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JUNE 1, 1987
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How to Shop for Your Information Center

**MIS VIEWS THE VENDORS:
A ROUNDTABLE**

**FUROR OVER TAXES FOR INDEPENDENT
CONTRACTORS — SENATORS D'AMATO AND
MOYNIHAN DEBATE 1706**



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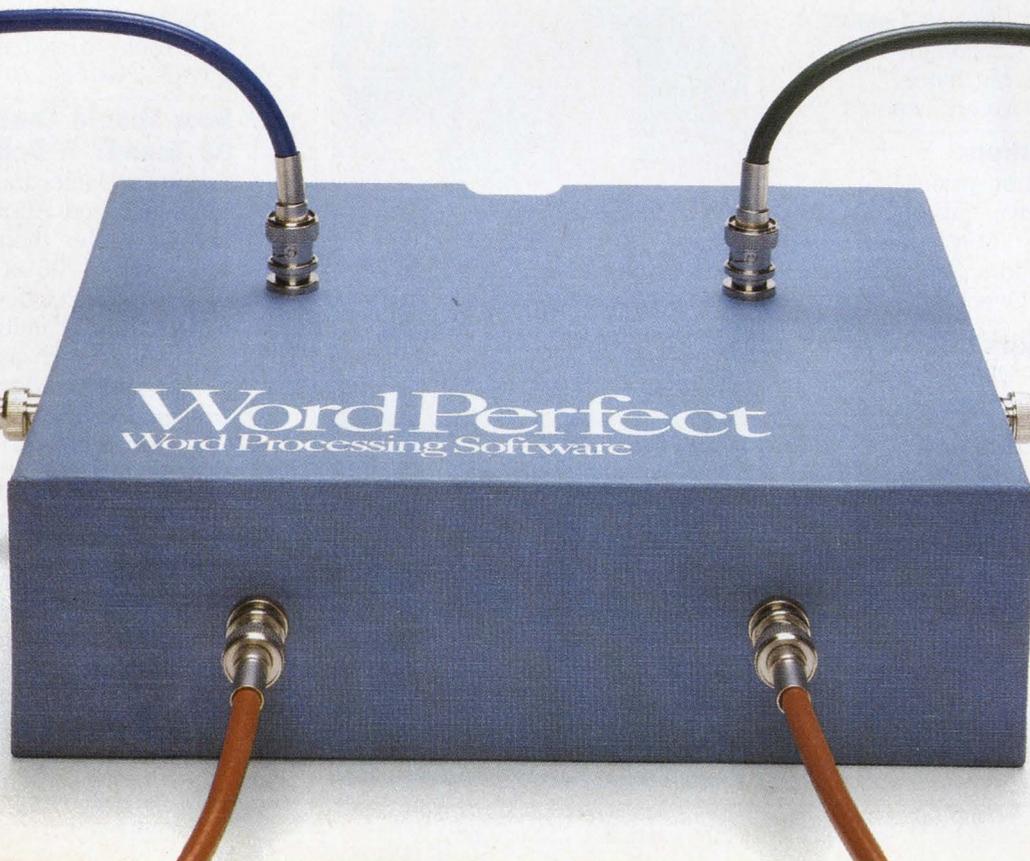
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DATAMAT

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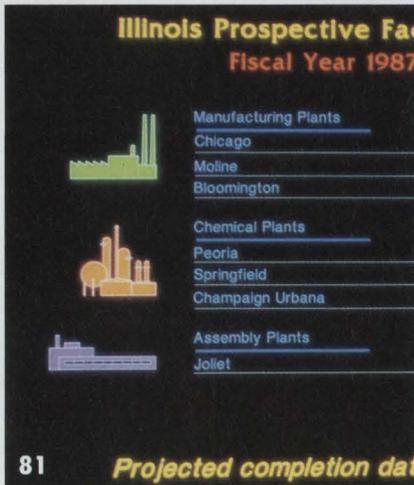
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EDITION

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1987 JESSE H. NEAL
AWARD

Editorial

A New Copyright Law Is Needed for Software

In January, the U.S. Supreme Court declined to review a copyright infringement case, *Whelan Associates Inc. v. Jaslow Dental Laboratory Inc.*, in which the Third Circuit court held that "copyright protection of computer programs may extend beyond the programs' literal code to their structure, sequence, and organization." The Supreme Court's refusal was a blow to the information processing industry, for it had been hoped that the high court would finally clarify the inconsistent rulings concerning the extent and nature of software copyright protection.

The exact reason for the Court's refusal may never be known, but strong among the possibilities is that it was saying that Congress hadn't yet produced a complete and equitable law concerning software copyright protection. That, at any rate, is what we hope the Court meant, because from our view a modern and separate software copyright law is sorely needed in the United States.

As the well-known computer law expert Esther Roditti Schachter explains in "Software Protection In the Throes of a Legal Morass," p. 49, the software industry in this country is currently operating under an unclear set of rules contained in a 1980 provision that added software protection to the 1976 copyright law. The courts—misserved by a poor legislative job that did not elaborate on the scope of software protection—have repeatedly made contradictory decisions regarding software protection.

Software is not a book or a newspaper. It is its own animal and must have its own copyright laws, separate and distinct from protections for information and entertainment. It is clear though that Congress needs a good deal of help in understanding this and why it is so. In many ways, the industry that has suffered most from the lack of a complete software protection law is guilty of contributing to the current mess by not taking a more active role in explaining and recommending solutions to lawmakers.

The United States needs a new law spelling out software protection and it needs it fast. The current situation, if allowed to continue much longer, will devastate both software producers and users. It is essential that industry professionals take the lead in forming this legislation, because only they truly understand what makes software tick.



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ABP



BPA

Letters

Dressed to Kill

The article entitled "DB2: Dressed for Success" (March 1, p. 59) probably should have been entitled "IBM: Dressed to Kill." The opening two paragraphs of your article paint a picture of a company that apparently will do anything for a database sale. If, as your article states, IBM did offer DB2 to customers "free for a six-month trial"; tell its customers "that DB2 would be closely coupled to its hardware in the years ahead"; discuss the unannounced product "Repository"; and spread the word that DB2 was now a "strategic offering," then I believe IBM is not only doing a disservice to its customers but may be violating the law.

MARTIN A. GOETZ

Senior Vice President

Applied Data Research Inc.
Princeton, New Jersey

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It's hard to know who is worse served by Willie Schatz's "Putting Their Heads on the Tax Block" (March 15, p. 32)—readers who know something about the new tax law, or those in ignorant bliss.

The fact is that—like all tax laws—this new tax law is very much a political product, as opposed to an economic product. And, like every other section of the code, it has its victims as well as those who will profit. To avoid these realities or move tactfully around them negates what should be the purpose of such an article, namely to inform readers—regardless of their prior knowledge level.

It's easy to say that the victims of Section 1706 are consultants whose tax status may be changed to that of the W4 wage earner from that of the freewheeling 1099 filer. It's also easy to claim as the winner the greedy IRS and the federal government. But Section 1706's true victims ultimately are U.S. consumers of consulting services, whether small corporations or multinational mammoths. This is because the new regulations add to the cost of doing business for many consulting firms—costs that will be passed on to the client—and encourage the buy-out of smaller, marginal consulting firms and job shops by their publicly traded big brothers, thus reducing the number of firms competing for consulting business and ultimately producing rate hikes.

WENDY VANDAME

Publisher

Consultants' and Contractors' Newsletter
Boonton, New Jersey

IBM, IPSE, and Acrophobia

With more than 20 years in computer application development and support, I heartily agree with David Morgan's cry for an integrated set of development tools in the article on the Integrated Project Support Environment (IPSE) ("The Imminent IPSE," April 1, p. 60). I have worked on "programmer" productivity in my own company and in national organizations for several years and was delighted to see IBM embrace the concept of integrated development tools with the announcement of Systems Application Architecture (SAA), promising common user access and a common programmer interface across operating systems and hardware.

I have several problems with the programs discussed by Mr. Morgan. First, I find three letters missing from his article: IBM. Obviously, I have an IBM bias, but while IBM often seems to work in a vacuum and certainly is trailing in this area, I find it incredible that anyone can imply that something will take over the data processing industry without indicating how the dominant player in the industry will be involved. (The next most important letters, DEC, finally appear on the last page of the article). Great strides have been made by independent vendors in providing tools for developing and supporting systems on IBM hardware. Many large companies have spent millions providing and/or acquiring tools and integrating them. Tool makers are expanding their tools to encompass more tasks in the systems development life cycle and are thus improving the integration. IBM has started to market third-party tools and now promises an open, integrated development environment. So the situation is improving.

A second point ignored by Mr. Morgan is that new tools tend to lack support for existing systems. The umbilical cannot be cut. Keeping existing systems running is more important than developing new ones—they are corporate lifeblood. The cutoff is even more apparent if a whole development "factory" is implanted than if individual life cycle task tools are adopted.

Finally, what a delight to find the multitude of acronyms in Mr. Morgan's article: IPSE, APSE, PCTE, SSFF, STARS, etc. IBM inundates us with them, too. What we need is a Cross Acronym Consistency Architecture, or CACA.

RICHARD STROMBERG
Wilmington, Delaware



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And no matter how you split their workload, these printers work like crazy. The CX3180 gives you draft text at 180 cps. The multi-mode CX3220 printer produces near-letter-quality text at 45 cps, and DP output at 220 cps. Both printers also generate high-resolution, dot-addressable graphics. And both are built for the kind of 100% duty cycle applications that make most printers crack under the strain.

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Universal Data Systems, the company that developed the first 9600 bps dial-up modem, has now applied its special brand of craftsmanship to the CCITT V.32 specification.

The result is a *full-duplex* 9600 bps device for the switched telephone network. When substandard line conditions are encountered, the device offers automatic fallback to 4800 bps, while maintaining the full-duplex communications capability.

As you expect from UDS, the device fully utilizes the latest in CMOS technology for low-noise performance and very low (less than 20W) power consumption. A new LCD control panel displays and configures modem set-up selections and displays outputs from the unit's comprehensive self-test regime. Auto-dial capability is also included.

If your system must accommodate periodic bursts of high-throughput, full-duplex communication, UDS craftsmanship and the V.32 standard provide a reliable, cost-effective solution. For complete technical details and quantity prices, contact Universal Data Systems, 5000 Bradford Drive, Huntsville, AL 35805. Telephone 205/721-8000; Telex 752602 UDS HTV.

\$2495⁰⁰
Quantity One



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Look Ahead

SPECTRUM'S FOLLOW-ON PLANS

CUPERTINO, CALIF. -- Hewlett-Packard has been telling impatient users about a pair of follow-on Spectrum RISC systems under development. One project, based on HP's NMOS-III technology, is aimed at twice the performance of the Spectrum 930 system. HP hopes to ship it sometime next year. Also under development, though possibly put on hold, according to sources, is a Spectrum follow-on based on ECL technology with three to four times the performance of the 930. Word is that it won't get out until 1989 at the earliest. HP won't confirm or clarify the existence or status of either follow-on development.

NSA PACT TO APOLLO, SUN?

WASHINGTON, D.C. -- Apollo Computer Inc., Chelmsford, Mass., and Sun Microsystems Inc., Mountain View, Calif., continue to pull draws in their head-to-head battles for major contracts. Industry sources claim it's likely that the pair will split a contract for 32-bit workstations due out from the National Security Agency this month. Last year, they split an EDS/General Motors workstation pact. Masscomp Corp., Westford, Mass., reportedly will receive a contract for data acquisition workstations under the same NSA bid.

NCR TO UNVEIL NETWORK PLANS

DAYTON, OHIO -- NCR this month is preparing to disclose a new local area and wide area networking strategy that will use OSI and SNA protocols to encompass its pcs and Tower, ITX, and VRX computers. The initial release of NCR Connect employs XNS protocols and Ethernet to link its pcs and Tower micros. The package has been in field tests at the office of the Assistant Secretary of the Navy in Washington, D.C., and at Fellsdata, a Norway dp service company and Tower user.

OLIVETTI READIES PS/2 RESPONSE

IVREA, ITALY -- It hasn't taken Olivetti long to fight back after the IBM PS/2 launch. In late June, the Italian giant plans to announce a new group of computers that will compete with the IBM PS/2 line. The Olivetti products will mark the first response to IBM's new system by a European computer manufacturer.

DEC EYES VM SYSTEMS...

MAYNARD, MASS. -- Digital Equipment Corp. is promising to take its IBM file transfer facility beyond the MVS environment to embrace VM systems. The company is strongly indicating to users that it will support VMS-to-VM file transfers as well as a VAX-to-IBM channel connection. For those who like to stay in the family, a file system interface is being developed, under the name Generic File System, to make access to local or remote VMS, Ultrix, or MS/DOS files uniform.

Look Ahead

... BEEFS UP 8700s, 8800s

MAYNARD, MASS. -- A redesign of the VAX 8700 and VAX 8800 employing faster components is planned in DEC's attempt to squeeze higher performance out of the two. Expected as early as next month, the enhanced versions will provide a better than 50% gain over existing models. The uniprocessor 8700 is expected to jump to about 10MIPS and the asymmetric VAX 8800 dual processor to about 20MIPS.

IS ETA IN HOME STRETCH AT NASA?

ST. PAUL -- ETA Systems is "a strong contender" in the procurement of a supercomputer at NASA Ames Research Center, say sources at NASA. The agency is looking for a machine that exceeds the performance of a Cray-2 by a magnitude of four. Cray is in the running, too.

TRYING TO DEFINE SUPERS

WASHINGTON, D.C. -- Watch for a new set of regulations to come down the pike, possibly this year, that define what the government will classify as supercomputers. Sources say the Commerce, State, and Defense Departments are working on regulations that "clarify even more" what a supercomputer is, and what is thus non-exportable to certain countries. Manufacturers of minisupercomputers are keeping close watch on this development, since many are selling, or would like to sell, their products overseas.

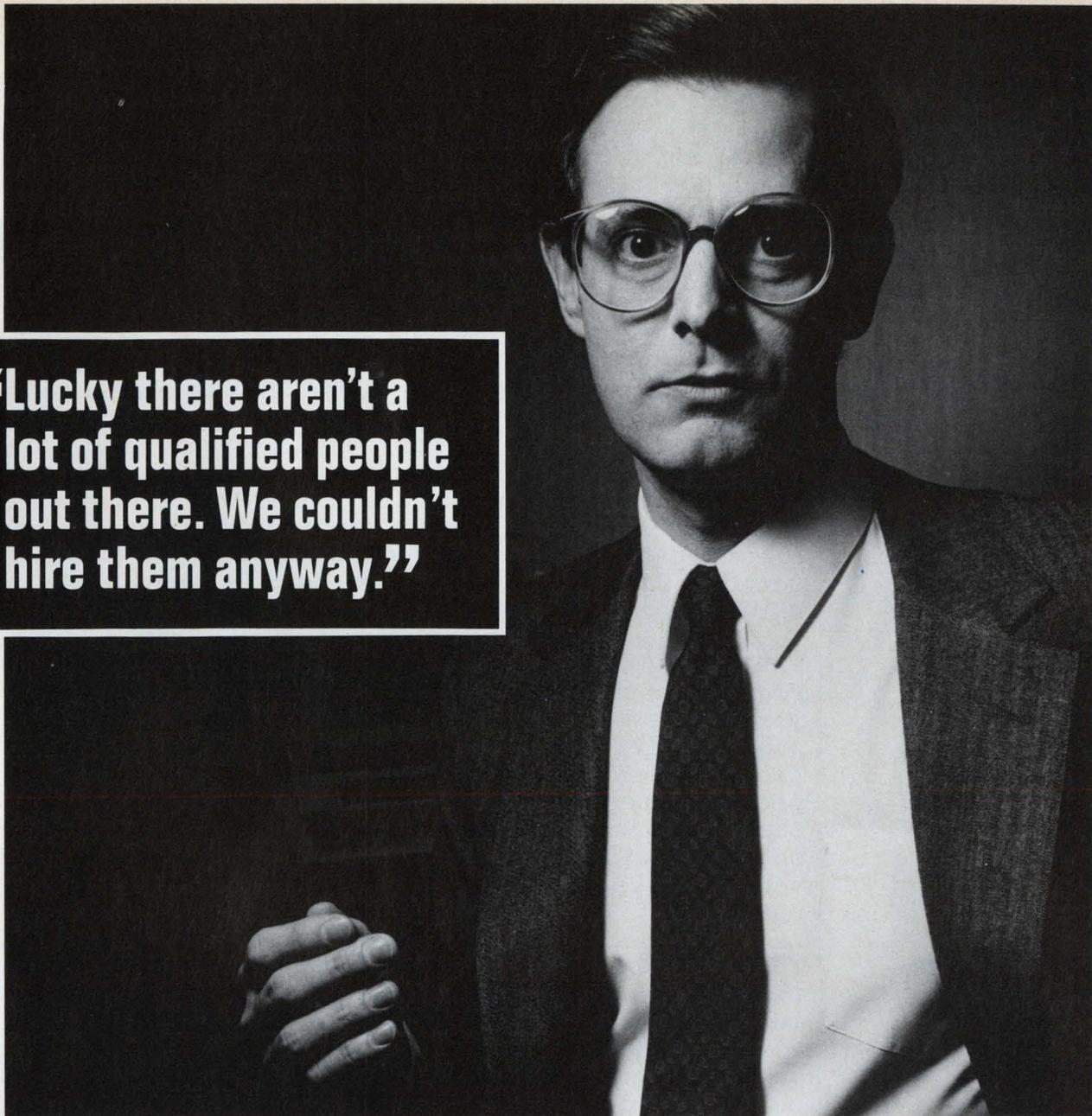
OPTICAL STORAGE FOR NONSTOP

CUPERTINO, CALIF. -- Tandem Computers Inc. is scheduled this week to announce plans to market a write-once optical disk library subsystem that should allow users of its NonStop systems to put massive amounts of data on-line. The new 5200 Optical Storage Facility includes two drives, a formatter, and an automatic changer supporting up to 32 disks of 2.6GB. Tandem says the subsystem allows data retrieval in an average of 17 seconds. The subsystem starts shipping in October at a cost of about \$160,000, including software.

AN ESCORT FOR IDEAL

PRINCETON, N.J. -- The first release of the microcomputer/local area network version of Applied Data Research's fourth generation language Ideal is expected to hit the streets later this month. Called Ideal Escort, the product, a result of technology acquired by ADR two years ago from Data Language Corp., Billerica, Mass., is priced at \$1,500 per copy. Ideal Escort supports the IBM token ring and PC network. The only hitch in the product is that it is only 95% compatible with Ideal on the mainframe. A user could not download Ideal mainframe applications to a micro, but ADR sources say the future direction is to enhance the

(continued on p. 12)



“Lucky there aren’t a lot of qualified people out there. We couldn’t hire them anyway.”

Double-digit budget increases are gone. And with them the options of hiring new people or installing a new “box” to meet growing information needs. Today’s MIS Directors are challenged to get the most from the people and the computers they have.

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CIRCLE 8 ON READER CARD

Look Ahead

compatibility between the two versions to enable the testing of applications on the micro.

TEAMING UP FOR SERVICES

STOCKHOLM, SWEDEN -- IBM users in Scandinavia will get their first taste of value-added data services in September, when a new joint venture company created by Ericsson Data Systems, Volvo Data Systems, and Scandinavian Airline Systems starts operations. Called Scandinavian Infolink AB and backed to the tune of \$3.2 million, the company's service will link the Memo electronic mail systems, already installed at 80% of Scandinavia's large IBM sites. Memo is supplied by Veremation, a Volvo and Ericsson joint venture.

SWEET SMELL OF SUCCESS

PARIS -- AT&T-Philips (APT) is determined to take a significant share of the European telecommunications market, despite its failure to win control of France's public switch maker Compagnie Générale de Constructions Téléphoniques (CGCT). The Belgian PTT is expected to be the next to award a major contract. In Italy, meanwhile, Ericsson looks set to win a partnership deal with Telit, the Italtel/Fiat Telettra joint venture telecom company. The results won't be known until the fall, when Telit is formally established.

TAKE A LETTER, MR. POSTMAN

TUSTIN, CALIF. -- A fledgling company, OAZ Communications Inc., hopes to popularize the term D-Mail (Document Mail) with the introduction this week of its first product, a single coprocessing board for the personal computer that adds facsimile function to the pc, usable in the background while a user performs other functions in the foreground. The OAZ product integrates data communication and facsimile communication on one board, which also contains an SCSI (Small Computer Systems Interface) interface for a scanner.

RUMORS AND RAW RANDOM DATA

Britain's ICL will deliver its first 80386-based system at the end of this year. . . . Australia's biggest computer group, Computer People, and the U.K.'s Harwell Scientific Research Center have joined forces to create a new company called Harwell Computer to sell software tools, including a text retrieval system, developed by Harwell. . . . Digitalk Inc., Los Angeles, is developing a portable Smalltalk product for mainframes and VAXs that it expects to introduce later this year. . . . Cincom Systems, Cincinnati, has completed version 1.3 of its Supra relational database management system for IBM MVS systems and has one beta test installation. Work is nearing completion on a version for DOS/VSE environments.

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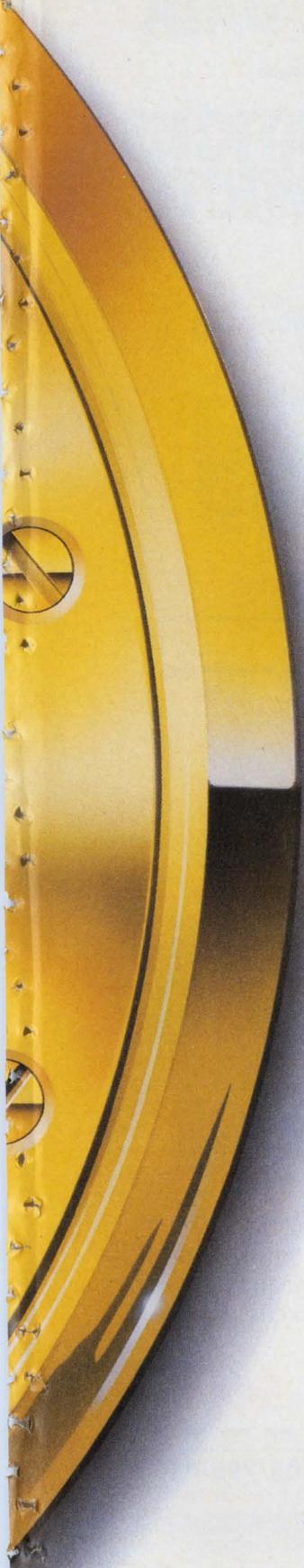
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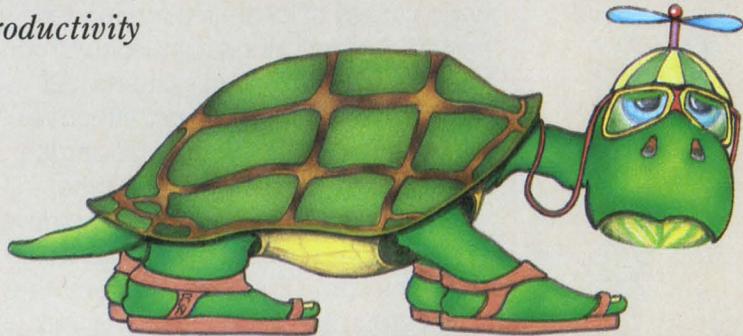
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CIRCLE 11 ON READER CARD

News in Perspective

TRADE

Clash of Chip, Systems Vendors Led to Sanctions Compromise

But the issue of fair market price restrictions on 1Mb DRAMs is still alive, and two key industry groups have yet to iron out their positions.

BY JEFF MOAD

Last year, when U.S. semiconductor manufacturers entered into the secret antidumping agreement, which recently led to \$300 million in trade sanctions against Japanese electronics producers, they suddenly found themselves fighting battles on two fronts, not just one. Of course, Japanese semiconductor makers, against whom the sanctions were eventually directed, protested their innocence and looked for ways to retaliate. The domestic chip makers expected that. But what they were less prepared for was the strong reaction that came from a potentially even more troublesome source: their customers.

Computer systems vendors and other big semiconductor users came down hard on the U.S. chip makers for seeking dumping charges and sanctions, which increased by up to eight times the market prices on key semiconductors, such as DRAM memories. They criticized the chip makers for failing to consider the impact of their secret antidumping agreement on systems vendors. They also blamed them for using the U.S. Department of Commerce's (DOC) Trade Act of 1974 in an attempt to force Japanese compliance.

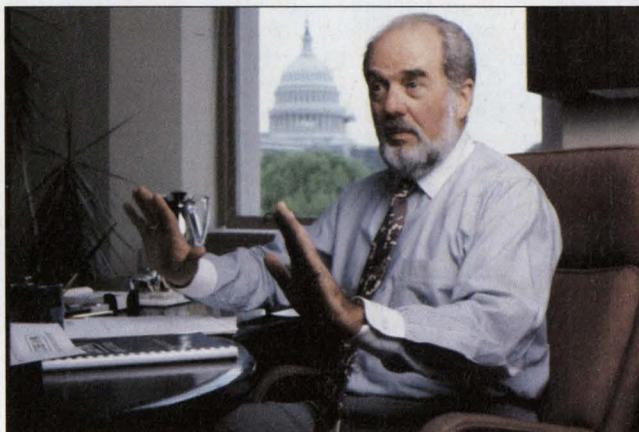
Commerce, said the systems vendors, knew nothing about the U.S. electronics industry and would probably do more harm than good. Some important systems vendors threatened to undermine key aspects of the agreement by

creating fair market value price floors for DRAMs, a move which could have created deep divisions in the U.S. electronics industry.

"The systems guys were worried," says Joseph Parkinson, chairman and chief executive of Micron Technology, a Boise, Idaho, semiconductor manufacturer. Micron got the antidumping ball rolling in 1985 by filing a complaint involving 64Kb DRAMs.

to settle on \$300 million in trade sanctions, which actually pleased many of the chip vendors and avoided harming systems vendors that remain dependent not only on Japanese DRAMs but also on Japanese oem products such as monitors, disk drives, and mainframes.

While it remains to be seen if the sanctions and the anticipated follow-up negotiations between Washington



HENRIQUES: The CBEMA president is happy the final sanctions list took out most items that directly affected the industry.

"DRAMs are like oxygen to these systems people. We're talking vital signs. They reacted like anybody else would when that was threatened."

Some Differences Resolved

But after that rocky start, U.S. chip makers and their systems vendor customers have managed, at least for the time being, to smooth over many of their differences. Enough so that in mid-April the Department of Commerce and its U.S. Trade Representative (USTR) were able

and Tokyo can end alleged unfair competition from Japanese chip makers, the process used to arrive at the sanctions seems to have increased understanding between chip and systems vendors and even to have improved understanding of the electronics industry in Washington.

One USTR representative, who requested anonymity, says that since announcing in mid-April that the sanctions would affect only some Japanese color televisions, power

tools, and desktop and laptop personal computers, "We've heard so little screaming that it's quite amazing and very comforting."

Not that all is suddenly peaches and cream between U.S. chip manufacturers and systems vendors. Several issues which have been raised during the three-year-old antidumping campaign have yet to be resolved and could still spark additional intra-industry battles. For example, many large U.S. systems vendors continue to push hard for the removal of next generation 1Mb DRAM components from the list of chips covered by fair market value (FMV) price restrictions. Semiconductor makers refuse to do so, saying such a move would hand the DRAM business over to the Japanese, once and for all.

But for now, at least, relations between chip makers and systems vendors are a lot better than they were a year ago in the wake of the chip industry's secret agreement with Japan. That agreement, which was engineered by chip makers such as Intel Corp. of Santa Clara and the small but aggressive Palo Alto-based Semiconductor Industry Association (SIA), called for the pricing of Japanese semiconductors in the U.S. and third-party countries to be tied to DOC-generated FMV levels and for a slow, steady opening of the Japanese chip market to U.S. producers.

Price Increase Was a Shock

When the agreement was revealed last July, U.S. computer vendors were suddenly shocked to learn that it would significantly increase prices on most Japanese semiconductors. According to Stephen Schmidt, vice president of operations at Tandem Computers Inc. in Cupertino, Calif., "We were aware that there had been a couple of dumping suits filed,

News in Perspective

but we were not well informed that the overall trade arrangement was being negotiated. The first indication Tandem had was when some of our suppliers said DRAM prices were going to go up by two, three, four, or in some cases eight times."

Tandem and other systems vendors quickly got in contact with the largest systems-oriented trade association, the 3,200-member American Electronics Association in Palo Alto, and the AEA formed a 37-member semiconductor task force with Schmidt as vice chairman. But the AEA and its task force already were too late to head off what they saw as some major problems with the secret agreement. One particular problem they cited was a faulty system for setting FMVs, which produced pricing guidelines that were outdated by three to six months. That meant the FMVs and prices on Japanese semiconductors in the U.S. were often higher than they should have been.

Some systems vendors blamed the SIA for not considering the agreement's impact on semiconductor users, as well as vendors. They also blamed DOC and USTR officials for not understanding the potential impact of the agreement on systems vendors and for not involving them in the negotiations. "It was a very intense, focused message that the government was hearing, and it was all on the survival of the semiconductor companies," says Schmidt.

Assumptions Prove Wrong

Of course, there are other explanations for why the AEA and its members seemed to be in the dark until after the antidumping agreement was in place and for why the government was hearing from only one part of the U.S. electronics industry. "We did keep the user community informed," insists SIA vice pres-



KRIST: He's interested in jointly developing with SIA a method of taking items off the FMV list.

ident Sheila Sandow. "But I think they assumed that nothing was going to happen. Then, users woke up one morning, and they realized that prices had gone up."

Immediately after the antidumping agreement, opinions among systems vendors within the AEA varied, from the hard line to the conciliatory. Sources on the AEA's semiconductor task force say some systems vendors had no sympathy for the chip makers and wanted to do everything possible to undermine the agreement. Specifically, some systems vendors wanted all DRAMs excluded from the agreement, arguing that U.S. chip vendors had already lost the memory market. Others, such as DEC, while wanting to protect their source of inexpensive Japanese components, also saw the value in helping to save the U.S. chip industry.

IBM seemed to come down somewhere in between, supporting the chip makers' needs for wider market access, but fearing that sanctions could lead to rounds of trade reprisals which would affect IBM's substantial overseas business.

But criticism of the se-

cret antidumping agreement by systems vendors was often public and loud, and many observers say that it was that criticism which contributed to the eventual collapse of the agreement. Japanese chip makers may have been encouraged to continue dumping in third-party countries when some U.S. systems vendors complained about the agreement and the higher prices they were forced to pay. "The Japanese may have made a miscalculation based on the noise from the systems manufacturers," says Carl Everett, marketing director of Intel's memory components division.

When DOC called for sanctions in November, charging that the Japanese had violated the antidumping agreement by continuing to sell below FMV levels in third-party countries, the U.S. semiconductor and systems industries were still far apart. Chip makers such as Intel were advocating that major Japanese systems products such as disk drives and large systems be covered by the 100% tariffs. And many systems companies, including Apple Computer Inc., were still advocating changes in the basic antidumping agreement to exclude most DRAMs.

In several rounds of meetings between DOC and semiconductor and systems officials, however, positions began to soften. DOC agreed to change its FMV methodology and to hire 15 staffers to monitor the FMVs. The AEA decided on limited support for sanctions and to negotiate with the SIA to get some semiconductors exempted from the FMVs.

In his statement to the USTR, AEA semiconductor task force vice chairman Edwin Lee, like representatives of other groups such as the Computer and Communications Industry Association and the Computer Business

Equipment Manufacturers Association, focused on minimizing the impact from sanctions on systems vendors.

"We're sorry we had to do this against such a valued trading partner as Japan," CBEMA president Vico Henriques says. "But we're happy the final sanctions list took out most items that directly affected the industry. Now maybe we can work out the disagreements over the semiconductor arrangement and get trading back to normal."

The SIA softened its stand on which Japanese products should be hit by sanctions. In his testimony before the USTR, SIA president Andrew Procassini dropped any mention of products that chip makers specifically wanted hit by sanctions and repeated the SIA's hope that "enforcement actions should be designed to avoid adverse effects on semiconductor users."

The result was sanctions on \$300 million worth of Japanese products, which fail to

IBM WAS SAID TO BE WORRIED ABOUT ITS OVERSEAS BUSINESS.

hit key Japanese chip vendors such as Hitachi Ltd. and Fujitsu Ltd., but which also avoid hurting most U.S. systems vendors. Most U.S. chip makers, while acknowledging that the sanctions weren't nearly as tough as they could be, say they are satisfied. "Which products were put on the sanctions list and their value were not as important as the

EXHIBITIONS

NCC Readies For Chicago, But Will the Show Survive?

The industry slump, alleged bad management, and vertical show competition are cited in NCC's decline, but will others make hay where AFIPS has not?

BY EDITH D. MYERS

On June 15, the 15th annual National Computer Conference begins a four-day run in Chicago's McCormick Place. Many will be watching that run closely. What was once the premier trade show in the information processing industry is now a mere shadow of its former self, prompting many to wonder if its epitaph will be written in the Windy City.

How did NCC decline? Last year in Las Vegas, attendance struggled to reach 42,000, a sharp drop from the 80,000 recorded in 1984. This year, the sponsor, the American Federation of Information Processing Societies (AFIPS), expects only 40,000 attendees. The number of confirmed exhibitors as of early May was only 150, shockingly fewer than the 400 at the same time last year.

