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The INNOVACQ and Geac Acquisitions Systems Compared: A Large Academic Library Perspective

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SUMMARY. The INNOVACQ and Geac Acquisitions Systems have been successfully implemented in several large academic libraries. All basic requirements for a full-scale acquisitions system have been met by both systems. Size, as measured by number of orders placed or number of subscriptions maintained, magnifies the problems, deficiencies, and difficulties of any system. This paper focuses on significant differences between the two systems, particularly as they relate to large academic libraries. These areas include capacity, in-house control and environmental concerns, backup procedures and printing, command structure, record structure, integration versus interfacing, password security, serials control, invoicing and fund accounting, and management reports.

INTRODUCTION

Acquisitions represents a "last bastion of manual operations in an increasingly automated library environment."[1] The acquisitions process includes many exceptions, intricacies, and subroutines which vary substantially from one library to another. Typically a library's local requirements for acquisitions are much more individualized than for cataloging or circulation. The increased uniformity in cataloging results from universally accepted national standards such as MARC and their use in common databases, such as those maintained by RLIN and OCLC. In the area of Circulation there has been a similar convergence of approaches over the years. However, acquisitions is subject to local policies and procedures governing purchasing and financial transactions that are usually mandated by another department in the library's parent organization. This stymied most attempts to adopt a more standardized approach to acquisition processes. By early 1982, most automated systems had overcome this difficulty by offering a range of purchase order and financial report formats.[2] Nevertheless, each library's specific procedures and policies will determine how well any system meets the needs and expectations of that individual library.

Early automated systems were supported by expensive, full-size computers. Few libraries could afford to obtain their own computer; most had to rely on sharing available hardware. The 1970s and 1980s have seen dramatic developments in hardware, enabling almost any library to consider an online system.[3] Although computers are often divided into three basic kinds —microcomputers, minicomputers, and mainframes—the differences between them are rarely that distinct. The power of computers at the lower end of the spectrum is rapidly eroding the differences.

> Traditional distinguishing characteristics have included the number of terminals which may be supported, the number of simultaneous tasks which may be carried out, hardware capabilities (for example, the size of the memory}, the kinds of storage devices supported, and the price.[4]

However, the best approach is to evaluate the system based upon its ability to meet the library's requirements. The limitations of particular systems, whether hardware-or software-based, will become apparent when a thorough analysis is undertaken. This paper will analyze and compare the INNOVACQ and Geac Acquisitions Systems as they relate to large academic libraries.

BACKGROUND-GEAC COMPUTERS, LTD.

Geac was founded in 1971 with its first product being an inventory control system for municipal school boards. The company made a significant move into the retail banking world in 1974. From a computing point of view, the similarities between banking and library applications, primarily the shared need for large databases and high transaction processing levels, made the move into library applications a natural step. Geac's integrated library system was developed in a piecemeal fashion, beginning in 1977 with the development of an online circulation system for the Universities of Guelph and Waterloo.

A circulation system is, by definition, a form of an online catalog so the logical next step was the introduction of public access capabilities. Geac's cataloging package, known as the MARC Records Management System (MRMS), provides the data upon which the catalog is based. Acquisitions was the third of the major packages which was created in the early 1980s as a direct response to customer demands for a totally integrated system.[5] The entire Geac system was purchased by the University of Houston Libraries (UH) in 1982. The online catalog was given first priority in implementation, followed closely by circulation and MRMS. The Acquisitions module was implemented in September 1984. At that time, UH was one of the largest and earliest implementations of the system in a large academic library which included the University of Waterloo and Princeton University.

BACKGROUND-INNOVATIVE INTERFACES, INC.

The Innovative Interfaces' INNOVACQ System varies in one very significant way from the Geac system - it was developed from the ground up to deal specifically with library acquisitions tasks. Innovative Interfaces, Inc. (Ill) was founded in 1978 by Steve Silberstein and

Jerry Kline. Both Kline and Silberstein had been instrumental in the development and implementation of a batch acquisitions system at the University of California at Berkeley. This previous experience and their own vision of what an ideal system should be formed the basis of the INNOVACQ system. Ill began its development with five overall goals:

1. Replacement of all manual functions;
2. Increased services such as reporting and analysis of data;
3. Ease of use;
4. Full integration both internal and external;
5. Flexibility.

