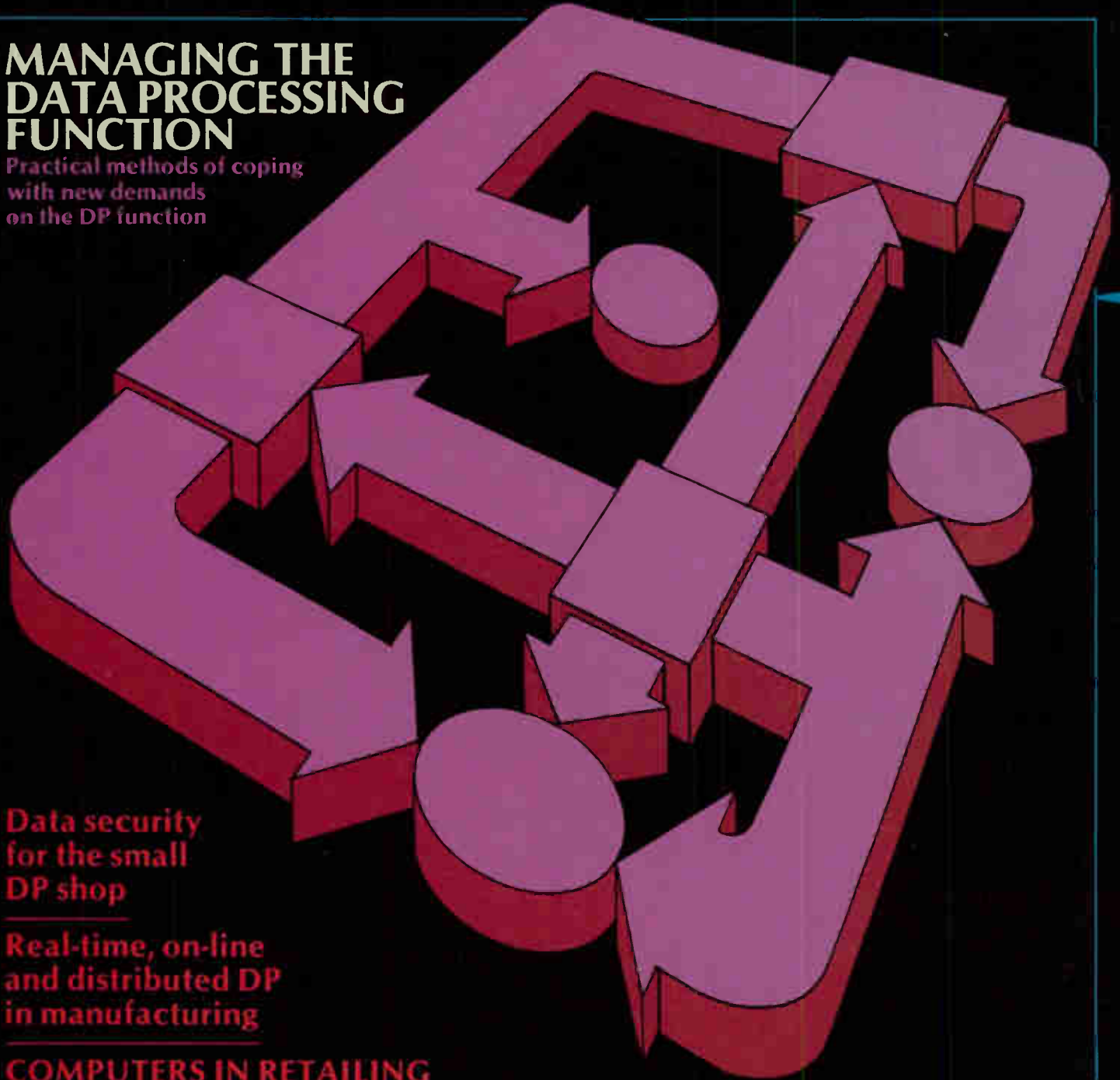


DATA SYSTEMS

MANAGING THE DATA PROCESSING FUNCTION

Practical methods of coping with new demands on the DP function



Data security for the small DP shop

Real-time, on-line and distributed DP in manufacturing

COMPUTERS IN RETAILING
New hardware/systems offer wider options to growing user base



A DEC is a DEC is a DEC is a DEC . . . bu

EXPERIENCE

We were there at the beginning.

The DEC line-up of terminals offers everything you need.

So why should you choose Lanpar as your source for DEC terminals? One simple reason. We've been there from the start. No other distributor comes close to matching our experience with DEC terminals. Which is why we're by far the biggest independent distributor of DEC terminals in Canada.

Remember the LA30? How about the VT50? The VT05? The VT52? The LS120? The LA36? We still service them. We know them inside out and backwards. We understand how they work and where they work best and how they can, and should, fit into every conceivable user situation.

And we've continued that expertise into each new generation of DEC terminals. Today's magic names are the LA34, the LA120, and the VT-100. Tomorrow, knowing DEC's design and research capabilities, it will be something else even better.

The point is this: we are so experienced, with the terminals DEC has made, that we can offer you advice, servicing, pricing, and

follow-up that none of

the newcomers to the business can hope to match. To us, a DEC terminal isn't just one piece of hardware that we buy from DEC and ship along to you. It's something we have to know and understand. Really understand. And the reason we do the job better is, quite simply, that we've not only specialized in DEC, but we've also been doing it longer.

We know so much about DEC terminals, we can even customize them.

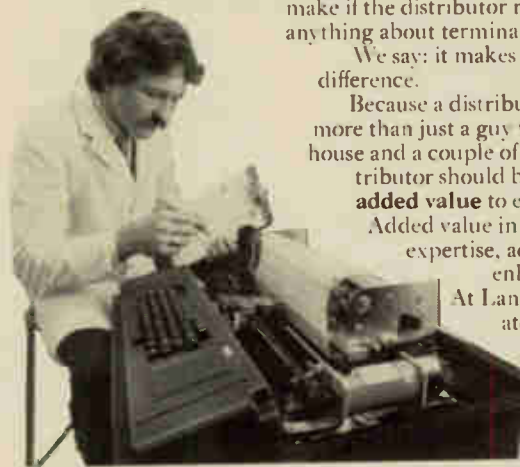
At this point, you may be asking: "What difference does it make if the distributor really knows anything about terminals?"

We say: it makes a whole lot of difference.

Because a distributor should be more than just a guy with a warehouse and a couple of trucks. A distributor should be able to offer **added value** to every terminal.

Added value in the form of expertise, advice, product enhancement.

At Lanpar, we've created a special R&D team that can help you get more out of your DEC terminal.



Among their achievements:

- making an LA36 compatible with an IBM2740
- making the LS120 and the LA120 Burroughs-compatible
- offering a board that made it possible to cluster up to seven VT52's to a single printer (without this special board, you would have needed one printer for each VT52).

This kind of expertise doesn't fall out of the sky. It started with our own origins as a company: our principal started in the business by designing a new computer language and selling it to Bell and AT&T; our company has worked in systems design and time-sharing, so we understand the communications and software end of the business thoroughly. In short, we are totally in tune with all of the needs of the end user. We have recruited some of the brightest minds in the business, and their raw talent—plus years of experience—has built an impressive base of technical and design information within our company. (Our own technical manuals, for example, are often more detailed than those of the manufacturers themselves!)

Lanpar has offices in:

Montreal (514) 482-4773, Quebec City (418) 653-1345, Ottawa (613) 238-3966, Toronto Sales and Service (416) 495-9661, Administrative Offices (416) 495-9123, Kitchener (519) 886-5970, Winnipeg (204) 632-4349, Edmonton (403) 453-5946, Calgary (403) 253-8866, Vancouver (604) 689-1516. Service available from Service Centres located in 14 major cities across Canada.



there's one overriding reason to get it from Lanpar.

LENCE

Our size and resources give you more ways to obtain DEC terminals, and much better service.



You're probably not surprised to hear that we're Canada's largest independent distributor of terminals. But you may not realize what our sheer size (150 people)—and experience—means to you.

First it means flexibility. We have the financial strength to be able to offer a variety of sale, lease and rental plans to suit your exact requirements. We pioneered the 'No Stranglehold' lease, offering long-term rates yet with one-day cancellation. And our lease rates can include service, installation and delivery, so you don't have to chase around after a variety of third parties and worry about unplanned "extra" costs that creep in after you've made the deal.

Second, it means depth. We've got the inventory, we've got the coast-to-coast distribution network. Our sales offices in nine cities all have their own stock, so we can conduct demonstrations in your office and ship fast. Our warehouses in Toronto, a new one in Calgary, and an upcoming one in Montreal, mean added inventory depth for prompt delivery.

And third—and perhaps most important—it means better servicing. Our SERVICE POWER® program promises an average two-to-four hour response time. We also have an Application Support Group that fields phone calls and offers immediate answers. Try phoning any other distributor and getting that level of instant technical expertise and help

Yes, it does matter how you choose your source for DEC terminals

So let's go back to our first question: since DEC terminals are, themselves, so undeniably superb, does it really matter where, or whom, you get them from?

Yes.

Because when it comes to terminals, you face a simple choice. You can either get the terminal, period.

Or you can get the terminal, plus a whole lot of extra benefits at no extra cost. Like experience and problem-solving capability. Customization for compatibility with your computer needs. Better terminal, depth for faster delivery. A coast-to-coast service network. Competitive pricing and flexible financing through a wide array of sale, lease and rental packages.

It makes sense to insist on these extra values. And because Lanpar, and only Lanpar, offers them, we've been able to carve out a growth curve that is nothing short of breathtaking. Our client list includes: Alcan, Labatts, Canada Cement Lafarge, C-I-L, CTV, Federation de Caisses d'Entraide, University of Victoria, Canadian Employment Immigration Commission, University of Alberta, SAIT... in all, over 1,500 clients buy regularly from us. These companies are smart. They're sold on having the right terminal of course... but they want more. They want those extras that Lanpar offers.

And that's precisely why, when you think of DEC, you should automatically think of us.

Reader Service Card Number 141



 **LANPAR**

MARKET BRACES FOR LA120 PRICE INCREASE; LANPAR CUTS PRICE TO \$2699* (F.S.T. Incl.)

***FOR LIMITED TIME ONLY**



Order for delivery by May 1
and beat the coming LA120
price increase

Lanpar, Canada's largest independent distributor of terminals, has announced a major new pricing initiative—a lowering of the price on the LA120 at the exact moment that the market is awaiting another price increase.

"We know the LA120 price may soon list at \$2,900 to \$3,000," explains Lanpar vice-president Rene Pardo, "because of our supplier's increase. But we're reducing our price to \$2,699 for all new orders placed for delivery by May 1, 1981. We want everyone who is contemplating the purchase, lease or rental of an LA120 to know that Lanpar is the best place to save money right now."

Pardo is quick to point out that Lanpar has always offered outstanding value on the LA120. "Not only have our overall pricing policies been aggressive, but our very flexible leasing program has been another big factor in attracting more potential LA120 users to Lanpar. For example, we can include such features as delivery, installation and service as part of the monthly lease rate—which doesn't happen when the end user has to deal with third parties." Two more reasons to go to Lanpar for the LA120 are the recent addition of the 212A compatible modem for 1200 baud communications, plus Lanpar's famous SERVICE POWER—coast-to-coast service network that promises an average two to four-hour response time.

