Another record year for system installations but an overall flattening of growth

Automated System Marketplace 1988:

Focused on Fulfilling Commitments

By Robert A. Walton & Frank R. Bridge

DURING 1988, the library automation marketplace enjoyed another record year, with approximately 360 systems installed. Again, as in prior years, this year's article reviews and concentrates on the types of systems that libraries were purchasing, examines some of the trends in the marketplace, and looks for patterns in market segments, e.g., the public or academic library automation marketplace. Also, as with prior years, the controversy over how to count market share is alive and still screaming (see "Counting Market Share: Vendor Consensus or Confusion?" p. 44). The authors have examined the number of installed systems that may support one or more libraries instead of counting the number of libraries that may reside in any vendor camp, revenues, or other possible denominator.

How We Defined It

1. Some vendors elected to count multiple libraries sharing a single system as multiple systems. The authors have adjusted for these inconsistencies.
2. Other vendors defined single-station microcomputers as "systems." For the purposes of this article the authors have made similar adjustments wherever possible.
3. The annual system counts for each vendor may not exactly total correctly from year to year. The totals in this article attempt to reflect not only information taken from the user lists in defining "systems," but also system de-installations or other library user abandonments.

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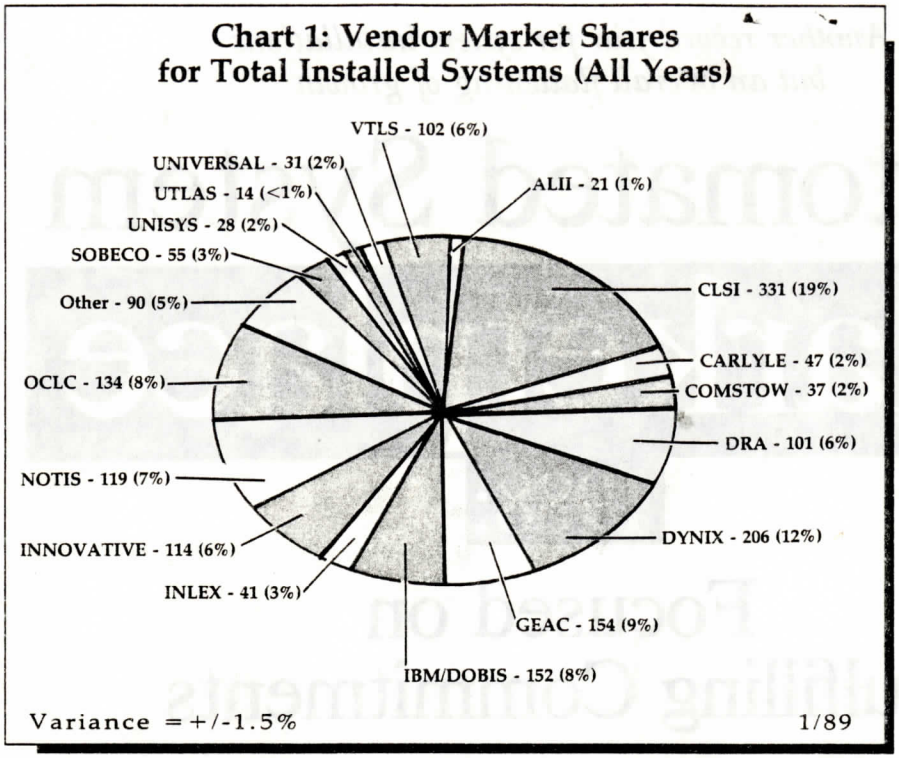
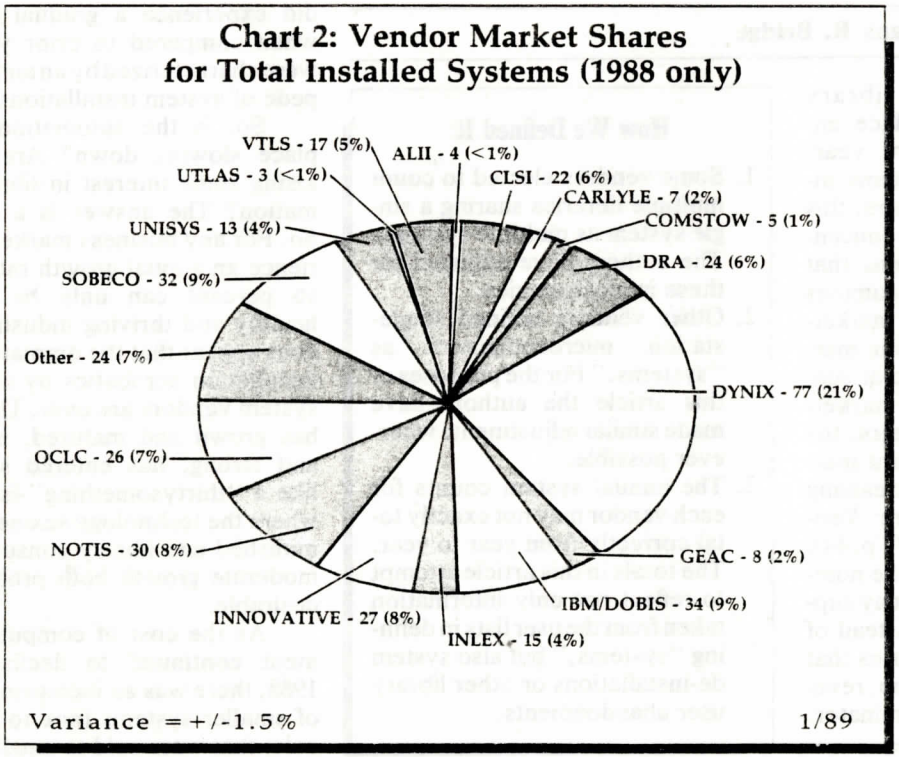
Flattening growth?

did experience a gradual flattening when compared to prior years that were characterized by an almost stampede of system installations.

So, is the automation marketplace slowing down? Are libraries losing some interest in library automation? The answer is a definitive *no*. For any business market to experience an annual growth rate of over 16 percent can only be called a healthy and thriving industry. But it does appear that the dramatic days of installation acrobatics by automated system vendors are over. The market has grown and matured, is healthy and strong, has entered something like a "thirtysomething"-ish period, where the technology sexiness has diminished and library consumers find moderate growth both probable and desirable.