But the statistics only tell part of a complex story. Much of NCC's difficulty may be owed to external factors

such as the industry's slump and consolidation among vendor companies. Another important factor is the emergence of smaller, vertically oriented exhibitions that vendors say provide them with more focus.

Carol Purcell, president of Purcell & Associates, a trade show consultancy in San Juan Capistrano, Calif., says she won't recommend NCC to her clients because of the show's orientation.

A spokesman for Control Data comments, "The type of prospects we're looking for for data storage products has been diminishing [at NCC] and we can't economically justify participation. We're going into more vertical industry shows and small, oem-related shows."

Adds a Unisys spokesman, "We're looking more to vertical shows for the markets in which we do business—shows like the American Bankers Association's National Operations and Automation and Uniform."

Other large vendors not attending NCC this year are Digital Equipment Corp., Data General, and Apple. Major companies that are attending include IBM, NCR, Bell & Howell, AT&T, Britton Lee, Northern Telecom, and Xerox.

Says a Xerox spokesperson, "We still believe the NCC is good for showing our products. Based on past experience—and that includes last year—we come away with good prospects, good leads."

Lack of Defense Cited

Interviews with past and present attendees reveal, among other things, dissatisfaction with AFIPS management of the NCC. And some of the criticism is of AFIPS' lack of recognition of the growing competitive threat of both vertical and horizontal shows such as Comdex and Info. Says one past exhibitor, "It was so bad last year that the people who run it should have seen the need for substantial changes but they didn't."

Others complain about specifics, such as the allegation that AFIPS did not enforce the cutoff date for final booth payments due from exhibitors last year, leaving the show with many empty exhibit spaces.

Jack Moshman, president of Moshman Associates, Bethesda, Md., and AFIPS president, says he doesn't know of anybody dropping out of NCC because of bad AFIPS management. On the cutoff date complaints, he says, "I don't know about that. I do know that some firms that were fully paid up

fact that sanctions were put in place," says Intel's Everett.

Most systems vendors were pleased. "Generally speaking, the USTR kept its word," says a government relations manager at a major computer company.

The willingness of U.S. chip makers to accept the mostly symbolic sanctions list also represents "some progress" toward patching up relations between the chip and systems industries, according to Tandem's Schmidt.

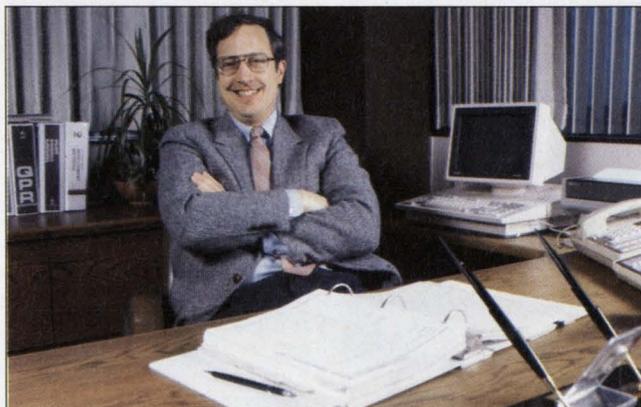
According to AEA vice president for international trade affairs William A. Krist, "We would still like to develop with the SIA a common position for taking items off the FMV list." Specifically, many AEA members want 1Mb DRAMS excluded from the antidumping agreement.

Trouble Is Brewing

Although Krist says the AEA so far has raised the 1Mb DRAM issue only as a subject for discussion, sources say the group's semiconductor task force voted unanimously to push for removal of 1Mb DRAMS from FMV coverage and feels very strongly about the issue. That could be a problem: the chip makers don't seem willing to budge. Micron's Parkinson calls the AEA's suggestion "outrageous" and, as one of the few U.S. 1Mb producers, threatens to file another dumping action if 1Mb FMVs are lifted.

"It's a very emotional issue among our members," says the SIA's Sandow. "They feel that, just because the Japanese have driven them out of the business through predatory pricing, they shouldn't be rewarded for it. We'll have meetings with the AEA on this, but obviously it's potentially a very divisive issue." ■

Washington, D.C., bureau manager Willie Schatz assisted in the reporting of this article.



BROWN: The general chairman says the NCC's program is still relevant to the end-user computer community.

did not show at the last minute.”

Despite the charges and complaints, the organizers are keeping the faith. Bob Brown of AT&T Information Systems, Naperville, Ill., the NCC '87 general chairman, believes this year's conference will attract attendees. “We feel it is appropriate and relevant,” he says. “Our committee is made up of people in the computer community and we're emphasizing the kinds of things that interest the end-user computer community in a changing industry, things like data retrieval, distributed computing, low-end operating systems, and artificial intelligence.”

A possible key to NCC's survival could come in the hiring by AFIPS of a professional show management company to run the conference. Moshman says such a move “is highly likely,” and he intimated it would happen “soon. We want them on board in a learning role during the Chicago meeting. There has to be the right chemistry. And the financial terms are important.”

Impetus Is Money

Money has been very important to AFIPS since the less than smashingly successful NCC last July. In the time since that event, the organization has trimmed its headquarters staff to about five, from 50, and put its new building in Reston, Va., up for sale.

In a cost-conscious mode, AFIPS in mid-March appointed a three-man financial committee as a kind of watchdog over expenditures. Moshman says the committee is “reviewing a lot of things in these financially stressful times,” such as the size of staff, the possibility of selling AFIPS Press, and cutting down on travel.

The small vertical shows and the charges of bad management are not the only things NCC is up against. New competition in its own arena is looming. The Interface Group, which puts on Comdex and Interface, among other shows, is considering producing a large-systems end-user show. A show called Connect '88, billing itself as “The Technical Conference and Exposition for the MIS/dp Professional,” has been scheduled for March 8-10 in New York City's Jacob K. Javits Convention Center. The organizer is Cahners Exposition Groups, and the sponsors are the Gartner Group and DATAMATION (owned by the Cahners Publishing Co.).

Problems notwithstanding, Moshman thinks things will go well in Chicago this month. “We have an excellent program,” he states, “and, if we don't compare it to our track record of the past, it will look good.” That may be wishful thinking; in a few weeks the industry will know if the NCC has a future or if it's all in the past. ■



UNFILLED: McCormick Place, the site of this year's NCC, consists of three exhibit halls, but the show is not expected to fill them.

MAINFRAMES

Comparex Chooses Hitachi Over Fujitsu

The Siemens-BASF venture's strategies give users new options, including going to IBM.

BY PAUL TATE

“Big Red” is here, proclaimed a massive pan-European corporate image campaign heralding the arrival of a new force in Europe's IBM plug-compatible mainframe market this spring.

“Big Red” is, in fact, the self-appointed nickname for Comparex Information Systems GmbH., established in January in Mannheim, West Germany. Comparex was born of the merged plug-compatible mainframe interests of two of West Germany's largest dp suppliers—Siemens and BASF.

It's gotten off to a great start. The company began life with 3,000 users, an installed base of 650 pcm processors and 30,000 pcm peripherals, and predicted revenues for its first year of \$460 million.

“We are the now the biggest pcm supplier in Europe,” contends Deiter Jonescheit, Comparex's new managing director.

But Big Red's picture isn't all rosy. Foremost among Comparex's problems is the legacy of a split user base (see Look Ahead, April 1, p. 9). Of the 650 pcm processors installed, 420 small- and medium-sized machines were built by Hitachi and sold by BASF, while 230 mostly large systems were Fujitsu-built machines supplied by Siemens. What's more, 23 former Siemens customers are running the disputed Fujitsu operating system, OS/FIV.

Despite these two sets of users, Comparex has decid-

ed that it will “actively market” only Hitachi machines, according to Jonescheit. Fujitsu systems will be available only secondhand or on demand. If necessary, new systems will be bought for users via Siemens' continuing agreement with Fujitsu. Jonescheit admits, though, that this is not Comparex's main policy and that “sooner or later those Fujitsu users will be moving to Hitachi machines.”

Comparex's Strategic Concerns

Jonescheit also points out that Comparex “would have run into big problems with Hitachi if we'd decided to sell both. It is not in their interests to have a company like that.”

For former BASF customers already using Hitachi processors, this product policy is no problem, because as far as they are concerned, the bigger and stronger their pcm supplier the better.

For former Siemens users with Fujitsu machines, however, the future holds changes. When they reach the limit of their current systems, the pressure will be on to move to a Hitachi machine. Since most are already running an IBM OS, this will likely be a simple matter of exchanging processors. In the minds of many of these customers, one pcm machine is as good as another—it's the price that's key.

But for the 23 Siemens customers running the Fujitsu OS across 45 machines, the transition may be more difficult.

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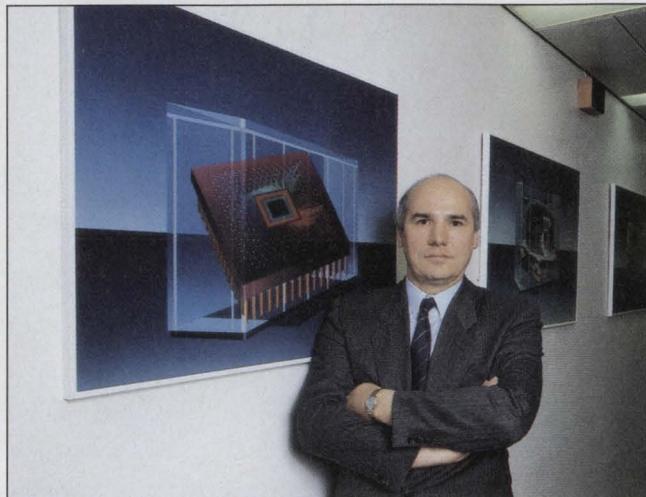
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CIRCLE 15 ON READER CARD

News in Perspective



JONESCHEIT: Comparex's chief says "there will be no orphans" among users as a result of the merger of Siemens' and BASF's computer units.

When the IBM-Fujitsu copyright dispute made headlines over a year ago, Siemens decided to avoid the possibility of being dragged into the fray. It did this by announcing in February 1986 that it would no longer sell the Fujitsu operating system—a system it had originally called BS3000 and later, MSP. While agreeing to continue maintenance and support of existing sites, it said it would not install any more copies.

By the time Comparex was taking shape later that year, Siemens MSP users had accepted the idea that they would have to change. They are now in the strange position of being Siemens customers, supported on a technical level by Comparex, with three main options. They can stick doggedly with MSP, which offers no future growth path; they can move to an IBM OS and ultimately to an IBM or Hitachi machine running the same system; or they can stick with Fujitsu hardware by moving to the non-IBM-compatible Siemens BS2000 operating system—this is offered by Siemens on its own mainframes and Fujitsu's.

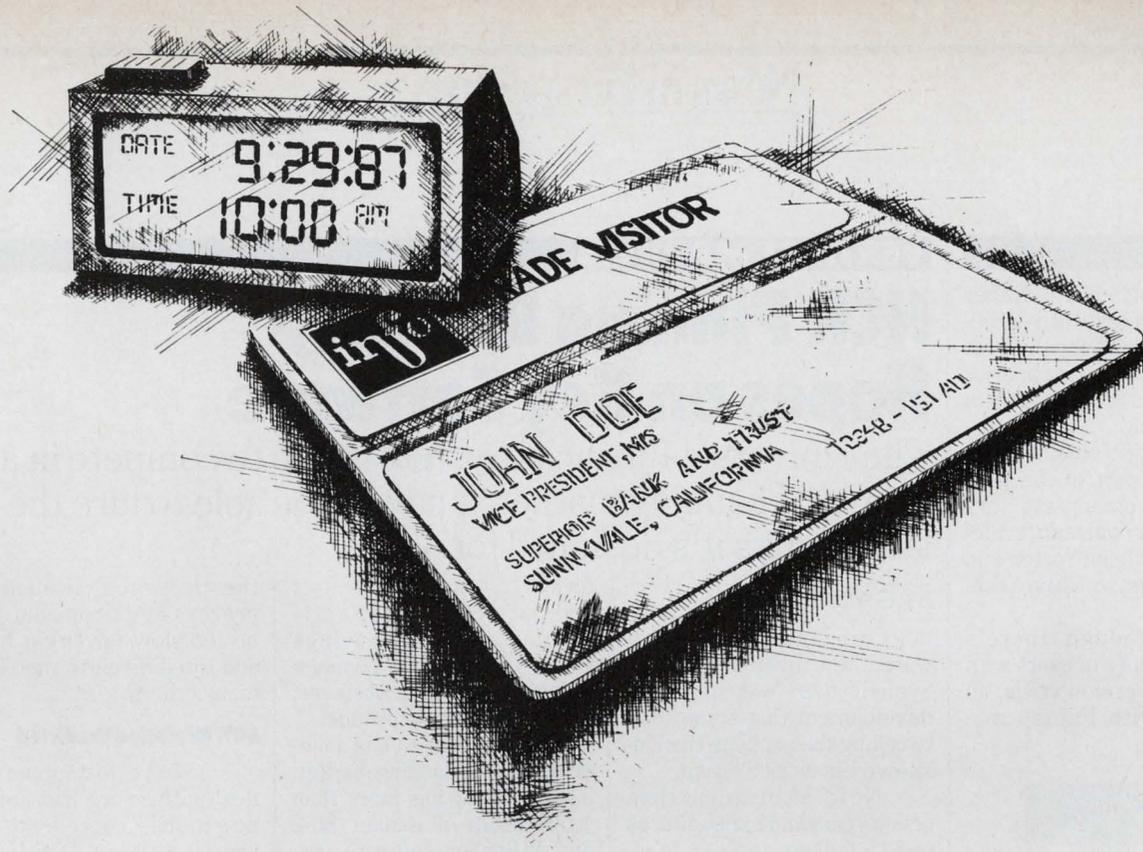
This may look like a tough decision, but the Fujitsu OS is 95% compatible

with IBM's MVS, making the transition relatively simple for most MSP users.

"There will be no problems in the change to an IBM OS," predicts Georg Goldrian, head of MIS at the Munich-based economics research institute IFO, and a typical user of an MSP-based Fujitsu machine. "We have an offer from Comparex to change to MVS and although it may cost us a little money and time, we won't have major problems, because we are not using the DBMS in MSP."

That DBMS software, called AIM, is the most incompatible part of the Fujitsu system, and it's the small number of MSP users that went for AIM who are really stuck. There are around five of these users in West Germany, Belgium, and Switzerland, and they may have to completely change their DBMSs.

Neither Siemens nor Comparex was prepared to reveal the names of these specific users. Nevertheless, says a Siemens executive who was involved in marketing these systems before the merger, a couple of users want to stay with Siemens, so they will move to the company's own BS2000 range, while the others will probably



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CIRCLE 13 ON READER CARD

VERTICAL MARKETS

NCR Pinning Banking Hopes on Key Software

The Universal Financial System is due to compete in a changing banking market, but will it be able to lure the large banks it's designed for?

BY GARY McWILLIAMS

NCR Corp.'s new banking software, the Universal Financial System (UFS), was so long in development that some took to calling the package the Unknown Financial System.

Now, after more than seven years and expenditures of \$15 million, the UFS is no longer a mystery. NCR is accepting orders, and it pledges to ship the bank accounting and transaction processing software this summer.

The software's appearance comes at a critical time for NCR. As a result of defections by some of its customers, acquisitions and mergers between banks, and NCR's own outmoded technology, the company has lost hundreds of the medium-sized banks that had been users of a pair of NCR's older financial packages, Central Information File (CIF) and Comprehensive Lending and Savings System (CLASS). Those programs were not designed to handle the larger-sized institutions now appearing throughout the banking industry as it consolidates.

It's within this changing business climate that UFS provides new hope for NCR in a worldwide market estimated by Quantum Science Corp., New York, at \$13 billion annually. NCR officials believe UFS will enable the company to attract the regional and large banks that have been at the forefront of acquisitions of smaller financial institutions.

"UFS is very important to NCR's survival in the banking area," says Peter McLetchie,

an NCR banking software user and vice president of data processing at Albany Savings Bank, Albany, N.Y. "To maintain or expand their business, they needed a new product."

It's not that NCR is a faded rose in the banking market. The company has more than 1,000 users of Banker 80-2 and V-Banker software, designed for banks with between \$20 million to \$250 million in assets. It also owns healthy slices of the markets for banking peripherals such as teller terminals and automatic teller machines.

But among fast-growing banks and for key bank applications such as customer accounts, deposits, and lending packages, it's been difficult for NCR to maintain its grasp, the company acknowledges. There are several reasons: CIF and CLASS are from 10 to 15 years old and are considered outmoded by users, and

the packages' transaction processing is considered to be too slow for larger banks and too difficult to modify by many others.

80% Migration Predicted

"We've lost opportunities because we had nothing new to sell," concedes NCR Financial Systems Division assistant vice president Peter J. Augusta. He claims UFS will redress that situation. His confidence in the package's appeal to current NCR software customers is such that he predicts that an impressive 80% of CIF and CLASS customers will migrate to the package within three years.

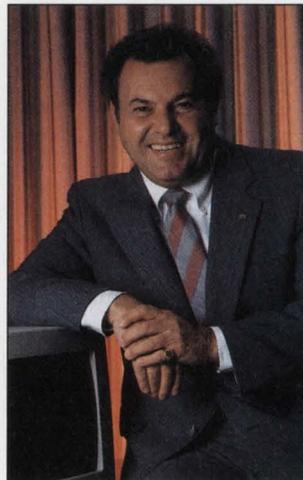
NCR isn't taking any chances that UFS won't lure those existing users. Software specialists dedicated to UFS are being assigned in each of NCR's 16 U.S. sales regions to put muscle behind early sales. In addition, current NCR banking software users can get discounts of from \$25,000 to \$125,000 toward UFS if they commit to buying the package within the next 12 months. The software is priced from \$275,000 to \$555,000, depending on the number of customer accounts.

While NCR wants to maintain its customer base of midsize banks, UFS was originally designed to enable the company to stalk the medium-to large-sized banks that offer NCR a more lucrative market segment. Notes Augusta, "Whoever controls the network usually controls the terminals, proof encoders, and item processing. Some banks this size get involved in office

**CHANGE MAY
BE MOST
DIFFICULT FOR
23 FORMER
SIEMENS
USERS.**

chines are now more open than before to competitive attack from IBM and other pcm vendors. With what Jonescheit refers to as IBM's "antipcm teams" hot on the trail of any disaffected pcm users in Europe, Comparex and its two parent companies will have to tread very lightly with these users in order to keep their business. Jonescheit is well aware of the potential problem and is eager to reassure Comparex's users that "there will be no orphans" as a result of the merger.

Jonescheit's optimism will soon be tested by the short-term reaction of his newly extended user base. If many users move to IBM or elsewhere over the next few months it could be embarrassing for the company—and Comparex may then wish it had not chosen the "Big Red" moniker. ■



MIOLLA: He says NCR's reputation will carry it into the upper end of the banking software market.

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automation, pcs, and departmental processing. If we get the entrée, we can bring these with us."

Financial Systems Division vice president Raymond L. Miolla, who's most responsible for getting the long-stalled development in gear, says the previous lack of a software presence at the upper end of the banking software market won't be a hindrance to UFS's prospects. "People recognize NCR's name," he says. "We've credibility in the financial marketplace. When our salesperson goes in, the customer probably recognizes his name and he certainly knows NCR."

Yet, while current users are given a prominent place in early sales strategies, head-to-head competition with IBM, which is estimated to own more than three quarters of large installed banking systems, is not being given strategic prominence. Says Augusta, "IBM isn't our major thrust. There are about 1,300 banks with assets of \$250 million and up. If we get to 15%—that's 200 banks—it's a major level." By NCR's tabulations, he says, the company currently has about an 8% share of those banks.

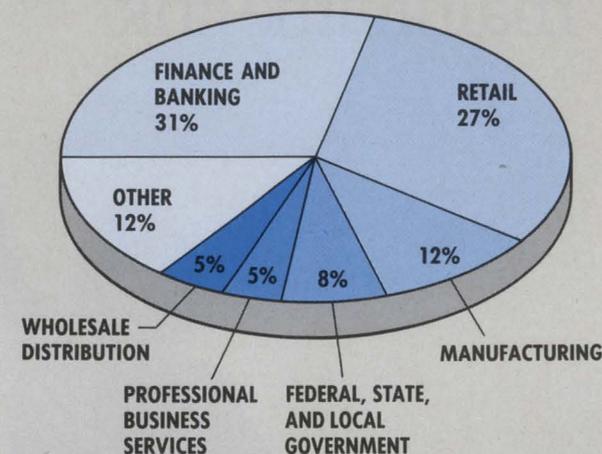
Banks Will Be Targets

If IBM customers are out, where will NCR find these new customers? Augusta says initial targets are banks that are now using service centers for processing; Honeywell-Bull users; and Unisys Corp. users affected by Kirchman Corp.'s 1986 decision to phase out its support for Unisys hardware. Altamonte Springs, Fla.-based Kirchman is an IBM banking software developer.

"We'll be able to expand once we get a base of reference accounts among our users," says Augusta. "In larger banks, we'll look to put retail banking on NCR and leave the wholesale business to IBM. We think we have a way of

How Banking Adds Up for NCR

PERCENTAGE OF MAJOR PRODUCT REVENUES BY MARKET



Source: NCR

NCR's revenues in 1986 totaled \$4.8 billion, with the parts consisting of \$2.6 billion from products, \$1.7 billion from service, \$414 million from business forms, and \$89 million from semiconductors and components.

front-ending IBM in a more powerful way than Tandem [Computers Inc., Cupertino, Calif.]."

Its goal of boosting market share to 15% may not seem particularly ambitious. Yet, while NCR has bucked the industry slump by riding a new product wave across its hardware lines, it has been decidedly unsuccessful in loosening IBM's grip on the large-systems segment of the banking market. Among large-systems installations, IBM holds an 80% share and Unisys ranks a distant second with about 8% of installed systems, according to a December 1986 report on banking automation by International Data Corp. (IDC), Framingham, Mass.

"I wouldn't be too sanguine about the success of their efforts," says Peter A. Cohen, senior research manager for financial industry services at IDC. "One, that market overall isn't growing as quickly and, two, IBM clearly dominates it. It doesn't seem like they'll do much more than

satisfy their own base."

NCR's share in that same large-systems segment was negligible, according to IDC. The company fares significantly better—at an 18% share—in the small-scale systems market consisting of two to 16 users. It is precisely those NCR users and smaller banks, however, that are most at risk in the wave of mergers and acquisitions.

NCR once tallied about 1,000 users of the CIF and CLASS accounting and transaction packages for commercial banks and savings and loans, respectively. The number today is about 550. It's because of those losses that users such as Albany Savings Bank's McLetchie see NCR fighting for its survival in the larger bank market.

NCR's Miolla says the new package is suited to either banks or savings and loans with \$250 million or more in assets. A fourth generation-like programming language enables applications to be tailored to accept new financial products that banks are devel-

oping. There is no limit to the number of accounts the software can support, NCR claims. The company also plans to optimize the package for use with its 9800 mainframe to accommodate the largest banks.

While NCR is confident, there are those who challenge its assumption that UFS can win the affections of the large banks. First, the range of banks it expects to lure with UFS is unusual in the market today. Second, IDC analyst Cohen says banking mergers are slowing the growth of new mainframe-class installations.

Bahram Yusefzadeh, president of the Product and Marketing Strategies Division at Kirchman, says NCR's targeting of banks with assets of \$250 million and up is an unusually broad strategy. "I would say if it meets the needs of a \$250 million bank and is easy to use, then it probably is not sophisticated enough for a \$2 billion bank," says Yusefzadeh.

IDC similarly expects most of the growth in the next several years to be in small-to medium-scale systems, not mainframe-class packages like UFS. According to Cohen, NCR likely will see continued success in the platform automation areas where it can complement, not replace, the existing mainframe systems. "They'll do much better in the new, front-end kinds of applications," Cohen says. "They've already got a presence, and that's a faster-growing part of the business."

Management's Preferences

Another potential limitation to NCR's penetration of large banks is the strong loyalty there to IBM. Former and current NCR users say the preference for IBM among large banks is ingrained in their upper management. "I guess some people in upper management have been around IBM more recently," is the way James H. Jarrell, a se-

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nior vp at Atlanta's Georgia Federal Bank, explains the choice. Jarrell says the shift to IBM at Georgia Federal was due, in part, to new management's favoring of IBM, and partly due to a lack of third-party software available on NCR equipment.

Champion Federal Savings and Loan Association, Bloomington, Ill., is another CLASS user that is switching to IBM after more than 11 years in the NCR fold. Says assistant vp programming manager Terry Vaughan, "I think in the

NCR NEEDS UFS TO BOTH EXPAND AND MAINTAIN BUSINESS.

large financial institutions, upper management gets the feeling, 'IBM is the way we should go.' The bank, now with about \$2 billion in assets, started with NCR as a nearly \$300 million institution.

Both Vaughan and Jarrell say the greater selection of software for IBM computers was an important factor in their decisions. "There is software on IBM that no one gives a thought to putting on NCR," says Vaughan. Adds Jarrell, "I guess you could say most [applications] are there but the choices are limited. I like having more than one option when I'm looking."

With such attitudes, it's no wonder the early focus is on NCR's current users. Those customers also are being targeted by such heavyweights as Digital Equipment Corp., Wang Labs, and Electronic Data Systems, Dallas. Competition also is coming from a company with a pack-

age that resembles a souped-up version of NCR's CIF commercial banking software. The company, Software Clearing House Inc., Cincinnati, boasts it has signed 28 CIF users to use the package, called Super-CIF.

Richard J. Fitzgerald, vice president of data processing at Cayuga Savings Bank, Auburn, N.Y., says Super-CIF represents a hedge for those NCR users whose systems are running out of power and are unwilling to migrate to the more costly UFS. Some early backers of Super-CIF, says Fitzgerald, "are betting UFS won't fill the bill."

But NCR users favor UFS, even if it's been a long time coming. Robert S. Neese, executive vp at Cape Cod Bank & Trust, Hyannis, Mass., a \$500 million CLASS user, plans to evaluate UFS and the NCR 9800 mainframe line for future needs. "I'm glad it's finally coming to fruition and will be there when I need it. Thank goodness each time I've been ready to do something, they've been there."

More cautious is Albany Savings Bank's McLetchie, who also sits on an NCR financial users advisory council. "If the product becomes everything it's said to be, NCR can go out and get new users with it. It looks to be a very flexible product; banking is changing so rapidly there is a need for software that can be changed to meet the needs of the bank.

Given IBM's strength in mainframe-class applications, it will be an uphill fight for UFS to go beyond the predictable contribution of helping NCR maintain its presence among the fast-growing medium-sized banks. More important, though, will be whether NCR can make the heretofore "unknown" UFS become not only a known, but accepted, quantity among the larger, multi-billion-dollar banks it was designed to attract. ■

DATABASE SYSTEMS

Sybase Challenges Database Machines

But companies like Britton Lee are acknowledging the threat and readying a response.

BY EDITH D. MYERS

Will relational database technology find a home on on-line transaction processing (OLTP)-oriented general purpose computers?

Sybase Inc. thinks so. The three-year-old Berkeley, Calif., company last month announced commercial availability of what it says is the first relational database management system (RDBMS) with an architecture specifically developed for OLTP applications.

In the relational world, OLTP traditionally has been the domain of database machines, particularly those of Britton Lee Inc., Los Gatos, Calif., and Teradata Corp., Los Angeles. The database machine companies "are going to find themselves in a world of hurt," says Michael Cohn, an analyst with Input, Mountain View, Calif.

Advantages with a Caveat

Stewart Schuster, vp of marketing for Sybase, says his company's RDBMS, now available for Unix- and VMS-based machines from Sun Microsystems of Mountain View, but planned for IBM mainframes later this year, has all the performance advantages of a database machine. But there is a caveat, he says: "The market wants this performance on familiar hardware, commodity hardware. With database machines you dedicate a cpu to do one thing well, but the disadvantage is that nobody wants to buy them."

The only other an-

nounced RDBMS for OLTP is Tandem's NonStop SQL, a hardware-specific solution scheduled for availability next quarter.

Chuck Reiling, manager of database products for Cupertino, Calif.-based Tandem, notes that NonStop SQL's target market is Tandem's primary market, traditional production OLTP environments. He adds, however, that "we recognize that we will be strategically required to add heterogeneous database capability some time in the future."

David L. Britton, president of Britton Lee, acknowledges that the performance promised by Sybase could hurt database machine companies for a few years, but not in the long term. He believes the software RDBMS vendors, "are seeding the market, selling jelly beans while we're selling systems." He feels Sybase will help increase awareness of what relational is, and "then they'll come to us. The software vendors get to open the door because they have a lower-cost offering." Sybase prices range from \$20,000 to \$150,000 for superminis and from \$2,000 to \$10,000 for supermicro workstations. Database machine prices are typically in six figures.

As for the database machine being special purpose rather than general purpose, he begs to differ. "We can do general purpose data processing in our machine. We can talk to all people in a relational way."

Dick Voorhees, manager of marketing analysis for Teradata, says of Sybase, "Yeah,

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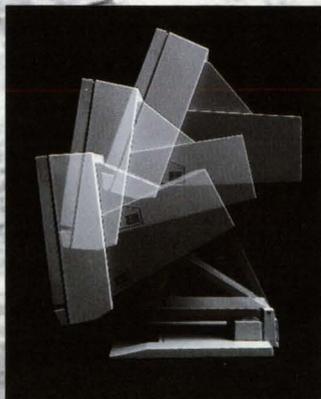
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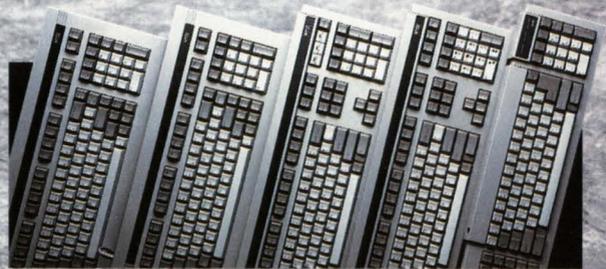


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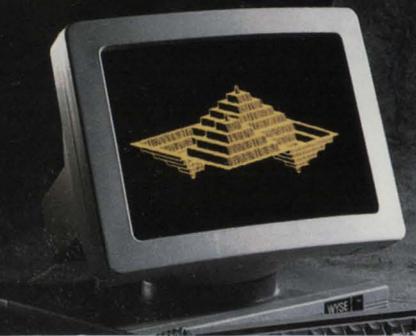
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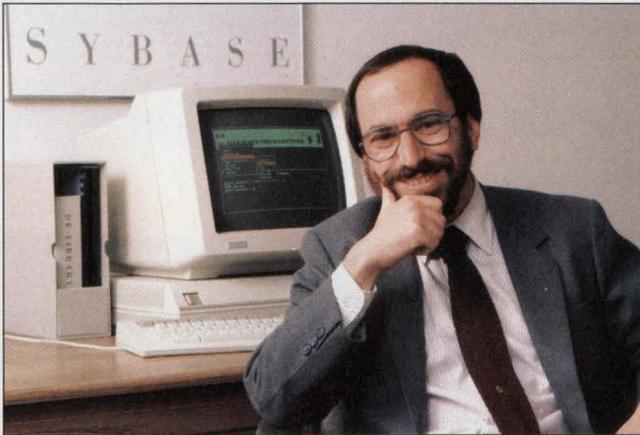
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News in Perspective



EPSTEIN: The Sybase executive vp headed up the Ingres project at the University of California, Berkeley.

it'll probably have some impact [on the database machine market], particularly in the local area network niche and that is Britton Lee's stronghold. From Teradata's perspective, we feel that our new communications processor and shared information architecture strategy has opened up access to DB1012 [Teradata's database machine] from that arena and that the Sybase product will represent only a piece of the equation, an equation Teradata can balance."

The User Experience at TRW

B.K. Richard, director of advanced technology at the Information Systems Group of TRW, has been using Sybase for six months in a test-bed environment to analyze large databases. "We're taking inventory of our databases, which are large and growing," he notes. "It [Sybase] has a good user interface and good performance. It is a likely candidate to be rolled over into a production environment based on performance and cost-effectiveness, but we're not ruling out other RDBMS products. We haven't done any head-to-head benchmarks yet, but we will."

TRW is an investor in Sybase and also has a joint devel-

opment agreement with the Berkeley company under which Sybase is developing an interface between its RDBMS and a technology called Fast Data Finder that TRW developed in its laboratory. Fast Data Finder "is a complex product," explains Richard. "It searches data for patterns at a rapid rate, filtering out irrelevant information."

He says TRW invested in Sybase because "we believed in the people. They helped shape the [RDBMS] technology." Sybase has drawn people from most of its major competitors, including Britton Lee, Relational Technology Inc. of Alameda, Calif., and Oracle Corp. of Belmont, Calif. Sybase's president, Mark Hoffman, had been vp of operations at Britton Lee. Robert Epstein, executive vp and principal architect of the Sybase product, was manager of the Ingres project at the University of California, Berkeley, and a chief architect at Britton Lee. Schuster was vp of new business development at Relational Technology. Five other developers came from Oracle.