Lots of good reasons to go to Lanpar. But right now, the one that most people will be talking about is the new lower price on the LA120. But hurry—this offer is good only on orders placed for delivery by May 1. Act now, and save.

LA120 offers top performance 120-180 cps printing in DEC, HP, Data General
and many other environments

The LA120 Dec Writer III teleprinter begins where other 1200 baud interactive terminals leave off. Its major strength lies in its optimized bidirectional printing. Printhead and paper motion are always under microprocessor control, to assure shortened print path and minimized mechanical motion. The results are higher print throughput and higher flexibility of the print mechanism.

The LA120 supports line speeds from 50 to 9600 baud, selectable right from the keyboard, in full or half duplex. The LA120 can by simple operator or cpu control reduce character size, so that 132 characters per line will fit on a standard 8 1/2 x 11" size form for easy filing and much more convenient handling. Tabbing, margin controls, forms handling,

variable line spacing, ANSI compatible printhead positioning, are all standard.

The LA120 is the natural choice in any 1200 baud ASCII environment, and performs well with host systems from HP, Data General, Honeywell, IBM, Prime, Univac and many more. It's also the right choice when upgrading host consoles from 30 cps or less, to the higher speed of the LA120.

Best of all, the LA120 is now available from Lanpar at a low price of just \$2,699—at the precise time when prices everywhere else are heading for the \$2,900-\$3,000 level. It makes more sense than ever, to think of Lanpar when you think of the LA120 or any other DEC terminal.



Lanpar Limited has offices in: Montreal (514) 482-4773, Quebec City (418) 653-1345, Ottawa (613) 238-3966, Toronto Sales and Service (416) 495-9661, Toronto West & Mississauga (416) 491-8031, Kitchener (519) 886-5970, Winnipeg (204) 632-4349, Edmonton (403) 453-5946, Calgary (403) 253-8866, Vancouver (604) 689-1516.

*Service available from Service Centres located in 14 major cities across Canada.

Reader Service Card Number 142

CANADIAN DATASYSTEMS

APRIL, 1981 VOLUME 13, NUMBER 4

DDP system supports data entry	30
A distributed processing system helps a Winnipeg payroll service bureau	
COVER STORY	
What to remember in managing DP	41
Pressures in some departments may require radical restructuring of the DP function	
Computer modelling regains popularity	48
In a tight economy, financial modelling and planning grows in importance	
EDP AND THE LAW	
The law keeps sharp eye on data use	52
This case bolsters a hard-line approach to information confidentiality	
Security in the small data centre	55
Guidelines show why even the smallest centres need a solid security program	
Integrating source graphics yields benefits	61
Ingersoll-Rand Corp. merges engineering drawings with computer-output microfilm	
Data comm aids re-order chore	66
Improved data communication net speeds Canadian Tire's stock-ordering	
SPECIAL REPORT	
Widening equipment choice boosts POS	70
Use of computers in retailing is typified by point-of-sale systems	
Back-tracking the novice APL programmer	81
A tongue-in-cheek look at how previous languages 'program' a programmer	
Real-time, on-line and DDP in manufacturing	83
State-of-the-art DP is nice, but sometimes you don't need it	
Planning the capacity of a DP installation	91
Part One of a look at how best to expand your EDP capabilities	
Alberta looks at computer communications	95
The provincial government aims to support creation of high-tech industry	

COVER:

The ever-changing flow of demands on the DP manager is symbolized in this multi-faceted graphic.

NEXT MONTH:

The challenging goal of getting computers to speak and to listen will be featured, along with a report providing guidelines on how to plan computer capacity.

DEPARTMENTS

Letters	5	In the news	98
What's new	7	People	104
Microworld	16	Calendar	105
Software update	19	EDP world	106
EDP scan	20	Viewpoint	108
Management memo	23, 25	Career opportunities	109-112
Comment	27	Advertisers' index	112
Reader service card	113-114		

Data Communications Managers:

Here's a sample of what Dataswitch can do for you ...

Develcon's Dataswitch is an intelligent central switching system which will provide network efficiency for your computer service installation.

Capacity

- * Over 2 000 subscribers (terminals, ports or modems)
- * Over 1 000 simultaneous connections
- * 64 classes of service
- * 31 programmable messages
- * 64 account names

Transmission

- * Speed — 2.4 Mbps (total)
— Autobaud to 19.2 Kbps (individual)
- * Method — ASTSDM

Interface

- * RS-232-C
- * RS-366-C
- * RS-422-C
- * 4-wire LDD5

Command Language

- * Format — English
- * Size — 31 primary commands
— 29 sub commands

Access Control

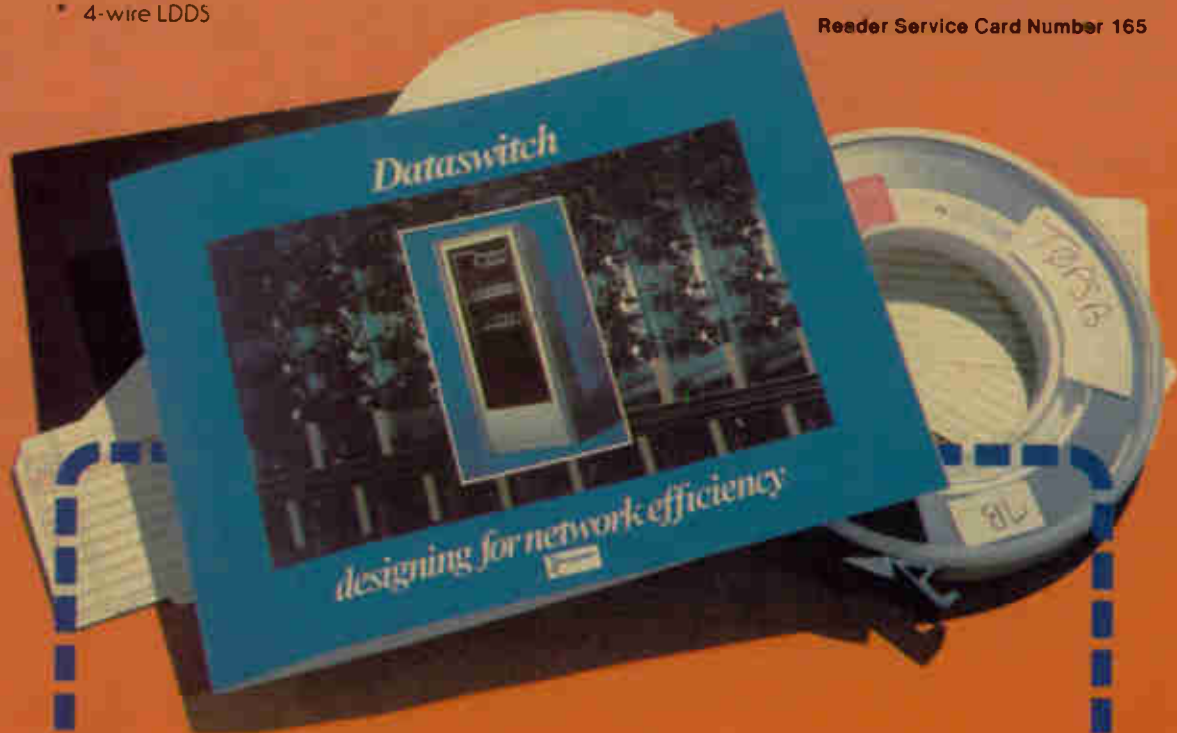
- * Computer controlled, manually assigned
 - Via parameters
 - Via restrictions
 - Via accounting
 - Via priority

Flexible Connection

Full Statistics Output



Reader Service Card Number 165



... To find out more

Use this handy coupon to get your free copy of our new booklet, *Dataswitch: Designing for Network Efficiency*. Or call us at (306) 374-2202.

Return coupon to: Develcon Electronics
108 - 103rd Street East
Saskatoon, Saskatchewan S7N 1Y7

005-04-81

Name

Position

Company

Address

City Province Postal Code

APRIL, 1981
VOLUME 13, NUMBER 4

TOM WEISSMANN
editor (tel: 416-596-5907)

MIKE MINNICH
associate editor (tel: 416-596-5908)

LINDE S. A. FISTELL
assistant editor

JOHN BELLINGER
editorial art director

TOM MESSER
Ottawa editor

TONY WHITNEY
Vancouver editor

VICTOR G. ZELLERMEYER
publisher (tel: 416-596-5908)

ARVID STONKUS
national sales manager
(tel: 416-596-5909)

ROBERT GRAINGER
district sales manager
(tel: 416-596-5910)

SHANE BELKNAP
district sales manager
(tel: 416-596-5993)

BRUCE BURNETT
West Coast sales manager (Canada)

LAUREN ARFFA
Sales manager Alberta/Sask.

FRANK LEDERER
California and New England
representative

G. M. JAMES
U.K. and European sales

JULIA HITCHCOCK
advertising art director

MIKE KATAMAY
production manager
(tel: 416-596-5919)

ROSS MADDEVER
promotion supervisor

J. C. HENRY
circulation manager

R. G. SCOTT
research manager

D. B. MCKERCHAR
group publisher

CHARLES WILSON
assistant vice-president

CANADIAN DATASYSTEMS is published and printed monthly by Maclean Hunter Ltd., 481 University Ave., Toronto, Canada, M5W 1A7. Telephone: 596-5000. Maclean Hunter Business Publishing Company, G. W. Gilmour, president; R. W. Robertson, vice-president. Offices: 625 Ave. President Kennedy, Montreal, P.Q., H3A 1K5. Tel: 845-5141; Suite 600, 1111 Melville St., Vancouver, B.C. V6E 3V6. Tel: 683-8254; Suite 202, 10116 105th Ave., Edmonton, Alta., T5H 0K2. Tel: 428-6886; 30 Old Burlington St., London W.1, England, Tel: 01-434-2233. Subscription: Canada, \$17.00 per year; 2 years, \$22.00; 3 years, \$28.00; U.S.A. & U.K., \$22.00 per year; elsewhere, \$35.00 per year. Single copies, Canada, \$3.00; U.S.A. & U.K., \$4.00; elsewhere, \$5.00. Directory issues \$18.00. Group rates: six or more subscriptions to Canadian addresses, \$14.00 per subscription per year. Subscription Dept., Canadian Datasystems, Box 9100, Postal Station A, Toronto M5W 1V5. Copyright © 1981, Maclean Hunter Ltd. Second class mail registration number 2309

Member Canadian Circulations Audit Board Inc.
Member Canadian Business Press



which praise, castigate,
comment and inquire

An 'attitude problem'?

The article "Software graphics integration key to future office systems" (Jan., p.35), attacks a very fundamental issue.

White collar workers account for 50% of today's average business overhead and 50% of the workforce is engaged in information processing aspects in some form.