As the cost of computer equipment continued to decline during 1988, there was an increasing number of smaller systems (one to 16 terminals) that were sold to smaller libraries. As system purchase costs con-





expand faster in 1988 than it had in ate need and desire by smaller librar-

or lower prices for hardware are not applied equally across the wide spectrum of other costs associated with a successful system. Historically, while automation insiders have recognized the confusing and complex pricing methods inherent in the "turnkey" concept, the realities and limitations of "packaged" pricing are shocking to some potential consumers.

The fact is that there are so many different costs that vendors have incorporated (skeptics would say "hidden") into the pricing of turnkey systems, that overall system pricing remains somewhat immune to dramatic drops in pricing of any one cost component of the system, even when it may be as major as the computer hardware. Most vendors continue to argue that the cost to provide installation support, training, and to assist a library in special areas (e.g., data conversion or telecommunications) is about the same for a very large and a very small library. Some argue that the smaller library frequently requires more consulting and implementation assistance than a larger library, just the opposite of the potential financial rewards for the vendor.

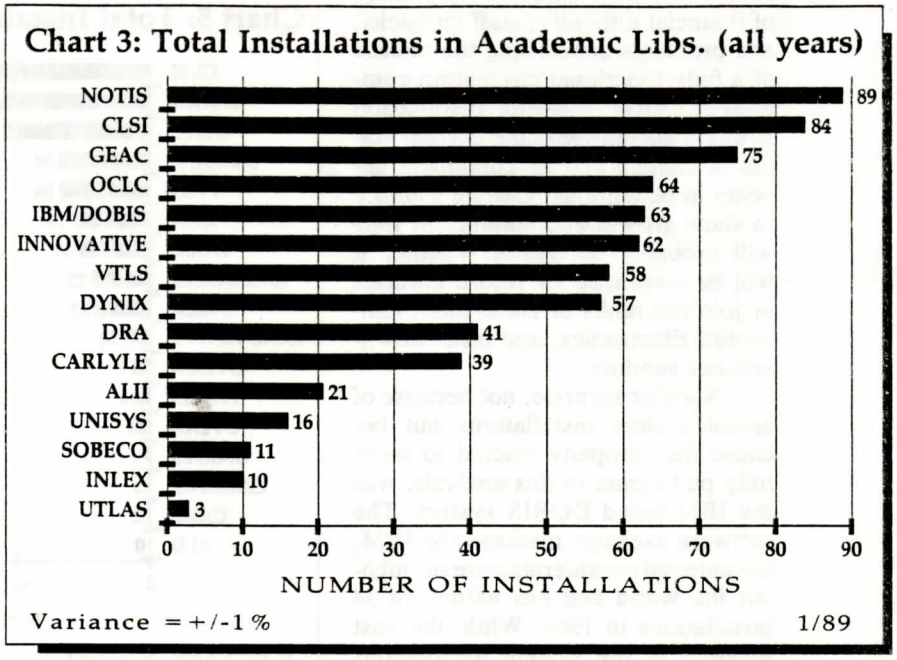
Several vendors have made sincere attempts to break through this cost barrier by marketing systems that list training and installation services as extra costs. However, the $65,000+ base sticker price of such systems is still too expensive to crack the huge, and now increasingly impatient, marketplace represented by the library that desires to install a ten- to 15-terminal system providing circulation control and a full online public access catalog.

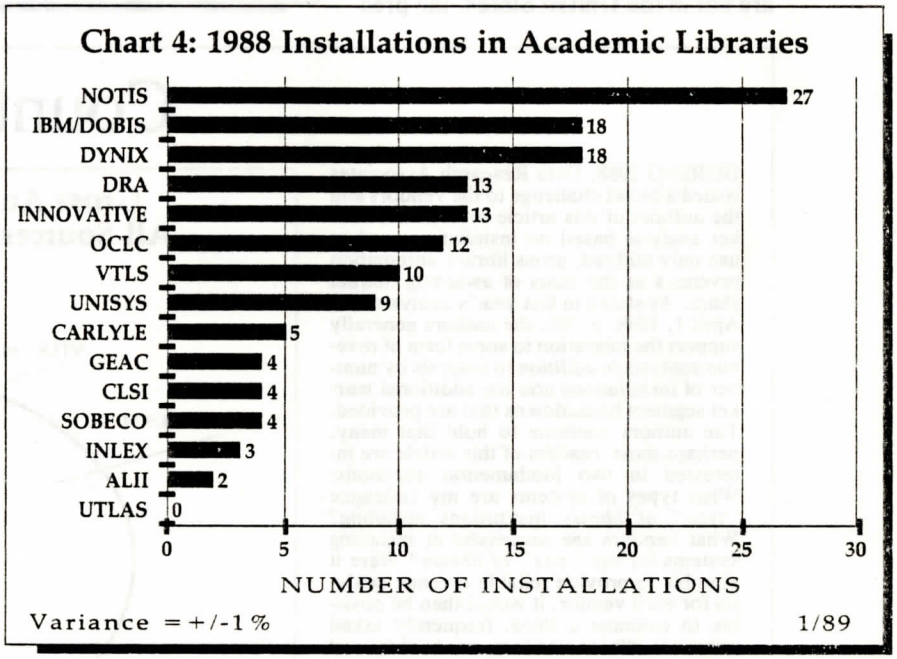
Tired of waiting, many smaller institutions are seeking out lower-cost microcomputer-based systems, regardless of the warnings by many "experts" who question how a micro system will hold up under such issues as: long-term system life, inability to maintain a MARC database, lack of portability of software to larger machines (assuming the library will grow, of course), or more limited functionality, to name a few.

Regardless of these professional philosophical arguments, the low-end mini and microcomputer markets continue to see ever-falling hardware prices. As the cost of computation continues to decline, the real scrambling for the small library automation systems business is and will continue to be an increasingly tough battle. With microcomputers seeing their power and disk storage doubling every two years (per technology dollar invested), it is only a matter of time before these microcomputer-based library systems will be able to provide suitable power to support the terminal loads and transaction throughput, along with adequate storage for and the ability to load, maintain, and output MARC records.

Nevertheless, as the power of these systems improves and the cost-performance increases their attractiveness, it remains unclear how fully microcomputer-based integrated systems will be profitably marketed to libraries with the same level of consulting, training, and installation services provided by the larger turnkey system vendors.

There is now a clearly charted marketing collision course between the traditional larger turnkey system vendors and the aggressive, successful "break the MARC rules" microcomputer vendors. During this battle, the traditional turnkey vendors will struggle with the challenge of creating alternative methods for providing suitable and less expensive training and support; the microcomputer vendors will fight the strong upstream currents of tradition by adapting their products to MARC and fuller functionality, all the while damning the necessity and appropriateness of such features for the small library.