All of these people came from neighboring competitors but, in April, Beryl Hartman formerly a vice president at Computer Corp. of

America, Cambridge, Mass., the purveyor of the Model 204 DBMS, joined Sybase. Hartman, now manager of product marketing for Sybase, says, "I looked around. I interviewed with the others and think I picked the best."

Deals With Pyramid, Stratus

Sybase sells its Sun and Digital Equipment Corp. products directly, but it has oem agreements with Pyramid Technology of Mountain View and Stratus Computer Inc. of Natick, Mass. On May 4, Pyramid introduced its series 9000 multiprocessor computer systems incorporating the Sybase RDBMS.

Steve Tolchin, as technical director of clinical systems division at Johns Hopkins Hospital, implemented a clinical information system with Sybase on Pyramid machines. He says he had converted systems using Relational Technology's Ingres to Sybase and "performance and availability is better." What he liked most was the fact that it could support more users and could be maintained "on the fly. You don't have to take the system down."

Tolchin has since left Johns Hopkins and has started his own, as yet unnamed, company to build health care systems products under Sybase on Pyramid machines. He says he had evaluated Britton Lee but "theirs is not a general purpose computer."

Stratus hasn't yet announced a Sybase product, but, says William Elliott, vice president of product marketing, "We have high hopes for our joint development of products. Sybase has taken the relational concept and created a new arena." Any joint products from Sybase and Stratus would go head to head with Tandem in the fault tolerant world.

Sybase's Schuster likes to describe competitive RDBMS software products as

being more suited for decision support. Sybase, he notes, also has decision support, as well OLTP, capabilities. Kim Brown, an analyst with Dataquest Inc., San Jose, agrees that this combination is important.

Brown is most impressed by Sybase's graphics-based and icon-oriented user interface. "That really puts decision support in the hands of the end user," he says. "In the IBM world, if you want to perform decision support you have to go through the information center or, even worse, through the MIS application staff. What if the decision you have to make involves cutting down the size of the information center or the MIS staff? SQL is not intuitive and not user friendly."

Sybase has put a language it calls Visual Query Language on top of SQL that, says Brown, "makes the system incredibly interactive."

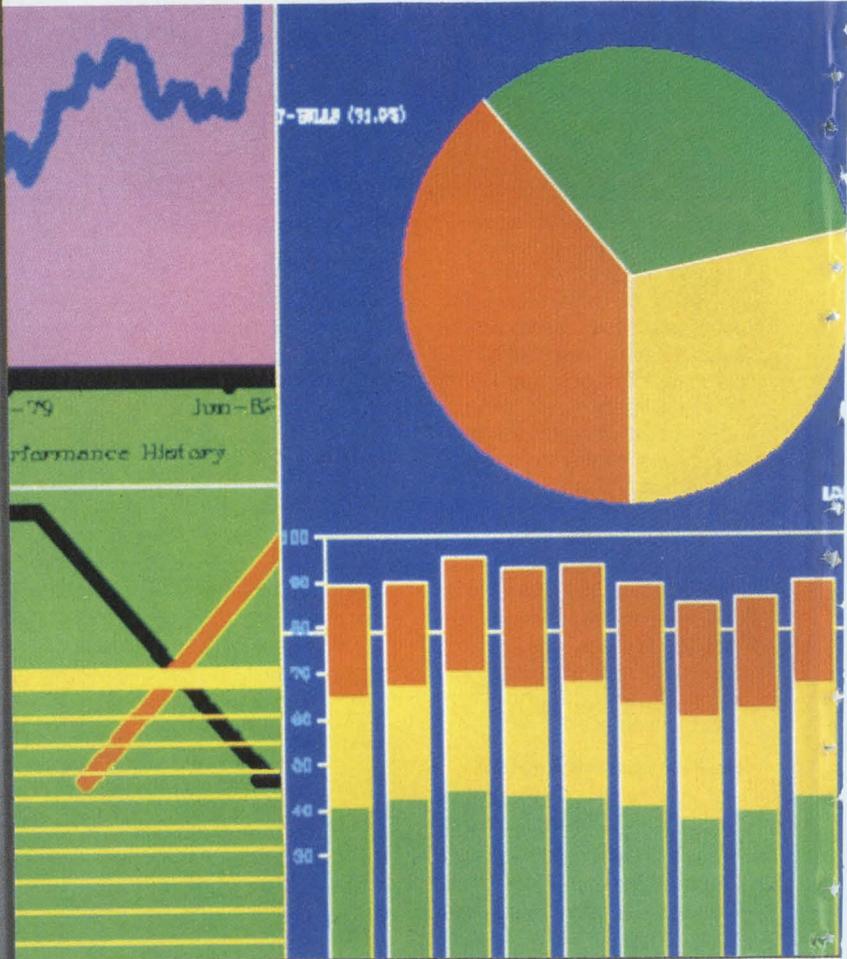
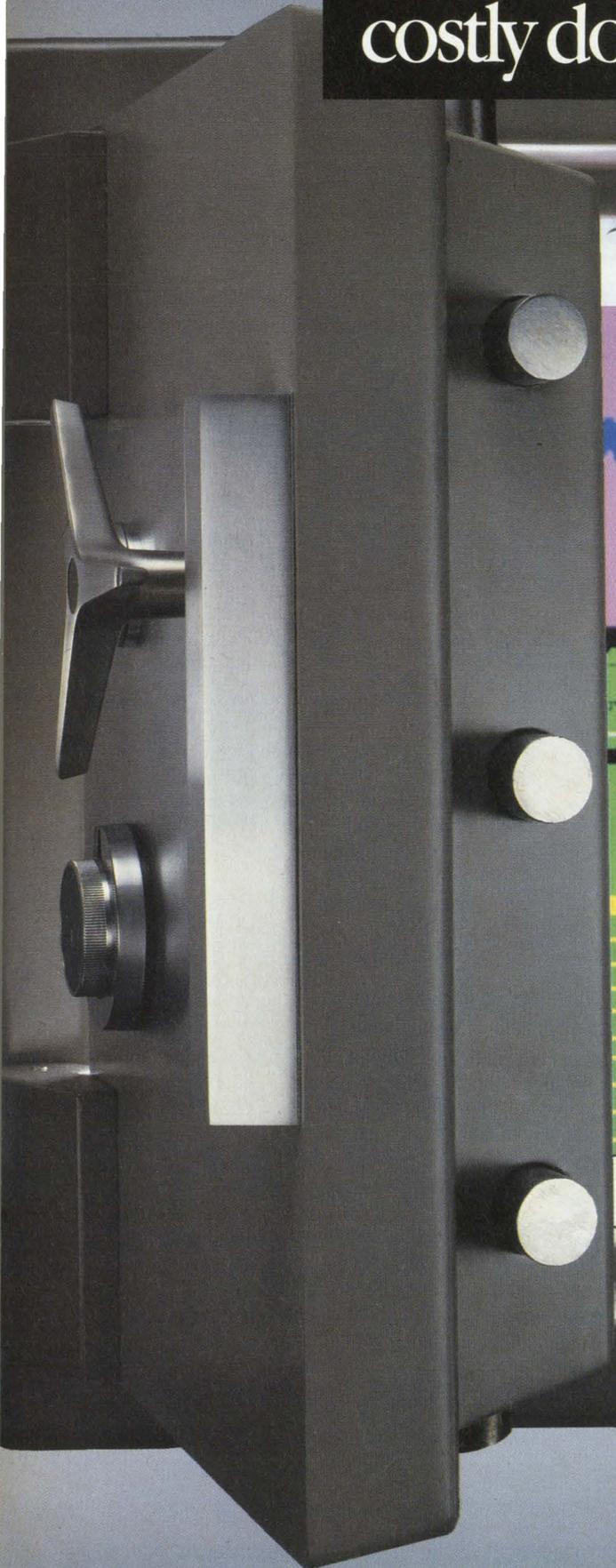
Tandem's Reiling says NonStop SQL is not intended

**TRW IS NOT
RULING OUT
OTHER DBMS
PRODUCTS.**

for the information center but is for the production OLTP environment. "If your target market is the information center, you put tools on top of SQL to get ease of use," he points out. "But if it is production OLTP, you add tools that make it easy to program for high performance. We focused on putting it [NonStop SQL] in place in a commercial programming environment."

Sybase architect Epstein says his product scores high against Codd's 12 rules, the

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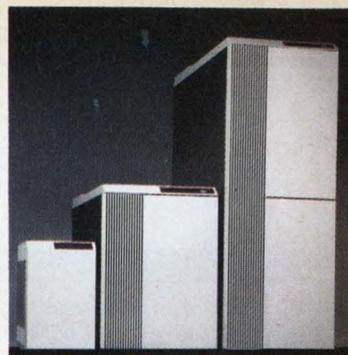
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WORKSTATIONS

Micro, Workstation Vendors Butt Heads in Product Overlap

Workstations are getting cheaper as their purveyors eye commercial markets, but a powerful threat has emerged from the growing sophistication of pcs.

BY SUSAN KERR

Workstations are starting to get personal.

It used to be obvious to the casual observer that technical workstations were a clear and separate entity from personal computers, no matter how high-powered and jazzed up those aforementioned micros were. But now, those clean and simple categories have been shattered.

In recent months, the best and the brightest of the micro makers have introduced products that go far beyond the typical restraints of a microcomputer. IBM, to take a major example, has moved away from the name Personal Computer in its latest generation of microcomputers: it now calls them Personal Systems. Not to be outdone, technical workstation vendors are responding with products falling well below the magical \$10,000 workstation price tag threshold, while vamping features usually associated with microcomputers.

Despite the perception that these two types of products are colliding in the marketplace, workstation and micro vendors insist this really isn't happening. They point out that since technical workstations have made inroads with from only 3% to 10% of the potential user base, there's plenty of room for everyone. Still, given the high level of marketing moxie on the part of competing companies, peaceful coexistence seems to be the last thing on their minds.

standard criteria for relational systems developed by E.F. Codd while he was at IBM. "We've developed a very powerful system that goes beyond Codd's 12 rules."

Schuster acknowledges that both Oracle and Relational Technology probably will come up with OLTP capability at some time, but he thinks Sybase has a two-year lead.

Input's Cohn isn't so sure. "A two-year lead may be wishful thinking. My [intelligence] tells me they [Oracle and Relational Technology] are also looking at the transaction side of the equation."

New Products Coming

Tom Siebel, vice president of product line marketing for Oracle, refers to OLTP capabilities when he says, "We have some next generation products we have been working on for 24 months that are going to create significant problems for those guys [Sybase]." On the user interface side, he says, "We introduced Easy SQL last January and it is now running in 70 operating environments. It's icon based and easy to use. We don't feel Sybase represents any challenge to us where user interfaces are concerned."

Mark Hanner, product marketing manager of application development for Relational Technology, says RDBMSs generally "are getting faster by leaps and bounds. By the end of this year, we will have a rearchitected Ingres that will represent a significant advancement, particularly in the support of high numbers of concurrent users."

Cohn says, "Sybase has the advantage now. They're getting attention." He sticks to his guns that the database machine vendors will be most hurt and that Oracle and Relational Technology will not fall too far behind. "It'll be a great shoot-out and the beneficiary will be the end user." ■



HOMER: Apple's business development manager says the era of "personal workstations" has dawned.

At stake are the dollars of an estimated three million engineering and scientific professionals in just the U.S. alone. According to International Data Corp., Framingham, Mass., this user base has bought only 104,000 workstations as of the end of 1986. The easy sales have been made. Now it's time to go further.

Workstation vendors also are discovering new categories of technical professionals such as financial and insurance industry analysts. So while fighting to maintain their engineering turf, they are looking to serve more mainstream business computing users.

Pricing is one method of reaching the hearts and minds of this untapped user base. "As prices come down, you'll see more markets open up" for workstations, says David Burdick, director of San Jose-based Dataquest Inc.'s industry newsletter, *CAD/CAM*. "They are the power busi-

ness users who need multi-tasking capabilities and real-time performance."

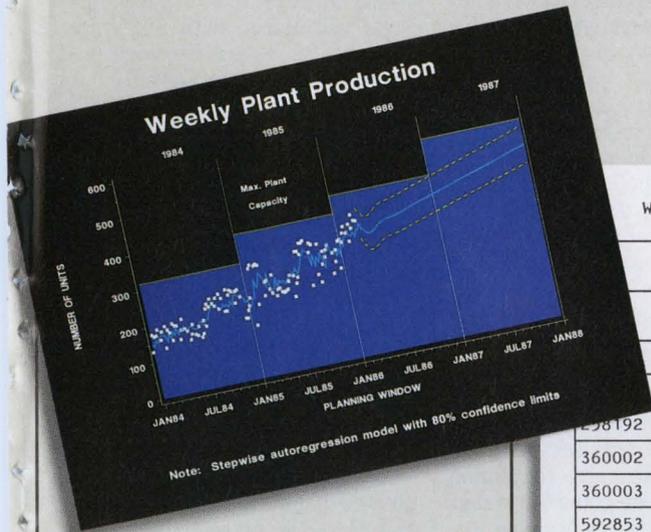
Wall Street firm Morgan Stanley & Co. recently proved that point by signing a \$1 million contract to buy Unix workstations from Sun Microsystems Inc., Mountain View, Calif. The securities house had looked at options ranging from pcs all the way up to superminis. The contract was an important win for Sun, which opened a sales office on Wall Street roughly six months ago.

Sun's Pricing Tactics

There's no doubt that base workstation prices are decreasing. Sun in April dropped the price of its barebones Sun 3/50M to \$4,995 from \$7,995. Hewlett-Packard's Fort Collins, Colo., Engineering Systems Group, which has steadily strengthened its position in the technical workstation arena during the last year or so, recently unveiled a new low-end sys-

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	89450	5000	FRI, FEB 20, 87
	20110	1000	MON, MAR 30, 87
	8585	0	TUE, FEB 10, 87
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50	6	3	8	5.5	66
60	6	4	9	6.5	83
70	7	4	10	7.0	85

News in Perspective



TYPALDOS: Sun would have cut prices regardless of the recent moves by IBM and Apple.

tem for \$7,800. And Apollo Computer Inc., Chelmsford, Mass., which typically is seen as more focused on the higher end of the market than Sun, says it will announce new low-end systems this summer.

As these folks move downward, there are plenty of others moving upward. IBM's new group of PS/2 units includes three 32-bit 80386-based systems; Apple's new Macintosh II features a 32-bit 68020 and the company's first Unix option.

"A workstation was always defined as having Unix, a large display, a 32-bit processor, fast graphics, and costing more than \$10,000," says Mike Homer, Apple's business development manager. "Now we're looking at what you could call personal workstations."

Despite the big market opportunities, industry observers are hard-pressed for a consensus on which company holds the edge in the high-end pc/low-end workstation category. All the major vendors are criticized for some combination of incomplete product offerings and untested distribution strategies. Generally, they say, the high-end pcs can't be upscaled to high-power levels, a big drawback in compute-intensive technical applications, whereas the low-end workstations aren't user friendly.

That doesn't stop the rhetoric, though.

Apple "intends to take a significant position in the engineering market over the next few years," declares the company's business marketing manager, John Zeisler. Apple has the base of systems and the cash in the bank to do so, he adds. But what the company doesn't have today are applications. Currently, there are maybe 20 or so third-party packages that fall under the CAD/CAM/CAE heading. On the other hand, Sun boasts close to 1,000 specialized packages in its Catalyst third-party software program.

Apple is talking to the major pc CAD software vendors to develop Macintosh ports, says Homer. Yet the company feels its ace in the hole is the estimated 2,500 other applications already available for the Macintosh. "It's a lot easier to add dedicated CAD packages on top of a huge product base," claims Zeisler.

A Question of Presence

Still, Apple must overcome its low profile in the engineering workstation market. Although the Macintosh II was a step forward, Apple is still criticized for not offering the larger 19-inch screens that workstation vendors do, nor graphics with as high resolution.

"I think Macintoshes are great," says Norton Goldstein, a Boeing senior engineer. "They're friendly, but they're too small and don't have the variety of software we need." While his division uses Macintoshes, they are primarily for desktop publishing, and when the company recently decided to replace ATs whose power was insufficient for the analytical work required, Apple wasn't even in the final running. Instead, the company chose Apollo.

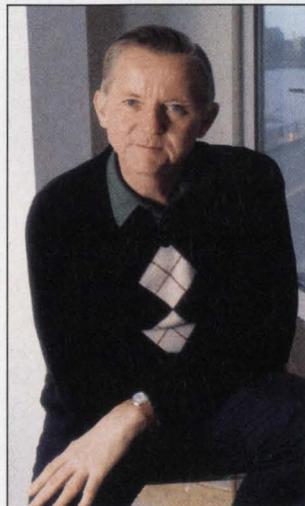
Even Apple's Homer agrees that larger screens are preferable. Although third-

party offerings are available, he promises that "if I talked to a lot of users who wanted a 19-inch color display, we'd do it in 1988."

Apple plans to market the more technical versions of the Macintosh primarily through the value-added reseller and dealer channels. The company is stepping up efforts to teach dealers how to handle more technically oriented sales, including adding personnel who help dealers call on customers.

A dealer-intensive program implies lower-cost systems and smaller product margins. Recently, the rumor mill has been going full steam regarding Sun's possible entrance into the dealer channel. Sun, however, wouldn't comment. But giving credence to those rumors is Sun's recent acquisition of Centram Systems West, a Berkeley, Calif., local area network software company known best in the Apple and IBM PC worlds. Sun made an unsolicited acquisition offer in January, says Centram president Nat Goldhaber.

"Our marketing and distribution are 100% non-overlapping," Goldhaber notes. Centram sells its Tops prod-



VANDERSLICE: The Apollo chairman insists his company will not get caught up in a price war.

uct lines through about 1,400 retail outlets. Eventually, Tops will merge with Sun's well-known NFS (Network File System) networking standard to offer "seamless integration of file systems from a 512KB Mac through a Cray," he predicts. With Tops, Centram stressed user friendliness and simplicity, features that will make their way up into NFS.

But even beyond networking products, Sun seems tempted to move hardware through dealers and could use Centram's expertise to do so, according to analysts. Dataquest's Burdick estimates that by 1990, upwards of 30% of the projected \$4.5 billion workstation market will be handled through retail outlets. To get a piece of that action, hardware vendors need a variety of application packages priced below \$1,000. By dropping prices, as in Sun's case, a hardware platform becomes more accessible to software developers.

A Changing Market Model

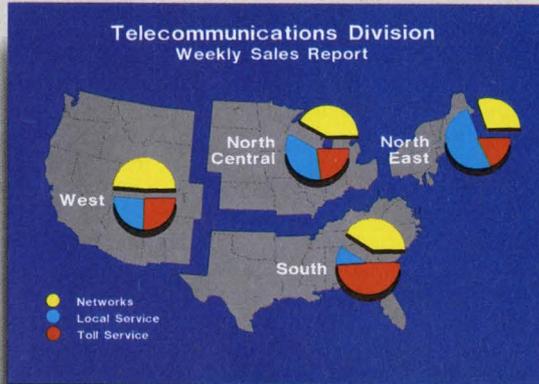
Sun, for its part, is remaining almost mum on its plans. Although Sun issued a public statement describing its low-end price cuts as a dramatic repositioning of its 3/50M workstation, Sun's product marketing manager, Cynthia Typaldos, downplays the move. The company's price cuts would have happened even without the IBM and Apple announcements, she says, as a new, more efficient factory recently came on-line. But "pcs are trying to get into the workstation market," she notes. Conversely, Sun is discovering that "workstations have more value than in the area they started. The whole model is changing."

Even Apollo, though, has dipped its toe in the dealer channel waters. Late last year it began an experimental pro-

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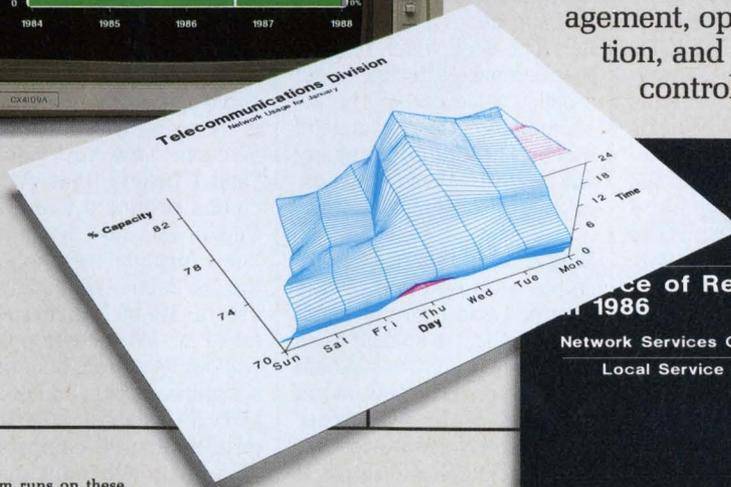
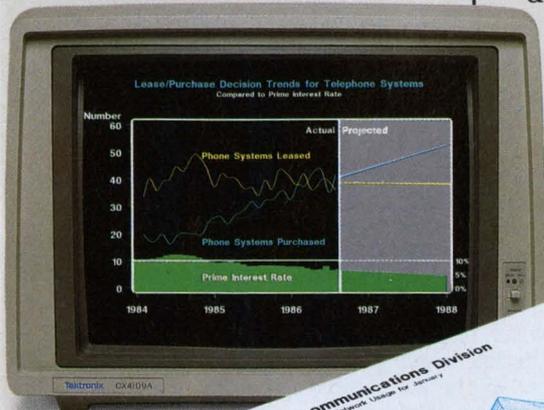
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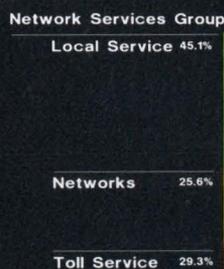


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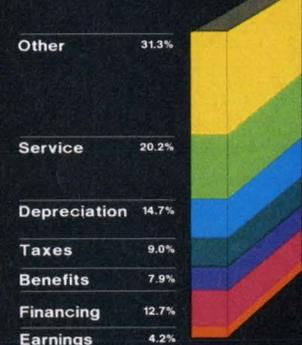


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Use of Revenue in 1986



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News in Perspective

BENCHMARKS

Ericsson to Get CGCT

The French government has decided to sell Compagnie Générale de Constructions Téléphoniques (CGCT) to a group led by LM Ericsson of Sweden. It beat out such competitors as AT&T and West Germany's Siemens. The Ericsson-led group, consisting of Matra S.A., Bouygues S.A., and the Indosuez banking group, will pay \$83 million for CGCT. CGCT previously had been an affiliate of ITT.

Lotus-IBM Deal

Lotus Development Corp. plans a version of its Lotus 1-2-3 personal computer spreadsheet package for IBM mainframes that will be sold exclusively by IBM. The mainframe version, which is not expected to be available until early 1988, will run under the VM and MVS operating systems.

Plexus, Arete to Merge

The issue of critical mass again raised its head as two small vendors of Unix-based multiuser commercial systems agreed to merge. Plexus Computers, a \$31 million company, and Arete Systems Corp., a \$33 million concern, will join under Plexus's banner. The deal, which the San Jose companies decline to put a dollar value on, will be accounted for as an exchange of stock. The united company will be run by Plexus chief executive Paul Klein.

Apple's Software Co.

Apple Computer Inc. has launched a software division, which it plans to spin off as an independent company within the next year. The new, as yet unnamed, entity will create and market software for Apple's Macintosh and Apple II pcs as well as re-label third-party packages.

Cullinane to Retire

John J. Cullinane, chairman and founder of Cullinet Soft-

ware Inc., the Westwood, Mass., database and applications software developer, plans to resign, effective Sept. 22, to pursue interests outside the software industry. Cullinane, a pioneer in the mainframe database and systems software market, resigns as his company pursues a new applications and mid-range systems software strategy, with packages for Digital Equipment Corp. VAX and IBM 9370 systems. David L. Chapman, the former Data General executive recruited more than a year ago as chief executive and vice chairman, will replace Cullinane as chairman of Cullinet.

Compaq Reacts to PS/2

Could IBM's Personal System/2 line of micros turn out to be the pc industry's version of New Coke? Compaq Computer Corp.'s ceo Rod Canion posed this question while announcing record quarterly earnings and profits for the four-year-old Houston-based maker of IBM PC compatibles. Compaq's revenues for the first quarter of 1987 increased to \$211 million, 47% over last year's first quarter, while profits jumped 142%, to \$20.2 million. "Products that fail to deliver compatibility with the industry standard stand a good chance of failing in the market," Canion said in a recent New York address, "and I believe that even includes products from IBM." Canion said that IBM's use of "new formula" technology in the PS/2 line—including the use of 3½-inch diskettes instead of 5¼-inch floppies—will offer few real benefits, at a significant cost in compatibility for users of the estimated 8 million PC compatibles. "Compaq will continue to support the classic [PC] standard," he said. Still, Canion would not rule out eventual production of a PS/2-compatible from Compaq, should a market materialize. ■

gram of providing finders' fees to dealers while all systems are actually shipped directly from Apollo to the customer. Apollo vice president John Newton describes the sales through this route as "incidental."

Yet, in no way, shape, or form, does Apollo want to be placed in the same category as pcs. Thomas Vanderslice, Apollo chairman, stresses that Apollo will not get caught up in a pricing war. He declares, "We don't feel pressure to bring prices down" to a pc level. With current products, "we concluded it would be foolish to match the price cuts. We're holding pricing."

While Apollo might not be willing to take what he terms a "foolhardy" cut in margins to drop prices, Vanderslice underscores a change in perception. Apollo has always targeted work groups, not individual users. But those groups can be "professionals—not just technical professionals," he says.

To reach a wider range of power users, both Sun and Apollo have pc coprocessor products, allowing users to run pc applications. "I thought the product wouldn't move," confesses Vanderslice, surprised at its success. Likewise, Sun is pleased with its product while recognizing room for more functionality.

Sun's coprocessor board is "not perfect," says Typaldos, adding that Sun is planning to address this area. Some analysts expect Sun this summer to announce a new Unix operating system version capable of executing MS/DOS commands. Sun wouldn't comment about this, either. Dual functionality is what it will take to expand the horizons of workstations, industry watchers say.

But even with all the technology in the world, says International Data Corp. analyst Vicki Brown, "the issue Sun still needs to resolve is

that it has no image in the general dp community. They've gotten the message to the technical community [and are hoping] that the technology in the technical realm ripples into the front office."

Two companies not grappling with name recognition are IBM and Digital Equipment Corp. DEC currently is pitching its VAXstation 2000, a workstation with a base price tag of \$10,500. While some analysts think DEC's success with the product has been limited, the company considers it to be a strategic product.

Although IBM has enjoyed success with its PC line in the technical arena, its technical workstation, the RT PC, has not. With a base price tag of \$7,738 (quantity 20), the RT PC will go head-to-head against the new PS/2s.

IBM huffily defends the RT PC. A spokesman says that while the "PS/2 does get into the engineering arena, that arena is more intended for the RT PC." Despite all the intentions in the world, users perceive that the PS/2 will be around a lot longer than the RT PC, according to Dataquest's Burdick, and that will limit its future.

So that leaves the PS/2. Although there are still holes in the new line—namely questions on the delivery dates and functionality of its new OS/2—it's a tough competitor. Rivals hope that since the real powerhouse versions of PS/2 with OS/2 won't be out on the market until 1988, now's the time to grab the attention of software developers and make inroads with customers.

With the falling prices and the increasing power and functionality of workstations, it's estimated the market could nearly triple in value to more than \$4 billion by 1990. Any market that offers that kind of growth rate will be too tempting for vendors to pass up. ■

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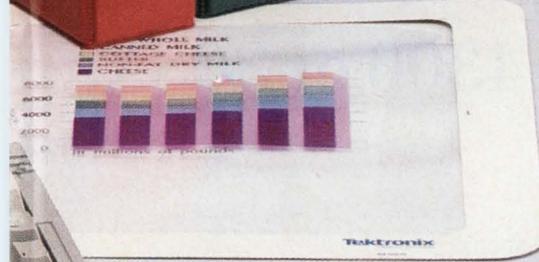
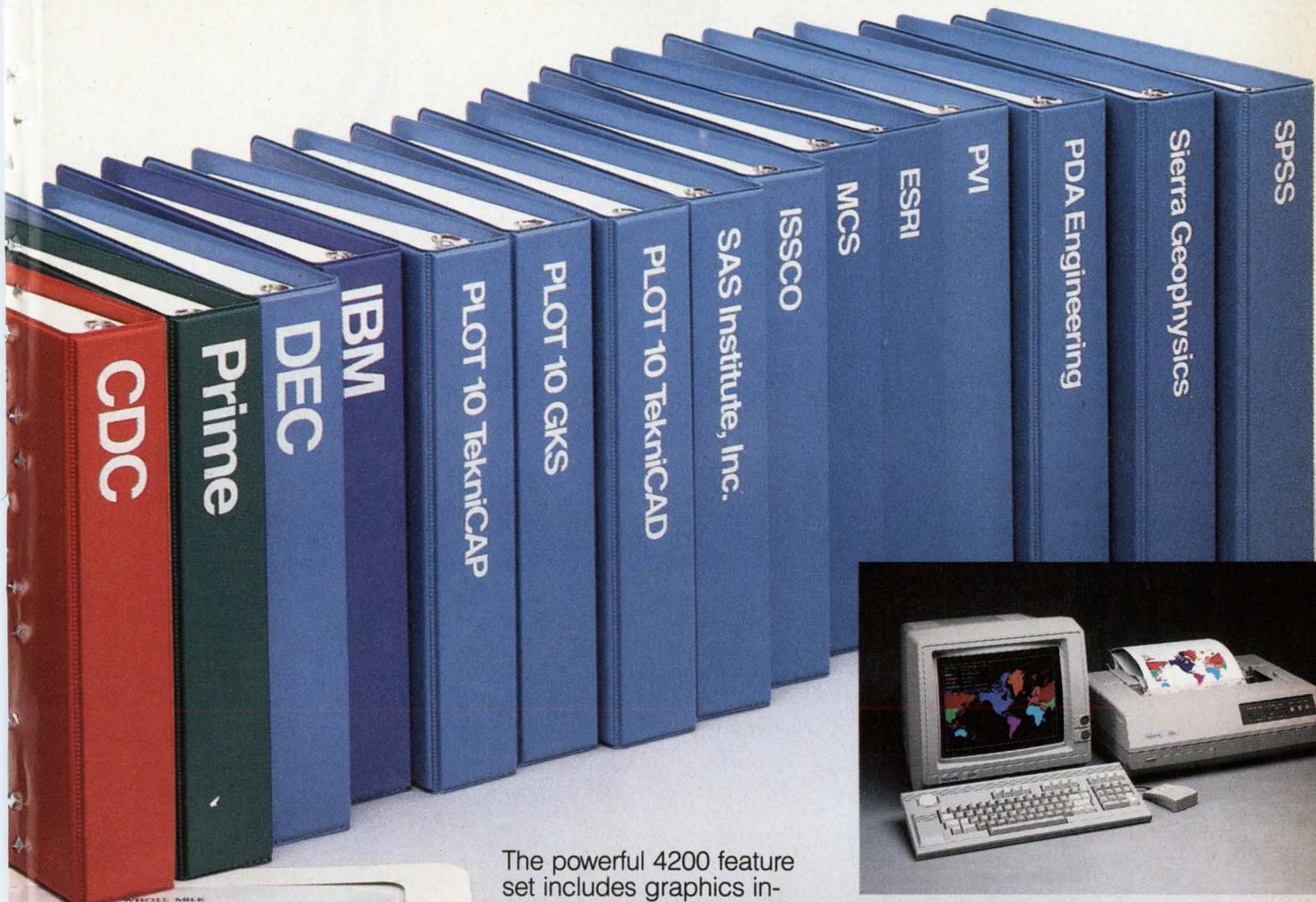
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Behind the News

COMPUTER LAW



Software Protection in the Throes of a Legal Morass

The lack of clear guidelines on copyrighting software will force the continuation of a crucial debate over how software should be protected.

BY ESTHER RODITTI SCHACHTER

The computer software industry is now embroiled in the most significant debate concerning copyright protection since the late 1970s, a time when software programs were not protected by the U.S. Copyright Act. While copyright protection has since been extended to include both the source codes and object codes of application programs, operating system programs, and microcode, the scope of that protection is currently at issue. Recent decisions, most notably the one in *Whelan Associates Inc. v. Jaslow Dental Laboratory Inc.*, have held that protection extends beyond a program's literal code to encompass its structure, sequence, and organization, or what since has been termed a program's "look and feel."

The question of whether, and then

to what extent, a program's look and feel should be subject to intellectual property protection has produced a host of lawsuits among program owners and developers. What's worse is that there has been a corresponding number of contradictory decisions on these lawsuits by the courts. But the filing of new cases—and, presumably, the continuation of contradictory decisions—is likely to continue in light of the recent refusal by the U.S. Supreme Court to rule and thus set standards in this area.

The extension of copyright protection to a program's look and feel has had important consequences for software vendors and users. Increasingly, program vendors are being asked to warrant against the assertion of any copyright infringement claims with respect to products they sell or license. In developing such products, vendors seek to ensure

that their programs are both noninfringing and competitive with similar products already on the market. Producing a "clean" product that can be warranted free of infringement claims is increasingly difficult in light of decisions broadening copyright protection. The extension of such protection also concerns users who, in licensing or purchasing a product, do not want to run the risk that the product's vendor will be enjoined from further development or sales, thus affecting the maintenance of products already sold or licensed.