In contrast, office productivity has only increased by about 4% in the ten years preceding 1978. Lack of capital (productivity) investment is seriously lagging in the office environment and is only about 8.5% of the productivity investment that is spent on industrial workers and is only 6% compared to farm workers.

Therefore, the greatest business productivity gain can be made in the office environment, once management focuses on this 50% of their business overhead.

With white collar labor costs increasing and associated shortages of skilled help, breakthroughs have occurred in specific areas such as word processing and facsimile generation. Yet, none of these systems address themselves globally to the communication and the information flow of business, nor is an overall systems approach visible to integrate it into a total information base. Fortunately, some of these systems are developed by companies with EDP background.

Integration into the data processing environment may be more of an attitude problem and proper defining of objectives between users and EDP people than a technology question. It may also point out the fact that solution of a "Specific Task Information Question" is easier to manage than a "Total Information Database Approach."

Egan Tancre
Senior Systems Consultant
M.I.C.R. Systems Ltd.
Toronto

'Professionalism' supported

I found Dan Mersich's article titled 'Making DP a profession is an academic question', (November 1980 issue) trite nonsense. He dismisses the idea of professionalism with two arguments, one completely irrelevant, relating to the use of programs by an 'accredited programmer' outside the country, the other almost as useless, indicating if a programmer eats, then he must be a professional.

In the mid-1960's, as President of CIPS, I formed an accreditation committee, because many of us, even at that time, were fed up with the garbage being thrust on the public, to the detriment of the profession. While disappointed at the

progress which has been made since that time, at least some steps have been taken to develop a Certificate in Data Processing, and work is continuing on the professionalism issue.

The need for some acceptable standards to protect the public against the insults that are thrown at them in the name of data processing has never been greater. Unfortunately, until our universities and colleges, as well as the profession itself, tackles the problem of adequate training, the quackery is going to be with us for some time.

I rejoined the national CIPS executive as 2nd vice-president to try and accelerate the development of an industry that I can be proud to belong to. Mr. Mersich's comments are sheer twaddle.

Bernard A. Hodson
CIPS 2nd VP.

Mr. Mersich replies: Judging from the tone of Mr. Hodson's letter I suspect that my comments pricked his vested interest. By his own admission he is disappointed with the progress his group has made toward creating a professional body for EDP programming. Again by his own admission, he states that there is an urgent need for such a body; observing correctly that the buying public is being badly treated when it comes to programming.

My article did not suggest that the quality of programming available on the open market is high enough, it merely reflected my doubts that an officially recognized professional body for EDP would have the ability to raise standards to high levels.

Mr. Hodson's own admission of that inability, in spite of a compelling need, would suggest that the doubts expressed in my article are not completely unfounded.

MRP of interest

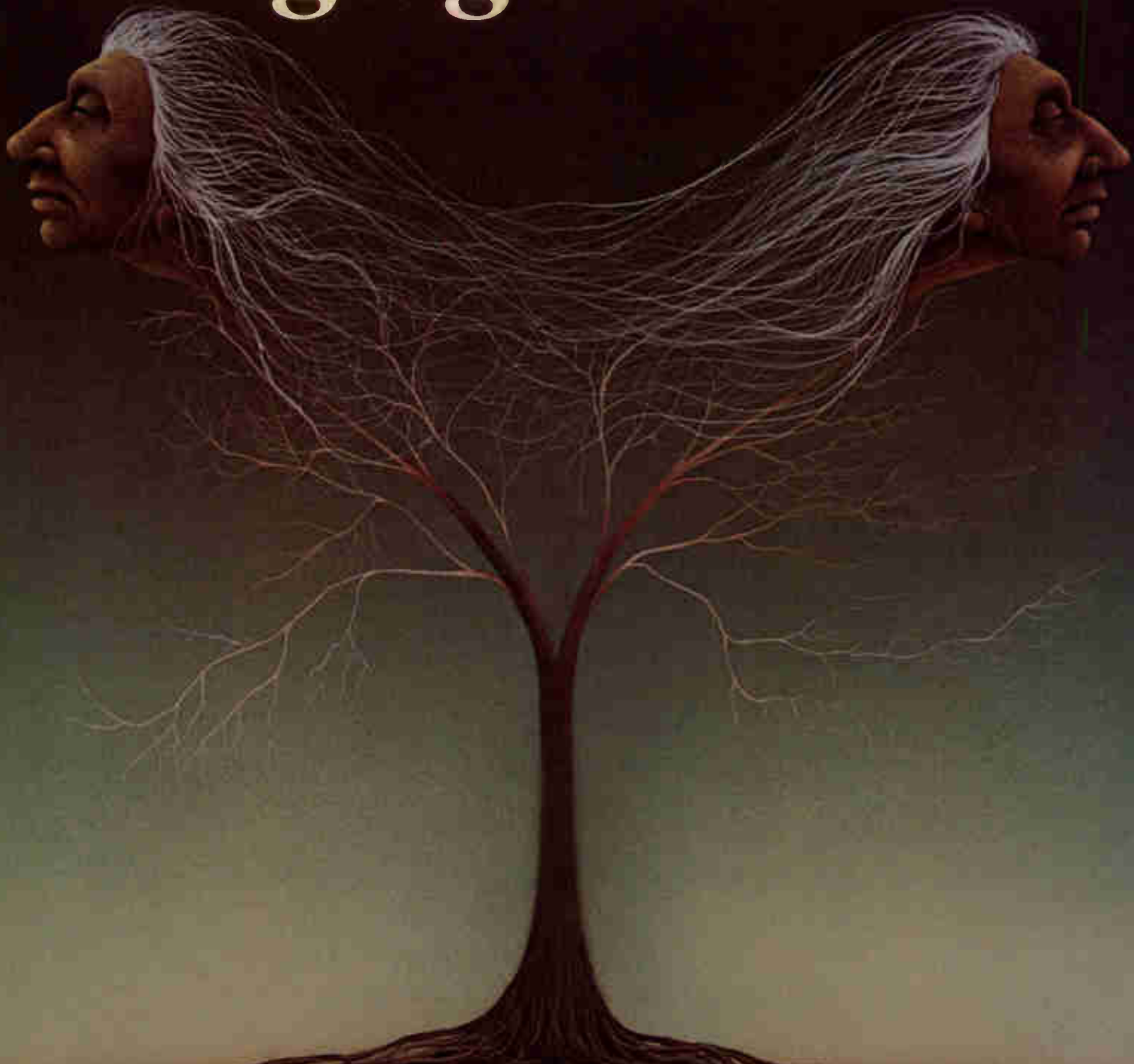
The article 'Manufacturing Resource Planning' by Guy J. Champagne and John L. Noel in the October 1980 issue has been brought to our attention and is of great interest to us.

We would appreciate copies of the entire series on Manufacturing Resource Planning. Should this not be available from you, perhaps you would be kind enough to let us know where we may obtain this series.

Phil D'Eon
President
Atlantis Flight Research Inc.
Mississauga, Ont.

Requested material is being forwarded,
Ed.

Imaging the future.



**Analyze
and
support
your
instincts.**

Evaluate corporate assumptions with **IFPS**, EXECUCOM's Interactive Financial Planning System. By seeing images of what could be, you gain the confidence to act. **IFPS**. Simplicity, speed, efficiency, and independence.

EXECUCOM

**Our business is
supporting the mind
with knowledge and
technology.**

PO BOX 9758. Dept. CDS Austin, Tx. 78766 (512) 345-6560

Poster reproduction of this Frank Howell painting available upon request.

WHAT'S NEW

Taylor MOD 3100



Hewlett-Packard 7580A



Sinclair ZX80



CIS System 6000



COMPUTERS

Medical office system

The Product: Doctors' computer

Supplier: Computer Information Services Inc.

Features: The System 6000 is designed to handle problem areas in the management of the physician's practice such as speeding up receivables, controlling expenses, improving productivity, and handling paperwork. The system's practice management skills include receivables aging reports, receivables patient status list, receivables day sheet, patient statements, AMA and Blue Cross/Blue Shield insurance forms, practice analysis reports, and patient recall reports.

As well, the system handles accounts payable, general ledger/financial statements, payroll, check-writing and word processing.

The system is easy to operate: only simple typing skills are required, and no math or programming abilities are needed. Programming updates and modifications are also offered.

Reader Service Card Number 1

Two operating systems

The Product: business computer

Supplier: Digital Equipment of Canada Ltd.

Features: The Datasystem 315 can be used as an entry-level small business computer, a network node, or a store-and-forward terminal. It is based on the PDP-11/23 microcomputer, and runs on the CTS-300 commercial operating system or the RT-11 general-purpose system.

The 315's 64k byte memory can be expanded to 256k bytes. Software developed in either operating system can be used on larger DEC systems.

The basic system includes a VT100 video terminal, a dual-density floppy disc drive, and an LA120 180-cps printer.

Reader Service Card Number 2

Connects to TV

The Product: personal computer

Supplier: Gladstone Electronics

Features: The Sinclair ZX80 computer is compact (16.5cm x 21.5cm x 3.8cm), lightweight, and plugs into a wall socket. Any television set can function as a display for the ZX80; the computer is

attached to the set's antenna connector.

Programs, which are written in Basic, are sorted on cassettes. An accompanying user manual is 128 pages long.

Reader Service Card Number 3

Offers multi-combos

The Product: Computer systems

Supplier: Taylor Instrument Co.

Features: The Taylor MOD 3100 computer systems offer combinations of standalone, multiple and remote operation. They feature fully integrated hardware and software, a wide range of capacity, common software and hardware, distributed intelligence, and systems compatibility. They can be configured to operate in combination with the Taylor MOD 3 System for full process management and control.

The MOD 3103 and MOD 3106 computer systems offer expanded capability, unconstrained memory, system configuration flexibility and cost effectiveness within the series of MOD 3100 Systems.

The MOD 3103 is a 64K word system with primary memory expansion up to

256K words, allowing for economical small unit processes and remote operations using a few loops. The MOD 3106 is a high-end growth system of 64K words with primary memory expansion up to 512K words.

Reader Service Card Number 4

PRINTERS/PLOTTERS

Size breakthrough

The Product: plotter

Supplier: Hewlett-Packard (Canada) Ltd.

Features: The HP 7580A plotter is said to be half the cost and size of competing high-performance plotters. Its design is not based on rotating drums or stationary beds, but uses a micro-grip drive mechanism and an air-foil-shaped bed which allows size and price reductions. It measures 43 in. wide, 22 in. deep and 47 in. tall.

It plots on paper, vellum and polyester film, and can automatically select colors, line widths, and character fonts. Media sizes range from 8 in. x 10½ in. to 24½ in. x 46½ in. Its maximum speed is 24 ips, and it is able to return to a predefined point within 0.002 in.