INNOVACQ was initially developed in 1981 to meet the specifications of the University of California at Riverside and California State University at Long Beach. The serials check-in component was first implemented in 1983 at the University of California Boalt School of Law.[6] INNOVACQ was purchased by the Ohio State University Libraries (OSUL) in 1984. Implementation of the basic system began immediately and has been operational since then. The serials check-in component was implemented following introduction of an interface with the Libraries' online catalog, LCS, to load on order records into the catalog. Although the University of Michigan Library was one of the earliest and largest academic libraries to use INNOVACQ, OSUL still represents one of the largest ongoing implementations of INNOVACQ.

SYSTEM COMPARISONS

Marlene Clayton[7] and Richard Boss[8] have developed extensive checklists for evaluating online systems. Boss also conducted a survey in which he evaluated twenty acquisitions systems against over 190 criteria.[9] A thorough analysis of the responses made by Geac and Innovative Interfaces to his survey reveals that all basic requirements for a full-scale acquisition system have been met by both systems. Therefore, this paper will focus on a few significant differences between the two systems, particularly as they relate to large academic libraries.

Size, as measured by number of orders place or number of subscriptions maintained, magnifies the problems, deficiencies, and difficulties of any system. What is a minor inconvenience in system design for a library with 2,000 subscriptions may become a major system flaw for a library with 24,000 subscriptions. For example, in an earlier version of the Geac system, a new bibliographic record had to be entered every time that a title was redirected to another vendor. This is a minor inconvenience to a small library or even to a larger organization which orders directly from the publisher. However, it becomes a significant problem for a library like UH which must, due to contractual obligations, order all in-print domestic titles from a single vendor. However, those titles can be redirected to another vendor as early as *90* days after placement of the original order. Geac eventually enhanced the system to provide this option, but the interim inconvenience was not inconsequential. Therefore, the requirements for any system are very susceptible to local custom and practice.

Capacity

Size is also a factor in the hardware on which a system runs. Although Geac operates on a minicomputer as opposed to the IN-NOVACQ microcomputer system, both systems employ a multi-processer machine. The assumption is often made that a micro system lacks the power and expandability of a minicomputer. The particular configuration selected by HI negates this assumption. Sandra Weaver, Vice President of Library Services (III), cites one such example. "For instance, the system . . . installed at the University of Michigan has 3/4 of a megabyte of main memory. This is approximately four times the main memory found in the average minicomputer in use today."[10] However, HI has structured the IN-NOVACQ system in such a way that some files are universally limited in size. For example, the vendor and fund files were only recently expanded from 750 to 1,200 entries. For large libraries with significant gift and exchange programs, such as OSUL, these numbers are still not sufficient. In contrast, the Geac system is limited only by the space occupied by other files. For example, if a library needs to create files for 500 funds and 2,000 vendors, file size can be adjusted locally to accommodate these differences. Nevertheless, the architecture of both systems is such that few compromises in power, reliability and expandability are needed.

In-House Control and Environmental Concerns

Geac and INNOVACQ vary significantly in the area of in-house control and environmental concerns. INNOVACQ was developed as a stand-alone acquisitions and serials control system, and only recently added an online access catalog (INNOPAC). The system is usually installed in a normal office environment and requires about the same space as a desk. Because the Winchester disk drive is totally enclosed and less susceptible to dust, smoke, and other environmental hazards, the system does not require a specially designed, climate-controlled environment. This is a definite bonus for any library where space is at a premium. On the other hand, system maintenance activities such as tape loading and backups must often be handled by existing staff because no systems staff is available. An additional advantage is that this stand-alone system can insulate the acquisitions process from having to compete for priority or service with other subsystems.

Although the Geac Acquisitions System can be run on the Geac System 6000 hardware which requires no special environmental control, it is most often purchased as part of the Geac Integrated Library System which runs on System 8000 or 9000 hardware. These larger systems do require environmental protection such as climate-controlled temperature and humidity, dust-free air, and often supplemental or independent air conditioning. In addition, the load-bearing capacity of the floor cannot be overlooked.[11] In the typical integrated system, such as Geac, systems staff are required to maintain the hardware thus relieving Acquisitions staff of this responsibility.