The federal power to enact copyright and patent legislation is derived from Article 1, Sec. 8, of the Constitution. In interpreting this power, the courts have said that the primary purpose of copyright is not to reward the author, but to secure the public benefit derived from the labor of authors. As the Supreme Court explained in its 1954 decision in *Mazer v. Stein*, "The economic philosophy behind the clause empowering Congress to grant patents and copyrights is the conviction that encouragement of individual effort by personal gain is the best way to advance public welfare through the talents of authors and inventors in 'Science and Useful Arts.'"

In 1974, Congress created the National Commission on New Technologi-

Behind the News

cal Uses of Copyrighted Works (CONTU) to study the issue of whether software should be protected under the copyright law. In 1976, before CONTU reported its findings, Congress passed a new copyright law—which did not include computer programs—to replace the old law, which had been in effect since 1909. Section 102(b) of the Copyright Act of 1976 makes explicit that copyright protection extends only to the expression of an idea and not to the idea itself: “In no case does copyright protection for an original work of authorship extend to any idea, procedure, process, system, method of operation, concept, principle, or discovery, regardless of the form in which it is described, explained, illustrated, or embodied in such work.”

A Congressional Interpretation

Although the Copyright Act did not yet include computer programs, Congress interpreted Section 102(b) to apply copyright protection to software. According to the *House of Representatives Reporter*, which publishes the representatives' comments on legislation, “Copyright does not preclude others from using the ideas or information revealed by the author's work Some concern has been expressed lest copyright in computer programs should extend protection to the methodology of processes adopted by the programmer, rather than merely to the ‘writing’ expressing his ideas. Section 102(b) is intended, among other things, to make clear that the expression adopted by the programmer is the copyrightable element in a computer program, and that the actual processes or methods embodied in the program are not within the scope of the copyright law.”

CONTU's Final Report, which was delivered to the President on July 31, 1978, recommended that the new copyright law be amended to make it explicit that computer programs, to the extent that they embody an author's original creation, are proper subject matter for copyright; to apply to all computer uses of copyrighted programs; and to ensure that rightful possessors of copies of computer programs may use or adapt these copies for their use.

Congress responded to these suggestions in the 1980 Computer Software Copyright Act by adding a provision defining computer programs to Section 117 of the 1976 Copyright Act. That section does not, however, elaborate upon the

scope of software copyright protection.

While amendments to the Copyright Act extended its protection to computer programs, it was left to the courts to determine just what aspects of those programs were copyrightable. In a landmark decision in 1983, the Third Circuit court, in *Apple Computer Inc. v. Franklin Computer Corp.*, held operating system programs copyrightable.

This case addressed the issue of which elements in a program constitute expression—and are therefore copyrightable—and which elements constitute an idea or method—and are therefore not copyrightable. Franklin had argued that operating system programs were not copyrightable because Section 102(b) of the Copyright Act precluded copyright protection for a “process, system [or] method of operation.” The Third Circuit, however, disagreed, stat-



THE COURTS HAVE MADE A VARIETY OF DECISIONS ON SOFTWARE LAWSUITS.

ing, “Apple does not seek to copyright the method which instructs the computer to perform its operating functions but only the instructions themselves”

The *Apple* decision made clear that operating system instructions were protected even though the OS code implemented ideas, procedures, methods of operation, and systems that were unprotectable under Section 102(b). In what have generally been regarded as logical and appropriate extensions to the law, copyright protection had also been accorded to the source codes and object codes of application programs and, most recently, to microcode as a result of last year's *NEC Corp. v. Intel Corp.* lawsuit.

The Importance of Whelan

The current debate on the scope of copyright protection has its origins in the decisions in *Whelan v. Jaslow*. On Aug. 4, 1986, the Third Circuit upheld the dis-

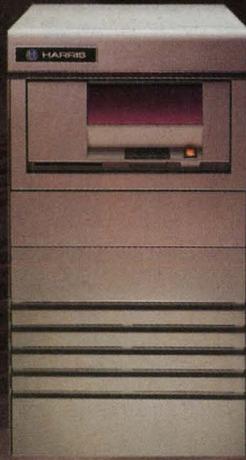
trict court opinion in Whelan's favor. The U.S. District Court for the Eastern District of Pennsylvania had held that the protectable expressions of an idea in a software program were the ways in which “the program operates, controls, and regulates the computer in receiving, assembling, calculating, retaining, correlating and producing useful information either on a screen, printout or by audio communication.” Because of the substantial similarity between the two programs, the district court found that Jaslow's program infringed Whelan's copyright. The Third Circuit concluded its opinion simply by holding that “copyright protection of computer programs may extend beyond the programs' literal code to their structure, sequence, and organization.”

Subsequently, on Oct. 8, 1986, in a suit filed by Broderbund Software Inc., against Unison World Inc., the Northern District of California found sufficient direct evidence of copying to establish that Unison had infringed the copyright of Broderbund's audiovisual displays of its program. *Broderbund* is significant in the current debate because of the court's reasoning. While the court found sufficient direct evidence of copying to prove infringement, in the interest of creating what the judge called a “comprehensive record,” he undertook a circumstantial analysis to determine whether Unison had access to Broderbund's program and whether the two programs were “substantially similar.”

With respect to the issue of substantial similarity, the court noted that it was bound by precedent to apply tests aimed at determining whether there existed a substantial similarity in underlying ideas, and whether there existed a substantial similarity in the expression of the underlying idea. Were he not bound by precedent, the judge noted, he would have preferred to have joined the *Whelan* opinion and adopt an “integrated substantial similarity test pursuant to which lay and expert testimony would be admissible.”

The court then held that there was no question but that the two programs shared the same underlying idea, and that the purposes and uses of the two were essentially identical. In addition, the court found that an ordinary reasonable person would think the expression of the two programs substantially similar. Said the court, “The ordinary observer could hardly avoid being struck by the

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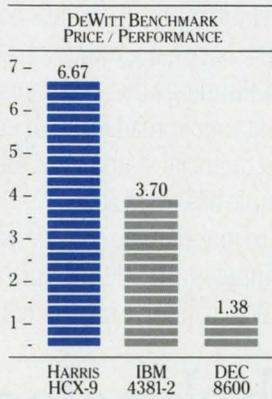
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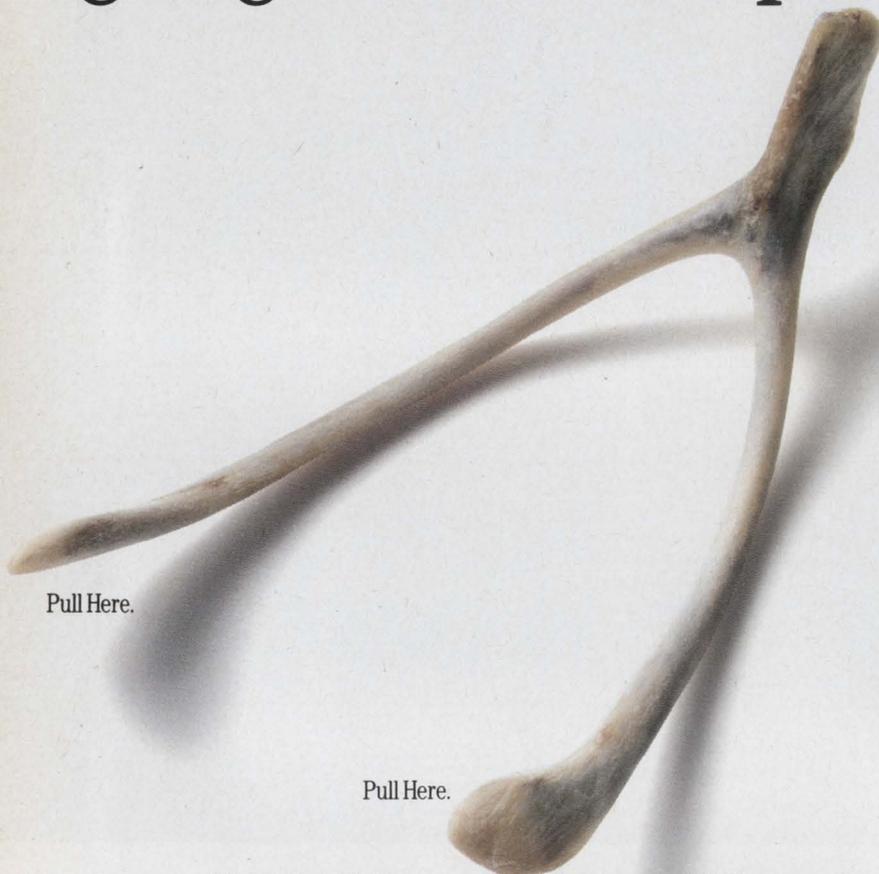
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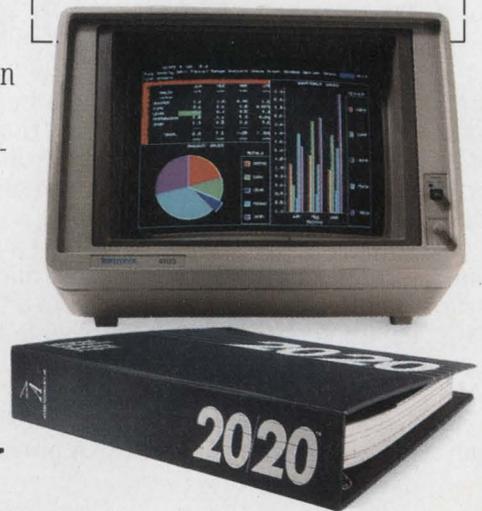
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CIRCLE 27 ON READER CARD

Behind the News

erie resemblance between the screens of the two programs Put simply, [one] looks like a copy of [the other], with a few embellishments scattered about in no particular order. The 'total concept and feel' of these programs . . . is virtually identical. The application of the [substantial similarity in underlying ideas] test in the present case compels the finding that their expression is substantially similar."

On Jan. 12, 1987, the Supreme Court declined to review the *Whelan* case. The denial left intact the Third Circuit's opinion that copyright protection of computer programs may extend beyond the programs' literal code to their structure, sequence, and organization. Many observers had viewed the Supreme Court review of the case as critical in resolving growing industry uncertainty engendered by *Whelan* and *Broderbund*.

That uncertainty has not been slow in rearing its head. In a case running counter to the current trend of decisions finding infringements of a program's structure, sequence, and organization, the Fifth Circuit recently affirmed a lower court decision that had denied a preliminary injunction to a company seeking copyright protection for the organizational structure of its cotton farming software system.

In its opinion in *Plains Cotton Cooperative Association v. Goodpasture Computer Service Inc.*, the Fifth Circuit cited favorably a 1978 Texas district court decision in *Synercom Technology Inc. v. University Computing Co.* (now Uccel Corp., Dallas), which held that "input formats" of a computer program—the organization and configuration of the information fed to the computer—were ideas, not expressions, and thus not protected by copyright. The Fifth Circuit then stated that the appellees had presented evidence that many of the similarities between the programs at issue were dictated by the "externalities" of the cotton market. "The record supports the inference that market factors play a significant role in determining the sequence and organization of cotton marketing software, and we decline to hold that those patterns cannot constitute 'ideas' in a computer context." In so doing, the Fifth Circuit "decline[d] to embrace" *Whelan's* reasoning.

Finally, in what some see as an attempt to expand "look and feel" copyright protection to the maximum, Lotus

Development Corp., Cambridge, Mass., filed suit against Mosaic Software Inc. and Paperback Software International on Jan. 12, 1987—the same day the Supreme Court declined to consider *Whelan*. The suits allege that Paperback's VP Planner program and Mosaic's TWIN program infringe Lotus's copyrights on its 1-2-3 spreadsheet program, and also charge the two companies with false advertising and unfair trade practices. On March 5, 1987, Lotus amended its complaints, adding as a defendant Stephenson Software Ltd. of Canada, which conceived and created the VP Planner.

Lotus alleges that the programs sold by Paperback and Mosaic recreate, with only trivial variations, the look and feel of the design of the user interface of Lotus 1-2-3, noting that the competing programs "clone" 1-2-3's command names and the sequence and range of choices it presents to users. In its amended complaints, Lotus says that on Jan. 20, 1987, the U.S. Copyright Office declined to register the applications for

THE UNCERTAINTY OVER PROTECTION COULD AFFECT THE VALUE OF COMPANIES.

certificates of registration of 1-2-3 as an audiovisual work under the title "1-2-3 Screens." Lotus claims, however, that the Copyright Office's position was based on the "ground that textual screen displays embodied within the computer program that generates them are an integral part of the computer program and are accordingly covered by the registration for the program, and that Lotus's application for separate registration on the screen displays was therefore unnecessary." Lotus further claims that "every element of original and copyrightable subject matter contained in Lotus 1-2-3 [including its textual screen displays, source and object code, documentation, text, etc.] . . . is . . . fully covered by its registered copyrights for Lotus 1-2-3."

In the most recent development involving Lotus, the company itself was sued in early April on the same grounds it has used in pursuing others. SAPC Inc., the successor company to Software Arts Products Corp., the developer of VisiCalc, filed a \$100 million suit against Lotus alleging that Lotus had illegally copied into its 1-2-3 program the look and feel of VisiCalc. Lotus has denied the allegations in the lawsuit, which asks damages from both Lotus and its founder Mitchell D. Kapor, who resigned from the company last July.

Screen Display Copyright Protection

Finally, on March 31, 1987, the U.S. District Court for the Northern District of Georgia in *Digital Communications Associates Inc. v. Software Distributing Corp., et ano.*, enjoined the sale of a software package, holding that it violated the copyright on "the placement, arrangement, and design" of words on a computer screen display of another product, known as Crosstalk. The maker of Crosstalk, Digital Communications Associates of Alpharetta, Ga., had obtained copyright registration on the underlying computer program and the screen display. While upholding the copyright on the appearance of the screen as expressing and conveying information, the court also held that copyright protection of a program does not extend to screen displays generated by the program.

What many see as the biggest conceptual problem with the Lotus suits and with *Whelan* and its progeny is their tendency to blur the lines between the three forms of intellectual property protection—trademarks, copyrights, and patents. Although each of these forms of protection is distinctive in function and scope, the recent decisions have caused them to merge. For example, while the degree of originality and novelty required for a patent is far more stringent than that required for the protection of expression by copyright, the *Lotus* suits represent an attempt to secure almost patent-like protection for the functional design of the 1-2-3 spreadsheet program.

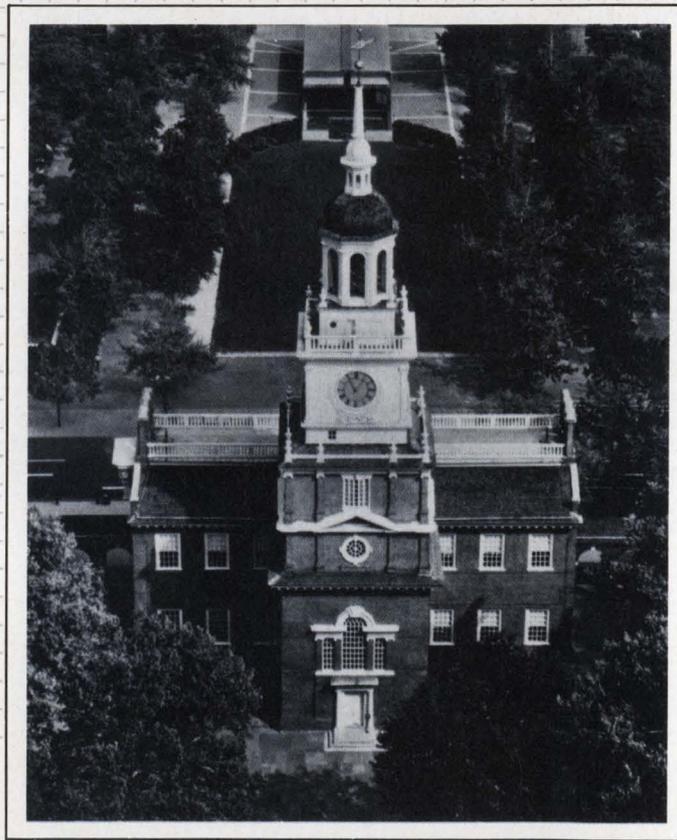
As another example, some companies are reportedly altering clean-room procedures to ensure that programmers are exposed only to materials regarding new product development that are neither similar in function nor in appearance to existing competitive products. Such procedures are alien to a copyright context, which is designed to protect dis-

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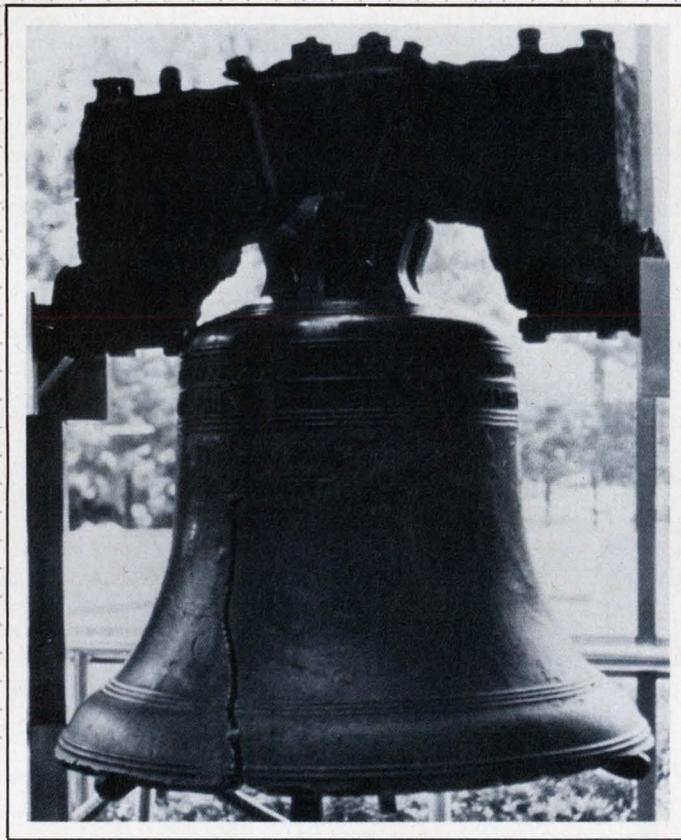
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seminated information. They are familiar in a trade secret context, where an employee's knowledge and use of the trade secrets of a competitor may justify a competitor's infringement claim.

As well as blurring intellectual property distinctions, these look and feel cases, coupled with the Lotus complaints, have raised important questions as to what elements in a program are copyrightable; what standards a court should apply in determining whether a defendant has copied copyrightable elements of a program; and what the look and feel standard truly means.

Geography a Major Legal Factor

At present, the scope of software copyright protection and the answers to these three questions depend, at least in part, upon geography. In the Third Circuit, a program's structure, sequence, and organization is protectable by virtue of the *Whelan* decision; in the Fifth Circuit, it is not protectable by virtue of the *Goodpasture* decision; in the remaining circuits, the outcome is unpredictable.

While the Supreme Court may accept a case for review when the circuit courts are divided on an issue of import, it is uncertain if and when the high court will consider the scope of software copyright protection. That court's refusal to hear the *Whelan* case has left the software industry to cope with great legal uncertainty.

As well as stirring public debate and comment regarding the vulnerability of software products to copyright infringement suits, uncertainty is affecting the policies and operations of micro and mainframe software vendors, equipment manufacturers, and users.

If a given product is, or appears to be, a clone of another software product, or is designed to be compatible with the systems software of a popular machine, the software vendor runs the risk of encountering infringement claims. The vendor's marketing strategies, pricing decisions, and plans for protecting its product are affected.

In the time since the *Whelan* decision, lawyers have been advised to cautiously draft warranties of indemnification and noninfringement provisions in licensing agreements to avoid, if possible, putting the vendor into the position of being an insurer of an unmeasurable risk. The ensuing negotiations can result in increased negotiating costs, thereby necessitating a software price increase

to cover the greater risk of copyright infringement actions.

In addition, such risks may have a negative impact on the value of software products in an acquisition or a merger. "The more the protection of intellectual property is obscured," says Bernard Goldstein, a partner in Broadview Associates, Fort Lee, N.J., "the more negative effect it may have on the process of determining values in mergers and acquisitions. I tried to see it the other way and could not. In the acquisition of a software company the balance sheet plays a limited role The major value in an acquisition is a projection of the earning stream—the future expectations of the earnings of software products as reflected by growth in revenues and the con-



**LOTUS
HAS BEEN
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tinuing annuity from the maintenance stream flow. Obscurity would thus have a negative effect on value. I can extend this comment to the public market. Multiples are a trajectory of future growth and earnings. The reasons for the negative effect on mergers and acquisitions would also affect multiples."

Mainframe software vendors, however, have not been as adversely affected by industry uncertainty as their micro software counterparts. Says John P. Imlay Jr., chairman and ceo of Atlanta-based Management Science America Inc. (MSA), and a member of DATAMATION's advisory board, "We have not felt it because of our protective capability through contracts and trade secrets [law]. Our systems are very sophisticated, with millions of lines of code, and require a great deal of service and education. Protection has not been a problem because of our contracts. I was in the micro business and the lack of protection

was one of the three reasons I got out."

With respect to new product development, some people believe increased software protection will benefit the industry and encourage R&D. "People are running around and saying that audiovisual [user interface] protection will stifle innovation," says Irving S. Rappaport, associate general counsel of Apple. "I've been in the business since '62 and there is absolutely no evidence of that at all. The Constitution recognizes that an individual can make a contribution and that we will reward that individual and thereby encourage competition. Without protection the little person has no means of protection from big companies—U.S. and foreign."

Others argue that R&D financing will be harder to obtain because of copyright uncertainties and increased litigation risks. It has also been argued that R&D costs will escalate if the structure, sequence, and organization of the new product, including user interface and hardware compatibility, must be substantially dissimilar to and not look like an existing competitive product.

Whether new product development is enhanced or hurt, it is probable that competition from smaller domestic vendors will be reduced. On the other hand, competition by foreign vendors may increase. In this context, foreign vendors could include U.S. vendors that develop and publish a software product through a foreign subsidiary, joint venture, or licensing arrangement in a country in which software copyright is assured but less uncertain and extensive than coverage in the U.S.

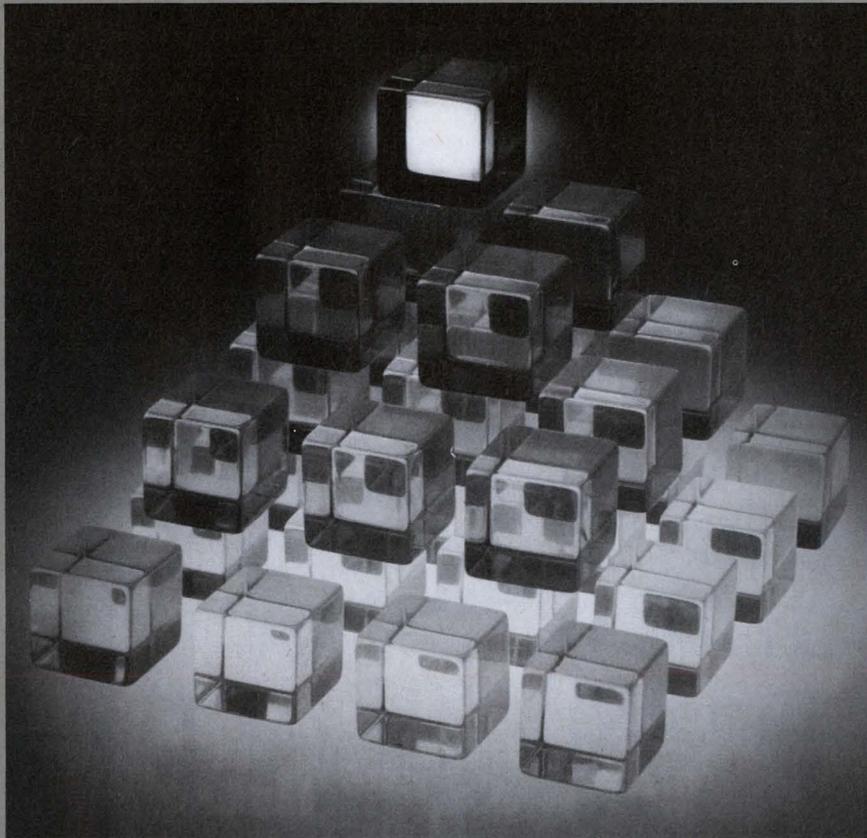
The Effects on Software Sales

While equipment manufacturers would appear to be unaffected, in the long run industry uncertainty as to software copyright protection has an impact. This is due in large measure to the long-range plans of the equipment companies to derive more revenues from software than hardware. "Money must be made from intellectual property and a fortune is being invested in software," says Nick Pappas, who is responsible for software licensing and pricing policies for Digital Equipment Corp.

Users, too, may be placed at risk by industry turmoil over software protection. Their use of a licensed product may, for example, be enjoined if that product is found to be infringing. Also, if the financial resources of a software vendor are

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drained in litigation, that vendor will find it difficult to maintain and enhance its product. On March 3, 1986, the Supreme Court declined to hear *Lubrizol Enterprises Inc. v. Richmond Metal Finishers Inc.*, thereby leaving intact a decision allowing a bankrupt licensor to reject as an

executory contract the parties' licensing agreement and claim the licensed intellectual property (the software) as a debtor's asset.

Despite the possibility of risks for users created by the *Whelan* case, Alan Gross, the founder and past president of

the New York-based Microcomputer Managers Association, doesn't see too much immediate fallout. "I have not seen much concern by our [member] corporations about these cases," says Gross. "They don't feel threatened. [They] don't look with great merit on Lotus's suit. We want software that looks and feels alike to reduce training time required to convert users from one product to another. The large user's attitude is 'wait and see' on the Lotus suit. [Even] if Lotus wins, from a practical point of view there is no way they [the courts] will force the return of the software. [I] anticipate that courts would only stop sales of more infringing software, not take software from users.

"As for bankruptcy of a small vendor, it is always a risk. Any company, including Lotus or Microsoft, could go belly up. I don't see that as a problem. One thing the industry should be wary of is the large companies driving small innovative companies out of business with lawsuits, because this becomes monopolistic."

Some industry sources agree that large users can be myopic in their demands. "If users want a viable [computer] industry they must understand the economics of the industry," says Digital's Pappas. "For example, users are taking license terms more seriously. There has been a shift over the years. They are beginning to understand what the suppliers need for economic viability."

In the end, many people question whether litigation is the best forum for deciding technological policy issues having economic implications for the software industry and for the country as a whole. According to Pappas, "The real tragedy is that policy issues of great import to the industry are being left to judges to decide." This view is shared by Milton R. Wessel of Georgetown University Law Center, the former general counsel of ADAPSO. "There is clearly no industry position," he says. "The industry can set guidelines better than the courts. If industry refuses and it goes back to the courts, then industry should not complain." ■

Esther Roditti Schachter, Esq., is the partner in charge of the New York office of Schachter, Courter, Purcell & Kobert, specializing in computer law. She is also editor of the newsletter Computer Law & Tax Report.

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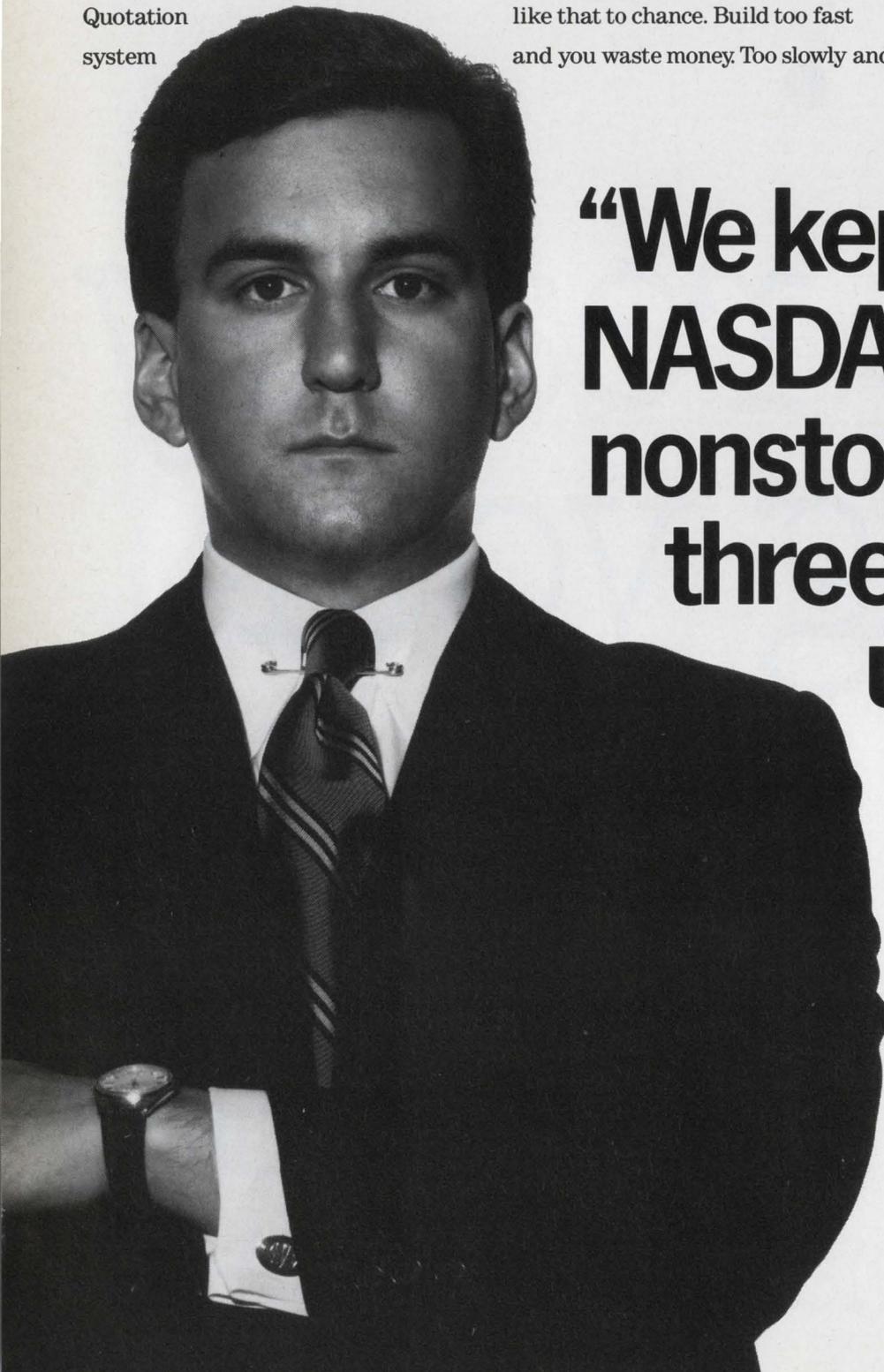
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I N T E R N A T I O



Inflexible Manufacturing

BY ROBERT POE

When Susumu Katoh, general manager of Mazda's Information & Systems Division in Hiroshima, wants to illustrate the comparative advantages of people and machines in automobile manufacturing, he starts by drawing a simple graph. The vertical axis represents productivity; the horizontal one, flexibility. Machines are positioned high and to the left, indicating that they are productive but inflexible. Human beings are positioned low and to the right, since they are flexible but not very productive.

This postulate is a common one in Japan and is often used to determine where, and where not, to automate in a Japanese factory. The trouble is that this premise can easily lead to blind spots in

management thinking, especially since factory automation systems are becoming more flexible and sophisticated.

Katoh admits that there is a need to make Mazda's production machines more flexible. "We want to move both machines and people to here," he states, pointing to the top right area on the graph, where productivity and flexibility are equally high.

But despite the fact that linking production equipment to computers would be instrumental in achieving this goal, this advantage appears almost totally unappreciated in many Japanese factories, and the ability of modern robots to change tools and programs in a few seconds is largely wasted. The automobile and electronics industries have come to represent advanced Japanese manufac-

The established view that Japanese manufacturing automation is the best in the world is only partly true. The actions required to install the correct combinations of components are so complex and varied that in most factories fewer than 10% of the tasks can be automated. Some tasks that a single human worker could accomplish in one operation might require several machines. Many operations are so complex or require human judgment of such subtle quality that machines with appropriately sensitive capabilities have not yet been developed. The trouble is that this premise can easily lead to blind spots in management thinking, especially since factory automation systems are becoming more flexible and sophisticated. Few Japanese sites take advantage of the new systems.

turing techniques; they have obvious differences, but both exhibit strikingly similar attitudes toward manufacturing automation.

Matsushita's vcr factory in Okayama, probably the most advanced and efficient of its type in the world, is a good example of the electronics side of the picture. Although the final assembly line is more than 80% automated, its efficiency stems from high-volume production of nearly identical products—200,000 units a month divided among only four basic vcr models. Almost all of the assembly machines are dedicated to specific tasks, and any changeover to produce a different model requires shutting the whole line down for an hour or more.

Even when programmable robots are used, they are often treated almost like single-purpose assembly machines. For example, the only flexibility needed by the few robots on the Matsushita vcr line is so that they can pick up parts in order from different locations on a pallet, when a fixed parts feeder cannot be used. On a Toshiba printer line in Ome, all of the final assembly—except for one operation—is done by off-the-shelf robots. Even though only one type of printer is being made, the robotic ability to perform different tasks with a mere change of program remains entirely unexploited.

