how it is done, some predicting by the date of publication and others by the date of receipt, some based on

groups such as geographical location and serial frequency, by frequency alone or by title. However the system calculates the predictions, is it appropriate for your collection and is it possible to adjust the date according to reality? Systems such as ISIS allow adjustment for a specific title if needed. CALM does not use a predictive system, at all, but is based on data input at the time of check in.

What happens if less than the expected number of issues arrive? What would you want to do? SAILS enables the copies received to be specified by location if necessary.

If monographic series are treated as serials, how would the system cope with the numbering which can sometimes be erratic? (Folson, 1988:75)

3.5 Claims

Claims are usually produced automatically by the system, resulting in savings in staff time and avoiding missing claims deadlines. However, automatic prediction and claiming is not without its problems.

The first problem which needs to be addressed is that of when to send the claims. Typically, this is calculated by the frequency of publication, so that all monthly publications may be set to a claim delay of two weeks, for example. However, like check-in, systems vary as to whether they use the publication or the receipt date from which to predict claims. This can make a significant difference in a serial such as the Korean Medical journal sent surface mail from the publishers. Most, however, use the received date. SAILS enables claim periods to be overridden on individual titles if needed and CALM uses a predictive system which changes according to the last three receipts.

Can the system exclude unpredictable items from a claims scan? If not, it may be necessary to make the claim delay huge (Janto, 1988).

The second problem is the need to personalise claims in some way, with gifts, for example (Adey, 1991). Some systems, such as OASIS enable you to do this. It may also be useful to be able to state why something is being claimed (e.g. not-received, damaged etc.).

Is it possible to note the supplier's response and to prevent further, unnecessary claims? With SAILS, it is possible to record the suppliers' replies in a coded form and some of these codes automatically trigger a stop on further claims.

3.6 Enquiry

It is important that enquiries can be made of the system to find what journals are available on a particular subject or the position regarding the receipt of a certain serial. The same entry points as

check-in are required, and in addition the following are useful:

➤ subject keywords
➤ editor / publisher
➤ system number (often the fastest).

However, the most detailed subject enquiries would be best answered at the article level. Is there any facility for holding details of articles on the system? BookshelF, for example, has a journal article screen as part of the catalogue. How important a feature is this to you? Should you think about buying an integrated system to meet your needs or can you cope with a small database system instead?

3.7 Routing

Industrial and commercial libraries are more likely than other types of libraries to route serials on arrival. Manually, control of routing lists is time consuming and many authors report the benefits of automated routing control (e.g. Coffey, 1988), but there are a number of points to consider in this apparently simple task.

When are the lists printed out? A batch print run at the end of check-in is preferable to halting the check-in process to wait for a label each time.

What kind of routes are available? Does it matter? BookshelF PC offers an open or closed loop (i.e. a circulation ending out of or in the library) and an open or closed star (which returns the serial to the library between each customer).

Will the system prompt you when a certain number of people are receiving the copy of a title on circulation? Some libraries have a policy of ordering another copy when the routing list contains a certain number of recipients (Janto, 1988), although this must be a rare phenomenon in today's economic climate.

What services other than routing are catered for? CALM also prints labels for envelopes for contents lists together with a list of the contents pages needed per person.

3.8 Fund accounting

One of the areas in which help is needed is that of fund accounting and yet, until recently, systems were not offering a high level of funding control.

Accounting begins when an invoice is received. While some suppliers are only just thinking about electronic ordering, many have already developed a system of sending electronic invoices. Blackwell's offer invoices on diskettes which can be batch-loaded into ISIS. However, there may be a need to upload a number of different formats if more than one supplier is used. According to Foster

(1990) there are over 40 different formats for orders and invoices.

Electronic invoicing can help to ease the keyboarding burden on the part of the library staff and ultimately facilitate faster payment for the supplier. Some suppliers, such as EBSCO, also offer a software program with the invoices, enabling the data to be reformatted for use with standard software such as dBase and Lotus 1-2-3 (Serials news, 1989c).

Once the invoice has been received and passed for payment, changes need to be made to the funds (e.g. newspapers) and the cost centres (e.g. a department), changing the money from encumbered to spent. How many separate cost centres can be maintained and can multiple funding be handled? Is it possible, for example, to tie several copies to one subscription record or to split the funding of a single copy? ISIS offers the facility of up to ten cost centres, which may all contribute to one title if need be.