Backup Procedures and Printing

Any automated system requires the precaution of backing up the system on a periodic basis to protect the software and database against system or power failures. These backups must be done frequently enough (usually daily) so that in the event of a failure, the system can be restored with the loss of as little data as feasible. Geac and INNOVACQ are fundamentally different in their approach to backup procedures and the generation of reports. The Geac Acquisitions system must be brought offline each night in order to perform backup procedures and to run the overnight programs. Once the backups are completed, the overnight programs can be initiated and will usually run unmonitored throughout the night. These overnight programs extract data from the system, format reports, and automatically reset statuses within the system. For example, the purchase order program will run through the entire database and extract titles which have been authorized for purchase during the day. The online status of each of these records is changed from "on order" to "on order-printed" to indicate that not only has the order been initiated online but that an actual purchase order has been printed. The next morning the online system can be brought up for staff use and the actual printing can be performed with the online system up. Programs which change information in the system must be run with the online down. Simple extract programs which only report information from the system can be run with the online up, but response time will be somewhat degraded. As the size of a database increases, the time required to perform these routine operations increases. Additional tasks such as rebuilding indexes on a weekly basis will require substantial time blocks for any system supporting a large library.

The implementation of the serials check-in module at UH introduced an entirely new factor into this equation. Prior to this implementation, the system had been brought down at 8:00 p.m. when all Acquisitions staff left for the day. With the implementation of the online serials check-in paper records were eliminated and the online system provided the only access to issue-specific receipt data. Previously, public service staff had routinely consulted the paper records after normal working hours to assist patrons; therefore, it became apparent that the Geac system would have to be available almost all of the open library hours. Since the library closed at midnight and reopened again at 7:00 a.m., the number of hours available for both circulation and acquisition backups and overnight programs was seriously reduced. As a result, more compromises were made regarding which programs would be run overnight and additional programs were run during the day or over the weekend.

Conversely, INNOVACQ can be run on a 24-hour schedule if so desired. All purchase orders, claims, cancellations, accounting and financial reports, and management reports, with few exceptions, can be run or printed at anytime. Backups can also be performed with the system up. The INNOVACQ maintenance and overnight programs are not nearly as extensive as Geac's. However, this also has consequences. Response time is degraded to varying degrees by each of these activities. As a result, OSUL staff have organized themselves in much the same way that Geac dictates the organizational structure. For example, backups are done late in the day and index builds are done on Saturdays. The implementation of serials check-in has also decreased terminal availability. As a result, consideration is being given to batch production of management reports at night or on weekends. Nevertheless, the flexibility gained by having this option available is important.

Command Structure

Geac and INNOVACQ vary substantially in their command structures. One of INNOVACQ's goals, as mentioned earlier, was ease of use. This goal resulted in the selection of a menu-driven approach. Menu-driven systems are easy to learn and usually self-instructive. They are also considered user friendly because all available options are presented at any point in time. Such an approach is also conducive to self-training. Staff members can be expected to work independently and learn aspects of the system through simple exposure and access to documentation.[12] INNOVACQ also uses its menu-driven system to prompt the operator through the process of creating reports or entering orders.

Geac is generally command-driven using three-letter mnemonics, although there is an initial menu. In addition, function keys can be programmed to replace command codes and templates are available to label these keys. One deviation from the command structure is the automatic prompts for order entry. Although this can be overridden at any point, generally the prompts will carry the operator through the screens needed for order initiation. Help screens are available throughout the system, but they are rarely comprehensive and have not always been updated when software changed. However, Geac currently has an excellent users's manual which contains a command summary sorted by module. In addition, Geac's three-letter mnemonics are consistent across its subsystems. For example, the command mnemonic for display—DSP —is used in circulation, MRMS and the online catalog.

In a 1986 article in *The Electronic Library,* Peter Leggate delineates the pros and cons of command-driven versus menu-driven systems.