When true flexibility is needed, human beings usually get the job. A good

**WHEN TRUE
FLEXIBILITY IS
NEEDED,
HUMAN
BEINGS GET
THE JOB.**

example is the final assembly of automobiles, where modern market requirements call for almost every car coming off the line to be different from those preceding and following it. The actions required to install the correct combination of components are so complex and varied that in most factories fewer than 10% of the tasks can be automated. Little direct computer control is involved. Japanese workers generally get instructions from printed sheets attached to the car

DOD Fact Finders in Japan

When a technology assessment team from the U.S. Department of Defense visited Japanese factories last January, it came away impressed with the hardheaded way Japanese manufacturers evaluated the need for automation. "Their use of automation is not just because it's the sexy way to go out and do things," states Jamieson Allen, director of R&D exchange for the Mutual Defense Assistance Office at the U.S. embassy in Tokyo.

The 12-man team, headed by Clinton W. Kelly III, director of the DOD's Strategic Computing Program, was the second such team formed under the Systems and Technology Forum, a group of U.S. and Japanese officials that meets twice a year to discuss defense-related R&D, acquisition, and procurement issues. The first team, which has already visited Japan three times, focused on electro-optical technologies.

Kelly's group, which visited electronics, aerospace, and heavy machinery manufacturing facilities, found the levels of automation quite varied, and the ability to work with mixed lots "pretty limited." In almost all cases, production volume was the key factor in automation. "They make very specific assessments of the need for automation, based largely on assembly runs," explains Allen.

The team observed that if it was possible for the Japanese to use assembly machinery that was able, with minor modifications, to "keep cranking out widget after widget"—even when a new model was introduced—then automation was generally used. On the other hand, when product runs were short, hand assembly was usually the choice over adaptable machines.

The DOD group also found that products were designed to exploit volume production. "We noted that the Japanese are very keen on the standardization of parts," says Allen. "They'll find a part, like a certain type of spring, that can be used in a lot of ways, and they'll milk the daylights out of it." Standardization permits large-scale procurements from suppliers, who can then in turn increase production levels and lower costs.

Because the team "did a great deal of homework," it didn't encounter any real surprises during its visit, according to Allen. A detailed report of the team's findings will be produced in the next few months, but it is already clear that the most valuable result was a deeper understanding of how, and to what extent, Japanese manufacturing is oriented toward high-volume production. The conclusion will likely reflect the fact that the Japanese are more concerned with ends than they are with means.

body or its carrier. In many cases, however, these sheets have been printed out on a computer hardcopy terminal at the beginning of the line.

Robots Relieve Humans

The few robots on car assembly lines are used for physically difficult tasks, such as the installation of spare tires, batteries, and windshields. Even so, they usually don't receive their cues from computers but through simpler methods such as limit switches or bar codes, and the types of actions they need to perform are quite limited.

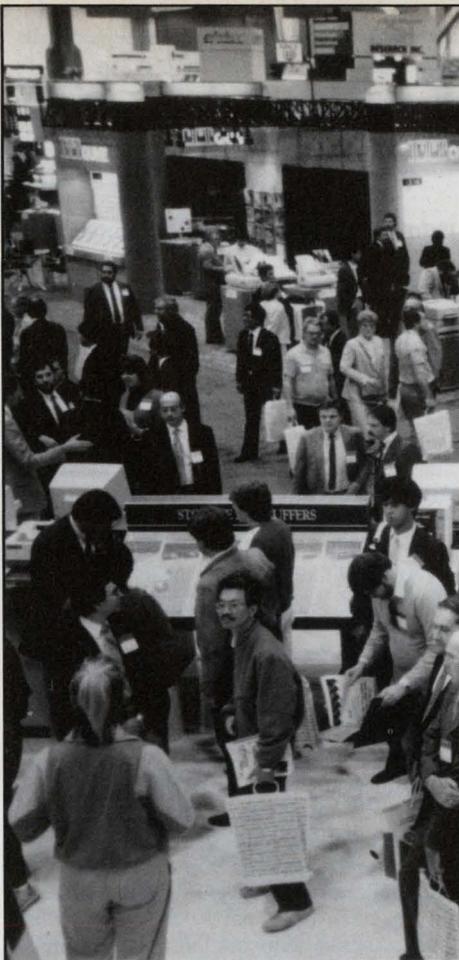
In Japan, true computer-controlled, flexible manufacturing has made more headway in the stages prior to final assembly. It is most common in automotive body welding, a visually spectacular operation that has come to symbolize advanced Japanese automation techniques. At Mazda's Hiroshima factory, 95% of the spot welds on a body are made automatically within a minute or so. The de-

tailed programs reside in the welding robot, and the controlling computer sends instructions about which program to use. Flexibility is still limited, however; each welding line can handle only the two- and four-door versions of a single body type.

As with assembly-line robots, one of the main reasons for automating welding was the physical discomfort the operation caused human workers. For the same reason, the paint shop is the second most robotized area in automobile manufacturing, according to Japan Industrial Robot Association (JIRA) statistics.

Kindness to workers is not the only reason for using machines for arduous tasks, be it in automobiles or electronics. "When workers have to work in severe conditions, they make mistakes," says Teruhiko Shoji, general manager of Toshiba's Fukaya vcr factory.

There are many situations where special conditions proscribe the use of automation. For example, hard disk drive



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production is usually not automated—the drives must be assembled in clean rooms and it is too expensive to use robots outfitted with special accordion-like sleeves over their joints. “Clean-room robots cost twice as much as standard robots,” claims Tadashi Kurachi, manager of the engineering administration department of Toshiba’s Ome factory.

Computers Support Production Lines

Many operations—such as adjusting disk drive heads—are so complex or require such subtle human judgment that machines with such sensitive capabilities have not yet been developed. And some tasks that a single human worker could accomplish in one operation might take several machines.

Companies usually have clear criteria about when and where to automate: generally, a robot won’t be installed unless it can pay for itself in two years. Capacity for flexible on-line control remains a minor factor in most of these decisions.

While computers don’t play a major role in controlling the production line in Japan, they are quite important in supporting it. The most obvious use is in traditional business applications like order tracking and inventory. At Nissan, explains Atsushi Sasaki, systems engineer in the production control section, dealers upload new car orders from pcs through phone lines to the sales department’s Hitachi mainframe. Production and scheduling data are then sent to the appropriate factories and suppliers via Nissan’s group network.

In many cases, computer control ends at the factory’s loading dock, once the parts are logged in. It then becomes the responsibility of the forklift operator to make sure the assembly-line stations are adequately supplied with parts. In some cases, computer-controlled vehicles help with stocking. Where just-in-time delivery is not used, automated warehouses are common, with bar-coded bins full of parts, which are loaded

onto ceiling-high racks and summoned when needed.

Further along the road toward computer integrated manufacturing (CIM) is automated transfer of engineering data from R&D to manufacturing. Most Japanese manufacturers have not made much progress in this area. The Toshiba vcr factory in Fukaya, for example, although highly automated, sends basic design data to its internal and external suppliers by mag tape. Nissan uses microfilm to move complex design information and electronic links to move basic data; it is planning to employ optical disks in the near future.

Mazda may come closest to the integration of design and manufacturing functions with its Geometric Modeling and Numerical Control (GNC) system. Written in PL/1 and running on two IBM 3090s, it can handle basic layout and design, structural analysis, and detail design for three-dimensional body and interior parts, as well as the design, production, and machining of stamping dies for making those parts. Says Yoshimi Okada, senior information and systems R&D manager, “We plan to add material billing to the system in the future.” Developing programs or numerical control instructions for actual production machinery is not planned, however, since that can be done less expensively with conventional methods. For problems like the design of engine parts where a two-dimensional approach will do, Mazda uses Lockheed’s CADAM system.

Overseas manufacturing doesn’t present any problems in data communications, despite the complexity of the systems at home. Only information on scheduling, parts, and shipping travels by data link between Nissan’s main office and its plant in Smyrna, Tenn. Mazda, too, despite several overseas data links, including on-line access to the main Japan database by its U.S. operation, sends only basic business data back and forth (see “The Mazda Net”).

While automation is a key factor in the Japanese manufacturing industry’s success, its application is limited and much of its potential is still unrealized.

Judging from the present state of affairs, it will be a number of years before there will be Japanese networks that can link the outposts of flexibility found scattered throughout Japanese factories and design centers into anything approaching full-fledged CIM. Since flexibility is still regarded very much as a human attribute, it’s the Japanese workers who will have to do the adjusting until then. ■

The Mazda Net

Mazda’s communications system may not be a showpiece of state-of-the-art digital networking, but it gets the job done.

Domestically, the computer centers of its five major business offices in Hiroshima, Nagoya, Osaka, Sendai, and Tokyo are connected by high-speed analog leased lines capable of 48Kbps transmission. In August they will be upgraded to 1.5Mbps digital lines. Among other things, this will permit video teleconferencing, requiring 384Kbps of capacity, between Hiroshima and Osaka. The service is to be extended next year to Tokyo, Sendai, and the Hofu factory near Hiroshima. Although the present analog system carries only data, the digital lines will also support voice and facsimile communications in addition to video.

The company’s 111 domestic dealers, along with 12,000 salesmen, are tied into the network through more than 300 terminals using 30 leased lines and 80 public line setups. Dealers can access the main database in Hiroshima for information on parts and options, as well as for transmitting and receiving order and delivery data.

There are communications channels to both Europe and the U.S. Separate 14.4Kbps connections via analog undersea cables link Japan with Mazda Manufacturing USA Corp. in Michigan and Mazda North America in Los Angeles. These links also permit direct access to Japanese databases by U.S. dealers and by workers at a factory being built in Flat Rock, Mich. The two U.S. sites are also linked to provide redundancy. Yet another link uses Kokusai Denshin Denwa’s VENUS-P satellite packet switching network, at 9.6Kbps, which is accessed via Nippon Telegraph & Telephone Corp.’s DDX network in Japan and through ITT in the U.S.

Mazda’s European operation is connected to Japan by satellite, but currently only for voice and facsimile use. Tests are being made to begin transmission of order and delivery information in the near future, with an eye to setting up a European value-added network (VAN) to connect sales offices and dealers as in Japan. A similar VAN is being planned for the U.S.

The Hiroshima factory complex is the site of the only optical network, a seven-mile SNA-based LAN that connects production facilities, two main offices, and a technical design center. Three IBM 3090/200s and a 3084 are accessed by more than 1,000 terminals via a 9.6Kbps data-only channel; this will soon be increased to 64Kbps and support phones and facsimile as well.

When the upgrading is complete, this Mazda network will be among the most advanced of any of Japan’s international manufacturing companies.



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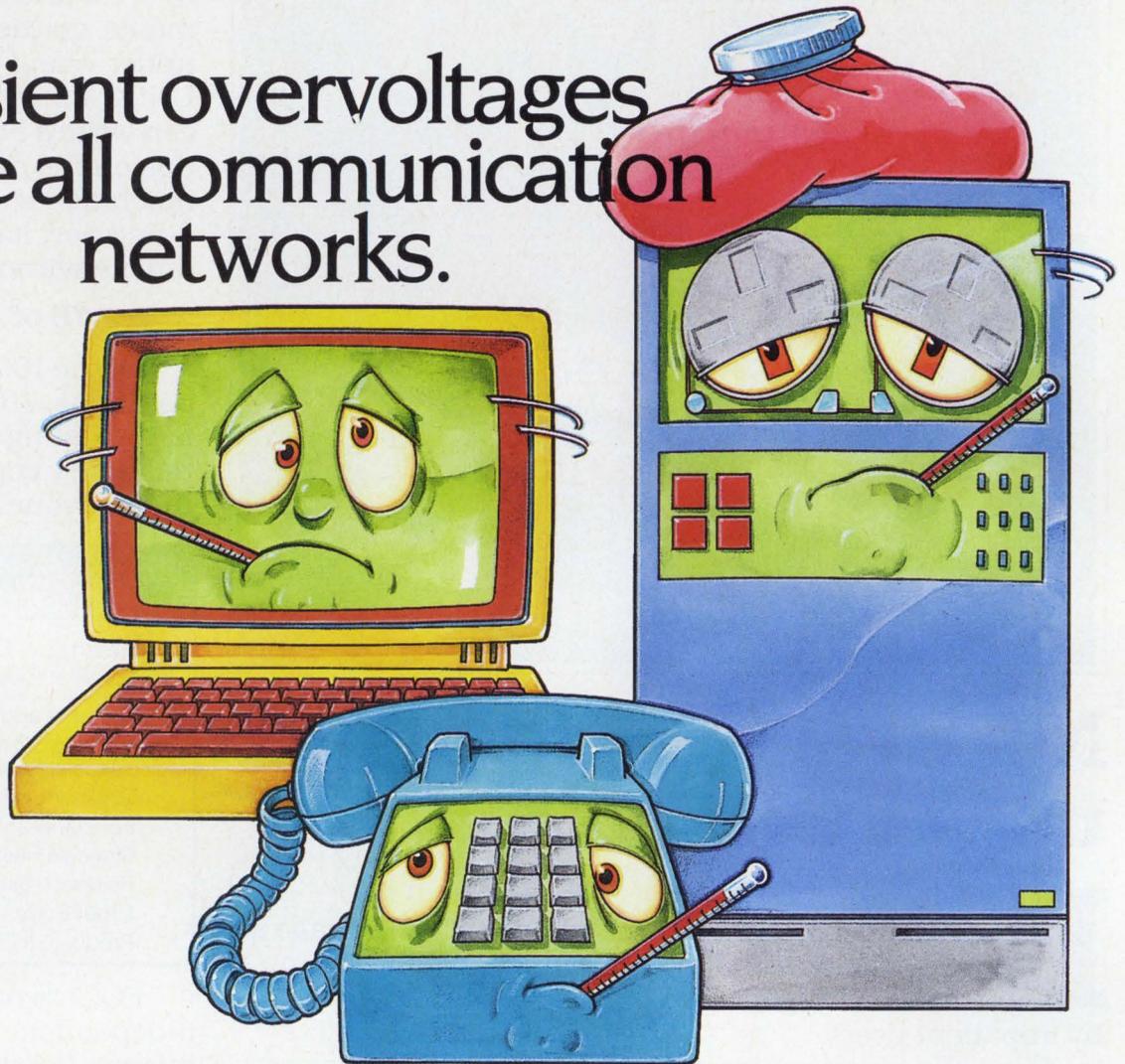
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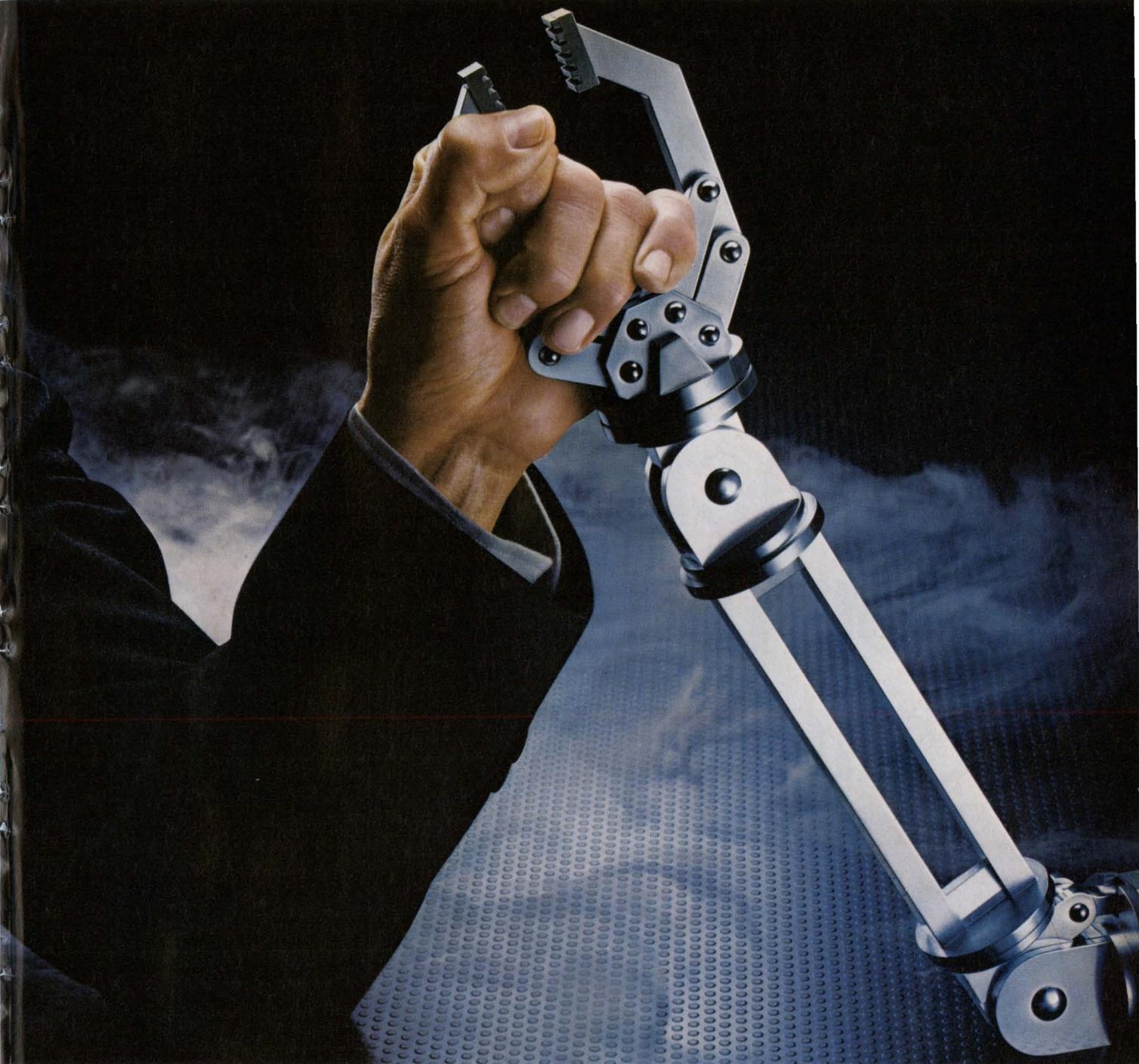
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A good info center shopping list should include eight major items. After devising the info center strategy and supporting tactics, pick the hardware and software tools. Next come info center staffing, training, consulting, and the feedback program to let the info center staff know how well it's doing in terms of user satisfaction and effectiveness to the organization.

How to Shop for Your Information Center



BY JOHN N. OGLESBY

The information center, a phenomenon that has come to epitomize the end-user computing cause in many organizations, could well become an institution in the shifting landscape of corporate America. The vast majority of Fortune 1000 corporations already have either an info center or a group that performs the same function. Yet despite the pervasiveness of information centers, there is no standard recipe for success. That's because the organizations served by info centers are all different and the environments in which the centers operate are constantly changing.

To remain vital and viable, an information center must have a dynamic set of tools, techniques, strategies, and tactics that support that ever changing environment. So any checklist of essentials cannot be merely a static list compiled at the info center's inception and discarded when the facility gets under way. Instead, that roster of requirements must become an ongoing part of the information center's success plan, modified over time as end-user needs shift.

Some items or aspects considered too expensive or difficult to have been included early on can be added later as more funds become available or as needs grow more acute. Many things that remain on the list may never be purchased or implemented, and others will simply be dropped. Its composition at any given point will depend upon the center's maturity as well as on the needs of the





Illustration by Andrea Bonaffi



How to Shop For Your Info Center

organization it serves. It is also very important that this list do more than simply catalog needed tools and services; it should also include the strategies and tactics that the info center will implement.

A good information center shopping list should be built around eight elements. The first is a strategic plan that answers the key questions "What did my organization hope to accomplish when it started the information center?" and "How can the information center best serve the organization?" The answer to the first question clearly establishes what the information center is expected to deliver. If those expectations are not met, the info center will be viewed as a failure and will risk being eliminated.

The same thing holds true for the second question. No matter what is initially expected of the information center, if it does not profitably serve the organization, it will almost certainly be viewed as a waste of time and money that can be done without. Obviously, if there is a conflict between the two answers, the info center management must modify the initial expectations of the organization.

Nevertheless, the ways that the info center can best serve the organization inevitably will exceed the organization's initial expectations, and ultimately the services it provides will in turn inform and change the expectations of the organization. While a desire for administrative support may have brought an info center into being, the organization should learn that the value of the center does not stem from its ability to provide clerks and administrators, but from its role as educator and innovator.

For example, an information center might have been started to provide corporate end users with access to mainframe data. The center was expected to select a query, analysis, and reporting language for the end users, train them in its use, and make production databases or production extracts available. This answers the first question, but what about the second? Why did the end users need access to mainframe data? Did they need to do more detailed marketing analysis, or were they interested in measuring performance or controlling costs?

Identify Strategic Plan

The information center must be able to identify the organization's overall strategic plan or direction, because only then will it be able to judge whether its support is peripheral or central to the organization's plan.

But what if the organization doesn't have a plan? Or worse yet, what if that plan doesn't reflect the organization's real direction? Fortunately, it is fairly easy to arrive at an answer to this potential dilemma. It lies in identifying the organization's "driving force."

Now that you've got the strategy, it's time to develop *tactics* to support that strategy. Tactics might be thought of as a yearly plan of operation for the information center. What are the specific deliverables that will come out of the center during the course of the year?

Once you have determined your strategy and tactics, it is time to decide what hardware and software are best suited to implement them. Too many information centers start out by selecting the tools first, then figuring out ways to use them. When you start out informed by your objectives, it's much easier to select tools that will help you realize them.

To truly serve the organization, the information center's selection of hardware should be dictated by the business need. Therefore, the tools chosen should be the ones that best support the kinds of work the users need to perform.

If you need to support the gathering and analysis of data by small, independent work groups, then the hardware you probably should consider is departmental computers or micros. Departmental computers make more sense if individuals within the work group must share data or analyses frequently, or if the amount of data they need to share is large. On the other hand, micros would probably fill the bill if individuals tend to operate more autonomously with very little need to share data with others.

If large, corporate databases need to be accessed by many different groups, then a mainframe-based tool may be called for. If the need is large enough, you may even consider the purchase of a mainframe specifically dedicated to end-user computing.

The frequency of data transfer must also be taken into account, and one way to determine this is to ask, "What are the data access needs of the organization?" In other words, what kinds of data are needed? What quantities? What people need the data and how often? Do many people need to share data? The answers to these questions indicate the kind of hardware that is needed. But an equally important question is, "What will the users do with the data?" Will they simply

access data, or will they create new data and add to them?

A lot of micros extracting small quantities of information from a mainframe on a frequent basis are likely to drain mainframe resources much more than a departmental processor would. Also, if there are a large number of departmental machines that often need copies of large mainframe databases, then a mainframe dedicated to end-user chores may be a better choice.

Mainframe May Be Needed

Heavy reporting needs may necessitate a mainframe. Heavy analysis and number crunching also usually dictate a mainframe. Substantial communications requirements may call for a departmental or mainframe-based electronic mail capability. The need to create a large database that will be accessed and maintained by a large number of users may also suggest a role for departmental or mainframe-based solutions.

If there is a need to do smaller, individualized tasks such as producing short memos or reports or doing limited spreadsheet, statistical, or graphical analyses, then micro-based equipment may be indicated. In any case, when all aspects of the requirements are addressed, you'll probably need a range of hardware.

Now the search for software begins. Once again, the software must perform the tasks needed to support the strategic and tactical plans. You must select software that not only fills the present needs of the organization, but that also meets the needs for future capabilities and expansion.

It should have the capability of exchanging data with other software products and be well supported by the vendor. In addition to the total acquisition costs, your organization will also be investing thousands of dollars in training and in developing applications using that software, so you want a product that will serve you well over the long haul.

Information center software typically breaks down into the following areas: query, reporting, spreadsheet, database management, word processing, graphics, statistics, modeling, communications, and application development. Most info centers eventually reach the point where they need software to cover all these capabilities.

There are several fourth generation language products on the market that combine many of these capabilities. Sometimes vendors provide versions of

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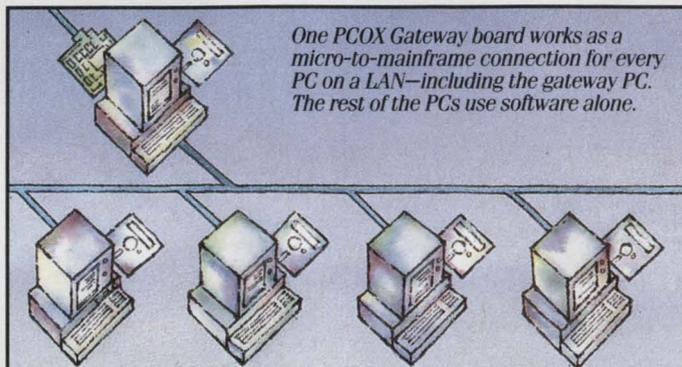
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One PCOX Gateway board connects every PC on a LAN with the mainframe.

A simple coax connection links your LAN to a 3274 cluster controller.

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Gateways: Micro-To-Micro-To- Connections.

PCOX/GATEWAY COAX connects directly to a 3274 cluster controller, and supports up to five concurrent host sessions. In fact, you can even make a PCOX Gateway Coax out of your existing IRMA™ board.

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PCOX Gateways are products of PCOX Technology, a modular system of advanced micro-to-mainframe connections that helps manage PC demands for mainframe access.

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their software that operate in mainframe, departmental, and micro environments. These wares often have excellent data transfer facilities.

The most widely used information center wares for the mainframe are fourth generation language and database management products. The most popular products at the micro level are spreadsheet and word processing packages such as Lotus 1-2-3 and MultiMate. Until recently, DBMS programs for micros were limited and the software primitive.

But all that has begun to change. Products such as R:base System V from MicroRim in Bellevue, Wash., dBase III+ from Ashton-Tate of Torrance, Calif., and PC/Focus from Information Builders in New York have begun to take advantage of the 80286- and 80386-powered pcs. As a result, the micro can now be served by a host of more sophisticated and user-friendly DBMS tools.

Business graphics and desktop publishing software have also become popular applications for the pc. Both tend to be used as time-savers and productivity enhancers, however, rather than as strategic tools. That's really a shame, since both provide capabilities that could be used to further an organization's strategic plans.

Business graphics, for instance, could be used as part of an overall plan to analyze an organization's markets and communicate the results efficiently to people who could quickly respond to the needs thus identified. Desktop publishing could be used as the central part of a plan to communicate frequently and directly to important customers who need timely information to build or solidify a certain segment of their market.

Statistics and modeling have been slow to develop on pcs, mainly due to a lack of pc power. Until recently, these applications have been done on departmental and mainframe computers, but now the more powerful pcs can run many of those statistical and modeling programs that demand a lot of processing juice.

Choose and Train Staff

After the software is selected, it's time to choose and train the staff. The info center staff must be capable of introducing a new technology and set of tools to the organization. They must also be able to support the end user who will learn to use and apply these tools. Information center personnel must be adept at cooperating and guiding, and must possess strong technical fundamentals.



How to Shop For Your Info Center

They must exercise judgment, patience, and tact and be capable of working at the clerical level one moment and with high-level executives the next. They must be able to handle multiple demands upon their time, choosing carefully and accurately which demands should be satisfied first.

To say that this kind of person is hard to find would be a gross understatement. Since info centers haven't been around very long, the people pool for them is not very deep. There simply aren't enough people around with the proper background and skills. Complicating things further is the fact that the people who have demonstrated these skills are probably already at too high a salary level for the information center to afford them. Maybe we should either scale down our expectations of the info center staff, or develop a much broader career path that can better challenge and compensate them.

Next on the agenda is end-user training. A high-quality, dynamic training program is a must for the information center. Keep in mind that the training needs will change as the technology and users change. The kind of training that's needed the first day will be dramatically different from what will be needed in several years.

While training in how to use a tool is certainly necessary, it is only the first step. The real goal should be educating users in how to apply the tool to the business problems at hand. This education should be aimed at the strategic areas of the business.

Obviously, there's only so much a training program can do. To truly educate users in how to apply tools to business problems, a good consulting program is also necessary. In fact, it's another must for any information center shopping list. The info center staff itself should function as good consultants. They must have enough knowledge about the organization's business and the technical capabilities of the tools available so that they can recognize opportunities to use them in profitable ways.

Info center workers must actively seek these opportunities, and not just wait for them to appear. This means maintaining excellent user relations and being actively involved in the users' business. It also means sometimes helping the users accomplish tasks rather than just showing them how to get it done.

Many information centers have refused to "do" projects for their users. They insist the users do it for themselves. Some facilities, however, have realized that occasionally it's necessary to lead by example, teaching as you go. This is especially important when users are not inclined to risk the success of a strategic project to a new tool.

Finally, you need a good evaluation and feedback program. If the information center is to know how it is doing, both in terms of user satisfaction and in terms of effectiveness to the organization, a feedback mechanism is vital. The program will determine if the expectations of the users are being met and if the objectives of the organization are being achieved.

Program for Users and Management

The information center at First Tennessee Bank in Memphis has a feedback program that includes regularly scheduled user contact meetings and an annual user satisfaction survey. During the meetings, which are conducted with both users and user management, current and prospective projects are discussed and consideration is given to how the info center staff and tools could be used to make those projects easier or more successful. The users' degree of satisfaction with the training, consulting, and hot-line assistance programs are also reviewed. Numerous changes have been implemented in each of these programs as a result of the feedback.

The bank's annual satisfaction survey provides a more formal evaluation of user and management satisfaction with the overall levels of service they receive from the information center. Feedback from this poll typically leads to the development of certain strategic and tactical objectives for the year.

In summary, an information center shopping list is more than just a simple list of the hardware and software items the facility might incorporate. It is a dynamic group of elements that includes a strategic plan and specified objectives defining the services the center will offer, as well as a feedback system to ensure that the info center is meeting those objectives. Informed by these fundamentals, the information center can fulfill its function as facilitator, innovator, and apostle of a new era of productivity. ■

John Oglesby, who is information center manager at First Tennessee Bank in Memphis, is cofounder and president of the Information Center South Central Regional Association of Management.

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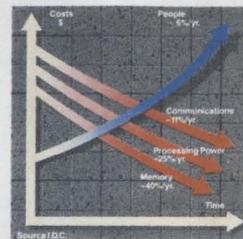
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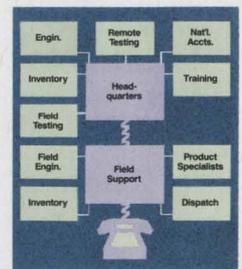
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1984



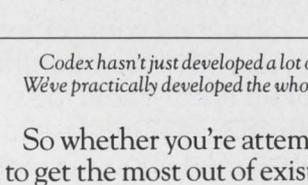
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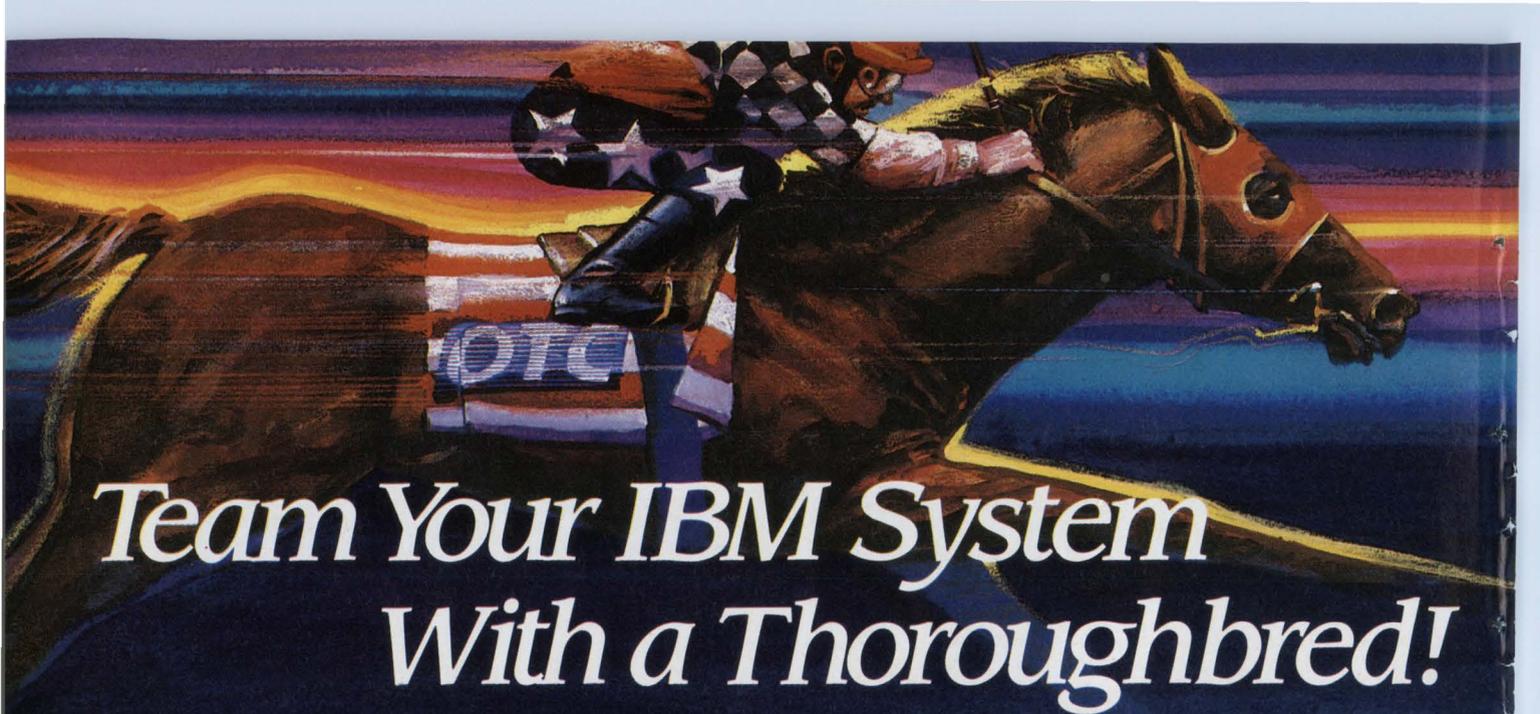
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The info center's ultimate mission is to get users to fulfill their own specialized graphics needs. But before that can happen, the info center must provide end-user managers with the hands-on training and help they need to create the razzle-dazzle graphics that will impress their colleagues, their ceos, and even their competitors. To achieve those eye-opening results, you need to evaluate and select carefully the appropriate software packages and output devices. The info center must also be ready to provide the necessary artistic tools, symbol libraries, and slide-creation brochures, along with detailed instruction on how to operate output peripherals.

