

AUTOMATED LIBRARY SYSTEM EVALUATION
Wayne State University Libraries and DALNET

ISCI was retained to evaluate the responses of bidders to the Libraries' RFP for an automated library systems to serve the needs of the Wayne State University Library and the libraries of the DALNET consortium. Eight responses were received and ISCI was asked to examine the responses of the four vendors ranked highest by the staffs of the libraries: Biblio-Techniques, Inc., CL Systems Inc. (CLSI), Geac Computers International Inc., and Northwestern University. ISCI's review of the responses is detailed in this report. Comments on the evaluations of the library staffs are also included.

The evaluation is divided into the following sections:

1. Compliance with the functional specifications
2. Expandability of the system
3. Flexibility of the software
4. Transportability of software
5. Interfaces to other systems
6. Delivery schedule
7. Vendor viability and past performance
8. Cost of the system

ISCI has used these criteria in over 50 evaluations. The approach does not use point counting because it is our opinion that the best choice is one that involves a good balance of all elements, rather than high scores in a few areas and poor scores in others resulting in a high overall score but, potentially, the procurement of a system which does not best meet the needs of a library or library consortium.

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1. Compliance with the functional specifications:

All four of the vendors have responded to the specifications which are part of the RFP in sufficient detail to permit a reliable evaluation by the consultants. The consultants agree with the point assignments made by the staffs of the Libraries. They have chosen to breakout the points assigned for functionality only and on that basis rate the vendors as follows:

<u>Vendor Name</u>	<u>Available Features</u>	<u>Promised Features</u>
Biblio-Techniques	938	1,618
CL Systems	967	1,716
Geac International	1,204	1,546
Northwestern	1,404	1,837

The consultants then examined the negative responses of each of the vendors to determine how significant they are.

The 90 negative responses of Biblio-Techniques include some which are quite significant. Truncated ISBN and ISSN cannot be used to access recent publications (3.6.2.2), a search cannot be interrupted (3.7.12), location information is not displayed on holding screens (3.8.13.4), the user can't specify a limit to the number of citations to be printed (3.9.5), vendors are not linked with subsidiaries and distributors (5.3.12 & 13), rentals cannot be identified in the acquisitions record (5.7.13), the tax exempt ID number cannot be included in the name and address records of the Libraries (5.7.14.4), the operator is not alerted when an item is received which was ordered by another unit (5.8.13.3), the system does not retrieve all records for a unit which have been on order beyond the cancellation period (5.9.14), the system limits invoice numbers to 10 characters (5.10.16), the system is limited in calculating copy prices, discounts, verifying number of items, and total invoice amounts (5.10.24-30), the system can't track overrides by staff member (5.12.5),

purchase orders can only be printed systemwide (5.13.2), there are several restrictions in printing cancellation notices, including many missing data elements (5.13.27-30), and acquisitions reports are limited (5.14.8.3-37).

Despite the overall high response rate, the consultants are concerned that so much of the functionality promised has not yet been developed. The circulation module will not be available until 1986 and the serials control module not until 1987.

The response from CLSI included 220 negatives. The significant ones include lack of information about the source of a record (3.2.21), lack of an archival file for deleted bibliographic records (3.3.13), no review function for data base maintenance (3.3.15), no ability to modify only part of an authority record (3.5.21), lack of branch specified restrictions on renewals (4.3.33), no alert on holds on non-circulating material (4.5.36), no operator suppression of printing of specific overdues (4.6.8), no automatic cancellation of fee when lost item returned (4.7.20), no display of month and day calendar for booking (4.9.28.1-2), no identification of items in inventorying which belong to another library (4.11.2.5), no automatic missing update for items not in inventory (4.11.5), inability to specify by type of borrower which address to use (4.13.26), no listing of items being held that have been cancelled (4.14.12), no AV equipment inventory (4.14.22), no maintenance listing (4.14.23), no statistics on print products produced (4.14.51), no statistics on response time (4.14.52), no ability to suppress display for items on order or in process (5.2.6), missing elements in the acquisition data (5.2.29), lack of account representative information (5.3.10.5-7), no five year funds records (5.4.4), no library name in funds records (5.4.8.1), no postage pro-rating (5.10.27), limited audit information (5.12.3-7), limitations on renewal notices (5.13.31-47), limited report

capability (section 5.14), no global routing change (6.5.6), no return to bindery record (6.6.18), no updating of bindery records (6.6.19), and no tracking of shipments (6.6.24).