> Although the distinction is not absolute, generally a command driven approach is likely to be preferred by experienced users and for frequently used functions. Conversely, a menu-driven system will be preferred by new users and for infrequently-used modules. The main objectives being speed for the experienced user and clarity which may be given at the expense of speed for novice or infrequent users.[13]

INNOVACQ has circumvented this speed issue by allowing the operator to key ahead. In other words, a user familiar with the next options can, in effect, answer them in advance. However, one word of caution should be noted here. An operator can key through a series of menus without seeing the effect of those responses or the resulting changes which may not be desirable. Nevertheless, selection of a command-driven or menu-driven system is a factor of personal preference or circumstances.

Record Structure

The acquisitions process varies considerably from library to library. For a system to be profitable enough for its developer, it must be flexible enough to serve many different libraries but also general enough to protect the vendor from being asked for countless individual variations. The Geac system is initially customized for the specific library based upon the library's response to a large questionnaire known as the Policy Parameters. These parameters are supported by tables which identify such things as locations. In addition, conditional compile options (CCPs) allow each program to have several variables. Each program will behave in slightly different ways based

upon how the options are answered. Unfortunately, the policy parameters and CCPs must be answered in the initial setting up period before a thorough understanding of the implications can be gained. Tables can support ongoing additions, but parameters and CCPs must be seen as more or less fixed because they usually cannot be recompiled without the assistance of a Geac programmer.[14] An example of a CCP follows:

> Do funds apply as a percentage or by number of copies? Academic sites tend to wish to divide the costs of orders by a percentage figure between different accounts whereas public libraries tend to wish to apply the costs of so many copies to each account. This CCP allows a site to choose one or other method as a standard.[15]

The fixed and variable fields in Geac records are fairly comprehensive, but standard. A basic MARC format is supported. Few fields can be eliminated but must simply be skipped if a library does not wish to use them. Some fields cause a specific action by the system and must be used consistently. Other fields such as status codes like "vendor delay notice" cause no action in the system and can be interpreted by the individual library. The wording cannot be changed but its meaning from library to library will vary.

In contrast, INNOVACQ has a very flexible record structure. Each installation of the system may be customized to library needs. The library designs its own record structure and determines which fields will be stored and which will be indexed. The INNOVACQ records have predefined fixed variable length fields but also support additional library-defined fields. In addition, the library determines its own values for codes and its own names and codes for variable-length fields. Therefore, if a library has unique requirements it is a simple process to add that feature to the system and have the field indexed and searchable. Within this structure, a library can add a code as the need arises. For example, OSUL undertook in 1987 a very limited serial cancellation project focusing on duplicate subscriptions. This would have been an impossible task if the Continuations Acquisition Division had not first coded the original or first copy and the duplicate copies. Printouts could be constructed from this code and used for review. In contrast, Geac would not have been able to accommodate this very specific requirement within the limited time constraints.

Integration versus Interfacing

Historically, the issue of integration versus interfacing has been debated widely. The two systems under discussion have taken radically different stands on the issue. The Geac Acquisitions System is a fully integrated module of the Geac Integrated Library System and usually operates in association with the other modules. Although some libraries have purchased the Geac Acquisitions System as a stand-alone option, Geac does not support interfaces with other automated systems. Geac can support interfaces with materials vendors, such as Blackwell North America and bibliographic utilities such as OCLC, but not its own competitors. In other words, a library cannot purchase a NOTIS online catalog and interface the Geac Acquisitions Systems with it. This is not an uncommon position for a vendor who can provide an entire integrated system.

Internally, Geac is fully integrated. Data in the Acquisitions system is available to users of the other Geac databases and vice versa, at the discretion of the library, and this access can be achieved from a single terminal. For example, a new order can be created for an item that already

exists in circulation or the online catalog. With a single command within Acquisitions, the bibliographic information can be transferred into the Acquisitions database. This establishes a link with the other record which can be used to transfer receipt information back to the online catalog. Transfer of information from Acquisitions to the online catalog to form the basis of on order records is also possible.

By its very name, Innovative Interfaces, Inc. has indicated its commitment to interfacing. One of the early III goals was to be fully integrated both internally and externally. Externally, the system is expected to interface with all other automated systems used by the library including bibliographic utilities, circulation systems, online catalogs, and vendors, as well as accounting systems used by the library's parent organization.[16] However, it is important to remember that each unique interface may incur programming costs for the library. In addition, the INNOVACQ system provides one-step processing with no repetition of keying. Any process that was initiated at one terminal is automatically transferred throughout the linked system. For example, at OSUL when titles are received on INNOVACQ the status in LCS is automatically discharged from an on order status to a status representing the Cataloging Department.