Some new "fast-track vendors"

Despite the flattening of the sales curve, 1988 showed a continued "fast track" effort by several vendors from where they left off in 1987. There are also a couple of new vendors to watch. As illustrated in Chart 1, CLSI re-

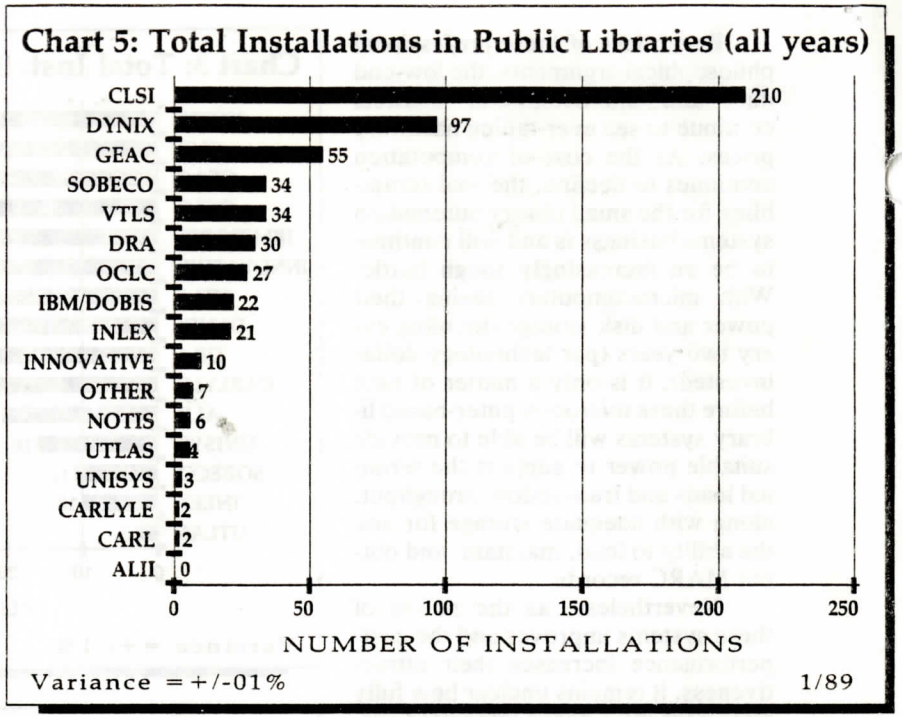
Dynix with 206 users. As shown in Chart 2, Dynix installations in 1988 were a remarkable 77 systems, pushing significantly beyond its all-time record of 67 systems in 1987.

While less than CLSI or Dynix in market share, Chart 2 reveals that a

While Innovative has long enjoyed a reputation for a highly serviceable serials/acquisitions control system, it also successfully navigated the difficult transition to the fully integrated system market, finding wide acceptance of its online public access cata-

completely overwhelmed by rumors of financial difficulty, staff cutbacks, and problems concerning the release of a fully functional circulation component. After showing installation strength during 1987, the current status of Carlyle and its customers appears to be tenuous. Carlyle's ability to show growth and stability in 1989 will probably determine whether it will be embraced by future libraries or join the ranks of DataPhase, Cincinnati Electronics, and other down-and-out vendors.

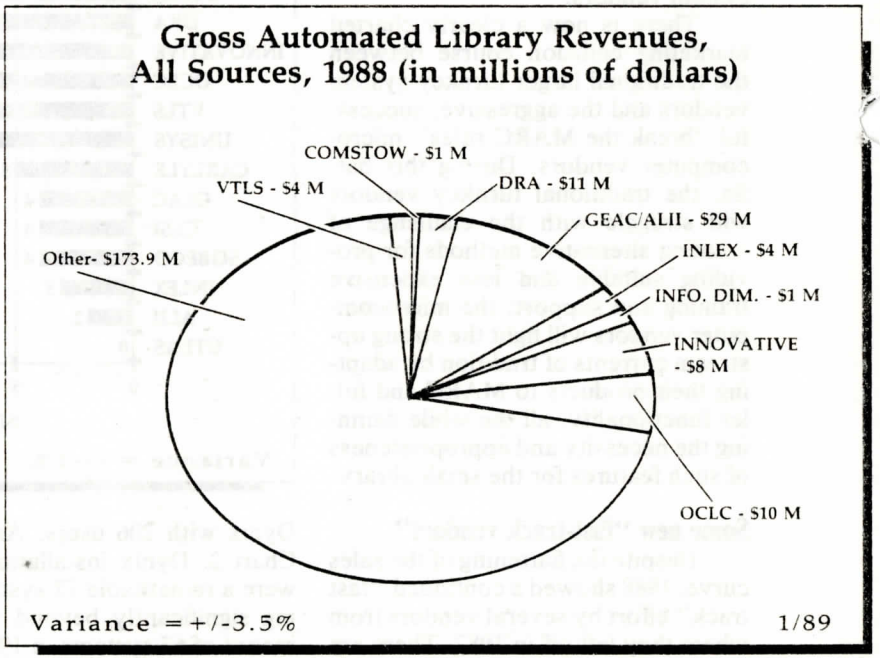
Another surprise, not because of actual system installations but because the company elected to more fully participate in this analysis, was the IBM-based DOBIS system. The software package, marketed by IBM, has enjoyed considerable use throughout the world and has witnessed 34 installations in 1988. While the vast majority of the system installations are not in the United States, the pres-



Counting Market Share:

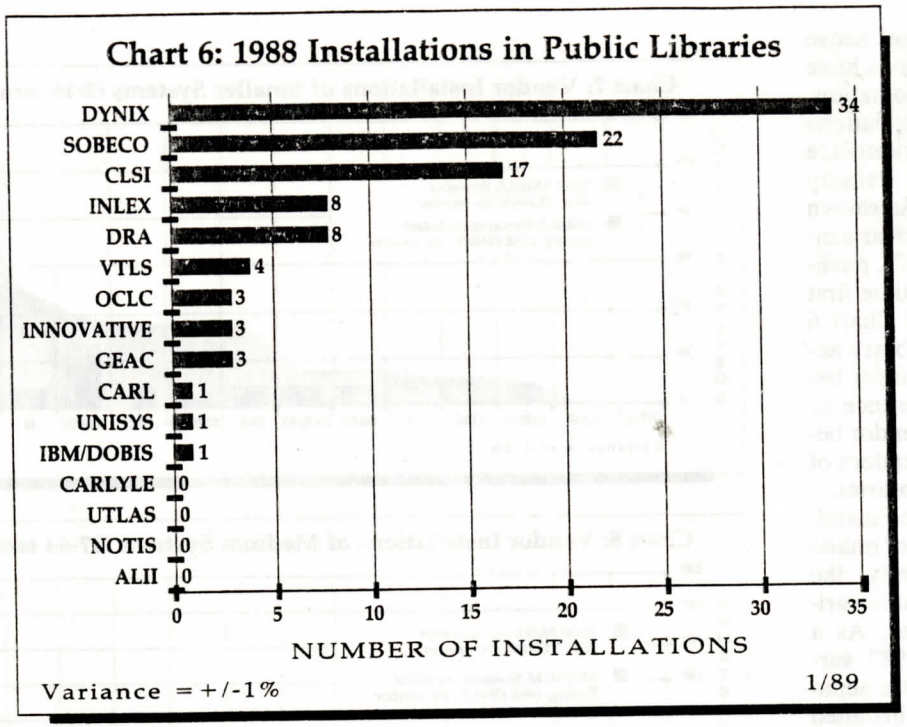
DURING 1988, Data Research Associates issued a broad challenge to the vendors and the authors of this article to abandon market analysis based on installations and to use only audited, gross library automation revenues as the basis of awarding market share. As stated in last year's analysis (*LJ*, April 1, 1988, p. 39), the authors generally support the migration to some form of revenue analysis *in addition* to analysis by number of installations and the additional market segment breakdowns that are provided. The authors continue to hold that many, perhaps most, readers of this article are interested in two fundamental questions: What types of systems are my colleague *"type" of library* institutions installing? What vendors are successful at installing systems for my *"size" of library*? Were it possible to provide reliable revenue analysis for each vendor, it would then be possible to examine a third, frequently asked question: Which vendors are *healthy* and which vendors are not? Clearly, this question could best be drawn from financial assessments.

This is all very interesting, but remains an academic, philosophical exercise. Of the 21 surveys that were returned for analysis, the authors find it worthy of note that only eight of the vendors were willing to permit the publishing of their revenue figures. The majority of the re-



We also collected the thoughts and

tion vendor that actually releases its audited



ence of the product in the industry is significant and this is the first year that IBM has changed corporate policy sufficiently to permit the reporting of the specifics regarding DOBIS business activities. (Note: During prior years, this product was hidden in the "Other" category due to lack of IBM authorization to publish individual statistics.) Another newcomer to this article, although not necessarily to the library automation marketplace, is Information Dimensions, a Dublin neighbor to OCLC. This vendor sold 35 systems this year, all to special libraries.

Installations

The best way for libraries to gauge vendor market shares is not by looking at combined, summary figures, but to more closely examine market segment breakdowns by size of system installation and type of library. These segmented statistical

Vendor Consensus or Confusion?

Audited financial statements are an additional expense and not an appropriate gauge by which to measure marketshare. However, in too many of the discussions of the marketplace and illustrations of success, we see the comparison of nonequal systems listed by number of systems installed and those numbers are cited as the measure of a company's success rate . . . . Comstow is rarely highlighted. Several other measures seem more to the point:

- Systems installed by type of library;
- Customer satisfaction with the vendor;
- Number of lost clients due to switching to other systems; and
- Ability to meet goals and objectives in development.

—Jane Kaifus-Maine, *Sales Coordinator, Comstow Information Services*

It is our belief at CLSI that there are a number of useful ways to measure library automation market share: number of systems sold, number of systems installed, and revenues, for example . . . . However, the measure we find most useful is the amount sold, divided between new systems and add-ons to existing systems, and then accounting for maintenance service and support fees as a separate figure . . . . While revenue sounds like a good measure, this

Worse, and unfortunately even more likely, deliberate distortions by competitors about another firm's financial position will confuse and mislead buyers. In most cases it backfires on the perpetrator . . . . I believe the [audited financial data] in the marketplace article would be meaningless as well as misleading. Few companies' financial years coincide with the calendar year [as reported in the marketplace article].—**D. Keith Wilson,** *Vice President, Dynix, Inc.*

Though this method may have merit in concept, it would be a nightmare in practice. In order to comply, all vendors would have to: 1) have a consistent accounting period, be it annual or fiscal; 2) use a standard and consistent method of recognizing revenue; 3) have accounting firms that could report on a timely basis; and 4) agree to the terminology used in reporting.

Though the current "fill-in-the-blanks" method of gathering data for the survey may not be auditable, an attempt on the part of the survey reporters to match audited data from the widely varied types of suppliers in this industry could expose the reporters to some liability. We don't object to the concept, and would attempt to comply if it became a requirement; we believe it would be quite unworkable from both the suppliers and the reporters point

and size (e.g., number of volumes held by the library).—**Stephen Silberstein,** *Vice President, Innovative Interfaces, Inc.*

We understand that revenues are an appropriate measure of market share. However, we feel that measurement of market share based on revenue alone would not be an accurate indicator of market share due to the fact that: a) the data would be a reflection of pricing policies as opposed to market penetration; b) the dollar amounts would be affected by whether the vendor markets hardware or not; and c) even with "audited" financial statements, different firms have different, yet perfectly acceptable, rules for determining when an activity translated into revenue.

We think that it would be difficult to get truly comparable data.—**Keith Gilter,** *Marketing Coordinator, NOTIS Systems, Inc.*

OCLC's fiscal year ends June 30. In order to complete this calendar year report we would have to combine two fiscal years, one-half year from audited financial statements, and the remaining half-year from unaudited financial statements . . . . It is OCLC's policy *not* to release any internal, unaudited financial statements. Local Systems is included in our annual report as a separate line item . . . . The Annual Report

examinations provide a better sense of what comparable institutions have been doing in the way of automation.

When examining the installations by library type, the 1988 marketplace again saw somewhat less stability when compared with 1987. As shown in Chart 3 and Chart 4, the clear academic library choice is NOTIS, pushing aside CLSI from its all-time first place position. Chart 5 and Chart 6 examine patterns in public library activity, the most noteworthy issue being the strong and new presence of Sobeco as the number two vendor behind Dynix, both now the vendors of choice by the most public libraries.

Charts 7-10 break out the installation of systems by number of online terminals supported. Generally, the number of terminals is a reliable variable to measure system size. As a slight departure from the 1987 survey, this analysis establishes a separate chart for those systems installed for the very large libraries, those installing in excess of 125 terminals. While CLSI and Geac remain the tenured, historical leaders, it is interesting to note that six different firms performed equally well installing these very large systems during 1988.