Reader Service Card Number 5

AUTHORIZED DISTRIBUTOR



TEXAS INSTRUMENTS DATA TERMINALS



FOR
IMMEDIATE
DELIVERY

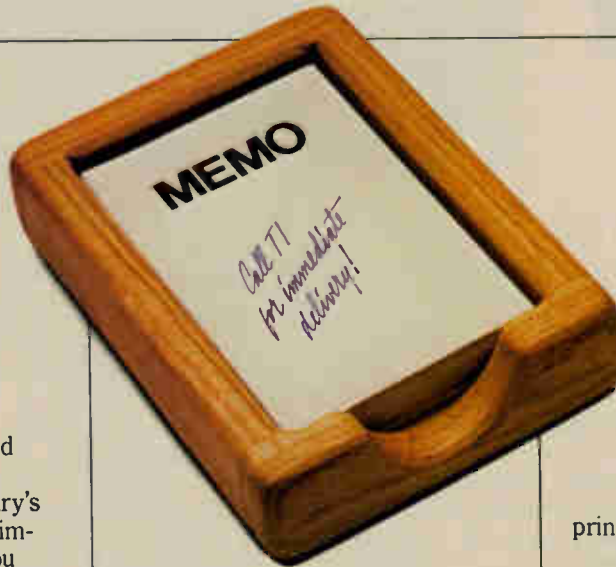
Wait Reduction Centers.

Authorized Distributors of TI Data Terminals are ready to deliver.

For years, TI's *Silent 700** and *OMNI 800** Data Terminal Families have been the industry's choice for reducing costs and improving productivity. Now, you can rely on a nationwide network of Authorized Distributors for immediate off-the-shelf delivery of the TI data terminals you need.

Every model offers cost-saving features and TI's factory warranty to protect your investment after the purchase. And like the TI products they sell, you can depend on the Authorized Distributors for fast, professional response to your data terminal needs.

The *Silent 700* Family models work quietly and quickly, featuring TI's virtually silent thermal printing at either 30 or



120 characters-per-second. Whether you need a Keyboard Send-Receive, Memory Send-Receive, Receive-Only or Portable model, each of these data terminals offers high-quality, low-cost data communication features for both on-line and remote location applications.

The *OMNI 800* Family of KSR or RO models is known worldwide for quality performance. Featuring optimized bidirectional printing speeds of either 75 or 150 cps, these field-

proven impact data terminals can handle a variety of high-volume printing applications.

TI is dedicated to producing quality, innovative products like the *Silent 700* and *OMNI 800* Data Terminal Families. And, TI's hundreds of thousands of data terminals shipped worldwide are backed the technology and reliability that come from 50 years of experience.

For more information, contact the Authorized Distributor nearest you, or phone Texas Instruments Incorporated at: Richmond Hill, Ontario, (416) 884-9181; Richmond, British Columbia, (604) 278-4871; or Ville Saint-Laurent, P.Q., (514) 334-3511.



AUTHORIZED DISTRIBUTORS — CANADA • Alberta: Calgary; Data Terminal Mart (403) 269-7705, Hamilton Rentals (403) 237-0966; Edmonton; Data Terminal Mart (403) 451-2643 • **British Columbia:** Vancouver; Data Terminal Mart (604) 872-8482 • **New Brunswick:** Fredericton; Datamaster Corporation Limited (506) 454-8953 • **Ontario:** Ottawa; Cescio Electronics Limited (613) 729-5118, Data Terminal Mart (613) 729-5196, Leasametric Incorporated (613) 238-3774 : Toronto; Cescio Electronics Limited (416) 661-0220, Data Terminal Mart (416) 245-4780, Hamilton Rentals (416) 251-1165, Leasametric Incorporated (416) 676-1897 • **Quebec:** Montreal; Cescio Electronics Limited (514) 735-5511, Data Terminal Mart (514) 844-1079, Leasametric Incorporated (514) 878-1299; Quebec; Cescio Electronics Limited (418) 687-4231.

*Trademark of Texas Instruments Copyright © 1981, Texas Instruments Incorporated

We put computing within everyone's reach.

TEXAS INSTRUMENTS

INCORPORATED

Reader Service Card Number 158

FCS-EPS: The Decision Support System That Keeps Up With Your Ingenuity.



As managers become more adept at applying the computer to business forecasting, operations analysis, hierarchical consolidation, cash management and other applications, it often happens that the people doing the planning become more sophisticated than the planning tool they are using.

FCS-EPS: More than a modeling system

FCS-EPS is designed to bring the full power of the computer into the hands of financial management. It is an easy-to-apply system, yet it is extremely hardware efficient for tightly-scheduled minicomputers and mainframes. Over 130 functions build around a "Business English" are pre-programmed for rapid initial use of FCS-EPS, should you wish to extend any model or system function, the FCS-EPS language may easily be applied to do so.

Additional modules work directly with the basic system to allow multi-divisional information processing and presentation of output:

Financial Graphics—FCS-EPS includes extensive report formatting with optional financial graphics output.

Hierarchical Consolidation—for any number of entities: automatic currency conversion, inflation factoring, sensitivity analysis and cross-sectional reporting.

Forecasting and Analysis—with all statistical, "what if" and risk analysis functions.

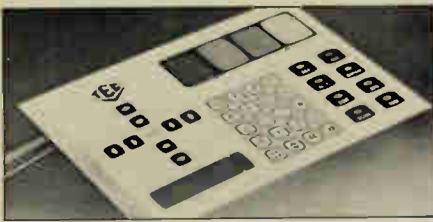
Data Management—including a powerful, relational database management system.

There has never been an end-user decision support system like FCS-EPS. But don't take our word for it. Write for our free booklet, "Selecting and Evaluating Financial Planning Systems." Or call EPS, Inc. today. We'll be glad to show you firsthand why FCS-EPS is the one decision support system that stands out from all the rest.

EPS Consultants

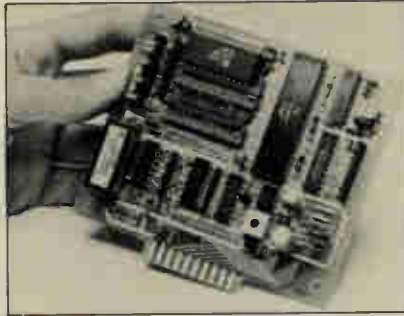
Montreal: 185 Dorval Avenue Suite 304
Dorval, Quebec H9F5J9
514/631-2090

Toronto: Suite 1080
Mississauga Executive Centre
Two Robert Speck Parkway
Mississauga, Ontario L4Z1H8
416/279-8711

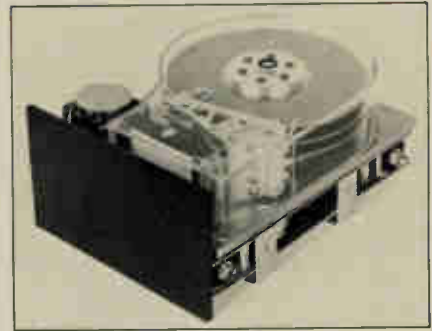


TEC Datapanel

Multi-Tech MT212A



Telesensory Series III



Shugart SA600

From page 10

concepts. A stand-alone version is also available.

The series is claimed to eliminate the traditional multi-step process of designing input formats, coding the application, compiling, and testing. Instead, the user simply specifies the data format and editing rules directly on the CRT and the system continues the process. New applications can be designed, tested, and made operational within minutes, says the manufacturer.

The system includes enhancements and components that define screen formats and data field edit criteria on-line to improve turn-around time for new screen designs.

The system is fully integrated with the Series 80 ENVIRON/1's task-level recovery. In the event of a system failure, all data entry operations are automatically recovered and screens reset to the last valid screen entered.

An automatic file update performs either a 'write' or 'add' function and is supplied in Cobol-XT source code.

Reader Service Card Number 12

DATA COMM

Ends redundant keying

The Product: Telecommunications interface

Supplier: AM international Inc.

Features: A telecommunications interface allows AM Varityper Comp/Edit phototypesetting systems, at remote locations to talk back and forth, transmitting information according to magnetic media discs over ordinary telephone lines through a standard modem. Comp/Set systems can also be equipped to receive information.

It is expected that information produced on word processing machines will be transmitted to the typesetting equipment thus eliminating redundant keying.

Most existing AM Varityper phototypesetters can be fitted with this option.

Reader Service Card Number 13

Modem rates 1200, 300

The Product: Dual-speed modem

Supplier: Multi-Tech Systems Inc.

Features: The MT212A is a dual-speed 1200 and 300 bps data modem, and is compatible with the Bell 212A. Full duplex operation is provided over dial-up and two-wire lines, asynchronous or synchronous.

The modem is available in both stand-alone and rack-mounted configurations, and provides originating and automatic answering capability. Voice-to-data transferring is achieved with a push button on the modem chassis, eliminating the need for special 502 exclusion key phones and adaptors.

For originating applications, the user's telephone set can be connected directly to the modem, and the modem can be connected to the phone line using either RJ11 or RJ45 modular connections.

Reader Service Card Number 14

COMPONENTS

Sensitive to touch

The Product: keyboard

Supplier: TEC Inc.

Features: The Custom Data-Panel is a tactile keyboard which requires light pressure to close the switch contact. The front of the panel is sealed to prevent moisture seeping in, and the back can be sealed as well. Features include: embossed keys on velvet surface; mounting on .236 cm PCB for rigidity; contact life of more than five million cycles, and parallel output.

Reader Service Card Number 15

Speech for micro

The Product: speech synthesizer

Supplier: Telesensory Speech Systems

Features: The Series III speech module consists of a speech synthesizer, vocabulary data memory of up to 128k bits, a speech filter and an audio amplifier. It is TTL-compatible and uses +5V single power supply, making its connection to a micro-computer quite simple. The

maximum vocabulary of 256 utterances can be standard and/or customized and is available in most languages.

Reader Service Card Number 16

Requires low power

The Product: random access memory

Supplier: National Semiconductor

Features: Four CMOS static RAMs are now available for commercial, industrial and military applications. The NMC6504 and NMC6514 4k devices and the NMC6503 and NMC6513 2k devices offer 5-50 microwatts of typical standby power and data retention at a supply voltage of two volts. This should make them useful in portable battery-operated equipment.

Reader Service Card Number 17

STORAGE

Expands capacity

The Product: disc drives

Supplier: Shugart Associates

Features: The SA600 series of 5.25 in. Winchester disc drives comes in three versions: the single-disc SA602 with 3.33 megabytes of storage, the double-disc SA604 with 6.66 megabytes, and the triple disc SA606 with 10 megabytes. These drives have the same physical dimensions as Minifloppy drives so that they can be used to expand the capacity of Minifloppy-based desk-

Continued on page 15

Management graphics at your fingertips: Tektronix lets you grasp the facts, instantly.



More than any other management tool, graphics can simplify and accelerate the understanding of statistical data. You work more effectively, with current information.

Tektronix is the world leader in computer graphic devices. Just ask your own technical departments: we're a Fortune 500 company, known and respected by most of the world's major companies.

Our 4020 Series terminals put management graphs and charts in your hands in minutes. You receive concise graphic overviews of business activities. You can compare

multiple elements, such as earnings and dividends, on a single graph. You can highlight trends over time, and easily pinpoint areas of opportunity. Graphics are drawn with computer speed and accuracy, and reproduced on paper, acetate or 35mm slides, in full color or black-and-white.

We offer a variety of easy-to-use software packages. They are available for both your in-house computer and through many major management timeshare services.