This ability to interface is often the ultimate selling point for the INNOVACQ system. At OSUL the Library Control System (LCS) was locally developed and the willingness of INNOVACQ to design an interface for LCS which would have virtually no other application was a primary factor in its selection. Gay Dannelly, Collection Development Officer and former Head of Acquisitions at OSUL, has been quoted in INNOVACQ publicity as follows.

> The system's ability to communicate with our internal online catalog/in-process record file, as well as its potential communication with our university accounting system, were factors in our decision to choose INNOVACQ as our acquisition system.[17]

The ability to link an independent system to other automated systems permits more flexibility and wider appeal of that system.[18] Nonetheless, this issue of integration versus interfacing is dictated by the individual library's environment, goals, and existing systems.

Password Security

The use of passwords is the most common form of security employed by automated systems and is, therefore, an important consideration in the selection of any system. The scheme of password authorization built into a system protects the database, guarantees file integrity, and prevents unauthorized actions. The various operational functions of the system are regulated by the passwords governing the extent of any individual's access. Security is of particular significance in a system which authorizes the expenditure of funds.

Geac's history of software development for the banking environment has translated itself into the security systems developed for the Acquisitions module. There are three levels of system security. There is no access to any function of the system without first signing on with both one's personal name and a unique system-assigned password (or by wanding a barcode). It is not possible to use the online software to discover this password. At the second level, each staff member's record contains a security level between 1 and 7. Higher security levels permit the performance of certain functions, such as authorization of invoices for payment, which are not available at lower levels. The third level is the most detailed. Each staff record includes 28

privilege bits which are set to precisely define the scope of each person's responsibilities. For example, a staff member can be authorized to enter and update requests but would lack the authority to assign funds or print orders. In the same vein, specific fields in an order record such as order date and receipt date are automatically assigned by the system and are not updatable. This third level also defines the specific accounts accessible to each person. This technique would enable selectors to enter their requests directly into Geac but leaves the placement of the order to Acquisition staff at a higher security level.

Geac also provides an internal signature for critical transactions such as fund transfers. Because no access is permitted without signing on, the system can record the name of the person performing the activity. Therefore, each time a sensitive transaction such as manipulation of funds is performed, the name of the individual is attached to the transaction. This is particularly valuable for maintaining audit integrity and has the additional benefit of being able to track errors. For example when an error is consistently repeated it can often be tracked to a specific staff member who may require additional training. Terminals themselves can be restricted in the access they permit but this is rarely a useful feature in an Acquisitions Department. The single greatest flaw in Geac's passwording involves the case where the security of a password has been compromised. An entirely new staff record must be entered, or *all* staff passwords must be reissued by an overnight program.

The INNOVACQ system takes a somewhat less rigid approach to the password security issue. The Data Retrieval System is accessible without any sign on or password authorization. This is a useful feature if the system is used for public access, but the majority of the system functions such as creation of records, invoice processing, and update of records are password protected. INNOVACQ passwords consist of three letters for the person's initials and three letters for the password selected by the person. Once set, individual passwords can be changed at any time with no impact on the authority level for specific functions to be performed. Since INNOVACQ does not support an internal signature, OSUL staff often add their initials to the end of a field so that later questions may be referred to them. INNOVACQ passwords allow twelve specific activities with four additional passwords which permit a library to authorize normally unauthorized functions. These twelve passwords are broader in scope than Geac's and include backup and system maintenance which are not controlled in the Geac Acquisitions System. This broad scope has created problems for OSUL in an internal audit conducted in 1987. OSUL has requested refinements of password security to meet internal audit recommendations.

Serials Control

The very nature of serials creates control problems for a library. Despite the magnitude of the control problem for large academic libraries, these difficulties can be surmounted by a good automated system. Although OSUL did not initially purchase the space to implement serials check-in, there was little doubt that INNOVACQ would be the system of choice when funds became available. The INNOVACQ Serials Control Module is one of the greatest assets of the entire system. The basic manual method of controlling serials — the Kardex file-has been replicated in INNOVACQ. Its format resembles the familiar Kardex record and is easier to read than many other systems which use lines only. When the publication follows a predictable pattern, receipt dates are projected not only for the next issue but subsequent issues as well. Supplemental issues can be inserted in the pattern; issues which will not be published can be deleted.