Drawing the Graphics Line in Your Info Center

BY NEIL KLEINMAN

Sometimes desperation breeds demand. A frantic user shows up at the information center asking for help; the manager, impressed by the graphics a colleague had used at yesterday's meeting, wants to use the same effective approach. Running against the clock, the info center staff has less than 48 hours to churn out the user's charts and tables for a razzle-dazzle presentation at the next meeting.

This is an ideal situation for an info center to prove its worth. Unfortunately, the whole exercise will be a blur for the manager, who hasn't really learned anything about the proper use of graphics resources in the info center. A week or a month later, that same user, along with two or three other managers, will turn up at the info center and again ask for similar graphics support. At this point, the info center specialist assigned to deliver the graphics goods can only respond to these urgent needs by neglecting other users and other responsibilities.

This is where the info center director has to draw the line. If not, these excessive demands could turn the facility into an informal graphic arts department overnight. This is just one of many issues that make microcomputer graphics a frustrating as well as promising application area for the info center.

During the initial stages of promotion, the info center must have a staffer who is dedicated to graphics support. This person should be skilled in hands-on application training as well as the more conventional educational methods. The user must not be a passive participant in



this training process. Follow-up also is crucial. The info center must anticipate the user's next graphics need—a need that should be fulfilled by the user, not by the info center specialist.

Once the info center has a strategic perspective for graphics support, it must then assemble the tools to address a broad range of user needs. Tools that are suitable for analytical graphs, for instance, may not be ideal for creation of professional presentations. Complex tools may be too difficult for occasional users, while basic tools and hardware configurations are necessities.

Essential hardware for graphics applications includes a high-resolution color display, an Enhanced Graphics Adapter (EGA) or equivalent with 256KB of DRAM, a pen plotter, and either a mouse or a digitizer. Apple's Macintosh II and IBM's Personal System/2 drama-

Symbols and mapping can be used to highlight a simple text chart, such as this one provided by Computer Support Corp., St. Louis.

Drawing the Graphics Line

tize graphics visualization's importance. Both feature EGA-level resolution and color (640 by 350 lines, with 16 colors). The benefits of "what you see is what you get" (WYSIWYG) are as important for graphics as for desktop publishing.

Software Is Greatest Challenge

Selection of graphics software is the greatest single challenge facing the info center. More than 40 vendors now supply over 70 graphics packages. The absence of a de facto standard and the fact that no single product can answer all the diverse graphics needs mean you should be prepared to support multiple packages that have the following features or capabilities:

- ease of use for occasional users;
- extensive charting capability for analytical applications;
- drawing capability for diagrams and organizational charts;
- artistic features for on-screen and slide presentations;
- data handling capabilities for downloading from a mainframe; and
- batch processing capabilities for automatic generation of multiple slides or graphs.

The evaluation of packages that excel in one area but are deficient in others requires qualitative as well as quantitative criteria. One approach is to judge the results obtained when the program's default settings are used. If the results are aesthetically pleasing, most users will obtain satisfying results quickly, without having to learn about the options that are buried in the pull-down menus or invoked through letters or numbers in complex full-screen menus.

The software evaluation should result in the selection of three or four packages. One package should be for the creation of text slides, which represent 80% of all slides. Another should have extensive charting capabilities and per-

Getting Graphic at Connecticut Mutual

The info center at Connecticut Mutual Life Insurance in Hartford, is getting serious about graphics. The \$9 billion insurance company has set aside one of the three rooms in its info center for microcomputer graphics; the center's six-member staff includes one specialist dedicated to serving the graphics needs of the company's corporate staff of 2,200.

Approximately 800 personal computers are used by that work force, which gradually began to get into the graphics mode about 20 months ago. Launching the company's graphics campaign was a single user armed with Lotus 1-2-3. Today, the center, which directly serves 40 to 50 users, has helped implement graphics systems in six user departments.

Connecticut Mutual's info center contains an IBM PC and AT dedicated to graphics, a Hewlett-Packard 7550 plotter, a CalComp Colormaster thermal printer, two VideoShow presentation systems from General Parametrics, Berkeley, Calif., and a film recorder. One VideoShow system is used to create on-screen and slide presentations, while the other is used for actual presentations. Software includes Lotus Freelance Plus, IBM PC Storyboard, Decision Images (a specialized package for the insurance industry from Travtech Inc., Hartford), and the MasterGraphics Series from Ashton-Tate, Torrance, Calif. Picture Pak artistic symbols from Marketing Graphics Inc., Richmond, Va., are also available.

Even with all that hardware and software, Connecticut Mutual is still at the bottom of the graphics learning curve. "We're just at the beginning of using presentation-quality graphics," explains Elizabeth Hale, an info center consultant at Connecticut Mutual. The current mix of output is 60% transparencies and 40% slides. But as the use of graphics spreads, pressure on nonusers is increasing. "As soon as they see a presentation, they want to do it," says Hale.

Connecticut Mutual's info center has provided extensive support for creation of slides and transparencies. In fact, the facility spends so much time on slide production that it's considering charging for these services. If charges are implemented, then the info center may be able to increase the number of graphics specialists on its staff. At that point, the center would be assuming some of the functions of a graphic arts department.

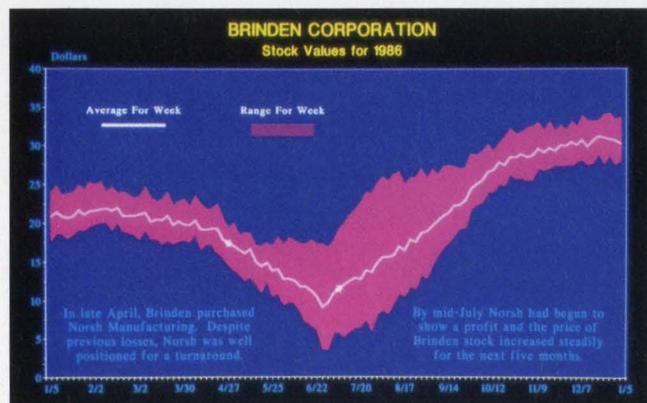
While this extraterritorial issue still has not been resolved, the fact that it is an issue at all attests to the fact that Connecticut Mutual's info center is addressing its users' graphics needs.

mit plotting of multiple charts on a single page. A third package for drawing should address the need for creation of text charts or generation of artistic slides. Finally, if desktop presentations represent a major application area, then software that's optimized for slide generation should also be supported.

In most organizations, the info center must implement and support ad-

vanced output devices such as hardware and software for on-screen presentations and film recorders that produce slides. Even when outside slide service bureaus are available, users will most likely still want to preview slides produced with an in-house film recorder. A film recorder, which can sell for under \$5,000, is also needed for the last-minute changes typical of many presentation applications. The availability of instant slide film permits these eleventh-hour adjustments to be incorporated in a matter of minutes.

Ever since pc graphics' inception, users have clamored for color hardcopy handouts of slide presentations. Early color graphics hardcopy devices were slow, so users were restricted to black-and-white handouts. Leading software vendors have recognized laser printers' potential for graphics hardcopy. Many programs automatically eliminate color and convert solid-fill fields into hatched patterns for easy output to standard laser printers. The laser printer, then, is an im-



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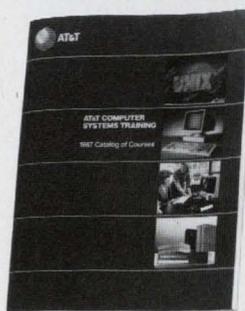
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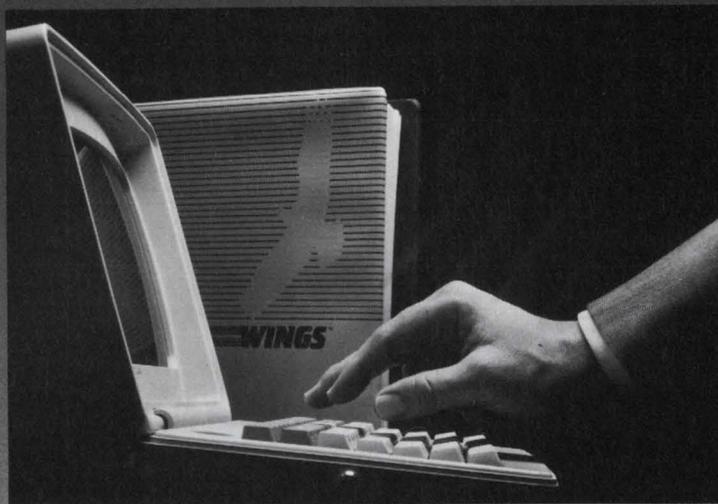
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Drawing the Graphics Line

portant piece of hardware to add to the info center's graphics tool chest.

The info center is in the perfect position to set standards of professionalism for graphics use. The place to start is with your company name and logo. For a modest fee, most software suppliers will digitize your logo. The info center should check to see that proper colors are used and that placement of the logo is consistent for all presentations. Formats that use different frame options should also be established.

Standard symbols and artwork can also be used to add interest and excitement to graphics presentations. Most drawing packages provide some symbols, and a wide variety of artwork can be acquired at minimal cost. The ability to create maps is one of the most popular uses of standard artwork. This application can be addressed by special packages or standard symbols that can be “unjoined” so that individual countries can be grouped and colored.

As with any new application area that involves relatively new technology, success may depend upon your ability to learn the tricks and avoid the traps. The first trick of the graphics trade is to use the numerous brochures that teach you how to create slides and use color. Take advantage of the free product literature that's doled out in volumes by many graphics vendors.

The big trap comes from the need to interface unique graphics peripherals. A simple pen plotter, for example, can become a nightmare simply because different software packages use different data transmission rates to drive the device. To avoid these problems, set program defaults so they use the same transmission rate—either 2,400 baud or 9,600 baud. If this can't be done, then make available clear instructions on what to do if the plotter doesn't function.

While microcomputer graphics is a complex and challenging application, it is also one of the most rewarding tasks the info center can tackle. Success leads to effective presentations that are valued both inside and outside the company. As usage grows inside the company, the info center should implement dedicated graphics systems in user departments. In this way, the info center can fulfill both its mission and the graphics mandate of the corporation. ■

Neil Kleinman is president of Pacific Technology Associates, a Tarzana, Calif., consulting firm specializing in computer graphics.

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Mr. J. C. Ryan, President
Flossmoor Soup Company
Flossmoor, Illinois 60422

August 1, 1987

Dear Mr. Ryan:

In an effort to help you stay competitive, we are publishing 5-year sales projections for two soup categories: canned and dry. Please keep these projections handy as they will aid you in your product planning over the coming years. Of special interest to you are the dry soup projections.

	CANNED	DRY
1987	\$6,700,000	\$1,100,000
1988	\$7,300,000	\$2,100,000
1989	\$8,400,000	\$2,600,000
1990	\$9,300,000	\$4,800,000
1991	\$9,900,000	\$7,300,000

As you can see, industry experts project that the gap between dry and canned soups will begin to close by 1990. They also believe mergers will follow.

Noodle Price Hike

Bad news this month comes from TNG (The Noodle Group). By year's end, they project the price of noodles to double – up to eighteen cents a barrel. How will this price hike affect you? A two-cent per can increase on all noodle soups you sell.

Recommended Reading—“Cup or Bowl”
This in-depth study discusses the habits of the American soup eater. Call and I'll send you a copy.

Sincerely,

Mr. R. Welke
Director, Canned Soup Council

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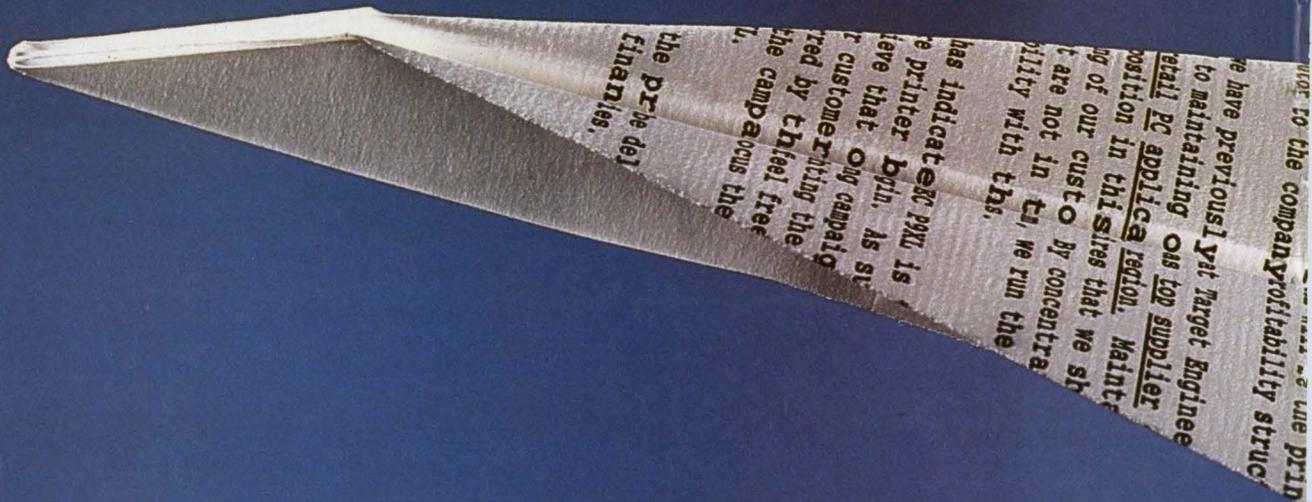
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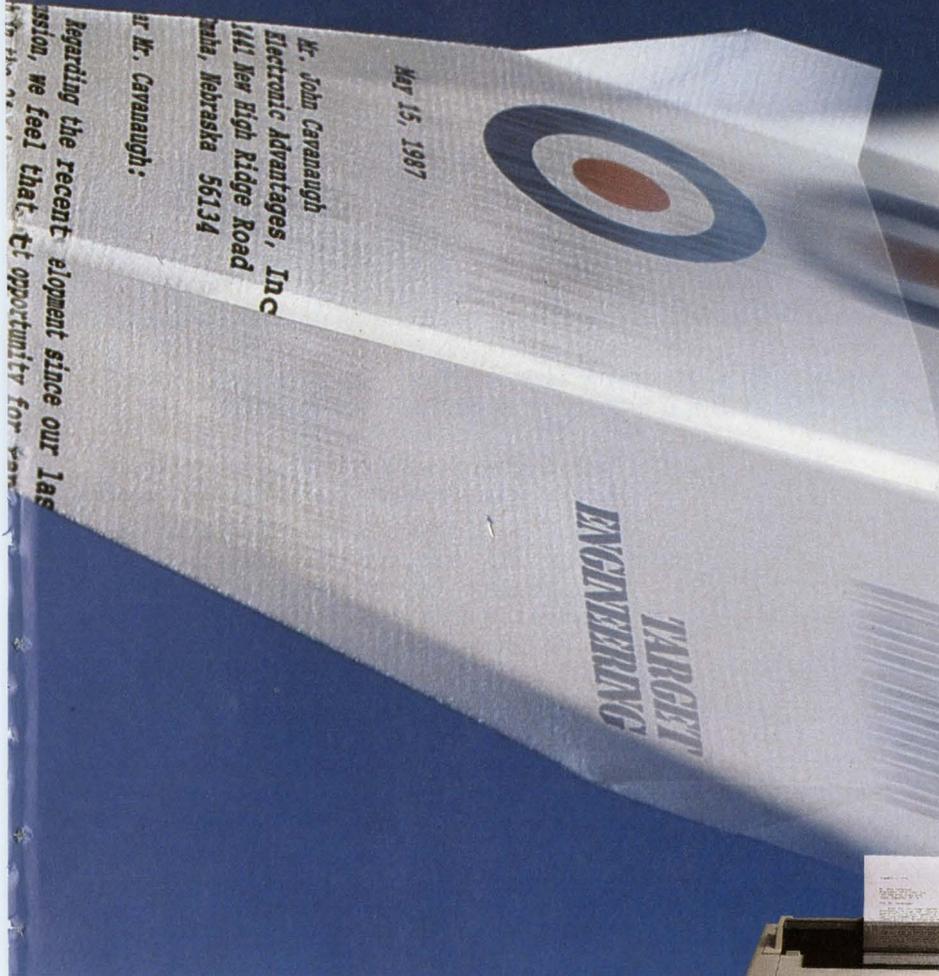
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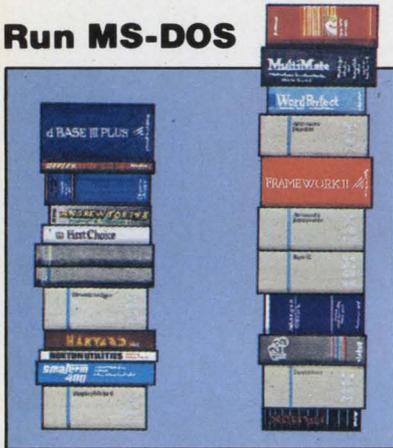
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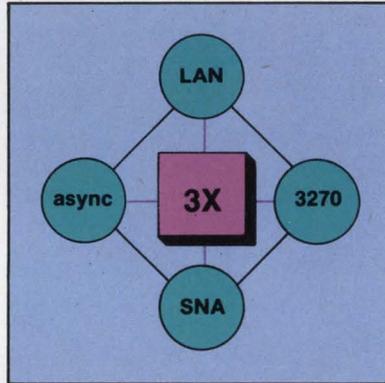
CIRCLE 46 ON READER CARD

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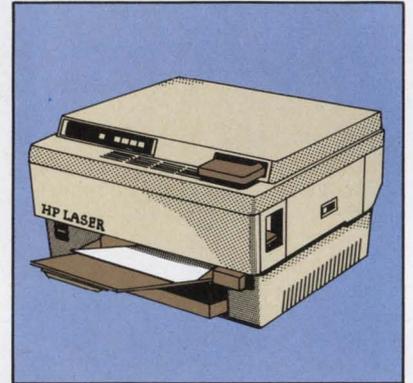
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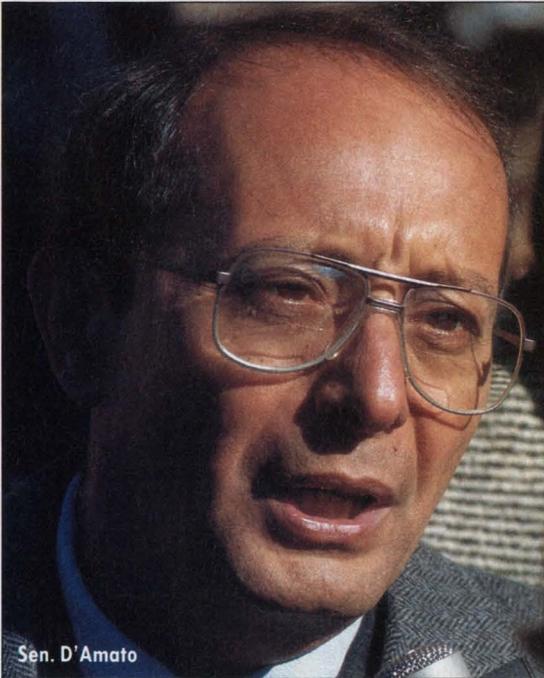
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Sen. D'Amato



Sen. Moynihan

Section 1706 of the new tax law has changed the status of many computer programmers and consultants who previously filed tax returns as independent contractors. In this DATAMATION exclusive, Sen. Daniel Patrick Moynihan, the original sponsor of Section 1706, and Sen. Alfonse M. D'Amato, who has introduced a bill to repeal Section 1706, present their current views on this controversial policy. Congressional hearings on Section 1706 may be held later this summer.

How Should Contractors Be Taxed?

Section 1706 Makes Sense

BY DANIEL PATRICK MOYNIHAN

One of the main goals of last year's tax reform legislation was to get the tax code out of economic decision-making. An effort was made to tax similar business activities in the same way—so that the tax code became “neutral” in business decisions. This goal of a “level playing field” was also a matter of fairness.

Judged by the yardsticks of neutrality and fairness, the tax law had not been working very well in the technical services industry, specifically with respect to independent contractor status. The rules for determining whether a technical service worker was an employee or an independent contractor were flawed. The operative rules were the common-

law definitions of “employee,” but a “safe harbor” added by Section 530 of the Revenue Act of 1978 allowed a taxpayer to treat a worker as an independent contractor so long as there was any reasonable basis in industry practice for doing so.

This special safe harbor was not uniformly available, however. A so-called “consistency requirement” stipulated that a class of workers was eligible for safe harbor treatment only if the firm had not at any time after 1977 treated as an employee any worker holding a substantially similar position. Accordingly, the safe harbor was denied to firms that had made the “mistake” of treating workers as employees. Because of the significant tax advantages associated with independent contractor status, firms and individ-

How Should Contractors Be Taxed?

uals that could not use the safe harbor were at a substantial competitive disadvantage with those that could. It was also clear that in many instances the consistency requirement was largely ignored—safe harbor was being claimed without regard to the treatment of similarly situated personnel as employees.

Thus in actual operation the Section 530 safe harbor tended to reward firms and individuals willing to take aggressive tax positions, while their competitors taking a more conservative stance were penalized. To compound the problem, the IRS was prohibited from issuing any general guidelines to clarify the situation, since Section 530—originally intended as a temporary measure—included a prohibition on any IRS rulings or regulations in the area.

Some technical service firms complained about the competitive unfairness of Section 530, and brought their case to the Congress's Joint Committee on Taxation. (It may well be that Section 530 is producing competitive problems in other industries, but none has thus far complained to Congress.) The Joint Committee staff recommended an amendment—Section 1706, which I introduced—designed to restore a level playing field in the technical services industry by eliminating the Section 530 safe harbor that had been available on such an uneven basis in the industry. The repeal of Section 530 for technical service workers means that the common-law standards for distinguishing employees from independent contractors now apply uniformly in the industry, and, in addition, the IRS is empowered to issue guidelines in the area.

Nevertheless, since the enactment of Section 1706, there has been a lot of confusion over the application of the common-law employee standards to technical service personnel. Some companies using technical services have refused to deal with any independent contractors, even though workers that qualify as independent contractors under the common-law standards are entitled to continue claiming that status under the new law. The uncertainty surrounding the new rules may have had an adverse impact on a number of individuals legitimately entitled to independent contractor status. The way to resolve this uncertainty is to provide IRS guidelines so that companies using or providing technical services can ascertain when they may safely treat workers as independent contractors.

To that end, I have been working to

insure the prompt issuance of guidance by the IRS on the issues raised by Section 1706. My efforts began late last year when industry representatives first contacted my office with concerns about the provision. On Jan. 13 of this year, I made a formal request to the IRS Commissioner and the Treasury Department and on Jan. 21 the IRS issued preliminary guidance. The IRS also announced that penalties for failure to withhold would be waived for the first calendar quarter of 1987, as I had requested. The Treasury Department has indicated to me that additional, more comprehensive guidance is being developed and should be available shortly. I will continue to monitor these problems closely until a satisfactory solution has been achieved. ■

Daniel Patrick Moynihan, a Democrat, is the senior senator from New York.

Repeal Section 1706

BY ALFONSE M. D'AMATO

Last year, Congress passed landmark legislation that dramatically simplified the tax code and instilled a new sense of fairness in our tax system. At least this is what I thought when I voted for the Tax Reform Act of 1986. But in December of last year I became aware of a provision of the tax bill that specifically discriminated

**SECTION 1706
HAS
JEOPARDIZED
THOUSANDS
OF SMALL
BUSINESSES
THROUGHOUT
THE NATION.**

against certain professionals for absolutely no reason. Now I am not so sure that the tax bill was such a great success.

Of course, I am referring to Section 1706 of the Tax Reform Act, which has unintentionally jeopardized the existence of thousands of small businesses throughout the nation. To right this terrible wrong I have introduced Senate bill

491 to repeal Section 1706. Identical legislation has been introduced in the House of Representatives by Rep. Joe DiGuardi (R-N.Y.) as House bill 1240.

What truly disturbs me is how Section 1706 became law. It truly represents a grave distortion of the legislative process. Neither the House nor the Senate held hearings on Section 1706. For that matter, no meaningful floor debate accompanied passage of this onerous provision. Thousands of small businesses are severely hurt by Section 1706, yet Congress did not even allow the impacted taxpayers their "day in court."

As you know, Section 1706 forces certain technical service workers involved in third-party arrangements to comply with common-law tests determining independent contractor status for tax purposes. In 1978, Congress created a safe harbor for technical service workers if there was reasonable basis for treating these individuals as independent contractors. Section 1706 simply repeals the safe harbor specifically for engineers, computer programmers, systems analysts, drafters, and similar professions involved in third-party contracting arrangements.

When the safe harbor was established in 1978, it was stipulated that Congress would formally study this issue before taking further action. Despite never undertaking the study, Congress went ahead and removed the safe harbor for certain technical service workers.

I feel strongly that Section 1706 must be repealed. Once this onerous provision is eliminated, Congress can study the independent contractor issue in a calm, deliberate, and dispassionate manner. The only way to reach this goal is to pass my bill, S. 491. To do this, you must contact your elected representatives in Congress urging their cosponsorship of S. 491. Support for my legislation is building, but more work must be done.

I will continue my efforts to repeal Section 1706. I believe equity dictates that technical service workers get a fair shake from Congress. ■

Alfonse M. D'Amato, a Republican, is the junior senator from New York.

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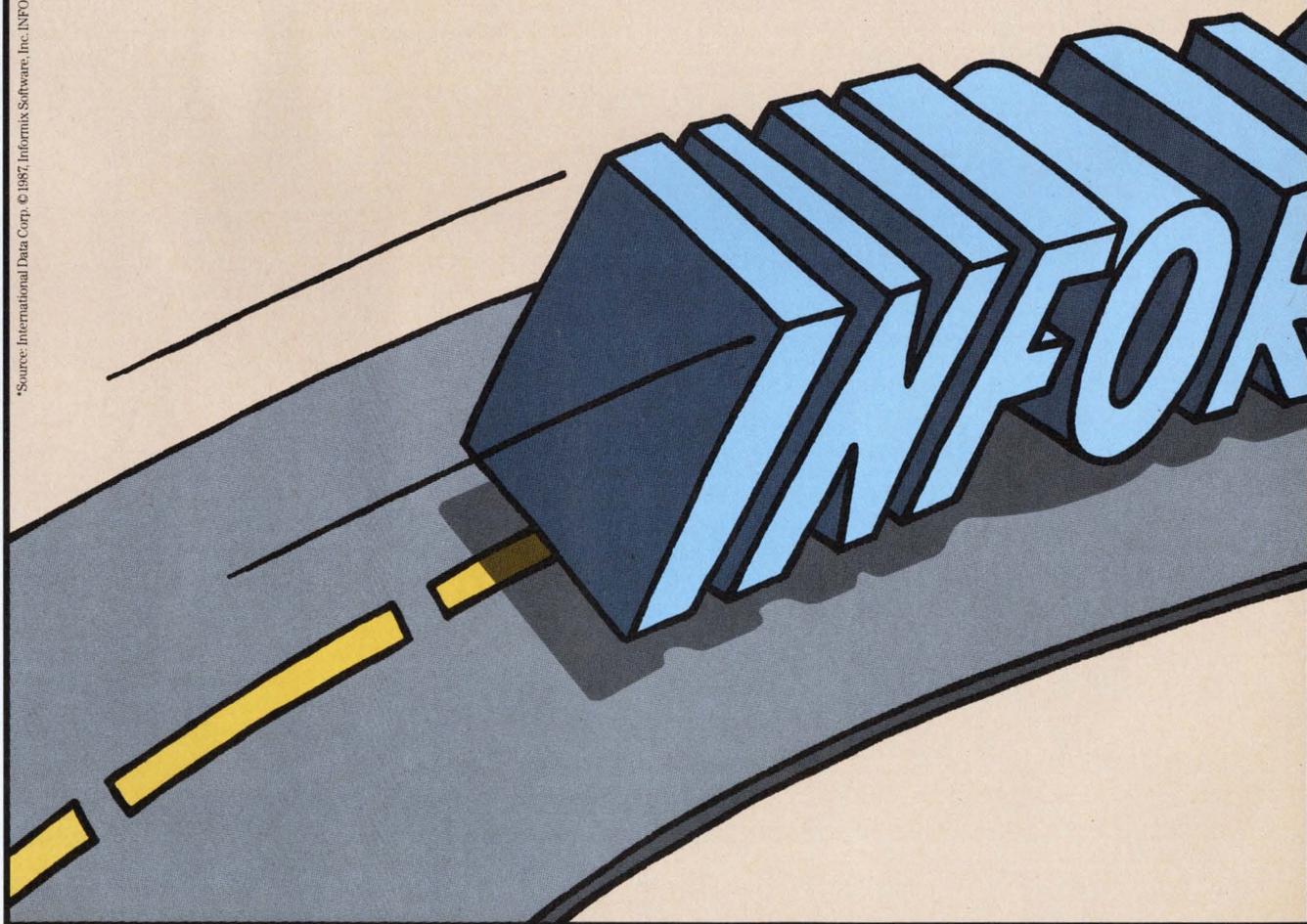
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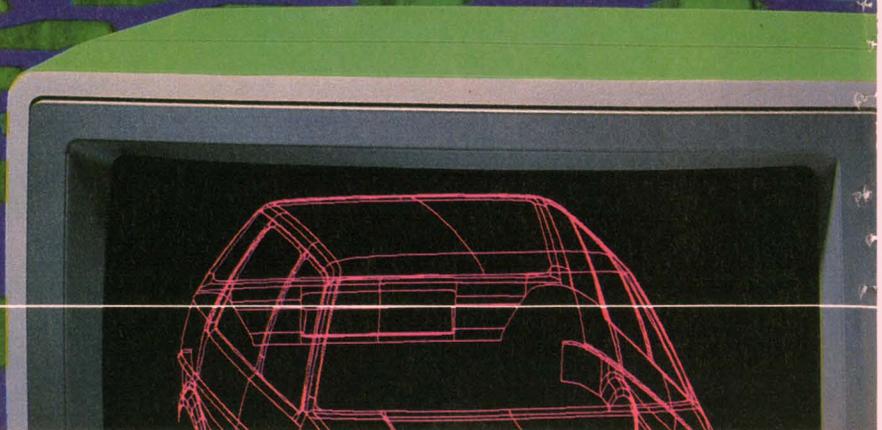
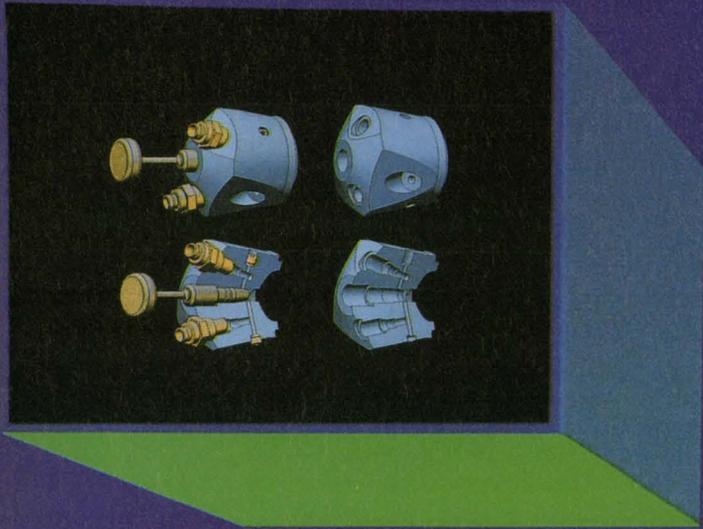
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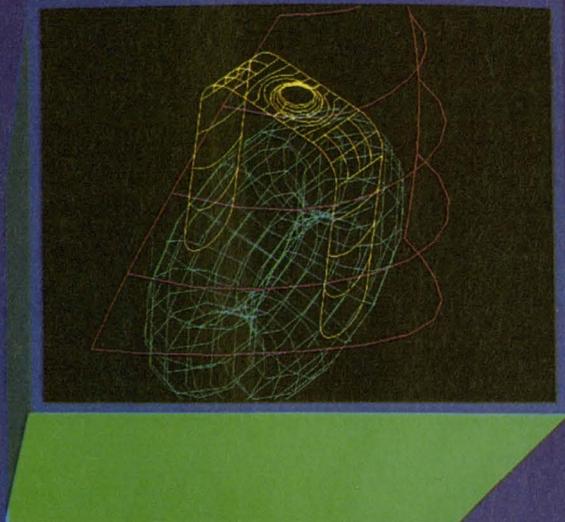
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GD CONTROL DATA

CIRCLE 49 ON READER CARD

There's much more to a deal than signing on the dotted line. Six top information systems executives tell DATAMATION what they expect from their vendors before putting pen to paper. What they're looking for is alliances for progress with both their suppliers and their system users. These pacts should have more than just hardware behind them, they should have honesty. Fed up with being fed spiced-up versions of yesterday's technology, these candid MIS chiefs want sellers that are a lot smarter about their individual industries, their company cultures, and their end-user customers. They want vendors that are more responsive to their strategic needs, more innovative, and infinitely more compatible with the mixed installations of today and tomorrow.