Since submitting its bid, CLSI has announced that it will offer a Report Generator on a DEC Pro micro. Should the Libraries engage in contract negotiation with CLSI, they should seek to have the Report Generator software and hardware included in the bid price.

The CLSI system can be expected to meet the Libraries' requirements almost immediately except that serials control will not be available until mid-1985.

Geac responded with 148 negatives. Among the significant shortcomings are the inability to move records transferred from OCLC directly into the data base (3.2.12), inability of each branch to record copy/item level records for serials (3.4.17), lack of tutorial (3.7.8), no ability to define default level of displays (3.8.8), limited index record display (3.8.13.4-7), limited brief record display (3.8.17), limited status information (3.8.20), confidential financial data not available (4.1.5), no capability for multiple borrower IDs (4.2.5), no fine display at renewal (4.3.31), limitations on holds (throughout section 4.5), no ability for branch to specify which overdues should not be sent ((4.6.5), no suppression of overdue printing (4.6.8), no fee calculation for rentals (4.7.3.5), limited fine and fee schedules (4.7.5), no circulation history (4.7.13), no booking of items on order (4.9.4), no specifying of types of borrowers for whom items can be booked (4.9.30), no automatic cancellation of bookings for time or missing reasons (4.9.34.2-3), limited fees calculation for bookings (4.9.41-45), no ILL fees capability (4.10.16-20), no ILL messaging (4.10.22-23), limited inventory information (4.11.3-4), no automatic missing in inventory (4.11.5), limited audit features (4.12.1.4-12.5.7), no booking

cancellation notice printing (4.13.13), no reserve overdues on demand at locations (4.13.19), no balance and payment information on invoices (4.13.21.7-8), several report elements lacking (throughout 4.14), no duplicates display (5.2.11), no OCLC number (5.2.27.7), no access to acquisitions record by call number (5.2.41.6), no holds on bookings on order or in process ((5.2.45), no linking of distributors and vendors (5.3.13), no minimum of six subfunds (5.4.13), no override on funds warnings (5.4.18-19), no recreation of funds (5.4.20), no carry forward (5.4.21), no global closing (5.4.22), no alert on receiving claimed item (5.8.16), limited recording of vendor responses (5.9.13.4-16), no retrieval of orders beyond cancellation date for specific branch and other cancellation options (45.9.14-17), no record of staff overrides (5.12.5), no calculation of single copy price (5.10.25), no record of staff overrides (5.12.5), no bill-to instruction (5.13.6.6), no availability notices (5.13.17), no branch management reports (5.14.1), limited sorting of acquisitions reports (5.14.8.1-12), numerous acquisition report limitations (5.14.18-37), limited access to serials records (6.2.32), no reserve alert (6.3.17), no hold alert (6.3.18), very limited routing capability (6.5.1-7), limited binding support (6.6.3-7, 6.6.9-10, 6.6.13.6-8, 6.6.14.1-2, 6.6.20,-21, and 6.6.23.3-7), no spine title label printing (6.9.2.5), no binding and routing slip and review lists (6.9.3-4), limited reports (throughout section 6.10).

Geac has more negatives in the functions it has already developed than CLSI or Northwestern's NOTIS. It envisions a less complete system than any other of the vendors.

Particularly significant is Geac's inability to accommodate MeSH headings and the need to split the data base, rather than maintaining a single data base.

Northwestern responded negatively to 57 functional requirements--fewer than any other vendor. Significant

limitations are the lack of renewal blocks if the item was not ever checked out to the patron (4.3.32), the lack of an integrated booking module (4.9), inability to link check-in records for the same title in different formats (6.2.11), missing elements in the serials check-in record (6.2.18.13-14), lack of variable length binding data (6.2.19.8), no prediction and automatic check-in of serials ((6.3.2-3), lack of firm commitment on specifics of the routing capability (all of 6.5), and lack of binder's title number, rub data, collating and color (6.6.8.2-6).

The low number and pattern of negatives makes Northwestern's NOTIS attractive, but if the libraries select the vendor for negotiation, emphasis should be placed on integrating the booking module into the system and getting specific commitments to the most important of the functional requirements for the routing capability.

Biblio-Techniques would have to be rated as fair in responsiveness--in light of the large number of futures and the significance of the non-available features; CLSI as very good; Geac as good; and Northwestern as excellent.

2. Expandability of Hardware:

The responses of the vendors differ more in the area of initial hardware configuration and system expandability than in any other.