Finally, as shown in Chart 11, Europe increased its installation activity during 1988, expanding to account for half of all systems installed overseas. This overseas market continues to grow in importance and most vendors now have and are initiating some form of marketing and sales program on foreign shores.

Vendor profiles

The marketplace is healthy and continues to grow. Vendor market shares are becoming more competitive and the annual installation completion is relatively balanced, except for Dynix which continues its dominant, aggressive position in annual installations. Should these growth trends continue, the analysis planned for 1989 will probably expose new shifts in market position—but this time in historical market share, not

Chart 7: Vendor Installations of Smaller Systems (1-16 terminals)

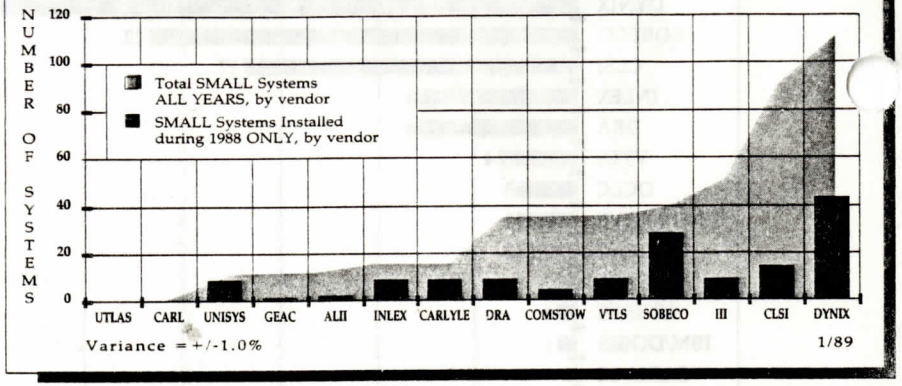


Chart 8: Vendor Installations of Medium Systems (17-64 terminals)

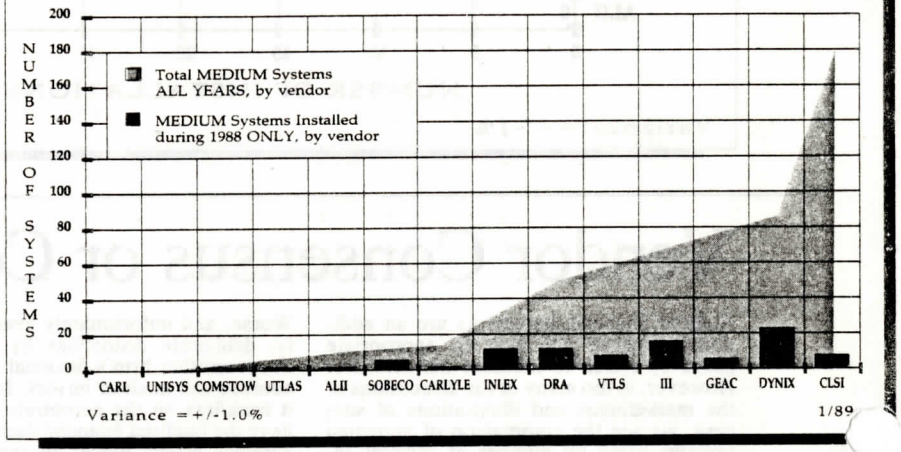


Chart 9: Vendor Installations of Larger Systems (65-124 terminals)

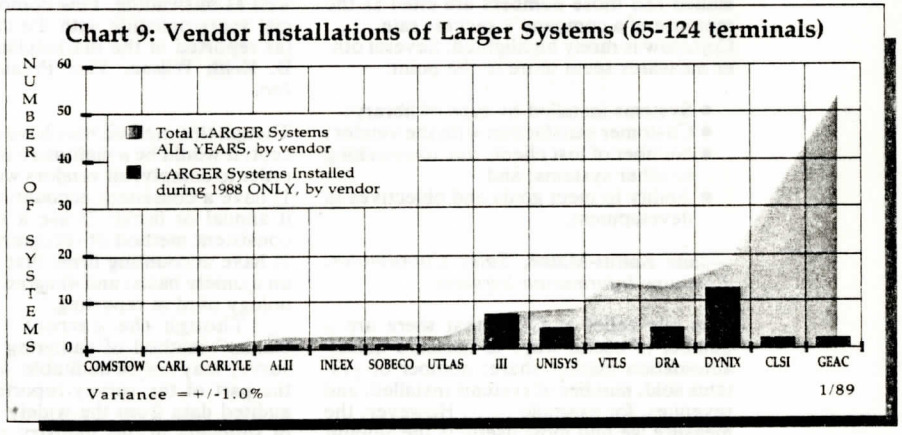
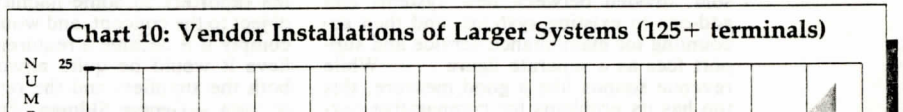
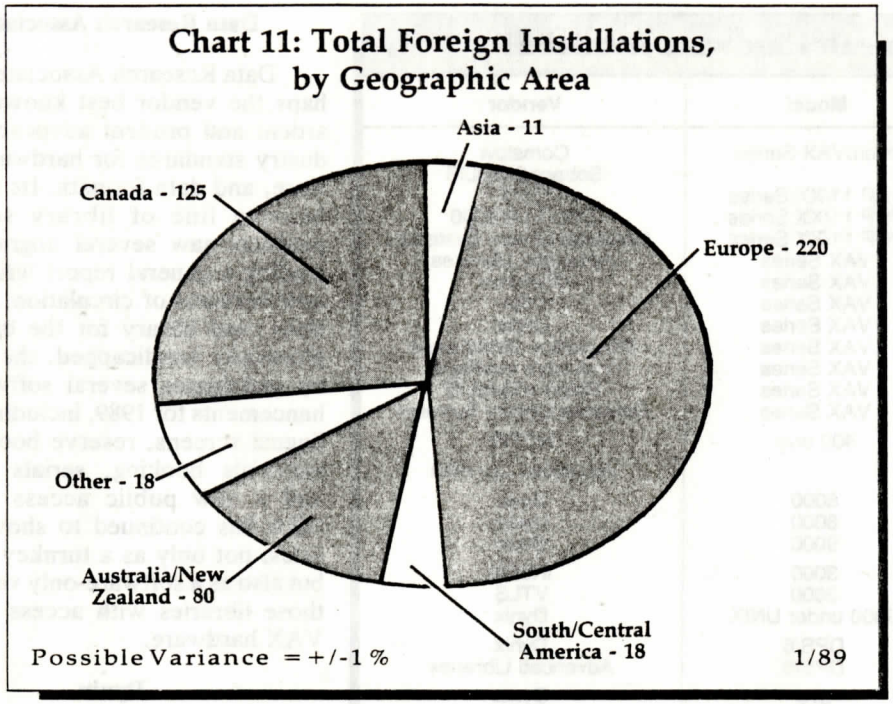