Changes to the data may need to be made. So, for example, if changes occur during a financial year, is it possible to alter the order record (i.e. the funding) during the subscription period? Similarly, is it possible to delete an entry regarding payment made in error? and what audit trail is provided?

3.9 Management reports

Since 1969 there has been a rapid increase in serials prices and in the percentage of the budget which is spent on serials (Gardner, 1987). This trend has been particularly true in special libraries. Young (1989) analysed the prices of serials taken by different types of libraries over a ten year period. He found that special libraries ranked highest overall in terms of average serials costs.

Table 2: Ranking of type of library by serial price (Young, 1989)

Type of library	Rank by average title price	Average price per title (p.a.)
Special business libraries	1st	$171.06
Special government libraries	2nd	$162.72
Hospital libraries	3rd	$153.07

These libraries also proved to have the highest percentage increase over the previous year (87/88) at 8.5%, 11.1% and 11.0% respectively.

Simultaneously, there has been an increased demand for current information, which has brought about an increase in the number of serial publications and in the costs of serials management. Thus it is essential that any automated system assists in the decision-making process and enables the librarian to make wise decisions on which title to subscribe to and how many copies should be purchased. Information on the cost of serials - both subscription and additional costs - is needed for comparison with usage statistics obtained elsewhere. With the relativley high prices of serials in special libraries, this facility may be especially important for them.

What kinds of reports are output? Are they standard or can they be tailored to suit the user's requirements? ISIS offers over thirty management reports and Microlinx also provides information on staff activity.

Are the reports simply listings of the database in a range of formats or is there some room for analysis? If not, can the data be transferred to another software package, such as a database or spreadsheet for further analysis?

3.10 Union list

A union list of serials held in several branches of a large library system or between several libraries in related fields can help to bring about economies by encouraging shared purchasing of some serials and facilitating interlibrary loans. Rodgers (1986) reports that "many thousands of pounds have been saved in this way over the decade", but it is not without problems.

The first is that the production of a union list is not a common feature offered by microcomputer-based serials control systems and it may therefore be necessary to have one written or to buy one from another library.

Second, although the data may be in machine-readable form, they may not be in the same format. Standard cataloguing rules may be needed and a system set up to to ensure that these are all interpreted in the same way. Coffey (1988) admits to arguing over the correct form of titles in her library; what hope is there then, between different libraries?

3.11 Binding

If serials control is the poor relation in automation then binding, along with financial accounting, is the poor relation in the automation of serials control, some systems not yet having a binding option. Microlinx is one which does.

4. Interface

How easy is the system to use as opposed to learn? Asking other libraries who use the system may help. The screen layout should be appropriate to the function, but that does not mean that all check-in screens have to mimic Kardex.

Menus are a common feature of microcomputer systems which saves staff having to learn complex commands, but can mean that a number of menus must be traversed before reaching the required screen.

5. Number of terminals

Who is to have access to the serials system? Is it for staff use only or for the public as well? What functions are to be performed on it and how long will they take? At what time of day will they be performed? How many terminals are needed and where should they be situated?

It is easy to under-estimate the amount of use that a terminal will get. Geyer and Botta (1989) had hoped to use a single microcomputer for word processing and spreadsheet in addition to serials control, but found when the system was installed that, in fact, maintaining serials control and supplying information to clients was almost impossible from a single workstation. In the end they installed a local area network with three terminals, one for check-in, one for mixed use and one for patron enquiry.

Microcomputer systems do not have to stand alone, but not all software will network easily. In the event of being unable to network, data may possibly be transferred via floppy disk (slow) or tape streamer (faster) to update each microcomputer with the day's check-ins. It should be noted, however, that such a system will mean that the data are always slightly out of date.

Patron access to the system can bring benefits to both the clients and the staff. With the cost of staff time continuing to increase, any reduction in interruptions makes good sense, but, is the system friendly and is it secure? (Geyer and Botta, 1989). SAILS, for example, offers eight levels of security by function and by user and enables functions to be moved between menus, so that some menus would be safe for clients to use.

6. Conclusion

So there may be many factors to consider when automating, not least of which will be the choice between an integrated system to handle all your automation needs or a stand-alone system which may better suit your serials control needs. What are your main objectives in automating? what benefits will be obtained via which route? and can these be justified by cost or by other factors? The decision is yours!

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