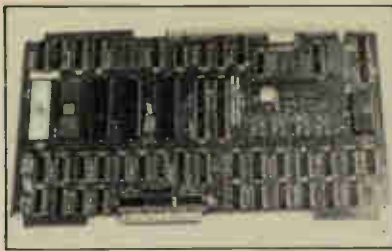
We'll put the proof in your hands. For actual samples of our management graphics, call or write:

Tektronix Canada Inc.
P.O. Box 6500
Barrie, Ontario, Canada
L4M 4V3
Telephone: (705) 737-2700

Tektronix
COMMITTED TO EXCELLENCE

Reader Service Card Number 156





DSTD-101 card



Olivetti ETS 1010

IEE Daystar LCDs



From page 13
top business systems.

The SA600 drives offer an average access time of 75 ms, a transfer rate of 4.34 megabits per second, track-to-track access time of 18 ms, and track density of 256 tracks per inch.

Reader Service Card Number 18

Mag tape is compatible

The Product: Magnetic tape system

Supplier: Dylon Corp.

Features: The Model 9001 magnetic tape system is designed for compatibility with the DEC LSI-11 based MINC instrumentation system on the MINC standard IEEE-488 interface bus.

The 10½-in. reel series offers nine track, dual density 800/1600 flexibility at speeds up to 75 in./sec and transfer rates up to 100,000 bytes/sec.

Plug-compatible for use in data acquisition, automatic testing and data interchange, the systems can be fully controlled with existing DEC/MINC Fortran and Basic software.

The series is fast enough to be used as a hard disc backup and over 40 MB of data can be stored on a single reel of magnetic tape.

A Z80A-based microprocessor manages the bus interface, formatter and tape transport as well as providing automatic error detection and correction. The systems are also equipped with a self-test subsystem using

signature analysis as a field service tool.

Several system configurations are offered from 7-in. to 10½-in. to speeds from 12.5 to 75 in./sec. in either dual or single density.

Reader Service Card Number 19

Voice/data combined

The Product: communications system

Supplier: Northern Telecom Canada Ltd.

Features: The Integrated Voice and Data Switching (IVDS) system allows users of the SL-1 private automatic branch exchange to transmit telephone voice and data traffic simultaneously over the same lines. This system uses an add-on module and special data line card, and makes unnecessary acoustic couplers, modems, dedicated telephone sets and additional wiring. The module offers speeds ranging from 50 to 9,600 bps asynchronous, uses an RS 232C interface, and has half duplex, full duplex, echoplex and reverse channel modes of operation.

Reader Service Card Number 20

ACCESSORIES

Card is for STD bus

The Product: Multiprocessor card

Supplier: Dy-4 Systems Inc.

Features: The DSTD-101 multiprocessor card with memory and I/O capability is designed for STD bus applications.

The card offers byte wide memory capability up to 32 KB (ROM, PROM, or RAM), 2 eight bit parallel I/O ports which are strap selectable for input or output (latched or buffered) or bidirectional, and four buffered counter-timer channels available via a connector.

The card also offers multi-processor capability operating in a 'master/slave' mode allowing up to four processors to be resident on the same STD bus.

Reader Service Card Number 21

Cheaper models

The Product: LCD modules

Supplier: Kaytronics Ltd.

Features: The Industrial Electronic Engineers' Daystar line of alphanumeric liquid crystal display modules and accessories includes four displays and an optional ASCII controller IC and cables. Models are 1x16, 2x16, 1x40, and 2x40, all with 5x7 + cursor dot matrix devices. This new line is said to be less expensive than current equivalent models.

Reader Service Card Number 22

Eliminates fluctuations

The Product: power conditioner

Supplier: Webster Instruments Ltd.

Features: The Topaz line 2 power conditioners are designed to eliminate power line disturbances for microprocessors, word processors and other electronic business machines. Voltage

fluctuations, spikes and other noise transients are removed. Models are available for 60 Hz and 50 Hz operation.

Reader Service Card Number 23

Gives mounting choice

The Product: slot mounter

Supplier: Pulsecom Division, Harvey Hubbell Inc.

Features: The Model 10314-3 slot mounter accepts either six one-inch wide or three two-inch wide modules. It is designed for small applications such as a data repeater assembly, data set, or voice coupler assembly, and is available as a wall-mounted or desk-top unit.

Reader Service Card Number 24

TEXT PROCESSING

Smooths transition

The Product: text editor

Supplier: Olivetti Canada Ltd.

Features: The ETS 1010 text editor combines Olivetti electronic typewriters with a desk-top minifloppy drive and a CRT display. It is intended to give electronic typewriter users an easy transition into word processing. Command words, such as 'cut,' 'copy,' 'paste,' and 'undo,' are already familiar to typists, and the minidisc is called a 'drawer' to simplify the operator's job. Basic editor software is supplied, and specialized packages are forthcoming.

Reader Service Card Number 25

U.K. software developer has 8086 Cobol compiler

Micro Focus, a London (U.K.) software product house, has released what it claims is the first Cobol compiler for the Intel 8086 microprocessor. The product is a new implementation of the firm's earlier CIS/Cobol software.

The 16-bit 8086 micro can address up to one megabyte of memory. The CIS/Cobol implementation is designed to exploit such advantages, for example by using the 8086 segment register to address the total memory space and permit memory sharing in multi-user systems.

The compiler is being demonstrated on an 8086-based Rexon Business Machines RX30 system at both Micro Focus' Swindon, Wiltshire (U.K.) R&D centre as

well as the firm's U.S. subsidiary offices in Santa Clara, Cal.

Deliveries of the Cobol compiler have begun in first-quarter 1981. In addition to the 8086 application, CIS/Cobol is available for systems using the Intel 8080, Zilog Z80, DEC LSI-11 and PDP-11, and Texas Instruments TMS-9900, all under a variety of operating systems.

CIS/Cobol Version 4.3 is an ANSI '74 compiler and run-time system developed by Micro Focus for use on microcomputers and microprocessor-based terminal systems. The firm says it is the only Cobol available on micros that has been certified by the US federal government's General Services Administration.

Reader Service Card Number 26

Olivetti S6000-Series mini offers modular systems

Olivetti Canada, Don Mills, Ont., has announced the availability of the S6000 series of modular-designed minicomputers. Based on a new modular CPU, the line is aimed at both existing or first-time users in the multi-station environment.

All models are fully field-upgradable, and all software is fully compatible across the range. Major features of the hardware include: a central processing unit with main memory of 64 to 1024K; disc storage of from 2.4 to 360 megabytes; from one to 24 workstations; and printers from 100 cps up to 1200 lpm.

A variety of application software is available, both for general business purposes and specialist needs. The Olivetti S6000 is now available for immediate delivery.

Reader Service Card Number 27

DEC has data comm interface for LSI-11 microcomputers

Digital Equipment of Canada, Ottawa, has released a serial synchronous data communications interface for use with its LSI-11 family of microcomputers. The unit, called the DPV11, can be used with any DEC product having an LSI-11 bus, including the PDP-11/3 and PDP-11/23.

The DPV11 is a double-buffered program-interrupt interface that couples an LSI-11 bus to a serial synchronous modem using EIA RS232C or RS423 interface standards. Protocols for the DPV11 include DDCMP, HDLC, SDLC, and BISYNC. The new interface also enables users to

develop x.25 links between LSI-bus systems and public packet-switched networks.

The interface can be used in both full or half-duplex operation. Transmission speed depends on the software in use, but rates as high as 56k/sec can be attained.

Reader Service Card Number 28

New micro computer runs on Unix operating system

The first microcomputer to be built around Zilog's Z8000 processor and licensed to run Bell Lab's Unix operating system has been announced by Onyx New England Inc., Wellesley, Mass.

According to the company the C8002 can support up to eight users and an assortment of printers and communica-

tion devices. The system combines an 18 megabyte disk drive, a cartridge tape drive, 16 bit processor and up to one million characters of main memory, all in a single enclosure.

The power of the device is said to lie between that of the DEC PDP-11/34 and the PDP-11/45.

Reader Service Card Number 29

High expansion foreseen for test, development units

The need for greater complexity in circuit boards, and the economic need to curtail semiconductor production costs are expected to push the U.S. market for automated electronic test equipment and microprocessor development systems (MDS) to an expansion of about 24% per year for at least the next five years, according to a report from Frost & Sullivan Inc., New York.

The test and development sectors will achieve U.S. sales of about \$2.3 billion in 1985, compared to a level of \$800 million in 1980, according to the 290-page report, entitled 'Electronic Component and Board ATE and Microprocessor Development System Market' (report #A805).

In specific market components, the report foresees the component test equipment segment to reach \$360 million in 1985 (a growth rate of 21% a year), systems testers to reach \$700 million (24% a year), and MDS to \$650 million (27% a year). Within MDS, the change will be toward universal systems, used to test any hardware. These will lead with a growth rate of 40% yearly, compared to 22% for dedicated systems.

Reader Service Card Number 30

Updated WP package released for Zenith, Heath micros

An enhanced version (No. 5.0) of Electronic Typing, a software package from Zenith Data System's computer business group, has been announced.

The new version adds automatic page numbering, restart ('jump-to-beginning'), block move, block copy, and block indent. The document index has also been modified to add automatic character count and creation date. The user can now also utilize as many as three disc drives.

Shipments of the new version have begun, and Electronic Typing owners with

valid registration cards will automatically be sent updates to their software. Electronic Typing runs on Zenith Z-89 or Heathkit H-89 microcomputers that have at least 48K of RAM, plus a printer.

Standard features of Electronic Typing include carriage return, scrolling, replacement, realignment, centering, justified margins, character count, line count, spacing, and margins.

Reader Service Card Number 31

Don't let your money-hungry computer take you for a ride.



Giving paper work to your computer is like feeding it money. Why not let AES Word Processors do it for a lot less? Our machines are designed to perform text-editing, data storage and print-outs - all at a fraction of the cost of a computer.

AES Word Processors now have the capacity for 40,000 pages of on-line storage. And you'll find our print-outs are far superior in quality. (So why pay more for less?)

AES lets you use your facilities more efficiently by separating logical computer work from your word processing work. And with point-to-point links, data from your computer can be communicated directly into AES Word Processors for the most complete reports ever.

So don't waste expensive computer hours on time-consuming paperwork. Let AES handle it.

AES. We do a lot more than you thought. For a lot less than you think.

If you want to know how AES can save you time and money, send your business card with this ad to AES Data Ltee/Ltd., 570 McCaffrey Street, Montreal, Quebec H4T 9Z9.