Biblio-Techniques is a turnkey vendor, offering both hardware and software. It has included an IBM 4381, Group 2, 8MB processor and three 3375 disk drives. In the second phase an additional 8MB will need to be added to the CPU and two more disk drives will have to be added. Dalnet will require its own processor, an IBM 4381, Group 1, with 8MB. There would be two 3375 disk drives. In the next phase another 8MB and three disk drives would be added. If Biblio-Techniques

underestimates the hardware, an upgrade will be done at Biblio-techniques' expense.

CLSI has bid a multi-processor system utilizing the Digital Equipment Corporation PDP 11/44 with 1MB of primary memory each. The initial configuration would require two CPUs and five disk drives--two of 80MB and three of 600MB. In phase two one more processor and 9 more disk drives would be added--two of 80MB and 7 of 600MB. In phase 3 another 3 processors and 5 disk drives would be added--three of 80MB and 2 of 600MB. A specially designed unibus is used to link the CPUs. The multi-processor approach offers good system reliability and is working successfully at 17 libraries. It is, however, a relatively expensive approach to expanding a system because several entire CPUs have to be tied together. Each CPU can support up to eight drives so there is virtually no limit to the secondary storage capacity of a CLSI system. The small size of the drives will require an unusually large computer room and considerable air conditioning equipment.

The offer to replace the PDP 11s with the VAX equipment when it becomes available does not, in our opinion, reflect uncertainty about the performance of the former machines. In fact, it signals just the opposite, the company is convinced that it can meet the performance requirements with the smaller machines and is prepared to have its customers determine whether they wish to change hardware.

Geac has bid a CPU of its own design and manufacture--the Geac 8000. While the primary memory is 1MB for each CPU, it is comparable to a supermini Digital VAX 780 in processing capacity due to its unique design. It employs something known as bit slice technology. The CPU is made up of separate microprocessors dedicated to various functions: problem processing, disk control, communications control, and support of the other processors. Two of the CPUs would be provided in

the first phase. There would also be 9 disk drives, 6 of 605MB and 3 of 305MB. In phase 2 a Boolean processor and three disk drives would be added--1 of 305MB and 2 of 150MB. The Dalnet libraries would require 4 CPUs and 13 disk drives--7 of 605MB and 6 of 305MB. In the next phase there would be 1 processor and 2 Boolean processors added. There would also be an additional 14 disk drives--4 of 6054MB, 2 of 305MB, and 8 of 150MB. The reason for the large number of disk drives is that when more than 100 terminals access an application, the data base must be replicated on different processors.

The Geac system would, therefore, require a very large computer room with substantial air conditioning. The Libraries would also be faced with the task of keeping several versions of the data base current and identical.

Northwestern will not supply the hardware, but has proposed that the Wayne State system consist of an IBM 4361-L4 processor and three IBM 3380 disk drives--each of 2540MB. In phase 3, an IBM 4381-P1 processor and two 3380 disk drives would be added. The hardware description is sketchy. It is, therefore, not possible to determine whether sufficient primary memory has been provided.

Biblio-Techniques and Northwestern offer excellent hardware expandability, CLSI, very good; and Geac, only fair because of the inability of all terminals and processors to access a common data base. Both of the latter vendors require an inordinately large number of disk drives.

3. Flexibility of Software:

All of the vendors offer table driven or parameterized systems so that libraries--including their various agencies--can opt to select due dates, renewal criteria, screen and report formats which reflect local needs. Based on the system designs or the responses to the RFP, no vendor can be singled

out as having less flexibility than the other. Both CLSI and Geac have installed shared systems for several libraries and these have been in operation for more than three years. The flexibility of these systems has been demonstrated.

Both Biblio-Techniques and Northwestern claim the same flexibility, but neither has installed a shared system so the capability cannot be confirmed.

CLSI and Geac must be rated excellent in terms of software flexibility and Biblio-Techniques and Northwestern as good.

4. Transportability of software:

Hardware is typically replaced every five to seven years, not because it is worn out, but because the needs of the user change and the performance of computer equipment improves so dramatically that it is cost effective to replace it. The transportability or transferability of software is, therefore, important.

Biblio-Techniques using a standard operating system and programming language and can be mounted on any IBM 370-compatible system.

The system offered by CLSI uses DEC Assembly, a lower level programming language that is machine specific to the Digital PDP 11 computer line. It is, therefore, not possible to move the software to a larger Digital machine or to one from a different manufacturer. The vendor has committed to offering the software on the VAX line of DEC computers. Since DEC is the world's largest maker of minicomputers, this offers considerable transportability.