Chart 10: Vendor Installations of Larger Systems (125+ terminals)





though last year the authors indicated that ALII would have to show a measurable increase in sales during 1988 in order to remain viable, this absorption may prove profitable for both ALII and its parent in 1989. ALII's standard Pick-based operating system allows it to run on a number of suitable hardware platforms, and this flexibility may be helpful in offsetting the proprietary Geac hardware/software environment. Additional comments concerning this merger are included in the Geac section below.

CARL

Although the name is new to the marketplace, the company is not. Formerly known as Eyring, its software operates on Tandem hardware, and has typically served very large library networks. Bucking this "big-ticket" reputation, however, the vendor claimed that the newer Tandem CLX office environment computer line-up could make the system more affordable for the small to medium-sized library. The vendor also reported that it had expanded its online

the completion of its circulation system. The vendor reported major progress in correcting these and other problems, and expected to combine with another major library automation vendor in the near future. It claimed that this change would result in increased financial stability, and would allow Carlyle to offer a well-supported integrated package to both new and existing customers.

CLSI

CLSI experienced a somewhat difficult year, not only in continued erosion of its market share, but also with many of its users, who have found themselves frustrated with both vendor implementation and logistical support. The company has acknowledged these difficulties, and has begun an effort to expand and reorganize its customer support operations. Nevertheless, it is the authors' opinion that some of the erosion of CLSI's market share has been directly attributable to the grumbling of some of its current users.

Some of the 1988 CLSI accomplishments included the complete change to the standard UNIX operating system, allowing the flexibility of several viable hardware platforms. In 1988, the company delivered two new stand-alone systems that use the Sequent and Altos computers. The company reported two major contracts, one with Mississippi State University, and another with the City of Paris Libraries. CLSI also introduced CD-CAT, its CD-ROM-based catalog.

Comstow Information Services

With its BiblioTech software, Comstow is a newcomer to close-up profiling in this marketplace article series. Although the vendor is not very familiar to public and academic libraries, it has over 30 corporate and special library users. The system operates on the DEC VAX series of computers, and a UNIX version is under development. The software includes catalog maintenance, authority control, and report writer. Optional modules include circulation, periodicals control, accounting, and thesaurus control. In 1988, the vendor reported a major software release update for thesaurus control, thereby complementing the authority control system. The release also included circulation control enhancements and a security system. Goals for 1989 include the general delivery of this software release to Comstow's users, gateway software to external databases, and a patents tracking module.

Table 1: Hardware Availability

Manufacturer	Model	Vendor
Altos	2000	CLSI

Table 1 (Continued): Hardware Availability

Manufacturer	Model	Vendor
Digital Equipment Corp.	microVAX Series	Comstow
		Sobeco/MultiLIS
	PDP 11/XX Series	CLSI
	PDP 11/XX Series	OCLC-LS/2000
	PDP 11/XX Series	Universal Library Systems
	VAX Series	Advanced Libraries
	VAX Series	Comstow
	VAX Series	DRA
	VAX Series	Dynix
	VAX Series	Information Dimensions
	VAX Series	Innovative Interfaces
	VAX Series	Sobeco/MultiLIS
	VAX Series	Universal Library Systems
Formation	400 only	NOTIS
Fujitsu		Advanced Libraries
Geac	6000	Geac
	8000	Geac
	9000	Geac
Hewlett Packard	3000	INLEX
	3000	VTLS
	9000 under UNIX	Dynix
Honeywell	DPS/6	Dynix
	DPS/6	Advanced Libraries
IBM	370	Dynix
	937X	Dynix
	30XX Series	NOTIS
		Information Dimensions
	309X Series	Dynix
		DOBIS
	370 Series	NOTIS
		Dynix
	43XX Series	NOTIS
		Information Dimensions
		Dynix
		DOBIS
	937X Series	NOTIS
		DOBIS
		Information Dimensions
Innovative Interfaces	INNOVACQ	Innovative Interfaces
Intel	DPX	Carlyle
McDonnel Douglas	any w/PICK OS	Advanced Libraries
	any w/PICK OS	Dynix
Magnuson	all	NOTIS
MIPS	M/120–M/2000	Sobeco/MultiLIS
Motorola Four-Phase	311 & 312 only	NOTIS
Natl. Advanced Systems	all	NOTIS
NCR	Tower 32/200-850	Sobeco/MultiLIS
Nixdorf	all	NOTIS
Prime	any w/PICK OS	Advanced Libraries
	any w/PICK OS	Dynix
Sequent	B 21	CLSI
	B 8	CLSI
	S 27	CLSI
	S 81	CLSI
	any w/UNIX OS	Dynix
Sequoia	any w/PICK OS	Advanced Libraries
	any w/UNIX OS	Dynix
Tandem	CLX	CARL
	CLX	Utlas

Data Research Associates

Data Research Associates is perhaps the vendor best known for its ardent and prudent advocacy of industry standards for hardware, software, and data formats. Its comprehensive line of library software products saw several upgrades, including a general report writer, and new versions of circulation, acquisitions, and library for the blind and physically handicapped. the company anticipates several software enhancements for 1989, including multilingual screens, reserve book room, materials booking, serials control, and a new public access catalog. DRA has continued to show strong sales, not only as a turnkey vendor, but also as a software-only vendor for those libraries with access to DEC VAX hardware.