AES

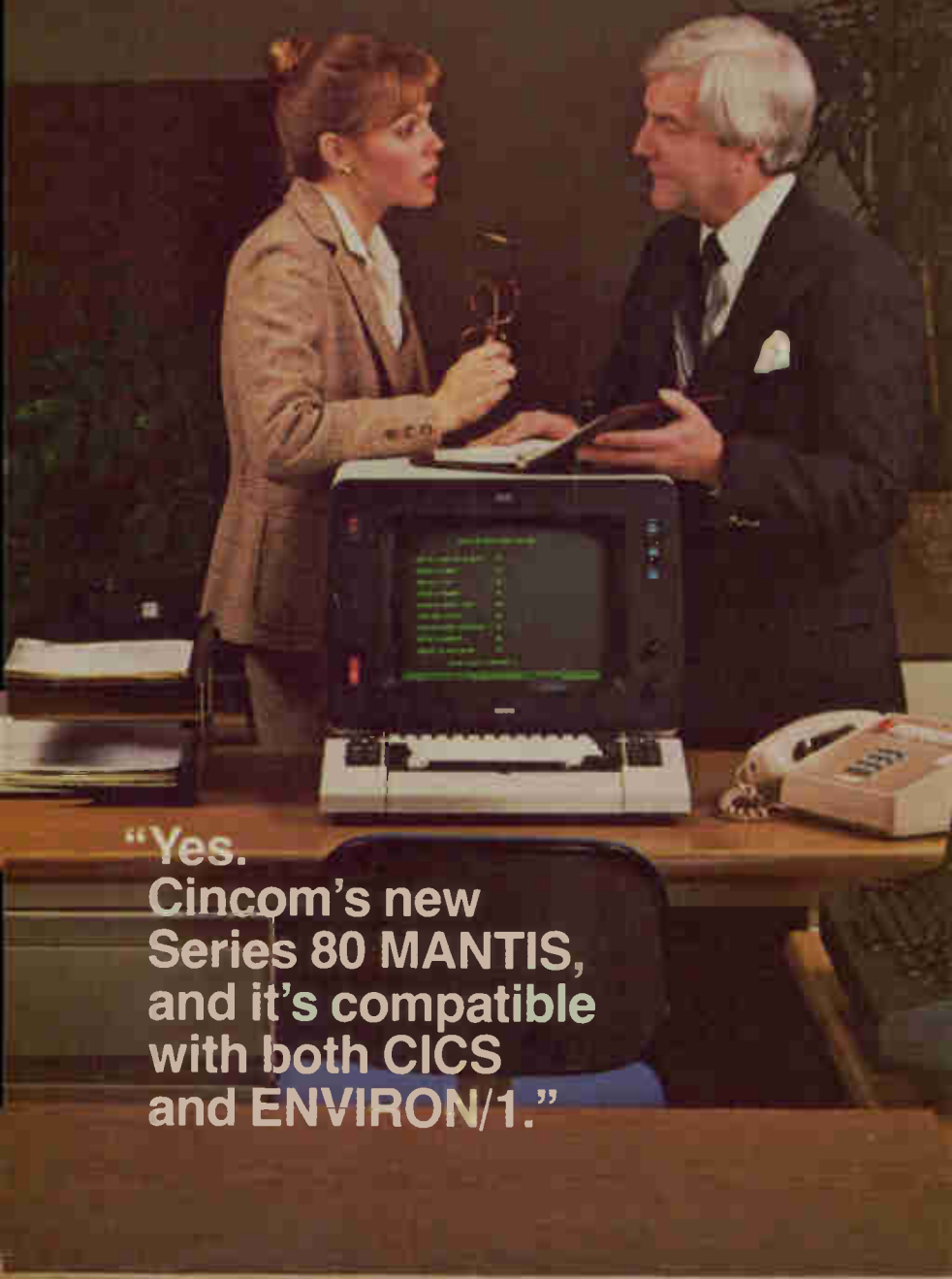
The office of tomorrow, today.



Reader Service Card Number 104

Original painting by Canadian artist Miro Malish
One in a series commissioned by AES

“An application development system that’s 5 times more productive than DMS?”



“Yes. Cincom’s new Series 80 MANTIS, and it’s compatible with both CICS and ENVIRON/1.”

Cincom introduces Series 80 MANTIS.

Series 80 MANTIS is the first application development system that dramatically increases programmer productivity by eliminating all batch steps in on-line systems implementation.

With MANTIS, the programmer uses an efficient high level command language to develop, test, document, and execute the entire application interactively—all in one sitting. As a result, programs typically requiring 80 hours in batch or 24 hours with DMS can be developed in only five hours using MANTIS.

Running under Series 80 ENVIRON/1[®] or CICS, Series 80 MANTIS reduces development time for both standard and data base applications. And its ease of use means programmer productivity will begin to increase within hours after installation. In addition, many applications can be developed directly by the end-user.

Tested and proven in leading data processing organizations, MANTIS is an integral component of Cincom’s Series 80, the industry’s only fully integrated data base/data communications system.

No other system measures up to Series 80 MANTIS. For a demonstration at your site or at a Cincom Service Center, contact our Marketing Services Department.

User Information Hotline:
416-279-4220.

Will your system measure up to MANTIS?

	MANTIS	DMS/OTHER
Integrated directory	✓	
Full DOS/OS Compatibility	✓	
High level procedural language	✓	
Conversational debugging	✓	
Runs under CICS or ENVIRON/1	✓	
Menu driven	✓	
Online documentation	✓	
Oriented to both DP and end users	✓	
Dynamic file generation	✓	
Logical view access to files	✓	



Cincom Systems of Canada, Ltd.
130 Dundas Street, East Suite 201
Mississauga, Ontario L5A 3V8

Reader Service Card Number 114

news of software
and services

Wholesaler package

The Product: application package

Supplier: Mini-Computer Systems Inc.

Features: The Micos Distributor System is a package designed for the wholesale distribution industry. It runs on any Micos computer system and can be used with other MCS software packages.

This package consists of eight modules which are fully integrated or can be used separately. The modules are: inventory, order entry/billing, sales analysis, accounts payable, accounts receivable, general ledger, fixed assets, and payroll.

Reader Service Card Number 32

Eases migration

The Product: translator

Supplier: DASD Corp.

Features: The firm is offering an IBM System/3 CCP to IBM CICS/VS Cobol translator that automatically converts all interactive System/3 RPG CCP programs to CICS/VS Command Level Cobol programs, as well as converting System/Display Format Facility screen definitions to CICS/VS Basic Mapping Support screen definitions. This conversion is said to help System/3 users migrate to larger equipment.

Reader Service Card Number 33

Simplifies coding

The Product: application development software

Supplier: G. A. Computer Ltd.

Features: NoCode is a software development tool which is said to eliminate traditional program coding and its inherent problems. Non-programming staff can imple-

ment an application by inputting CRT screen layouts and file definitions; no special language or further coding is required. This tool will, it is claimed, provide productivity increases of as much as four to one in developing application programs for transaction-oriented environments. NoCode is also said to reduce and simplify support and maintenance work. It is used with GA's InstaCode 20 and 50 packaged systems.

Reader Service Card Number 34

For CODASYL users

The Product: CODASYL support

Supplier: Cincom Systems Inc.

Features: A CODASYL standard data definition language and data manipulation language is now available for Series 80 Total data base management system users. This has been designed for Series 80 users who must support CODASYL specifications, as well as for those wishing to convert CODASYL data base systems to Series 80 Total.

Reader Service Card Number 35

Reports to investors

The Product: application software

Supplier: Mitchell A. Fink Associates Inc.

Features: The Portfolio Management System runs on IBM System/34 computers and keeps records for investment advisors. Records of individual security positions are maintained by tax lot, and portfolio valuation can be triggered automatically or by special request. Each client has a Portfolio Manager which furnishes breakdown and summary reports, and stock records can be ob-

tained for the entire firm, a group of Managers, or a single Manager.

Reader Service Card Number 36

PSL/PSA available

The Product: problem statement language

Supplier: ISRAM

Features: PSL/PSA (Problem Statement Language/Problem Statement Analyzer) is a generalized tool for aiding design and analysis of data-processing systems, now available through Information Systems Research Associates at McMaster (University).

PSL is a non-procedural language that provides capability for analysts and programmers to describe a system in terms of its objects (processes, records, files, etc.) and relationships. The description is entered into a database, and PSA is then used to query the database and produce reports and diagrams on various aspects of the stored system.

Reader Service Card Number 37

Programs integrated

The Product: application software

Supplier: Qupro Data Systems Ltd.

Features: The company is offering several integrated business and manufacturing application packages for use on IBM Series/1 4952 processors. The programs, which are written in Waterloo Virtual Basic, are: accounts receivable and payable, purchase orders, order entry, invoicing, inventory management, general ledger, payroll, bill of material, job costing, estimating, and material requirements planning.

Reader Service Card Number 38

Auto project control

The Product: project control system

Supplier: JTS Computer Systems

Features: 'Readinet' is an automated project control system combining interactive computing techniques with PERT/CPM time, cost, and resource allocation analysis.

Features include: network plotting, 'what-if' capabilities, user-designed reports, quick turn-around due to high interactivity, ad-hoc queries, and a self-tutoring capability with extensive 'help' features.

Readinet can be used on a time-sharing basis or obtained under licence for an in-house turnkey minicomputer system.

Reader Service Card Number 39

More stat packages

The Product: statistics software

Supplier: Tektronix Canada

Features: Two new Plot-50 statistics software packages are aimed to provide easier and faster statistical analysis capabilities. 'Analysis of Variance' and 'Multiple Linear Regression' are the latest releases in the disc-based Plot-50 line. Graphing routines allow fast generation of box-and-whisker plots, scatter plots, and other exploratory plots. 'Analysis of Variance' features one-way, two-way, and three-way classification of data, while 'Multiple Linear Regression' includes four routines for regression analysis: multiple regression, weighted regression, stepwise multiple regression, and polynomial.

Reader Service Card Number 40

No surprises after test of Komstar with 4300s

On-line tests of the compatibility of the dry-process Kodak Komstar microimage processors and Starlink One software, Starlink Three software and Parameter Management Executive (PME) software with an IBM 4331 mainframe turned up 'no surprises', according to Kodak.

"We found both the Kodak hardware and software compatible with the IBM 4300 series computers," said R.P. Ashman, Information Technology Sales Planning Director for Kodak, "and subsequent field installations on IBM 4331 and 4341 mainframes also have proven successful."

Initial tests were conducted with a Komstar 200 processor. The laser computer-output microfilmer was cabled to a 4331 on a byte multiplexer channel. The equipment was tested in both byte and burst modes, states Kodak. Operating systems run during the test were VM and DOA/VSE, however DOS/POWER also is being used at a customer installation now. A test file was used to exercise various parameter combinations available for the Komstar processors.