Geac uses a proprietary higher-level programming language. It would have to be rewritten to move to anything

but a Geac designed CPU. Were Geac to discontinue the manufacture of its CPUs, the Libraries would have a major problem. There is no reason to believe that this will happen because Geac has a substantial market outside of libraries. Nevertheless, the Libraries will be extremely dependent on continued support from the vendor.

Northwestern uses a standard operating system and programming language and its software can be run on any IBM 370 compatible mainframe.

Biblio-Techniques and Northwestern offer excellent transportability; CLSI, good; and Geac only fair.

5. Interfaces with Other Systems:

All of the vendors offer integrated systems, with acquisitions, serials, circulation, booking and patron access catalog modules sharing bibliographic files and accessible from any terminal by an authorized operator. The only qualified answer is that from Geac, which requires that the data base be distributed. The vendors are less clear about linkages to other systems. Only a one-way OCLC interface is clearly committed by all.

Biblio-Techniques indicates that it is committed to the Open System Interconnection Reference Model, but makes no specific commitments with regard to interfaces.

CLSI has more fully detailed how it would link two identical systems which are at a distance from one another. A package known as DataLink allows any LIBS 100 terminal to be connected to a remote computer system. A new program, Soft-switch, is entered in response to the "Process" prompt in CIRCONLINE or the "Program to be Run" prompt. The terminal will behave as though it is directly connected to the remote system. Only CLSI specifically offers access to the BRS,

DIALOG and SDC data base services and to cable television systems.

The Geac system currently offers the capability for a terminal on one system to look into another Geac system via the Remote Online Terminal Handling Program. However, in the initial stage, the patron will need to make a discrete decision concerning the search of the other system's online patron access catalog. The vendor has expressed concern that this capability may adversely affect response time. Geac uses a unique terminal design and communications design so that terminals cannot dial directly into other systems without adding a second PAD. This would add to the cost of this type of interface.

Northwestern also is committed to the Open System Interconnection Reference Model, but has made no specific commitments for linkages.

CLSI's interfacing capabilities are excellent, those of Biblio-Techniques and Northwestern potentially very good if they can be contractually committed to the OSI Reference Model, and Geac is fair.

6. Delivery Schedule:

The firms' responses to the delivery schedule requirement also varied a great deal.

Biblio-Techniques avoided committing to the delivery schedule and provided a sample schedule which would not complete the data base loading until 300 days after contract date. If the Libraries enter into negotiation with this vendor, the delivery schedule should be a major topic and provision should be made for reductions in payment or another remedy if the agreed upon delivery schedule is not met.

CLSI clearly commits to delivery of the hardware and software within 120 days of order. CLSI has installed very large systems within this timeframe on several occasions.

Geac did not commit to the delivery schedule--stating that they wished to formulate a detailed schedule as part of the negotiations. The sample schedule did include start-up of circulation in 4 months. Geac has installed very large systems within this timeframe, but in the past few months has been late on some contracts. If the Libraries enter into negotiation with this vendor, there should be provision for reductions in payment or another remedy if the agreed upon delivery schedule is not met.

Northwestern commits to the implementation of circulation in the twelfth month in what it describes as a preliminary schedule.

Biblio-Techniques rates poor in delivery schedule; CLSI as excellent; Geac as good; and Northwestern as poor.

7. Vendor Viability and Past Performance:

The size and past performance of the vendor are extremely important because the Libraries are seeking ongoing support.

Biblio-Techniques is a very small firm, with sales of only \$159,045 in the twelve months ending in March 1984 and a net loss of \$282,545. The staff numbers only thirteen. While it has been selected by six major libraries in the past year, there is yet no evidence that the company can successfully install its new accounts and that it can manage its growth and achieve profitability.

CLSI is the largest vendor of turnkey library systems. Its annual sales are now in excess of \$20 million and its profit exceeds \$1 million a year. The company has installed

over 250 systems, many of them shared among several libraries. Until two years ago, there were a number of systems which were experiencing poor performance. With the introduction of multi-processor capability and a new hardware maintenance program (the firm does its own hardware maintenance) performance in the past year has risen to approximately 98% up time.

Geac sales to libraries are approximately \$20 million annually, but the company's sales of CPUs, banking and pharmaceutical systems bring in three times that much. The company realized a net profit of at least \$3 million in the past year. The company has an excellent payment record according to Dun and Bradstreet of Canada. It has installed more than 70 systems and until recently had an excellent reputation among its customers. In the past six months there have been numerous complaints of slow installation and delays in the delivery of enhancements. Larger systems have experienced some performance problems, especially in data base maintenance areas.