Alliance for Progress: MIS Views Vendors

The vendors of information systems wares are peddling too many off-the-shelf products and reworked versions of old solutions to satisfy today's MIS executives. What these MIS chiefs want to do is to forge new alliances with both their suppliers and users—pacts that will help them build and structure the systems and networks of the future.

These information systems executives want honesty as much as they want hardware from their major vendors. They want them to be a lot smarter about their industries and customers and more responsive to their specific organizations' strategic and long-term needs. All of which means that suppliers will have to be much more cooperative, far more innovative, and infinitely more compatible with the mixed installations of today and tomorrow. These MIS pros also want to be their own systems integrators. Eventually, they hope to parcel out ownership of the technology to their end users.

Today's MIS execs want to be in partnerships for progress with end users. They want their vendors to go beyond the purchase order and fill the bill for computing customers. To find out how those partnerships are progressing, DATAMATION recently held a roundtable with six top MIS chiefs to reveal their views on vendors. Participating in the discussion were Ronald Brzezinski of

Quaker Oats Co., Bruce Curry of Peat, Marwick, Mitchell & Co., James Herson, an information systems consultant, Rear Admiral Harry Quast of the U.S. Navy, Dale Schaub of Morton Thiokol Inc., and John Singleton of Security Pacific Automation Co.

Q: What are your most critical concerns today in dealing with information systems vendors?

QUAST: Two principles guide the Navy's dealings with vendors. First, we try to get the most bang for the taxpayer's dollar. Second, we try to give everyone an equal shot at Uncle Sam's dollar. That means we have to develop very elaborate specifications describing what we need. But the vendors like to say, "Why don't you set your specifications aside? I've got just the thing for you." But when we set them aside because they're not responsive, they resort to the time-honored tradition of protesting the bid, which delays us and takes us forever to meet our requirements.

SCHAUB: Since we are decentralized, we have very different divisions at Morton Thiokol, each needing different services. Our vendors have to understand this diversity and offer solutions accordingly, instead of coming with their standard approach: "You're a manufacturing company. Here's our manufacturing solution. Would you like to sign a contract?" We'd

like to develop fairly close working relationships with a limited subset of vendors so that we really form strategic partnerships.

SINGLETON: At Security Pacific, we also want to get the biggest bang for the buck and we want as many bids as possible because we'd like to drive the costs down and see more solutions. I think that the poor sales in the industry are because hardware and software firms have been bringing old technology and old, canned solutions to users, window-dressing them to look better and newer. Users don't want to accept that anymore. Vendors like IBM have had problems because they aren't providing the portability and the connectivity needed. Nobody's buying all IBM or all DEC anymore, and vendors have to recognize that and provide the means to tie the whole mixture of equipment together.

SCHAUB: I think there's been a change in vendor attitude, but not in behavior yet. What's hard on the vendors is that we all perceive value differently. John Singleton has a very large staff that has a lot of depth technically. I don't have quite that much depth, so I need more support from my vendor. But vendors try to market to both of us in the same way.

At Morton Thiokol, MIS is not so technology driven. So we're in a position where we can sit back and watch other folks break ground with the vendors. And then we acquire the technology after it's stabilized.

CURRY: It's vital that vendors understand that it's not a cookie-cutter market. At Peat Marwick, for instance, we use Apple Macintoshes for our auditors and Wang systems for office automation. Since we're betting our future productivity on those vendors, we need to know their plans and directions. If you're talking about an organization based on people and services, productivity is important, and we've put a lot of investment into that. If you have good communication at the top, you're not pursuing a false course.

BRZEZINSKI: Quaker Oats, like many other food companies, began to invest heavily in information technology only three years ago to catch up to where it should have been. To help us meet the commitments we've made, we invited 15 or 20 of our vendors to sit through an individual three-hour presentation on what we are trying to accomplish—our plans, our ideas, our direction. I always end up with four basic rules to communicate to ven-

Panel Participants



Ronald Brzezinski is vice president of information systems at Quaker Oats Co., the \$3.7 billion Chicago producer of consumer foods and Fisher-Price toys. Brzezinski, who oversees a budget of \$70 million, has functional responsibility for all computing at Quaker and direct budgetary control of the corporate data center.



Bruce Curry is the director of Peat, Marwick, Mitchell & Co.'s Computer Resources Dept. in Montvale, N.J. Curry is in charge of management systems, communications, and office automation for the New York-based Big Eight accounting firm, which is currently expanding its business through acquisitions.



James Hernon is a consultant and visiting researcher on the "Management in the 1990s" program sponsored by MIT's Sloan School of Management, Cambridge, Mass. Hernon recently retired from Eastman Kodak Co., Rochester, N.Y., where he was director of manufacturing information systems architecture.



Rear Admiral Harry Quast is the director of the Information Systems Division on the staff of the Chief of Naval Operations in Washington, D.C. Responsible for information support for tactical and business operations, Quast is also director of information resource management for the Secretary of the Navy.



Dale Schaub is manager of information systems services at Morton Thiokol Inc., Chicago. He is in charge of application development and consulting services at this highly decentralized \$2 billion company that manufactures and markets high-technology propulsion systems, rocket motors, specialty chemicals, and salt.



John Singleton is vice chairman and deputy to the president of Security Pacific Corp., a \$64 billion financial services company. He is also chairman and president of Los Angeles-based Security Pacific Automation Co., which uses its \$300 million budget to provide dp and banking operations services to its parent company and other clients.

Alliance For Progress



dors. First, know your own industry. Second, know your customer's industry. Third, understand the individual customer's culture. And fourth, build relationships not only with us in the information systems community, but also with our clients, our users. I expect vendors to be an extension of my department's resources. I need them a lot now because we are in the rebuilding stage.

The problem is that, like us, vendors are also going through a cultural change. Years ago, there was a select community of sales personnel out there. Suddenly, now we're seeing salespeople in the thousands. My question is, how do the vendors find this many good people who have an understanding of their own industry and ours?

CURRY: Data processing is also a more confused industry because the rate of technological change has been doubling for the last few years and will probably continue to do so. There just isn't enough work being done to determine what that architecture of systems will be in five years. The vendor doesn't know how to handle it. It's obvious with IBM's product line and with others. Many makers really aren't sure of their role.

BRZEZINSKI: Just look at the evolution in the relationship between the user, dp, and the vendor. In the 1960s and early '70s, dp dominated the show. Then, in the later '70s, the vendor took over, and we in the information systems business were at odds with our own users. Neither stage worked well. What is natural is a managed partnership where we each have roles and responsibilities. For me, the vendor has to help educate the client as far as opportunities for using new technologies and awareness.

Q: Do vendors really believe in managed partnerships?

BRZEZINSKI: They all pay lip service to it. I even had one vendor representative ask for a fourth presentation of our plans. I think he just wanted to convince me that he's really interested, but he still doesn't respond. A few have, however. DEC, for example, has made it their responsibility to visit our plants and all the people involved in using their equipment. That's really performing the kind of value-added service that I need. That used to be IBM's forte, but in our case, they slipped.

HERNON: Before we can determine what we expect from a vendor, we have to understand what the problem is. I don't think any of us feel comfortable that we

SINGLETON: I think the poor sales in the industry are because hardware and software firms have been bringing old, canned solutions to users, window-dressing them to look better and newer. Users don't want to accept that anymore.

are really getting the bottom-line benefits that are promised or expected by this technology. We have to know where to place our bets—our investment—and where to put in the controls to ensure that the investment is congruent with where the enterprise is going. We are the ones who have to establish the architecture of the network, the infrastructure that we'll need to achieve our business goals.

QUAST: That interests me more than the vendor problems. Management has not taken its responsibility for information support. Our main theme is to get line management more involved in the process of providing information support. We are also trying to shift our personnel resources in information systems into top-down strategic and architectural planning, leaving the technical expertise to the vendor community. We're not talking turnkey operations, but a more effective partnership in which we concentrate on what the organization does and what information is needed and let the vendors concentrate on technology, suggesting alternatives and providing the hardware and software.

Q: So you've identified the management problem and the roles to be played in the partnership. Are the vendors responding?

QUAST: We aren't getting a lot of help on architecture, because vendors still like manageable chunks with short time frames, so they can sell you something in six or 12 months. They're saying, "Is there an acquisition contract at the end of this?" And we're saying, "Well, yes, but we haven't figured out yet where we want to put our dollars. We're still stumbling around trying to figure how to utilize some of this technology." They don't have the patience for that.

Q: How do you draw the vendor into a more meaningful relationship?

SINGLETON: We have to be unwilling to accept off-the-shelf technology. We've got to have a process of getting non-

disclosure information from the vendors to see what's coming down the road. To obtain that information, you have to find an executive mentor high up in the vendor company that you can call to find out what is coming down. As Ron [Brzezinski] said, we have to have joint strategic and tactical planning sessions with our main vendors, letting them know our critical issues, where they can help and where we stand.

But we can't make the mistake that we have in the past of making the vendor the systems integrator. The dp organization has to bring the hardware and software together because it knows the culture of the company. Then you have to get the top manager of your company to support you. Dp people have failed to market their skills to the very top and they are still having difficulty making the cultural change to become entrepreneurs or business people.

To get vendors to open up their nondisclosure discussions, you've got to be able to tie your demands with the corporate strategic plan.

Q: Have you proven the productivity of the technology to top management?

SINGLETON: At Security Pacific, executive management and dp management jointly came to grips with the critical issue on what determines success for us. We sat down with the president and chairman and asked them, "What level of performance in these categories would it take for you to determine whether we are truly successful?" We have jointly defined what outstanding performance was. We did those things and they stood up and said we had achieved it. We now have a board of directors subcommittee for dp and every few months we review what we're doing operationally and strategically and what we're contributing to the bottom line. We're at minus-zero growth now.

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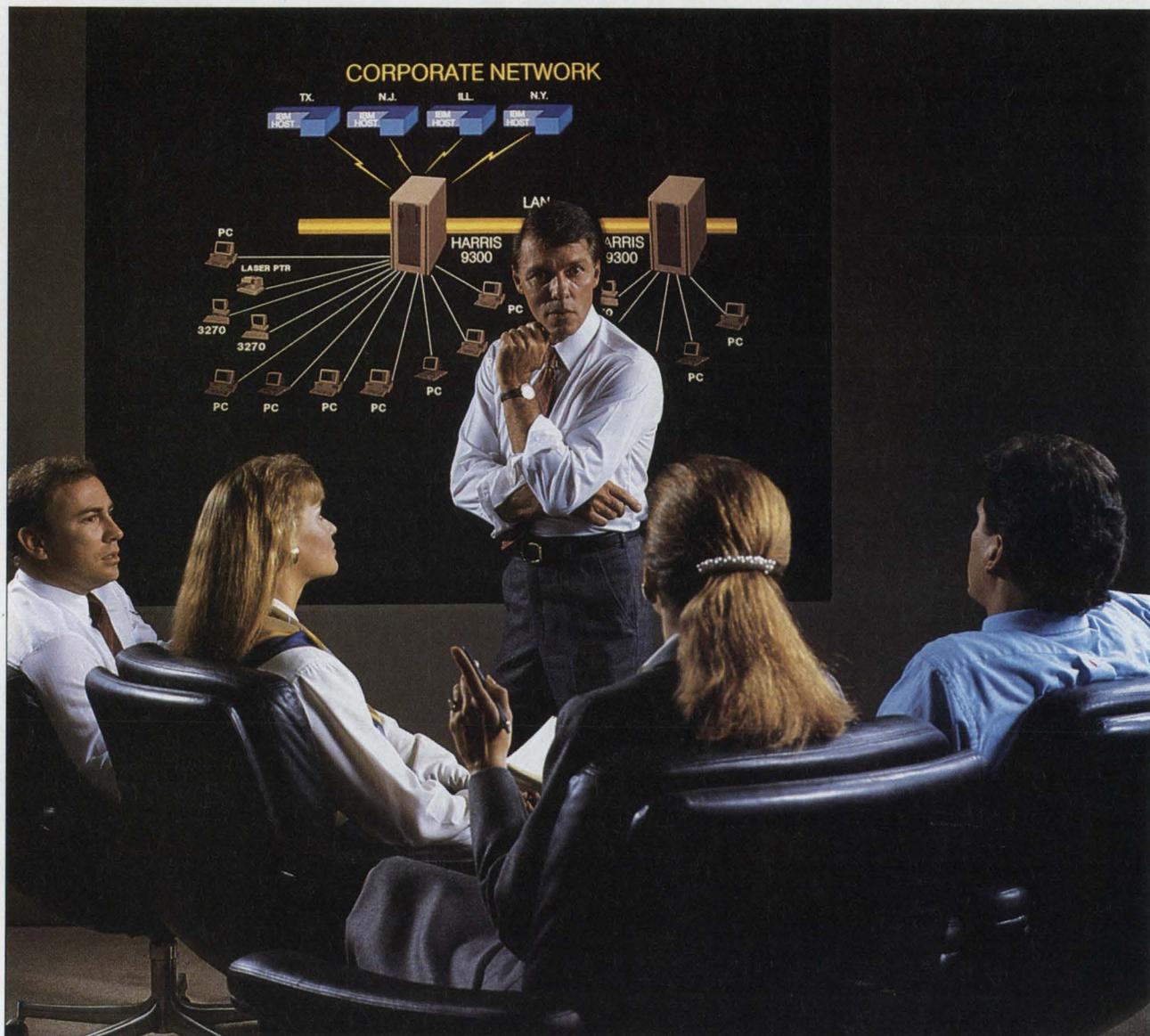
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Alliance For Progress



users and our vendors. We agreed to levels of performance set by our users for their applications, levels that are regularly reviewed and rated. We also stressed that our vendors needed to manage the required service levels of our organization. If they didn't agree, we wouldn't do business with them.

BRZEZINSKI: During the last three years, we've been working hard to build credibility that had been lost during a period of misfocused IS spending. We hammered out our technical direction, established a plan with a funding level, and communicated the business impact of the new IS direction to our executives. We also established commitments and delivery targets through arrangements that were similar to John [Singleton's] service-level agreements. Once you do that, you're part of the business team. We also have a steering committee for management review. And I personally spend a third of my time meeting with business people in the company. I feel we have overcome the back room image.

Q: Can you tell us something about your technological direction and what you need from the vendors?

BRZEZINSKI: Our company's success comes from maintaining the number one and number two brand positions. To attain those positions, you have to have quality market research and excellent customer service. That implies better databases, responsive systems, and flexible decision support systems. We also have to form alliances with vendors supplying technology and information. In manufacturing, we are networking a lot of our remote facilities to standardize interface requirements. In five years, our IS department will be much smaller, because we are going to disseminate the management and ownership of the technology throughout the company while maintaining a strong centralized direction. Our department will ultimately be a managed utility, serving as the integrators of data and communications.

CURRY: Our long-term objective is to take the centralized and core products and move them out to Peat Marwick's 100 offices. They can do what they need with that data on their local processor, running their offices in their own style with tools we'll provide them.

QUAST: We're very decentralized and, like Peat Marwick, we want to distribute the data and the core systems to our people wherever they are. My goal is also to have the dp structure shrink by moving

QUAST: We're looking for a more effective partnership in which we concentrate on the organization and what information is needed and the vendor concentrates on technology, suggesting hardware and software alternatives.

the technology out to the user. We don't think technology is a problem. What is a problem is the intelligent application of that technology.

HERNON: There are two major technology areas that need a lot of improvement: networks and data. To make those improvements, we need good, effective standards efforts. The users have to establish the standards framework in order to force vendors to take a more positive role.

QUAST: The Navy certainly has a lot of clout here, but we have probably been too timid in playing the standards game. We talk about all this integration, and that means standards. We've been in communication with General Motors and Boeing in the CAD/CAM area. We've told them, "Let's join forces. Together, we're an unbeatable combination."

BRZEZINSKI: I've always put industry standards at a lower priority only because it takes too long and I'm not sure you can standardize such a dynamic industry. Some good entrepreneurs out there are going to create that standard bridge for us to buy.

HERNON: I really think you need to look at standards in terms of intention and you need a strategy associated with them. The kind of standards I was referring to are those that ensure a migration path. We have to make sure we establish what's needed for integration and interconnectability. The MAP and TOP efforts are providing evidence that standards can be turned out much, much more quickly. If users don't assume a proactive position, they will end up losing in the process.

SINGLETON: Not everyone wants to support standards. But it's like paying the IRS. You may not be thrilled about it, but if you don't pay, you're in trouble.

Q: What else do you need from your vendors?

BRZEZINSKI: The overwhelming need is always service—the ongoing need to

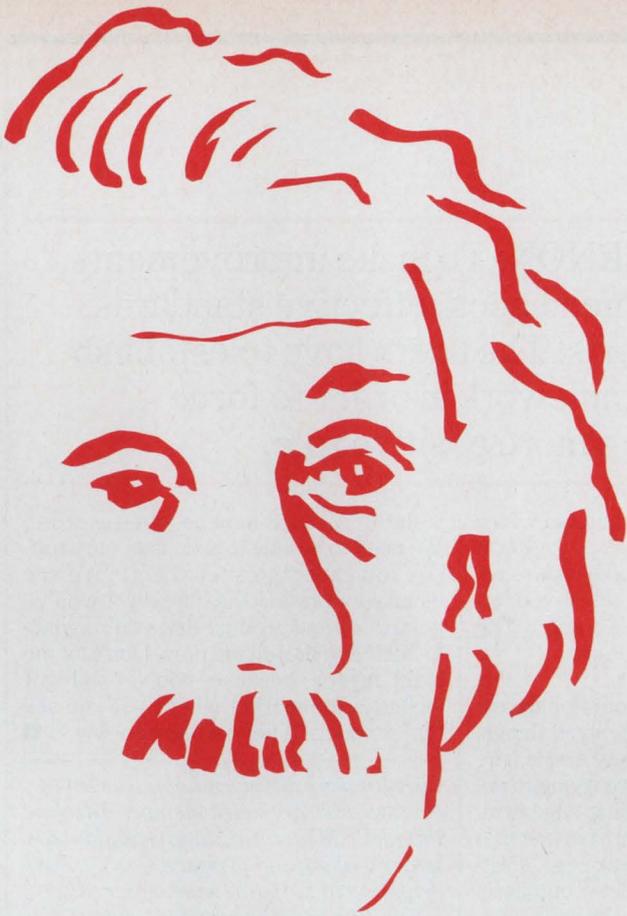
keep the business running. And service, in my opinion, is 70% of the game. The other 30% are the nice-to-haves—the integration, the support, the education, the extending of our resources. This means that the vendor is helping us communicate the messages, the needs, and the awareness of technology to the field, to our clients.

QUAST: I'd like to put in a plug here for computer security. We need more and better computer security devices from vendors. The private sector ought to come out with security in the form of utility packages. That will happen, but not fast enough. We've already had a lot of disasters. And people lose confidence that we can in fact stop a missile from firing inadvertently.

I would also like to see more done on the business side of the house with Ada. But industry has been slow in coming up with validated Ada compilers or an Ada environment. And the standard user interface is also important. We message data, we spreadsheet data, but there's technology out there that can help us view that data. And I would put that into the standard user interface so that we don't have 92 different protocols on 62 different devices.

SINGLETON: I have a long list of things I want from my vendor. First, I want a prototyping ability, which enables us to build a prototype before rushing into production. Second, I want a partnership strategy that allows us to build something unique together with the vendor who sells the result and we get royalties. Third, I want a technology exchange or trade-in program on hardware because the life cycle is far less than five to seven years now. Also important is vendor support for the R&D function so that we can get breakthrough results. I also want a comprehensive telecommunications network, along with the architecture and tools to implement that.

In the pc area, I have all kinds of requirements. The pcs must be friendly to



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Alliance For Progress



use and have such features as touch screens and natural language interfaces and the capabilities of voice activation, recognition, and response. The whole area of image processing is also important. But the most important thing in a vendor is honesty. Tell us what you can't do so we don't go into something where we really don't have a chance to be successful.

Q: In the final analysis, what type of relationship can you have with your vendor?

HERNON: What we really need are partnerships in which the users do the homework, stating the kind of requirements they have. Then you have the ability to add on to that, getting into issues like interfaces.

BRZEZINSKI: The idea of a partnership is really only limited to one product. What I would like to see more of is executive forums of 12 to 30 really good clients sponsored by vendors. That's where the real feedback is going to come. But I don't think vendors are paying serious attention to executive forums.

CURRY: I don't want a partnership with a vendor because that implies a long-term commitment. I want a good business relationship. And, if it's a critical vendor, then I must know what he's doing and he has to know what my needs are.

SINGLETON: I don't think you should have partnerships with vendors on all things. It depends on the company's size, the strategic value, what you're trying to do, and whether you're a leading-edge firm. You don't necessarily need a partnership if you're not on the leading edge. Partnerships have gotten the least emphasis on the user side. If you don't have a partnership with your user, everyone loses.

HERNON: To make improvements, we need good, effective standards efforts. The users have to establish the standards framework in order to force vendors to take a more positive role.

SCHAUB: Alliance may be a better word. We need to be able to articulate our strategy to vendors and tell them, "We see using your products in this way. If you've got a dead-end product that you're going to kill in a year, tell me now. Don't let me hang myself because you've still got niches in the market where you can sell that product." I need some honesty. ■

Coordinating this roundtable was DATAMATION advisory board member Angeline Pantages. Moderating the discussion was senior writer Ralph Emmett Carlyle. Participating in the panel were senior editor Linda Runyan and assistant editor Mary Kathleen Flynn.

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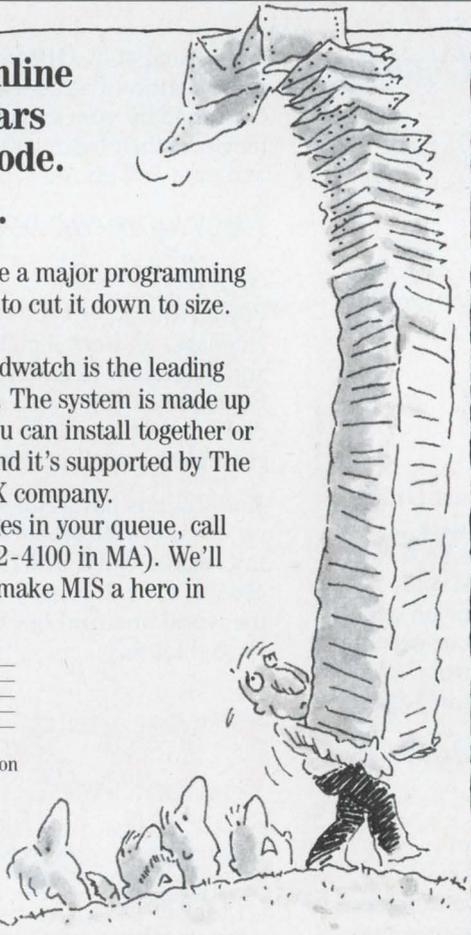
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CIRCLE 53 ON READER CARD

Real Time

OFF-LINE

COMPETITION IN THE PRIVATE branch exchange (PBX) market has been heating up over the last couple of years. With the shakeout from divestiture still being felt in the U.S., some of the Bell operating companies have entered the market, targeting small- and medium-sized businesses. In Europe, deregulation is creating a similar battle for market share, and competition is also increasing. North American PBX companies such as AT&T and Northern Telecom have been feeling the pinch. Although both companies have large installed bases, their PBX sales have leveled off in the last year, prompting them to look at less traditional markets—i.e., small- and medium-sized businesses—for their equipment.

Both Northern Telecom and AT&T recently introduced new PBXs for small and medium-sized firms. The offerings, in essence, provide full PBX functionality to the smaller user, at a significantly lower price.

Northern Telecom recently rolled out its low-end Meridian SL-1 Integrated Services Network PBX, the Meridian SL-1ST. NT product manager Mark Benson says that small systems is the fastest growing marketplace for PBXs. The SL-1ST offers all of the capabilities of the larger Meridian SL-1 systems, including integrated voice and data communications; digital trunk interface, which allows 24 trunks across a T1 carrier with one card; remote peripheral equipment, which serves remote locations up to 70 miles away; and automatic call distribution, which coordinates calls evenly among a number of agents on a system.

The SL-1ST is available in three models and its capabilities range from 80 lines to 400 lines. A typical system is priced from \$550 to \$650 per line, compared with \$550 to \$1,200 per line for a typical larger system.

AT&T's new low-end system is a redesigned System 75 PBX. The System 75 XE is priced at \$67,000, compared with \$80,000 for a similarly configured early model. AT&T claims that the modular design of the new system has kept the manufacturing costs down. The XE design, says AT&T, allows users to start with a smaller design and grow from 40 to 100 stations in one cabinet. It can be expanded to 600 users without a hardware upgrade. AT&T claims the System 75 XE offers full System 75 functionality, including voice, data, messaging, networking and call management, and hospitality applications.

HARDWARE



The Series 18 mini can support up to 400 local and remote terminal users concurrently.

McDonnell Douglas Extends Reality Minicomputer Line

Series 18 systems geared toward large-scale transaction processing environments.

BY THERESA BARRY

McDonnell Douglas's new Series 18 minicomputers round out the company's line of relational database management business computer systems for real-time transaction processing. The new series joins the low-end Series 6000, which supports from eight to 64 users, and the mid-range Series 9200, which supports up to 208 users. The new Series 18 can support up to 400 local and remote terminal users concurrently.

The Series 18 has two models: the Series 18/955 and the Series 18/965. McDonnell Douglas claims the new series is twice as powerful as anything it has developed so far. The 18/955 is available with from 4MB to 12MB of high-speed RAM memory with the option to install up to 10 disk drives of 500MB, for a total of 5GB of data storage capacity. It supports up to 300 concurrent users.

The 18/965 features from 8MB to 16MB of RAM memory with disk subsystems offering from 1GB to 5GB of storage. This model supports 400 users.

The company says the Series 18

system incorporates a "major restructuring" of the internal system architecture, which features three levels of intelligence for faster cpu performance and higher throughput, and is compatible with all other Reality systems. Lower-end systems can be upgraded to the Series 18. As in all Reality systems, performance-sensitive portions of the system reside in firmware, so that less disk memory is used.

McDonnell Douglas's fourth generation program development language, ALL, is available for use with the new machines. The Series 18/955 is priced at \$395,000; the Series 18/965 is \$575,000. ALL is sold separately and is priced at \$25,000. Volume shipments of the systems will begin in September. MCDONNELL DOUGLAS, St. Louis. CIRCLE 261

Departmental Computer

Most powerful in series.

A 68020-based Unix computer, designed for departmental computing, has been added as the top model of Plexus Computer's P series.

Real Time

The P/95 is claimed to support up to 128 interactive users and provide from two to three times the performance of Plexus's next largest machine, the P/75. It employs up to 48MB of main memory and 6.7GB of disk storage, and it supports VMEbus-compatible peripherals that include an optical storage disk and optical scanner. The system also uses a 16KB associative write-back cache memory and can be equipped with a floating-point arithmetic processor. The P/75 can be programmed with the firm's newly unveiled Extended Data Processing System (XDP), which provides relational database capabilities for storing and managing image, text, and alphanumeric data. XDP also ties Plexus computers into AT-like workstations over an Ethernet.

Intended customers include telecommunications companies, military services, government agencies, and health care providers. In a typical small configuration, the P/95 is priced at \$57,200. With XDP software, workstations, and peripherals, the system can range as high as \$1 million. The hardware and most software are available immediately. PLEXUS COMPUTERS INC., San Jose. CIRCLE 262

Scanner

Intelligent character recognition for work groups.

Kurzweil Computer Products has introduced its Discover 7320 PC-based ICR scanner, which is geared toward small departments or work groups where the documents to be scanned are consistent in nature.

The product is comprised of a proprietary PC board that incorporates Kurzweil's proprietary ICR software and from 2MB to 4MB of RAM, plus a desktop scanner. The board inserts into a slot of an IBM PC or compatible. The scanner converts text for output to ASCII, DCA, and user-defined, application-specific formats. Graphics, including line art and halftones, are output as uncompressed bit-mapped and Xerox.RES uncompressed. KCP says Discover averages a speed of 4ppm or from 20cps to 60cps, depending on text density, and the system will recognize any font from 8 to 24 points, including multiple fonts per page. User-defined lexicon files can be added, and errors in character recognition can be flagged by the system. Discover can scan documents from offset press, laser printers, typesetters, letter-quality dot

matrix and other nonimpact printers, daisywheel and other impact printers, and typewriters.

Available now, the price of the Discover 7320 ranges from \$10,000 to \$12,000, depending on memory size. KURZWEIL COMPUTER PRODUCTS, Cambridge, Mass. CIRCLE 263

Wyse Terminal

Offers ANSI, ASCII, PC compatibility plus graphics.

The new WY-99GT is the latest high-end offering from Wyse Technology. It allows users to work in the ANSI/DEC VT-220, multiuser PC, or ASCII terminal environments. A dedicated graphics coprocessor provides compatibility for popular graphics standards, including Tektronix 4010/4014, Hercules, and IBM CGA.

In the DEC environment, a user can select either 10-by-10 character resolution for full VT-220 soft-font compatibility or 10-by-13 resolution. In multiuser PC mode, the WY-99GT can be fitted with a Wyse-enhanced PC keyboard for compatibility as a multiuser PC terminal in the IBM PC AT- and 80386-based environment. The terminal is also compatible with the Wyse WY-50 terminal. It provides dual-host connections, so users can switch between computers without having to reconnect cables. It features a 14-inch amber tilt-and-swivel screen.

The terminal has a dual-processor architecture that uses the company's proprietary VLSI gate array technology. The WY-99GT is available now and is priced at \$695. WYSE TECHNOLOGY, San Jose. CIRCLE 264

Pc Upgraded

Epson enhances its Equity I.

Epson, which earlier this year enhanced the top-of-the-line Equity III microcomputer, recently enhanced its low-end Equity. The Equity I+ is hardware and software compatible with the PC XT.

The Equity I+ comes in three models. The base configuration comes standard with a dual-speed 8088 microprocessor, 640KB of RAM, a 360KB 5¼-inch floppy disk drive, an enhanced AT-type detachable keyboard, both a built-in Centronics parallel printer port and an RS232C serial port, an 8087 math coprocessor socket, an internal programmable speaker, and slots for two mass storage devices. A second configuration

comes with two 360KB floppy disk drives and a third offers a 360KB floppy disk drive and a 20MB internal hard disk. MS/DOS 3.2, a set of system diagnostics, and GW-BASIC are included with the Equity I+.

The basic configuration is priced at \$1,095; the two-floppy version is \$1,295; and the internal hard disk version is \$1,695. EPSON AMERICA INC., Torrance, Calif. CIRCLE 266

Dot Matrix Printer

Nissho's 24-wire printer features built-in three-way tractor.

The NP-2405 24-wire dot matrix printer from Nissho Information Systems offers dot matrix printing for continuous form, spreadsheet, and word processing applications. It prints up to six-part forms, and includes a three-way paper feed system and an LCD screen for presetting of print configurations. The noise level is less than 55db, says Nissho.

Nine resident and seven optional font cartridges are offered and print speed ranges from 250cps to 428cps draft and from 80cps to 144cps letter quality. The three-way tractor includes a bidirectional feed, a push tractor, and a pull tractor. Standard emulation for the NP-2405 is Epson LQ-1500; Diablo 630 is optional. Modular interfaces are available, including Centronics parallel with a 30KB buffer and RS232C Serial with a 30KB buffer.

The printer is available now and is priced at \$1,295. NISSHO INFORMATION SYSTEMS, Cypress, Calif. CIRCLE 267

Network Workstation

3Com unveils first in family of IBM-compatible "netstations."

The 3Station is an IBM-compatible 80286-based Ethernet "netstation" that can be integrated with PCs on a network. It is the first in a family of 3Com net-



stations, says the company. 3Com plans to include a token ring version in the future.

The 3Station integrates an 80286 microprocessor, four graphics adapters (monochrome, Hercules, CGA, and EGA), 1MB of main memory upgradable to 4MB, and Ethernet. Its single-board design runs on 25 watts of power. There is no fan in the device, which measures 14 inches by 14 inches by three inches, including a channel on the bottom to route and collect cables. Since video, networking, and memory are integrated, add-on adapter cards are not needed and the cpu has direct access to these capabilities.