Data General 'dasher' unit marks computer graphics move

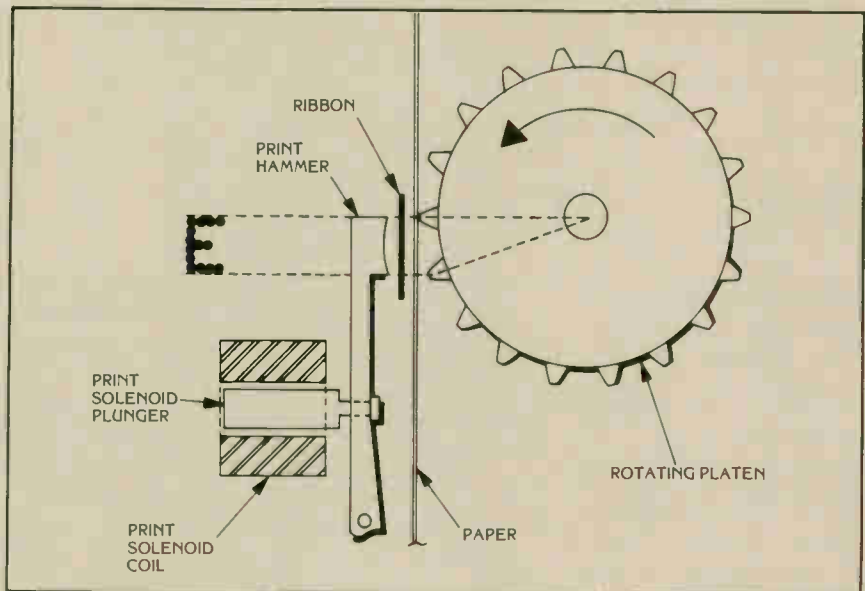
Data General (Canada) Ltd., Mississauga, Ont., has introduced the Dasher G300 graphics display terminal which, in conjunction with 'Trendview' chart-generations software, marks the firm's entry into the computer graphics market.

"Users of our computer systems can now quickly add graphics capability while retaining compatibility with existing terminal-oriented software," according to national sales manager Ken Brandt. He foresees a 35% annual growth rate in the computer graphics market in Canada.

The Dasher G300 is claimed to offer more intelligence than most other monochrome raster graphics display terminals, providing features such as a high-level



Data General's entry into graphics terminal market



Single print hammer is feature of novel printer

A rotating platen with protruding splines positioned behind the paper is used in a novel impact printer developed by Axiom Corp., San Fernando, Calif.

The new impact printer, called Uni-Hammer, uses a single print hammer rather than a number of individual solenoids and print wires generally found in conventional dot matrix printers. Both graphics and alphanumeric can be printed.

The character or graphics image is created by multiple hammer strikes in rapid succession as the print head advances across the paper in front of the rotating platen. A gear train assures the

exact positioning of the print hammer relative to the splines on the platen. This is said to provide excellent print quality and uniformity of a 5x7 dot matrix, pattern.

Designated the GP-80M, it is manufactured by Seikosha. Axiom has exclusive distribution in the U.S.

Standard features include ASCII upper and lower case characters sets, up to 80 columns with 12 characters/in., adjustable tractor feed, three copy reproduction, 12-w power consumption, and Centronics parallel interface.

Resolution is said to be better than 60 dots per inch in both horizontal and vertical axes. □

graphics command interpreter; plotting in polar coordinates; drawing arcs, filled rectangles and circles; filling any closed shape; relative positioning; user-defined line styles; command macro definition; and plotting text in a wide variety of formats.

Also announced is the 'Trendview' software package, applicable on all Eclipse computers that use the Advanced Operating System, as well as on Eclipse MV/8000 32-bit computers using AOS/VS.

The basic G300 terminal, including detached keyboard, has a Canadian price of \$5,270.

Interactive digitizing simplifies graphic DB

A digitizing software package, Plot 50, from Tektronix, simplifies the creation of graphic data bases. Data can be drawings, maps, photographs, strip charts, line drawings or other images that need to be

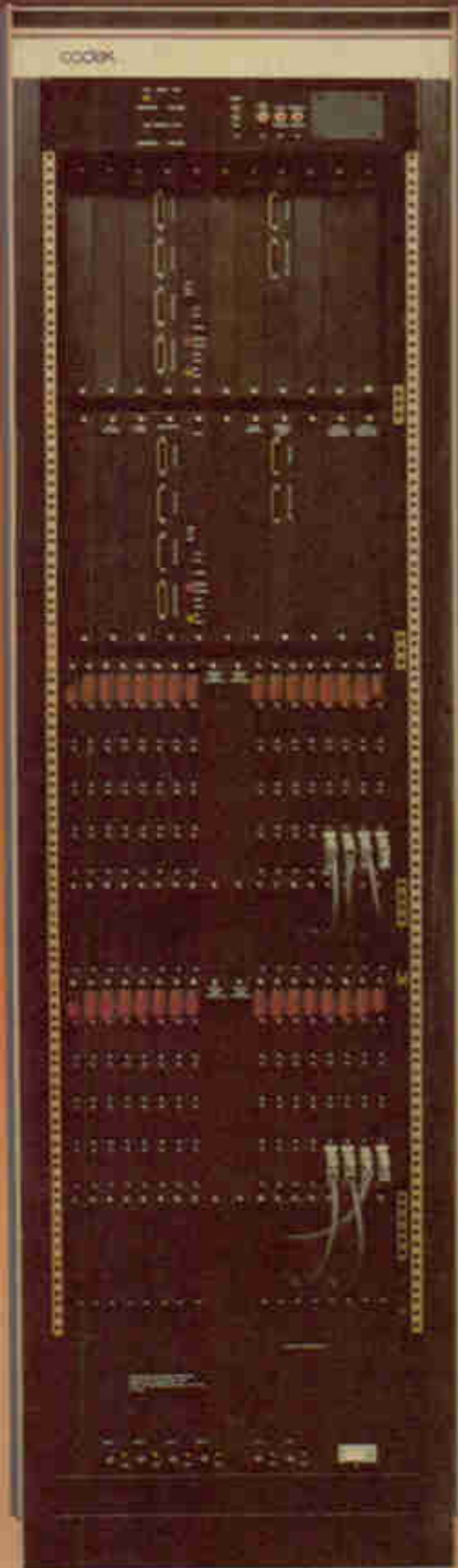
manipulated.

According to the company, the new package is a precise 'ruler' that inputs, calculates and stores data quickly and easily. It is designed for use in production environments where large amounts of data are entered into the data base.

Interactive digitizing is a menu-driven program which supports Tektronix 4052 and 4054 computers. The software utilizes the 956 graphic tablet for input and the 4907 flexible disk mass storage device. It also allows stored data to be further processed by other software packages via Standard File Interchanges. Graphic output is provided by plotters and hard copy units.

The new program calculates area, perimeter and line lengths; and features two-axis coordinate data with three-axis simulation, origin offset, and other operations. □

COMMAND



The Codex Intelligent Matrix Switch allows you to take command of network management requirements for large-scale switching and sophisticated configuration control.

It is a digital data switching system. User terminals can be automatically connected to any port on one of several host computers just by entering commands at a single IMS operator terminal. An entire network can be configured with ease—without involving field personnel—by automatically switching any input port to any output port.

Key features include tandem switching, port contention, host resource selection and computer front-end sparing. IMS ports automatically accommodate any data rate up to 19.2 kbps and any line protocol whether synchronous or asynchronous.

ESE LIMITED can provide you with a wide range of products for network control and management. If you haven't heard about the CS Series and MX Series of network control modems, the LC 3600 Loop Controller, the NA 1296 Network Adapter, the Distributed Network Control System, or if you want to know more about the Intelligent Matrix Switch, it may well be worth a few minutes of your time to call us today.

ESE LIMITED, Codex and Universal Data Systems are members of Motorola's DataComm Organization and offer the broadest range of data communications products in the industry.

ESE

ESE LIMITED
1780 Albion Road,
Rexdale, Ontario M9V 1C1

Tel: (416) 749-2271
Tlx: 06-989522
Twx: 610 492 6360

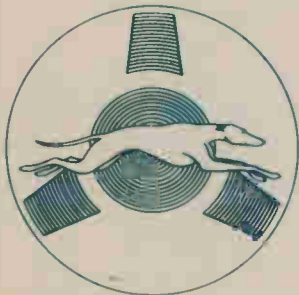
Montreal
Toronto
Calgary

Greyhound Computer

**Computer
Leasing Services**

**Computer
Hardware
Brokerage**

Financial Services



We invite your inquiry.

Greyhound Computer of Canada Ltd.

181 University Avenue, Suite 1416, Toronto, Ont. M5H 3M7 (416) 366-1513, Tlx. 06-22371
2050 Mansfield Street, Suite 1430, Montreal, P.Q. H3A 1Y9 (514) 281-1925, Tlx. 05-25723

MANAGEMENT MEMO

*with news highlights for
corporate management*

I.P. SHARP EXPANDS DATA SERVICE TO FAR EAST, OPENS NEW OFFICES

Toronto-based I.P. Sharp Associates Ltd. is expanding its international data processing services to the Far East with the opening of offices in Singapore on May 1 and in Hong Kong on July 1.

"Expansion into these new markets is primarily driven by demand for services from existing customers which we are already servicing in Europe," he said. Most business will come from the banking and insurance companies, said Mr. Sharp. Data will be processed in Toronto and will be transmitted via cable. Due to the 12 hour time difference between the locations in the Far East and Toronto, peak times for data processing services vary and the firm's Toronto data centre can readily accommodate the new business.

Mr. Sharp also expects to expand activities to the Middle East by providing data processing services to Bahrain by the end of the year. Service will be chiefly for banks and insurance companies.

MAJOR EUROPEAN EDP SHOW SEEKS MORE CANADIAN PARTICIPANTS FOR '82 EVENT

The major European office and data processing trade show, CeBIT, World Centre for Office and Data Technology, part of the Hanover Fair, held in West Germany, Apr. 1-8 every year, is scouting for wider participation by Canadian manufacturers at next year's exhibition.

Fair officials recently visited Toronto and Ottawa making representations to federal and provincial government agencies to interest them in Canadian group exhibits for the 1982 event. CeBIT will have more than 1,100 exhibitors from 28 nations this year, but show officials are anxious to increase Canadian participation.

A Toronto office was recently established to assist Canadian firms interested in exhibiting.

TECHNICAL ADVANCES, ECONOMIC PRESSURES MAY THIN OUT PRINTER MARKET

Technological improvements and tough economic conditions will combine to weed out the weaker competitors in the printer market between now and 1985. This is the conclusion of a recent study by American Computer Appraisal Service, Boston, Mass.

Technically, improvements in electronic means of reproduction will simplify hardware while, economically, continued inflation and increasing capital requirements will squeeze out smaller companies, making it possible for only the large corporations to survive.

According to the study, significant increases in R&D expenditures are needed for survival, but even the large firms may be hard-pressed as marketing strategies shift in response to changes in technical developments. Greater pressure will be on them to keep up with advanced sophistication in serial matrix printers, says American Computer Appraisal, and with the development of multiple copy non-impact inkjet and laser printers.

IN BRIEF

Canada Systems Group has signed a three-year contract, worth over \$250,000 per year, to provide data processing for Canadian Admiral Corp., Mississauga, Ont. Canadian Admiral will use CSG/WYLBUR as an interactive program development tool. Dedicated lines will connect RJE terminals at Admiral locations in Mississauga and Montmagny, Que., with the CSG processing centre in Mississauga.

Rent. Buy. Or do a bit of both.

4531/32 Tektronix Hard Copy Unit

Touch of a button provides permanent dry copies of any information displayed on the terminal screen of up to four display terminals/monitors.



Convactor allows format changes. Transport mechanism is jam-free. Portable, plug-in installation and easy operation.

4052 Tektronix Desktop Computer

Performs string manipulations and transcendental functions up to 30 times faster than most desktop computers. Performs statistical analyses with ease,



with fast computation and clear readout for instant decision making. Accepts a range of complementary peripherals.