Dynix

Despite some of last year's competitor envy, Dynix continued its record-breaking pattern with hardly a backward glance. Although the company sold 67 systems in 1987, Dynix sold a staggering 77 systems in 1988. Twenty-eight were sold in Australia, an area that the company clearly targeted last year. Despite these sales numbers, Dynix's avowed emphasis has been customer satisfaction and employee development. In the experience of the authors, this seems to remain an accurate pattern thus far. The company has completely shed its "small library" typecasting, successfully testing a 400-terminal network at Multnomah County Library System in Portland, Oregon. Another Dynix product/service emphasis has been the successful migration from other vendor automation packages to the Dynix product. As libraries outgrow their first systems, vendor expertise in smooth transitions will become increasingly important and desirable. Goals for 1989 include media scheduling, public access catalog enhancements, and new hardware platforms.

consolidated in Toronto and in Bristol, England. According to Geac, this consolidation has meant that software has been released to Geac customers in a timely manner. Goals for 1989 include the integration of the Advanced Libraries and Information staff and assets, resulting from Geac's acquisition of this company in 1988. Geac plans to market heavily in Europe and Australia, and feels that with the ALII product it is able to meet a variety of library automation needs.

IBM/DOBIS

Although this IBM-based software is certainly no newcomer to the marketplace, it is to this review. The authors have experienced perennial problems in obtaining permission to publish any specific information. IBM's long-standing corporate policy against publication apparently stems from fears of sales losses. This software generally appeals to the academic market, or to those operations already owning suitable IBM hardware and software. The company sold 34 systems last year worldwide, four of them in the United States. Because the software operates on mainframe computers, the computing environment does not lend itself to the typical terminal counts seen with stand-alone systems. This is the reason for the omission from the terminal counts in Charts 7-10. The software carries the advantage, and the burden, of user reprogramming and customization. Significant 1988 company accomplishments included a major European software release (Version 2), and a special DOBIS/E Version supporting the Korean, Japanese, and Chinese character sets. Goals for 1989 include a Version 2 software release for the United States.

Information Dimensions

Information Dimensions is another newcomer to be profiled. With software sales of over $1 million, the company targets its marketing efforts at corporate libraries. Information

Table 2: Operating Systems

System	Release	Vendor
Astro	3.3	Geac
CICS		DOBIS
CICS/VS		NOTIS
CDC NOS/VE	1.2.14	Information Dimensions
CLSI Proprietary	27.45	CLSI
Geos	1.6	Geac
GUARDIAN	90 XF	CARL
	C Series	Utlas
Hewlett Packard MPE	all	VTLS
		INLEX
Intel RMX86	7	Carlyle
MIIS	5.3	LS/2000 (OCLC)
MS/DOS	3.0+	CLSI
		Dynix
MS/DOS	3.2	OCLC
MS/DOS	3.3	UNISYS
MVS-IBM/370		NOTIS
MVS-IBM/SP		DOBIS
MVS-IBM/TSO	3.7	Information Dimensions
MVS-IBM/XA		DOBIS
		NOTIS
OS1100	3R2	UNISYS
OS-IBM/VS1		NOTIS
P/OS	2	CLSI
PICK		Advanced Libraries
	5.2	Dynix
PRIMOS (oper. PICK)		Dynix
RSTS	7.2	Universal Library Systems
ULTRIX	3	Innovative Interfaces
		Information Dimensions
UNISYS OS/3		Pueblo
UNIX	27.DBMS	CLSI
	27.45U	CLSI
		Dynix
	Version 3.	Innovative Interfaces
	5.2	Sobeco/MultiLIS
		UNISYS
UNIX (oper. PICK)		Dynix
VM-IBM/CMS	3.X and 4.X	Information Dimensions
VM-IBM (oper. PICK)		Dynix
VMS (DEC oper. PICK)		Dynix
VMS (DEC)	latest	DRA
	5	Sobeco/MultiLIS
	all	Universal Library Systems
	4.0-5.0	Comstow
	4	Information Dimensions
VSE-IBM		DOBIS
VSE-IBM/DLIB		NOTIS
VSE-IBM/SP		NOTIS
Wang VS	6.21.04	Information Dimensions

The software includes a public access catalog, circulation control, and ac-

32-bit H/P RISC-chip computer series. Several benchmark tests were

broadening of the authority control capabilities, and an enhanced version of the software suitable for consortia and larger library operations.

Innovative Interfaces

Innovative Interfaces Inc., heretofore often known as Triple-I, informed the authors that they preferred the sobriquet "Innovative." A stated 1988 goal was "no longer to be ignored by library consultants," and the authors deemed this accurate. Innovative sold 27 systems during 1988, and although it has been generally known for its serials/acquisitions control system, the company's sales included nine systems of 65 or more terminals. Innovative sold 18 systems containing three or more subsystems, and this clearly placed the company in an important position in the library automation arena. Innovative reported the successful software migration to the DEC VAX environment, thereby providing the library automation marketplace with another viable option for this hardware line.

NOTIS

NOTIS Systems, Inc. continued in 1988 as the preferred large academic library vendor. The company sold 27 systems, thereby trouncing its nearest competitor by a 50 percent margin. Running on IBM mainframes, the software is very popular in academic computing centers already partial to the Big Blue machines. Currently NOTIS is working to improve public access to information beyond the traditional library bibliographic collection. At Vanderbilt University NOTIS has added the Medline database to the public access catalog, and has permitted database searching via the usual NOTIS search commands. The vendor reported that by mid-1989 this search product will be available to other NOTIS customers, albeit at extra cost. In 1989 the vendor plans to increase the number of NOTIS-searchable databases.

Table 3: System Interfaces

Vendor	OCLC	RLIN	WLN	Utlas	Biblio-File	Auto-graphics	Marcive	Baker & Taylor	Brodart	Other Interface
Advanced Libraries	✓	✓	✓	✓	✓			✓		
CARL	✓	✓		✓	✓	✓			✓	Mini-Marc LaserQuest
Carlyle	✓	✓	✓	✓	✓	✓			✓	
CLSI	✓	✓	✓	✓	✓	✓	✓(tape)	✓(tape)	✓	LSSI PICA (tape)
Comstow	✓				✓		✓			
Data Research Assocs.	✓	✓	✓	✓	✓	✓	✓	✓		
Dynix	✓	✓	✓	✓(tape)	✓	✓		✓	✓	Utlas LSSI LaserQuest
Geac	✓	✓	✓	✓	✓	✓		✓	✓	
IBM/DOBIS	✓				✓					
Information Dimensions	✓	✓		✓			✓	✓		
INLEX	✓	✓	✓		✓					LaserQuest
Innovative Interfaces	✓	✓	✓	✓				✓		BNA
NOTIS	✓	✓		✓						Srls. Invoices (tape)
OCLC (LS/2000)	✓									
Pueblo										Irving Network
Sobeco/MultiLIS	✓			✓	✓			✓	✓	
UNISYS	✓				✓					
Universal Lib. Systems	✓	✓	✓	✓	✓	✓		✓	✓	Natl. Lib. of Canada
Utlas	✓	✓	✓(tape)	✓	✓	✓(tape)	✓(tape)	✓(tape)	✓(tape)	
VTLS	✓	✓	✓	✓(tape)	✓	✓	✓(tape)	✓(tape)	✓(tape)	BNA Science Press