Northwestern has made only a limited financial disclosure. Income in the year ending August 31, 1984 was approximately \$240,000 against a budget of \$209,083. This is not a reliable picture because several programmers are in the library budget, rather than the NOTIS budget. There is no evidence that the \$613,928 budget for 1985 can be met. The 20 sales made to date will generate only \$100,000 of that amount in ongoing software maintenance and enhancement fees. The \$200,000 line of credit is an important plus factor, however.

Biblio-Techniques rates no better than fair in viability; CLSI rates as excellent; Geac as very good; and Northwestern as good.

8. Cost of the Systems:

The initial costs are dramatically different because of the different approaches to phasing:

Biblio-Techniques	\$1,330,500.00
CLSI	768,700.00
Geac	969,044.00
Northwestern	705,875.00

The combined price of WSU and Dalnet for the first phase of each reflects the differences in incremental growth patterns:

Biblio-Techniques	\$2,790,130.00
CLSI	2,426,830.00
Geac	2,661,353.00
Northwestern	2,021,590.00

These figures are not entirely comparable because the first three represent turnkey systems and the last a software package and estimate for hardware. It has been the consultants' experience that Northwestern will increase the hardware configuration if required in contract negotiation to accept responsibility for any hardware upgrades which may be necessary to achieve the agreed upon level of system performance. The consultants recommend adding 15 percent to the Northwestern price in anticipation of such an eventuality, thus increasing the figures to at least \$2,335,000.

The Northwestern prices also do not include delivery and installation, nor training and documentation after phase 1. These elements may add as much as \$50,000, bringing the total system to \$2,385,000--still the lowest cost among the options.

The Biblio-Techniques software is \$220,000, by far the most expensive package. The annual software maintenance only is \$51,000 a year--far in excess of any of the options. Total system maintenance would be \$200,931 per year, with no commitment on a cap. The hardware cost figures appear low and should be verified.

The CLSI software is \$131,500 and the annual software maintenance is \$38,620. Total system maintenance is quoted at

\$265,250 per year. The vendor commits to a cap of 10 percent per year for five years.

The Geac software is quoted at \$151,250 and the annual software maintenance is \$16,900. Total system maintenance would be \$201,241 per year with a cap of 10 percent for two years.

The Northwestern software price is \$102,500 and the annual software maintenance is \$7,595. The total annual maintenance for the Northwestern system is estimated at \$236,834 with no commitment to a cap.

The estimated five-year costs, with no adjustment for annual increases and limited to the first phases of WSU and Dalnet are estimated at:

Biblio-Techniques	\$3.80 million
CLSI	3.75 million
Geac	3.67 million
Northwestern	3.57 million

The Biblio-Techniques rating is good; the CLSI rating is good; the Geac rating, good; and the Northwestern rating, good, providing that Northwestern does not increase the hardware estimate by more than 15 percent during negotiations.

CONCLUSION:

The following chart compares the vendors on the various criteria. The letters represent excellent (E), very good (V), good (G), fair (F) and poor (P).

VENDOR COMPARISON

Vendor Name	Criterion & Rating							
	1	2	3	4	5	6	7	8
Bib-Tech	F	E	G	E	V	P	F	G
CLSI	V	V	E	G	E	E	E	G
Geac	G	F	E	F	F	G	V	G
N/western	E	E	G	E	V	P	G	G

The consultant recommends that the Libraries enter into negotiation with Northwestern University because the organization offers the most attractive combination of price, responsiveness to the functional specifications, hardware expandability, software transportability, and vendor strength. The major concern is the lack of legal responsibility for total system performance. That should be a major aspect of the contract negotiation. Also to be given considerable attention is the delivery schedule.

Should the Libraries wish to inspect the system, the consultant suggests the Northwestern University Library and the Tulsa Public Library. The latter is the only site at which the circulation control module is operational.

The response from CLSI is also attractive despite the greater expense for the multi-processor hardware configuration and the greater annual maintenance cost. While the conformity to the functional specifications and cost are less attractive than Northwestern, the software's flexibility has been more fully documented, interfacing options are more fully developed, the vendor is more clearly viable, and the installation schedule is best offered. Should the Libraries wish to inspect a system, the consultant suggests the Baltimore County Library in Towson, MD and the Free Library of Philadelphia.

ISCI-Bethesda
November 12, 1984
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