INNOVACQ's repeatable, variable fields such as title also allow for extensive cross references. This allows an operator to locate a record faster and more efficiently. INNOVACQ also permits multiple check-in cards to be attached to a single record with an "identifier" to assist the operator in selecting the appropriate card. For example, multiple copies and formats of the journal *Nature* are received at OSUL. A title search for *Nature* retrieves a single record with five check-in records attached. The first four records are paper copies received by four different departmental libraries. These records are entered in priority order in case all four copies are not received simultaneously. The fifth record is a microfilm copy and is so designated in the identifier field.

INNOVACQ also supports the production of routing lists within the serials check-in module. The routing module permits up to 750 names, and each individual copy may be routed to up to fifty people. Routing labels are automatically printed upon receipt of the title and may be printed in priority order. Lists by journal title or recipient can be printed on demand.[19]

The Geac serials subsystem has often taken a back seat to other development priorities within Geac. As a result, the system provides all of the basics but has not been significantly developed beyond those basics. For example, no routing capability exists. The prediction algorithms are complex and permit display of only the next expected issue. The prediction can be tested through programs run at the main computer console, but this is labor intensive and time consuming. Geac does support seven levels of holdings enumeration which Richard Boss has identified as one of the requirements for serials systems.[20]

However, the Geac serials component is superior is one very critical feature —the historical price analysis of journal titles. Certainly, INNOVACQ provides a detailed fund accounting record of each title's historical prices, but analysis on price trends and projections of future expenditures must be done manually. At OSUL an annual year-end project is undertaken to analyze the payment history for each title and to encumber an estimated price based on that analysis for the coming year.

The Geac programs function from a review date entered in each record. This date reflects the date that the title is to be encumbered again. UH elected to perform this renewal once a year at the beginning of the fiscal year. Review reports are generated which include the invoice history and projected price of the item for the next subscription period. The complex algorithm used by the system assigns the highest weight to the most current payments, factors in subscription periods, and adds a library specified inflation rate. This algorithm has been refined by Geac and continues to improve in accuracy. This report can be run as often as desired until the specified set of titles is identified and projected. Although this information is now available from subscription vendors such as Faxon, only the titles on order with that vendor can be provided. An in-house system will provide access to all of a library's subscriptions. Once refined, the report is run in an update mode. Titles are encumbered at the new estimated price and the review date is advanced for the length of one subscription period. However, it cannot be overlooked that the quality of this process is highly dependent upon the information entered at the time of invoicing particularly for the subscription period.

> For projection purposes, what is important is consistency. Not whether an invoice is paid in July or November, but whether it is paid on the same basis each year. Successful projection also depends on a large enough statistical pool to blur inconsistencies, or a small enough pool to do an item by item check.[21]

Invoicing and Fund Accounting

Both Geac and INNOVACQ have fiscal routines which are detailed and provide complete audit trails. It is in the implementation of these routines that differences emerge. The INNOVACQ invoice processing procedure requires the input of complete invoices in a single session. The operator keys in the purchase order number for each line item on the invoice as well as the amount. The total dollar amount plus shipping, service charges, and discounts are also entered. The system verifies each entry and prorates the charges to each line. Although payment history is posted to each order record, the invoice itself cannot be displayed, corrected, or held for additional information. At the end of an invoice processing session, the invoices are posted and order records are updated with payment data.

In contrast, Geac invoices are entered on templates much like order records. Each line is linked to its order record and payment data is visible on the order records. However, it is not necessary to complete the verification and authorization of each invoice in one session. For example, if the operator encounters a problem, all prior work can be saved online until the problem is resolved. This ability to enter invoices as soon as they are received without having to pay them immediately allows the library to keep track of outstanding invoices online. In this scenario, the library is prompted if the invoice is not paid within a library-specified period of time. This process is an essential one for UH serials payments. State regulations prohibit the payment of subscriptions more than six weeks in advance of the start of the subscription. To control this workflow, invoices are entered upon receipt and authorized for payment with an action date set to the first date that the invoice can be paid. The system automatically retrieves the invoice on the specified date and produces the voucher. In fact, Geac's ability to automatically print these University-specific vouchers saved UH .5 FTE in staff support.