Tape = data transfer via magnetic tape load only; not an interactive, online interface

Table 4: Serials/Acquisitions Interfaces

Vendor	OCLC	RLIN	WLN	Utlas	Faxon	EBSCO	Read-more	Brodart	Other
Advanced Libraries									
CARL	✓				✓	✓			
Carlyle					✓				(INNOVACQ)
CLSI									Menzies (UK)
Data Research Assocs.									
Dynix									Baker & Taylor (any BISAC)
Geac					✓	✓			
IBM/DOBIS						✓			Pro-Cite
Information Dimensions						✓			
INLEX									
Innovative Interfaces	✓	✓	✓	✓	✓	✓	✓		BNA, Coutts, Yankee, Academic, Majors, Midwest, Hein, McGregor, B&T, Harrasowitz
NOTIS					✓	✓			
OCLC (LS/2000)	✓					✓			
Pueblo									
Sobeco/MultiLIS	✓			✓				✓	
UNISYS									
Universal Lib. Systems					✓	✓			Bibbase Acq.
Utlas				✓				✓	B&T, BNA
VTLS	✓	✓	✓	✓	✓	✓		✓	B&T, BNA, Science Pr.

OCLC Local Systems

ny also furnished release 1.0 of its ACQ350 microcomputer-based acquisitions control system. Goals for 1989 include a field test of a software product for local storage and searching of reference databases, and a new software release for the SC350 microcomputer-based serials control system.

Sobeco/MultiLIS

VAX computer series under the VMS operating system, and on more generic hardware under the standard UNIX operating system, the software provides considerable user flexibility in hardware choices. Baylor University of Waco, Texas chose Sobeco/MultiLIS, and this added a very large academic library to the company's user list. In order to better serve

UNISYS

UNISYS, another newcomer to close-up profiling in this marketplace analysis, has a user base that includes a wide range of library types and locations, including considerable numbers of international users. The company accomplished several important goals during 1988. These included an interlibrary loan module, E-mail, a PC version of its library automation software, and customer testing of its UNIX-based version of its software. Goals in 1989 are the completion and release of its UNIX-based software, and the enhancement of its library automation mainframe software.

Utlas

As in 1987, Utlas remained one of the smaller system suppliers in 1988, selling three systems. Nevertheless two of these were among the largest system configurations, exceeding 125 terminals each. Although the company's traditional niche has been the large system market, the adoption of the smaller Tandem CLX series computer would permit the vendor to pursue the medium-sized library market. Utlas reported that it experienced some slippage in software release dates during 1988, all related to personnel changes. Currently the vendor

Table 5: Interfacing with MARC

Vendor	OSI Reference Model	LC MARC	OCLC MARC	RLIN MARC	US MARC	CAN MARC	AUS MARC	UK MARC	INTER MARC	UNI-MARC	UTLAS MARC	Other Communication Standard
Advanced Libraries		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
CARL	levels 1-5	✓	✓	✓	✓	✓					✓	BISAC, TCP/IP, Serials: NISO summary & detailed holdings
Carlyle	levels 1-4 levels 5-7 will implement											Standard patron record, when available
CLSI	levels 1-3	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	UNIX, POSIX (IEEE 1003.1-1988), X.25
Comstow		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Converts all MARC to proprietary non-MARC format
DRA	all	✓	✓	✓	✓	✓					✓	X.400,ISBN,ISSN,Serials holdings,nonserial holdings, serials orders,claims,cancellations; other proposed standards
Dynix	levels 1-5	✓	✓	✓	✓	✓	✓	✓	✓	✓		BISAC SISAC-proposed; NISO summary serials & monographs holdings
			✓									Standard patron and item record when available
Geac	levels 1-7 for records transfer	✓	✓			✓	✓	✓	✓	✓		BISAC/SISAC X.25
IBM/DOBIS		✓	✓	✓	✓	✓		✓		✓		
Info Dimensions			✓									
INLEX		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Input/output all MARC bibl. & authority records
Innovative Interfaces	will commit	✓	✓	✓	✓	✓					✓	TCP/IP, BISAC, Ethernet, RS-232
NOTIS	under development	✓	✓	✓	✓						✓	USMARC for holdings/ locations
OCLC LS/2000	levels 1-3 levels 4-7 under development	✓	✓	✓	✓	✓	✓	✓	✓	✓		Serials claims, BISAC ordering, serials holdings-summary/detailed

Table 6: Size of Installations

Vendor	Smallest Library Installed		Largest Library Installed	
	Terminals	Titles	Terminals	Titles
Advanced Libraries	1	15,000	200+	1,000,000
CARL	100	200,000	600+	3,500,000
Carlyle	4	32,000	131	1,400,000
CLSI	4	21,840	290	983,750
Comstow	2	5,000	Undefined	400,000
Data Research Assocs.	5	20,000	500+	1,400,000
DOBIS	1	50,000	1,000+	2,000,000+
Dynix	3	8,000	200	750,000
Geac	3	30,000	240	1,600,000
Information Dimensions	Undefined	3,000	Undefined	150,000
INLEX	4	3,000	68	320,000
Innovative Interfaces	1	5,000	190	1,000,000
NOTIS	26	26,000	1100+	5,200,000
OCLC LS/2000	1	1,000	160	1,000,000
Pueblo	9	72,000	72	200,000
Sobeco/MultiLIS	4	10,000	200	2,000,000
UNISYS	7	7,000	678	1,200,000
Universal Lib. Systems	8	52,379	238	587,576
Utlas	18	80,000	225	3,000,000
VTLS	6	6,000	170	5,000,000

has several software products in quality assurance testing it claims will be released during 1989. These include public access catalog enhancements, authority control, and acquisitions and serials control subsystems.

VTLS

VTLS, Inc. experienced considerable growth during 1988. The company opened two new offices in Europe, one in Finland and one in Sweden. Using the durable Hewlett Packard Series 3000 minicomputers, VTLS was awarded H/P National Account Program status, placing the company in the top three percent of all third-party software and value-added vendors. The software was redesigned to run on the new H/P high-end 900 series, thereby allowing VTLS users the capability of very large computer networks. A new and extensive software release is anticipated in March 1989. New enhancements include multilingual displays, LIBRIS MARC and FINMARC compatibility, and a journal indexing subsystem.

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