The 3Station is available now and is priced at \$1,895. 3COM CORP., Mountain View, Calif. **CIRCLE 265**

QMS Laser Printer

New 8ppm printer for IBM Systems/34, 36, and 38 computers.

The SmartWriter 8/3X from QMS has a built-in twin-axial interface, which emulates IBM 5224, 5225, and 5356 dot matrix printers and the IBM 5219 daisywheel printer. It features Displaywrite 36 software compatibility and supports proportionally spaced fonts. Emulations include HP Laserjet+, Diablo 630, and Qume Sprint, and either an Epson FX-80 or IBM Proprinter emulation. All emulations are accessible via RS232C interface.

Other features of the SmartWriter 8/3X include full legal page bit map graphics applications, 300 by 300dpi resolution, up to 29 resident fonts, an 825KB print buffer and download font area, and an ANSI X3.64 driver.

The SmartWriter, which prints at 8ppm, is available now for \$4,995. QMS INC., Mobile, Ala. **CIRCLE 268**

Networking Products

Intelligent Technologies adds to micro-to-mainframe line.

The Exchange Series of micro-to-mainframe communications systems was recently announced by Intelligent Technologies. The products are Gateway Exchange and ClusterNet II.

ClusterNet II allows one PC to be a server to emulate an IBM 3274 cluster controller, and to support up to eight PC workstations communicating directly over IT's proprietary LAN to an IBM mainframe in an SNA environment. ClusterNet II operates on an IBM PC, XT, AT, or compatible. Each PC can run two on-line host



sessions, one of which can be an IBM 3287 printer emulation. ClusterNet connects to the host through an external synchronous modem, at up to 9,600bps, using either leased or switched telephone lines. It consists of a high-speed RS422 serial link and a communication protocol that supports data transmission at 19.2Kbps. ClusterNet also emulates IBM 3777 Remote Job Entry (RJE) functions to send batch jobs to the host, and to receive output directly from the host.

A basic ClusterNet II system links two PCs to a remote IBM mainframe and contains two printed circuit boards, floppy disks that supply the SNA software, and one set of IT's proprietary cables. It is priced at \$1,795.

The Gateway Exchange communications system converts one or more PCs on a Netbios LAN into a communications server, which emulates an IBM 3274/6 cluster controller, allowing all other PCs to communicate over an SNA/SDLC network. PCs can emulate either an IBM 3278/9 or IBM 3180 display terminal; the standard PC printer can emulate an IBM 3287 printer. The server PC interfaces to the IBM host via a synchronous modem running an SNA/SDLC protocol and to other PCs through LAN hardware using Netbios facilities. Gateway Exchange can provide RJE with both 3270 session control and 3770 RJE emulation. Other features are switched or leased line communication, 9,600bps transmission speed, 128KB memory usage, and diagnostics.

A 16-session Gateway Exchange is \$1,995; a 64-session system is \$3,495. INTELLIGENT TECHNOLOGIES, Foster City, Calif. **CIRCLE 269**

ISDN Chip Set

Advanced Micro Devices five-chip set for the "S" interface.

AMD's chip set is for both ends of the "S" interface that connects digital phones or terminals with a PBX. The ISDN chips are geared to systems for voice-only, data-

only, and voice/data applications.

The Am79C30 Digital Exchange Controller resides in the ISDN terminal or terminal adapter and connects to the phone line. It separates the bit stream into three channels for voice, data, and signaling. The Am79C32 ISDN Data Controller (IDC) is a pin-compatible version for data-only applications.

The Am7936, which resides in the terminal also, extracts power from the telephone line at the S interface, and provides a regulated 5V DC supply to circuits in the ISDN terminal. The Am79C31 Digital Exchange Controller resides at the switch or PBX end of the S interface and provides the exchange termination functions for one ISDN subscriber line. It connects directly to the standard-pulse code modulation highway used to carry traffic within digital PBXs, so no additional circuitry is needed to make the connection with the switch. It can support point-to-point or point-to-multipoint configurations. The Am7938 Quad Exchange Power Controller (QEPC) resides at the switch or the PBX end and provides a regulated 40V power source for up to four S interfaces. It's powered by a local station battery or a centralized regulated power supply and resides in PBX, central office line cards, or in intelligent network termination equipment.

The Am79C30, in 100-unit quantities, is priced at \$39.25 each; the Am79C31 and Am79C32, \$23.75; the Am7936, \$7.25; and the Am7938, \$22.75. All are available in production quantities now. ADVANCED MICRO DEVICES, Sunnyvale, Calif. **CIRCLE 270**

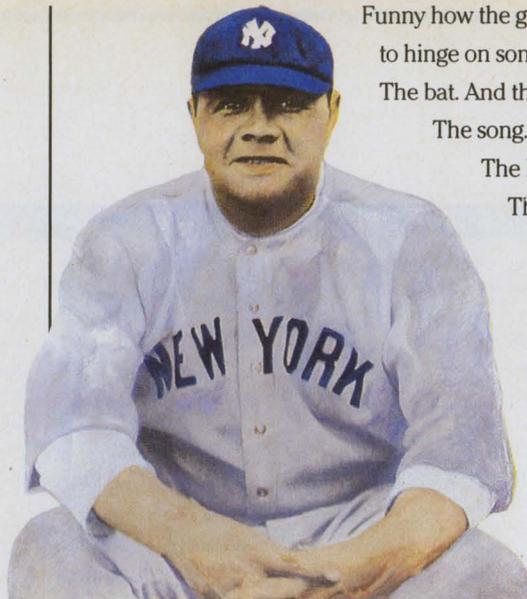
Multiple Host Support

Switch connects 3270 terminals to more than one computer.

Network Systems' 3270 MultiSwitch lets users with 3270 or async-type terminals access data in more than one computer without either new software or changes to present software. The switch resides between the 3270 terminal and the controller or the async hosts.

One MultiSwitch supports up to 96 applications, depending on the mix of terminals, controllers, and hosts. The switch operates locally via standard terminal and controller media. Multiple switches can also be connected locally via coaxial cable or fiber optics.

The 3270 MultiSwitch is available now at \$32,700. NETWORK SYSTEMS CORP., Minneapolis. **CIRCLE 271**



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CIRCLE 54 ON READER CARD

1-DTM-870601

UPDATES

EVER SINCE 3480-TYPE tape cartridges were introduced to the market a few years ago, large mainframe shops have embraced the technology and have been converting their libraries of reel tape at a rapid pace. The compact tape cartridges have proven reliable and easy to use, with lower error rates than those found on reel tapes. They provide MIS managers with an efficient means to store vast amounts of information.

But, as with all major technological advances, a related problem has arisen. A 3480-type cartridge can be slipped into a coat pocket—and subsequently 200MB of sensitive, proprietary data can be walked outside the shop door. Accordingly, data storage security is a bigger issue than ever before.

Tape cartridge manufacturer BASF, Bedford, Mass., is attempting to do something about it. Claiming that 55% of security problems is owed to poor internal controls, the company has been talking to security device manufacturers about incorporating such devices into its cartridges. The technology that the device manufacturers are using is based on retail store security systems.

BASF is talking with two companies, Identitech, Livingston, N.J., and Security Tag Systems, St. Petersburg, Fla. The Identitech device is a metal tag placed either in or on a cartridge. Security Tag's device is a circuit embedded in the cartridge housing. If anyone tried to leave the data facility carrying such a cartridge, the security device would activate an alarm system installed at the facility's entrance. The alarm systems are priced in the \$3,000 to \$6,000 range.

Ken Brown, BASF's product manager of computer tapes, notes that a cartridge security system not only prevents theft, but can help enforce employee check-out procedures. "If an employee doesn't sign out a tape or if a tape is misplaced, it might as well have been stolen," he says. BASF will have its first tape product incorporating a security device on the market next month. The cost to end users will be "a couple of dollars more," says Brown.

BASF has rejected the security method of placing sensor labels on cartridges because the labels can be removed. Two label manufacturers involved with cartridge security are Knogo, Hicksville, N.Y., and Checkpoint Systems, Thorofare, N.J.

IBM does not have any security device in its 3480 cartridges. "Security," says a company spokesman, "is primarily a customer responsibility."

SOFTWARE

Ashton-Tate Releases New MultiMate Software

Popular word processing package is significantly enhanced.

BY THERESA BARRY

Ashton-Tate, whose MultiMate word processing package has a user base of a half million, has announced a major upgrade of the product. Among the new capabilities of MultiMate Advantage II is the ability to merge word processing and dBase files.

Additional features that the previous version, 3.6, did not offer include the option of document or page orientation; an optional pull-down menu interface consistent with Ashton-Tate's dBase III Plus, Framework II, and RapidFile; a merge with dBase files without leaving MultiMate; an enhanced, continual undo/delete function to retrieve deleted text, which the company says is limited only by disk space; and increased laser support that allows up to 26 fonts within a document and up to 18 soft, downloadable fonts.

Also new are a "hot start" menu bypass, six-function math (3.6 had two-function math), autohyphenation, sorting within a document, single-key execution, and an FFT-DCA conversion feature for FFT-DCA formatted files. The company says it has improved—in some cases by two times—the speed in scrolling from page to page, in outputting to laser printers, in searching and replacing, and in checking spelling.

Other new features found in this release are a document summary screen-bypass option that allows direct access into a document, a comment feature to

annotate documents, full support for DOS 2.0 and above pathing to create subdirectories for file organization, backward search, a directory of key procedures so users can select macros from a directory, ASCII import into an existing document, and an enhanced footnote function. The integrated MultiMate On-File now allows users to sort in three fields; print labels, envelopes, or columnar reports; and merge directly with MultiMate and search by subject, character string, date, or index word.

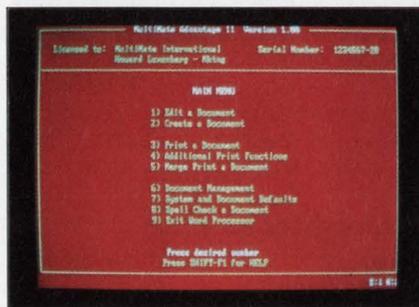
MultiMate Advantage II is priced at \$565 for the 5¼-inch version. This version runs on the IBM PC, XT, AT, and compatibles with 384KB of memory for DOS 2.0 or higher. A "Premium Pack" version, which includes both a 5¼-inch disk and a 3½-inch disk in one package, is priced at \$595. Upgrades from any version of MultiMate are \$100. ASHTON-TATE, Torrance, Calif. **CIRCLE 250**

Project Management Pack

PC-based package for large projects.

Qwiknet Professional from Project Software & Development Inc. (PSDI) is a PC software program designed to help manage large projects encountered at electrical utilities, telecommunications, manufacturing, aerospace, and military companies.

The software employs critical-path method scheduling and tracks the availability of resources. Users can set priorities on time or resources and can produce reports that include bar charts, histograms, and logic diagrams. Multiple projects and multiple calendars can be handled. A window-based screen can be manipulated by a mouse, with changes in one window reflected automatically in another. Preprogrammed function keys can be used. The management of projects of up to 1,000 activities may be handled. QwikNet Professional can upload to and download from Project/2, PSDI's mainframe and minicomputer project management program.



The main menu from Ashton-Tate's MultiMate Advantage II word processing software.

Real Time

The software runs on the IBM AT, XT, and compatibles, and is available now for \$1,495; an optional mouse is \$125. PROJECT SOFTWARE & DEVELOPMENT INC., Cambridge, Mass. CIRCLE 252

PC Text DBMS

Built-in word processor allows quick record changing.

DayFlo Software has reworked its DayFlo textual database system for nontechnical users. The DayFlo Tracker package is designed to help managers, salespeople, administrators, and other people with the need to keep track of ever changing records of textual information that they might otherwise have to store using stacks of paper.

Unlike other database and file management programs, Tracker enables records to be changed with a simple but powerful built-in word processor. No two records have to look the same or be of the same length; additions to them can be made as needed. Searches may be performed according to predefined indexes (up to 101 keywords are permitted) or by sequential passes through text. This should mean easier, more intuitive recall of selected records.

To help the less trained user, Tracker employs much of the core database management system technology of DayFlo but adds a series of predefined forms designed for use in popular applications. Predefined reports and mailing list programs are also included. The software can handle up to 65,000 records of as much as 32KB each.

The package is available now for \$149.95, but the first 2,500 copies will go for \$99.95 apiece and will include an optional application pack that normally sells for \$39.95. DAYFLO SOFTWARE CORP., Irvine, Calif. CIRCLE 251

Personal Account Manager

First product from Conductor Software.

Act! is a personal account management program the vendor is targeting to personal sales management, accounting firms, service and professional organizations, and field engineers—those whose work involves intensive phone and personal contact.

The program organizes and maintains records and files, and prints reports. It has a calculator, bulletin board, electronic reminder, a library, an inte-

grated word processor, Lotus-like menus, hot-key commands, and pop-up windows. The program has automatic archive capabilities that update records as a user creates a schedule, and an instant record search.

Act!, packaged with both a 5¼-inch and 3½-inch diskette, is not copy protected. It is priced at \$395. It requires an IBM PC or compatible desktop, portable, or laptop with MS/DOS 2.0 or higher. The program requires a minimum of 420KB of RAM with two 360KB drives, one 720KB drive, or a hard disk. Conductor has signed an agreement with GRID Systems Corp., whereby GRID will be a reseller of Act! on diskette and in ROM in its portable computers. CONDUCTOR SOFTWARE INC., Irving, Texas. CIRCLE 253

Operating Environment

Toltec integrates Pick and Unix System V.

Toltec Computers has introduced a new operating system that it calls Symetrix. The system integrates standard Pick Open Architecture with Unix System V.

Symetrix is currently available only on a computer system developed by Edge Computer Corp., Scottsdale, Ariz., that features a 32-bit processor. The price is about \$255,000. The Symetrix user interface allows users to select which programs or applications to run from a series of menus. Toltec says it does not layer Pick on top of the Unix kernel; instead, it maintains the standard direct interface between the Pick virtual code and Pick monitor by combining the monitor with kernel functions into a common hybrid supervisor.

A resource scheduler serves as an interface between the monitor and kernel, allocating such system resources as memory and I/O processing. Toltec says its Symetrix environment allows Pick applications to communicate interactively with other Pick applications and with Unix applications. When instructions are added to a Pick application, users can access any Unix program, Toltec says. Unix applications can also access Pick databases. TOLTEC COMPUTERS INC., Scottsdale, Ariz. CIRCLE 254

Spreadsheet for Focus

IBI adds spreadsheet capability to its 4GL DBMS.

Foccalc from Information Builders is a fully integrated spreadsheet for use with

Focus for VAX. It permits users automatically to populate one cell or an entire matrix from any Focus-accessible dataset through the use of a Focus report request. The request is entered by the user as on a standard spreadsheet and may contain calculations against data in one or more files. IBI says the output of the executed request is automatically brought into a specified cell range in the spreadsheet.

Foccalc and Focus are integrated through the use of the Focus 4GL. Because the data and spreadsheet can be stored independently, the same spreadsheet can be used with many sets of data contained in one or more datasets. Foccalc will access data stored in Focus databases, RMS files, Rdb tables, and other DBMSs. Up to 16 datasets can be joined relationally.

Spreadsheet models created in Foccalc can be moved to any environment in which Focus operates. Foccalc spreadsheets and data can be uploaded or downloaded between Foccalc running under VAX/VMS and PC/Foccalc running with PC/Focus under MS/DOS.

IBM acquired the basis of Foccalc under a license agreement with Access Technology, South Natick, Mass., developers of the 20/20 spreadsheet. Foccalc for VMS requires release 1.3 of Focus on VAX/VMS. A one-time license ranges in price from \$1,600 for MicroVAX and VAXstations to \$12,000 for VAX 8800 and larger. INFORMATION BUILDERS INC., New York. CIRCLE 255

Professional Illustrator

Auto-trol rolls out new release of Tech Illustrator.

Tech Illustrator 6.0 is a drawing and annotation tool designed for use by professional illustrators in a technical publishing environment, says the vendor. This latest release is claimed to include illustrator selection of up to 10 user-definable



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functionality in the use of isometric, dimetric, and trimetric drawing projections plus multipoint perspective.

Tech Illustrator 6.0 is available for use on Digital workstations, as well as Apollo and IBM PC-based workstations supplied by Auto-trol. This release,

which supports Auto-trol interfaces for electronic publishing and laser printers, is priced at \$31,500. AUTO-TROL TECHNOLOGY, Denver. CIRCLE 257

Telecom Manager

PC software that automates telecommunications operations.

Communication Sciences has introduced Telecom manager, a six-module PC package that is designed to automate telecom operations and order processing.

The six modules are equipment manager, private-line manager, trouble manager, cable manager, directory manager, and bill manager. Capabilities include cost control, producing and tracking of vendor orders, automatically updating inventory, reporting, generating bills, maintaining logs of all trouble, identifying equipment/cable associations, and maintaining current physical and electronic addresses for all personnel. All modules interface to each other, and voice, data, and other equipment can be tracked.

Telecom Manager runs on IBM PCs and compatibles. The number of modules needed will depend on both the size and the needs of the company. Prices begin at \$9,500 and go up to about \$20,000. COMMUNICATION SCIENCES, Ise-lin, N.J. CIRCLE 256

Common Lisp

First release is for Digital's PDP machine.

Artificial Intelligence Research & Systems Ltd. has introduced its Common Lisp development package for the PDP and VAX or MicroVAX. The package is said to provide an AI workstation environment on general purpose terminals. Current facilities include a structured editor, a debugging utility, windowing with mouse/digitizing pad support, and bit-mapped graphics, which are Tektronix 4010/1014 compatible.

An incremental "garbage collection" design for efficient memory management, and an optimizing compiler for compact code and rapid execution have been included. The company's Common Lisp supports RSTS version 9.2 and VMS version 4.2 operating systems. The company says a Unix version will be available by August.

The package is priced at \$4,000. ARTIFICIAL INTELLIGENCE RESEARCH & SYSTEMS LTD., Seattle. CIRCLE 258

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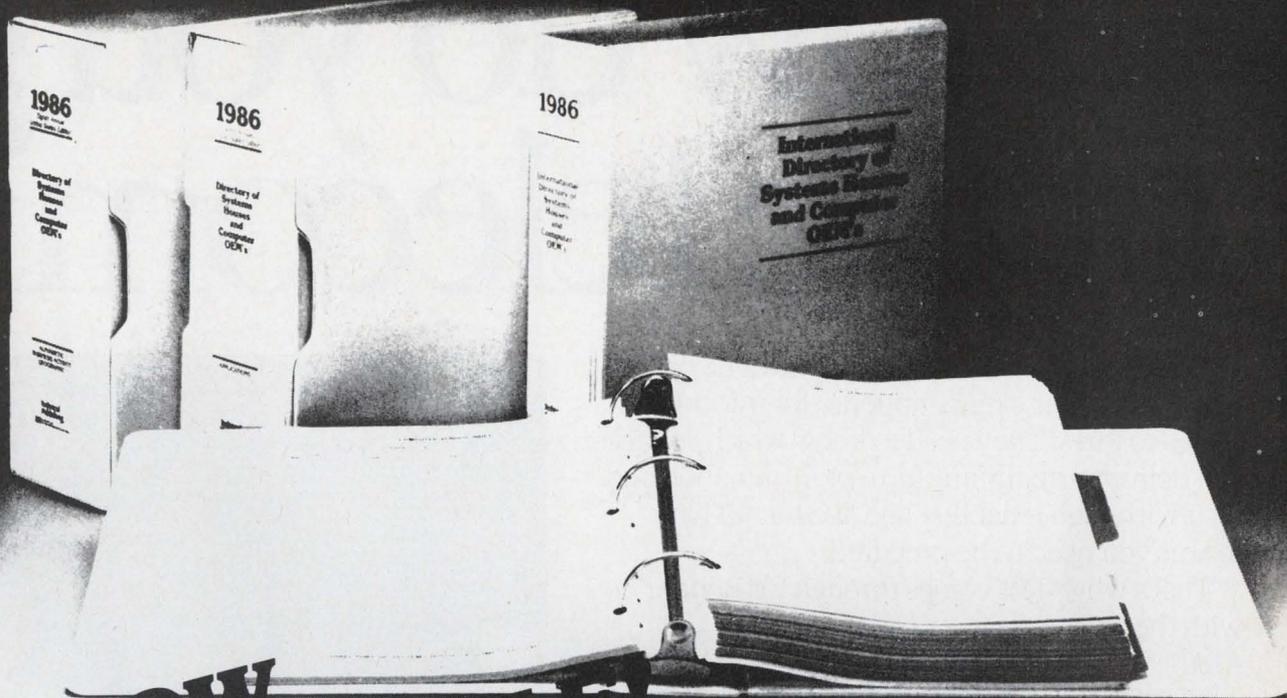
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PEOPLE

Determined to Look Further Down the Road

Chilean Fernando Flores applies philosophy and sociology to his company's innovations.

BY SUSAN KERR

In heavily accented but fluent English, Fernando Flores expounds on his view of the natural intertwining of computer science, philosophy, linguistics, and management.

"What we need is a new conception of what technology is," says the co-founder and chairman of Action Technologies Inc., an Emeryville, Calif., software house. He concludes that rather than concentrating on the notion that computers should act as substitutes for human minds—à la artificial intelligence—we should be trying to define human actions and see how computers can coordinate and facilitate these most native of processes.

Complex, serious thoughts come easily to Flores, 43, who has the benefit of a unique background. Born and raised in Chile, Flores, at the age of 29, became Salvador Allende's Minister of Finance and the youngest cabinet member in Chile's history. Prior to this, Flores had earned an engineering degree and had been acting provost at Santiago's Catholic University. He talks sparingly of his government experience, describing his appointment to political office this way: "The big positions are not given by [educational] degrees but by influence. To be president of a corporation, it's the same thing."

After the overthrow of Allende's government one year later, Flores was imprisoned. Through the efforts of Amnesty International and the U.S. State Department he was released three years later, in 1976, and came with his wife and five children to California where he took a job as a research associate at Stanford University.

Although he prefers not to discuss his imprisonment, Flores briefly comments, "One of the things I learned in prison is that if you're going to do something, do something good . . . It was a tremendous interruption going to prison and coming to a new country. It gave me the determination and ambition



FLORES: Computers should coordinate human actions, not be a substitute for the mind.

to look further."

Flores did look further than Stanford. He soon moved north, up the San Francisco Bay to Berkeley, where he worked on his PhD at the University of California. While returning to his engineering roots, Flores succumbed to his other loves—philosophy and linguistics—and developed a thesis that was far out, even by Berkeley standards. In it, he makes use of philosophical insights to explore the "office of the future."

Out of his thesis effort came Action Technologies. Partially funded by Flores himself, the four-year-old company offers a software product called the Coordinator. Currently used by more than 9,000 workers, including those at Frito-Lay and Du Pont, the IBM PC-based Coordinator is, according to Action Technologies president Chauncey Bell, "the next generation electronic mail with active processing."

Pressed to describe his product in a nontheoretical manner, Flores falls short. "This is a product for coordinating

actions, improving management," he says, unwilling to define it in typical high-tech terms.

Designed for work group "conversations" via computer, Coordinator attempts to recreate the natural process of communication, albeit through snazzy computer technology. For starters, individual keystrokes exist to categorize the conversation into such helpful headings as requests and offers.

These headings are designed to make Coordinator live up to its name, coordinating the flow of work and ideas. Flores stresses that for managers "information is not the important aspect. What is are the signals that you have to act upon . . . To be an executive is to be in a permanent dance with people. For example, you're watching for something to be completed and you're reformatting if it's not complete. You're in constant action."

A computer is one of the best tools around for keeping track of these actions, he adds.

How Flores keeps track of his own life is another story. Described by Bell as "an excellent manager and inspiring to work for," Flores attempts to pass those traits on. Along with Action Technologies, Flores also founded and is actively involved with Logonet Inc., Berkeley, Calif., an educational and training firm. Roughly 10,000 people a year participate in Logonet workshops, some of which Flores leads, to become "more productive in action, a better listener and distinguisher, and to apply it to different domains," he says.

Here's a sampling of Logonet course titles: "The Competitive Edge Sales Workshop," "Excellence in Listening, Excellence in Action," and "Passion, Relationship, and Peace." Many Fortune 500 executives have attended these courses.

In addition, Flores just coauthored a book entitled *Understanding Computers and Cognition* (Ablex Publishing Corp., Norwood, N.J., 1986). Given Flores' involvement in numerous projects, Bell concedes that "with respect to this company, we'd go faster if he were around more, but it's not clear that the market would have needed us to go faster."

Flores, who has not returned to Chile since his departure more than a decade ago, says, "A subject of concern is the democratic future of the people of Chile. But at the same time I accept my entrepreneurial life in America." ■

BOOKS

What Price Success?

WINNING AT PROJECT MANAGEMENT: WHAT WORKS, WHAT FAILS, AND WHY by Robert D. Gilbreath, John Wiley & Sons, New York (1986, 329 pp., \$29.95).

THE SECRETS OF SUCCESSFUL PROJECT MANAGEMENT by Ralph L. Kleim with Alexander Hamilton Institute, John Wiley & Sons, New York (1986, 172 pp., \$16.50).

BY GERALD M. WEINBERG

Anyone who has ever managed a project has struggled with the question: how can we compare two projects to find out which one was most successful? If we could successfully answer that question, project management would be well along the path to becoming a science.

What would be a good metric for reviewing two management books? If I choose price, Ralph Kleim's *The Secrets of Successful Project Management* is a truly remarkable achievement. But if I choose price per idea, Robert Gilbreath's *Winning at Project Management* is in a class by itself.

Unfortunately, there are so many possible metrics that almost anyone can claim success for any project, or book. I knew I was going to love Gilbreath's book when he addressed this very issue on the first page: "The variables by which we measure success or failure are neither objectively defined nor independent. When we speak of a project exceeding its budget we could be pronouncing it a cost control failure. The exceeded budget, however, may have been poorly contrived, erroneously calculated, and totally unrepresentative of the work to be performed. Rather than a breach in cost control, this 'failure' may be one of poor budgeting. Or given an excellent budget and careful, disciplined cost control efforts the budget may still be exceeded due to schedule delays or technical errors, which almost always have negative cost ramifications. Rather than a cost control failure, we may be merely witnessing a *cost manifestation* of a technical failure. These three primary project performance factors (cost, schedule, and technical) are so highly interrelated and interdependent that any change in one will almost certainly cause (or have been caused by) changes in the others. Failure is contagious."

If I could consistently commu-

nicate the true meaning of this one paragraph to my clients' executives and project manager, I would pay a hundred times the price of Gilbreath's book. Yet virtually every page contains a nugget or two of project management wisdom that's worth at least as much. If you manage projects, or have projects managed for you, or even participate in projects that are (or should be) managed, buy this book and read it every day until you have been through it three or four times.

I cannot make the same recommendation for *The Secrets of Successful Project Management*. Like Gilbreath's book, Kleim's is about project management in general, not just information systems projects. But Gilbreath's book does not suffer from an excess of generality when applied to the narrower realms of software or hardware development. Kleim's book, on the other hand, doesn't stand up to its many dp-specific competitors as an introductory text. To take just one example, Meiler Page-Jones's *Practical Project Management: Restoring Quality to Dp Projects and Systems* (Dorset House, New York, 1985) has much more to recommend it.

Moreover, the specialist in information processing will find lots of Kleim's book offensive or, at best, amusing. For instance, when he talks about the use of computers in project management, the discussion is so naive that dp readers will tend to discredit what is good about the rest of the book.

The Secrets of Successful Project Management might be suitable as a textbook for a very first course for novice project managers, but not in information systems projects.

Winning at Project Management is not entirely flattering to dp professionals either, particularly in the chapter entitled "Information: Scapegoat and Panacea," but Gilbreath backs up his statements with solid information, experience, crisp writing, and pointed reasoning. We may not like what an "outsider" has to say about our bad side, but if we're serious professionals, we'll read it, believe it, and use it to improve. ■

Gerald M. Weinberg's latest books include *The Secrets of Consulting* (Dorset House, New York, 1986) and *Becoming a Technical Leader: An Organic Problem-Solving Approach* (Dorset House, 1986).

CALENDAR

JULY

Sixth National Conference and Exhibition of the American Association for Artificial Intelligence.

July 13-17, Seattle. Contact American Association for Artificial Intelligence, 445 Burgess Dr., Menlo Park, CA 94025-3496, (415) 328-3123.

ACM SIGGRAPH '87 (14th Annual Conference on Computer Graphics and Interactive Techniques).

July 27-31, Anaheim, Calif. Contact Association for Computing Machinery Inc., Special Interest Group on Computer Graphics, Conference Services Office, 111 E. Wacker Dr., Chicago, IL 60601, (312) 644-6610.

AUGUST

25th Annual Conference of the URISA (Urban and Regional Information Systems Association).

Aug. 2-6, Fort Lauderdale, Fla. Contact URISA, 319 C St. SE, Washington, DC 20003, (202) 543-7141.

1987 International Congress on Planning and Design Theory.

Aug. 17-20, Boston. Contact the American Society of Mechanical Engineers (ASME), 345 E. 47th St., New York, NY 10017, (212) 705-7722.

Comdex/Australia '87.

Aug. 19-21, Sydney. Contact The Interface Group, 300 First Ave., Needham, MA 02194, (617) 449-6600.

AIME '87 (Artificial Intelligence in Medicine Europe).

Aug. 31-Sept. 3, Marseilles, France. Contact IIRIAM (Institut Internationale Robotique et Intelligence Artificielle de Marseille), 2 rue Henri Barbusse, 13241 Marseille Cedex 1, France.

SEPTEMBER

PC Expo.

Sept. 1-3, New York. Contact PC Expo, 333 Sylvan Ave., Englewood Cliffs, NJ 07632, (800) 922-0324 or (201) 569-8542.

Federal Computer Conference.

Sept. 29-Oct. 1, Washington, D.C. Contact Registration Director, Federal Computer Conference, P.O. Box N, Wayland, MA 01778, (800) 343-6944 or (617) 358-5356.

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Real Time

READERS' FORUM

Post-Graduation Thoughts

To the class of 1987, as to most recent graduating classes, the employment opportunities for engineers and computer scientists throughout the private and public sector appear to be unlimited. It's no secret that opportunities abound for dp professionals with skills in database management, the latest programming languages, systems design, data communications, and other disciplines that journalists describe as "high tech."

Twenty years ago, graduating engineers hit the job market with the same enthusiasm. Wasn't there ample opportunity for designers of the translators and mainframe computers that heralded the information age? Unfortunately, years later, many 1967 enthusiasts learned about job stagnation.

As an alternative, today's graduates should look beyond entry-level positions and the euphoria of earning \$25,000. They should be asking what the job market is like for those with five and 10 years' experience—a narrow technical or application-specific experience at that. How do such specialists compete in the job marketplace? One thing is certain: professionals will continue to find that advancement is slow for those who remain totally dedicated to technology. As with other members of corporate society, advancement in income and position comes to those computer professionals who migrate into management.

There is, however, a growing community of computer professionals who are less willing to compromise their technical and professional careers. They have selected a dp/MIS career in answer to a series of academic, scientific, and personal challenges. A management position is not part of their career plans. How do they plan for the future?

Frustrated, a number of them leave corporate or government careers. They become consultants. Most, unfortunately, never get beyond a one-person consultancy. They learn that even the smallest consultancy needs to be sales oriented in order to attract a continuing flow of new contracts.

Many professionals, however, are finding an alternative between being corporate employees and independent consultants. They are obtaining assignments as contract consultants, working through firms that specialize in filling the range of corporate software and computer assignments by retaining temporaries on a project basis. Government studies

show that use of temporaries is growing 20% annually and is currently a \$10 billion-a-year industry.

Employers are moving in the direction of contract consultants as a way of eliminating overstaffing for peak or seasonal loads or as an efficient way to fill job vacancies rapidly. For contractors, despite their less favorable treatment under the new tax law—specifically by Section 1706—there is the chance to make peak salaries, normally 10% to 20% more than the comparable staff salary, while avoiding corporate posturing.

For the class of 1987, the trend toward the use of contract consultants has an even more important meaning. To begin with, being a computer consultant is not synonymous with early retirement or corporate layoffs. More times than not, contract consultants are in their early thirties. Their professional profile includes a bachelor's and a master's degree, often in computer science or a related engineering field, along with approximately three to eight years of very current and relevant work experience. Dig a little further and you'll also find that many have been involved with computers since high school.

Often, their experience includes programming in the latest languages as well as a background in DBMSs and in the use of pcs as standalone or mainframe interfaces. In short, to professionals who seek their primary career challenge in technology, contract consulting can mean the end of job stagnation.

JOHN J. DAVIS
President

Worldwide Computer Services Inc.
Wayne, New Jersey

Stock Shock

General Motors bought EDS
To make its ailing systems go.
It issued stock of a whole new class,
To gain the talents of Ross Perot.

General Motors bought EDS,
And found itself hit by culture shock.
EDS people began to aggress,
And Ross had grown up on a different block.

General Motors bought Perot out,
His managers followed in a flock.
But nobody's putting up the dough
To buy out the holders of Class E stock!

FREDERIC G. WITHINGTON
Retired Industry Analyst
Concord, Massachusetts