Computers are particularly valuable in fund accounting. They provide far more detailed fund breakdowns than it is usually possible to maintain manually. INNOVACQ funds can be up to five letters or numbers. The funds themselves represent no hierarchy but can be combined at will to create customized fiscal reports for each selector. Once these customized reports are created they can be stored for automatic production on a monthly or on-demand schedule. Geac's funds are fourteen digits long and are hierarchical in nature. Subsets within the account may repeat from fund to fund to establish the hierarchy. This repetition keeps the length of the number from being cumbersome. In addition, funds are also accessible by a long name and a short code. However, it is the hierarchical number which serves as the sort for most reports. Therefore, the initial time invested in understanding and constructing the fund numbers is critical to the success of the financial reports. INNOVACQ's funds can be graphed online or in printed form. This graphic capability provides an accurate, visual representation of a fund's financial status.

The journal entry function permits and records the receipt of new money into the system, the distribution of funds to various accounts, and the movement of money between accounts. Geac maintains an online record of each such transaction including date, amount, explanation of transaction, and internal signature. This transaction log not only provides an exceptional audit trail but also provides the department with an online record of how the existing balance came to be. Unfortunately, there is no such transaction log in the INNOVACQ system. In the absence of such a log OSUL has continued to maintain this log manually. Of course, the transactions are performed on the system but no record except the resulting fund allocation exists to document the transaction.

Management Reports

The flexibility of the management report module is one of INNOVACQ's strengths. All fixed-length and variable-length fields are searchable using Boolean logic. In addition, keyword searching on up to fifteen characters within variable-length fields is supported. With this keyword capability, individual text within fields such as internal notes is retrievable. Records extracted by Boolean search can be sorted by up to ten fields. Results can be reviewed online or printed specifying the data elements to be included and in what order. Statistical packages can also be applied to the results of any Boolean search. Unfortunately, only one terminal can use the sort function or the statistical package at any one time. A good example of the specificity of Boolean searches follows:

> For instance, a report can be produced which shows the unpaid science standing order titles placed with Blackwell by searching on "acquisitions type V, requester science, vendor Black-well" and "fund range 7400B10 to 7400Z00 negative." By adding "Status B" (continuing order) to the search argument any cancellations or brand new orders can be eliminated.[22]

When the Illinois State University Library first installed INNOVACQ, they considered the Boolean capability as a fringe benefit. It quickly became an essential component, often used daily for both technical and public services applications.[23]

Because of the structure of the Geac system, most reports are generated in the overnight programs. Offline programs read through the entire database, extract information requested, and format the reports. The batches which produce these reports have compile options which allow individual libraries some flexibility in design. For example, the vendor discount statistics can be produced in either summary or detailed versions. The detailed version reports every invoice which contributed to the computation of the average discount. The summary report reflects only the total amount invoiced, discount totals, and discount percentages. Although Geac provided over sixty possible reports and notices, there had been no equivalent to the INNOVACQ Boolean package. In the 1987 software release, Geac issued its first report generator software for Acquisitions. Report generator software allows an operator to select a subset of predefined fields or conditions to extract. Flexibility is provided in the sorting options and the program can produce either raw figures or a list of entries that satisfy the criteria listed. However, the criteria available through the report generator is by no means comprehensive in the way INNOVACQ's is. On the other hand, what one loses in comprehensiveness is countered by the polished format of most reports.

CONCLUSION

Automated acquisitions systems must be evaluated in light of a library's procedural and policy environment. It makes no sense to select a system based upon excellent performance for functions that are not important for the library. A library administration's decision to purchase an integrated system may eliminate some excellent systems from consideration, or the existence of in-house systems may limit options to systems which can be interfaced.

The point is that the requirements of each library are unique and the successful selection of an automated . . . system can only be achieved after careful definition of the needs of the individual library, followed by evaluation of the capabilities of the candidate systems.[24]

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