4014, 4015/1 Tektronix Graphics Terminals

Construct graphics of almost unlimited complexity. Up to 25-inch screen provide excellent definition even for group viewing. Let designers work in actual size with virtually any full layout. Enable pre-masking of plots and quick and accurate adjustments; digitize changes or plot results.

4663 Tektronix Digital Plotter Interactive

The first high-speed C-size plotter with built-in processing power. Handles up to 14" x 22" paper or Mylar® for camera-ready copies or overhead trans-



parencies. Form feed length host or front panel programmable eliminates need for an operator. Perfect for civil engineering and drafting environments.

4027 Tektronix Colour Graphics Terminal

Compact, high-performance computer terminal with unique capability to scroll graphics and alphanumeric in colour. Colours chosen from 64 hues, with up to



8 colours on simultaneous display. Provides easy graphing support and up to 120 colour combinations for special applications.

4054 Tektronix Graphic Computing System

The only desktop computer combining powerful BASIC, large-screen features and high



resolution display. Enables rapid calculation and fast processing with simultaneous text and graphics display.

HAMILTON

Hamilton Rentals

LONDON PARIS DUSSELDORF NEW YORK

EAST 415 Horner Avenue Toronto, Ontario M8W 4W3
Phone: (416) 251-1166 Telex: 06-967881

WEST Suite 104, 1212 1st Street, SE Calgary, Alberta T2G 2H9
Phone: (403) 237-0966 Telex: 03-820805

MANAGEMENT MEMO

*with news highlights for
corporate management*

IBM CANADA MARKS 21% REVENUE GAIN IN 1980, REACHING \$1.5 BILLION

An impressive growth in revenue of 21 per cent is being reported by IBM Canada Ltd. for the year ended Dec. 31, 1980. Gross revenue reached \$1,506 million, compared to \$1,244 million for the previous year. Included in the revenue for 1980 are exports of \$451 million. Net income was \$105 million compared to \$91 million for the same period in 1979. The company notes that all areas of its business activities contributed to the growth in revenue.

HAMILTON RENTALS LAUNCHES NEW FACILITIES, SEES SUBSTANTIAL GROWTH

Hamilton Rentals, the Toronto-based computer sales and rental organization, plans to take a position in the software market according to Robert Young, president.

"This will give us the opportunity to offer a variety of combinations of hardware and software with an objectivity to their merits that our customers could not expect from just a manufacturer of hardware or supplier of software."

"We expect products that we haven't thought-of yet, or that their manufacturers haven't thought-of yet, to account for 50 per cent of our business in three years' time," he said.

Current operations are 50 per cent each in sales and rental, said Mr. Young. The company recently consolidated its headquarters operations in a new facility in Toronto. With a 50-per-cent change in products every three years, Mr. Young noted that because of this, the company is being service-orientated instead of being product-orientated.

Future business growth is expected to come from the firm's present range of products, he said, and expansion into new products. "With industry forecasts showing a 40-per-cent growth, we are well-placed with products and services to achieve significant growth in the future," he said.

JOINT VENTURE LAUNCHED TO HANDLE COMPUTERIZED FARM ACCOUNTING

Canfarm Inc. is the name of a new joint venture between Canfarm Co-operative Services and IST/COPA (L'Industrielle-Services Techniques Inc./Co-operatives Agricoles), to provide computerized information and management services to co-operatives. IST/COPA is owned by IST and seven farm cooperatives. It is a computer service firm and a subsidiary of Industrial Life Insurance Co. of Quebec.

Under the joint venture, Canfarm Co-operative Services will license Canfarm Inc. to use its computer software in Canada. The computer operations of the companies will be merged to allow for more efficient use of equipment. Central office of the new organization will remain in Guelph, Ont.

BELL'S DATAROUTE EXPANDS TO NINE MORE AREAS, NOW SERVES 56 LOCATIONS

Nine more cities have been added to the Dataroute digital data transmission network of Bell's Computer Communications Group. The cities are Nanaimo, Nelson and Kelowna in BC, Prince Albert, Sask., and Thompson, Man., Sault Ste. Marie, North Bay and Guelph in Ontario and Rimouski, Que. Addition of the nine new locations brings the total number of areas served by Dataroute to 56.



Middle Managers.

**TI's DS990
Models 4, 6 and 8
Commercial Computer
Systems. Our shirt-
sleeve executives.**

By themselves or as part of a distributed processing system these hard-working mid-range business managers have the power, speed and versatility you need to get the job done.

DS990 Model 4, 6 and 8 computers are fluent in the languages of commerce. COBOL, FORTRAN, BASIC, RPG II and Pascal all run under our powerful DX10 Operating System. To speed your program

development, there's TIFORM, our unique forms generation package. Further, the Models 6 and 8 are also equipped with our highly efficient Data Base Management System and easy-to-use Query language.

This solid software base is backed by our proven 990/10 central processor with up to 2048K bytes of memory. Compatibility and planned progressive upgrades underlie the design of every DS990 Business Computer, from the Model 1 to the Model 30.

Since they're from Texas

For more information, call
(416) 884-9181

Instruments, you know you're getting a lot of performance for the price. Multi-user, disk-based systems in this series start at under \$40,000*.

Matching all this capability is the same service and support that led to TI's appointment as the official computer and calculator company of the 1980 Olympic Winter Games.

Versatility, reliability and growth potential — everything you'd want in an outstanding middle manager. With TI's DS990 Models 4, 6 and 8, you get it.

**TEXAS INSTRUMENTS
INCORPORATED**

*Quantity one. Canadian List Price. Copyright © 1980, Texas Instruments Incorporated

We put computing within everyone's reach.

**TEXAS INSTRUMENTS
INCORPORATED**

Reader Service Card Number 159

It's time to get serious about the radiation issue

WHETHER we like it or not, public concern about the possible effects on operators of radiation emitted from CRTs will be with us and is likely to get increasing public attention.

Whether we like it or not, the popular press is replete with articles on the subject and the public seems to perceive a hazard; even if such a perception is not supported by facts. Much of this concern is probably fostered by radiation hazards in other industries, where hazards were initially said to be non-existent but later turned out to exist after all.

With this background, public concern is understandable. Once an impression is formed it is difficult to change it, even when providing facts that can clarify the issue. What is needed is an information program by the industry to tell its side. Understandably many will say there's no need for that, since there's no hazard. But will the general public accept that?

To place the issue in some perspective, one of the leading terminal suppliers, for example, notes that 'there is no measurable radiation beyond 5 cm (about 2-in.) from the terminal screen, and even within that distance the radiation levels do not exceed normal background levels.'

While CRT radiation emissions are said to provide no hazard, unions and other employee organizations are reluctant to be convinced. They are pointing to potential effects of long term exposure, cumulative exposure, health effects such as eye strain, and other health-related factors. Several studies into these aspects are currently under way, especially in the US. They may in turn provide some answers.

At the same time, equipment designers are not ignoring the human engineering aspects of their products. Recently introduced terminals for example, stress such 'ergonomic features' as anti-glare treatment of screens, character design changes, display intensity features, changes in keyboard design, and different phosphor mixes to reduce display flicker. These are obviously positive manifestation of supplier concerns about the use of their products.

But much of this effort is ignored in the popular media and unless new technology in the form of different displays (perhaps plasma displays) emerges, the issue will remain for some time to come. It is up to the industry to state its case much more forcefully. It will take courage and leadership, for the issue is a sensitive one. It will also call for some innovative moves.

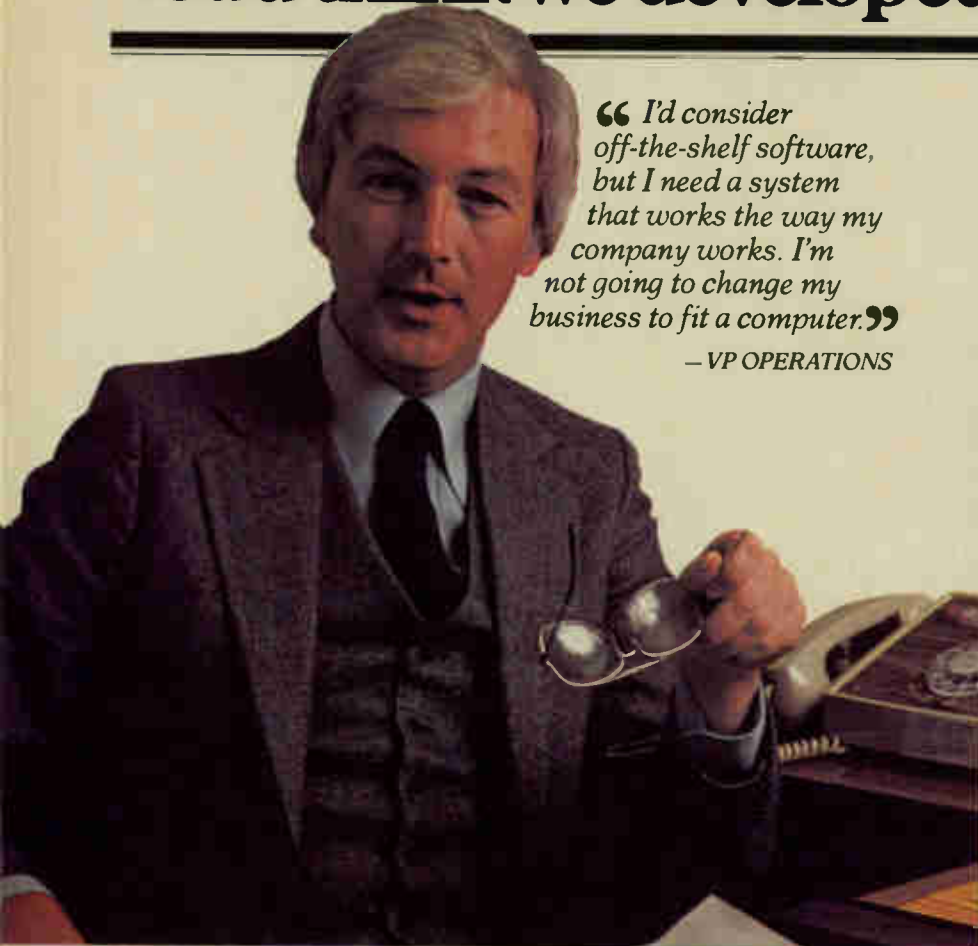
Radiation, not only from CRTs, but in other industrial environments have propelled the whole issue into the public spotlight. One simple solution to allaying CRT user concern about emissions could be the use of radiation badges of the sort used in industrial radiation environments. These could be worn by operators, or could be affixed to terminals. And they could indicate if and when radiation levels exceed prescribed limits. Surely it's within our technology's capabilities to produce such sensors cheaply and in quantity. There would be costs associated with that, but it could well be the sort of move that could also provide a marketing edge to an enterprising equipment supplier.

While equipment designers stress that there's no need for such action since emissions are minute, the serious gesture of doing something about it may well help allay apprehensions CRT operators may have about using their terminals.

Tom Weissmann




You'd think we developed our materials



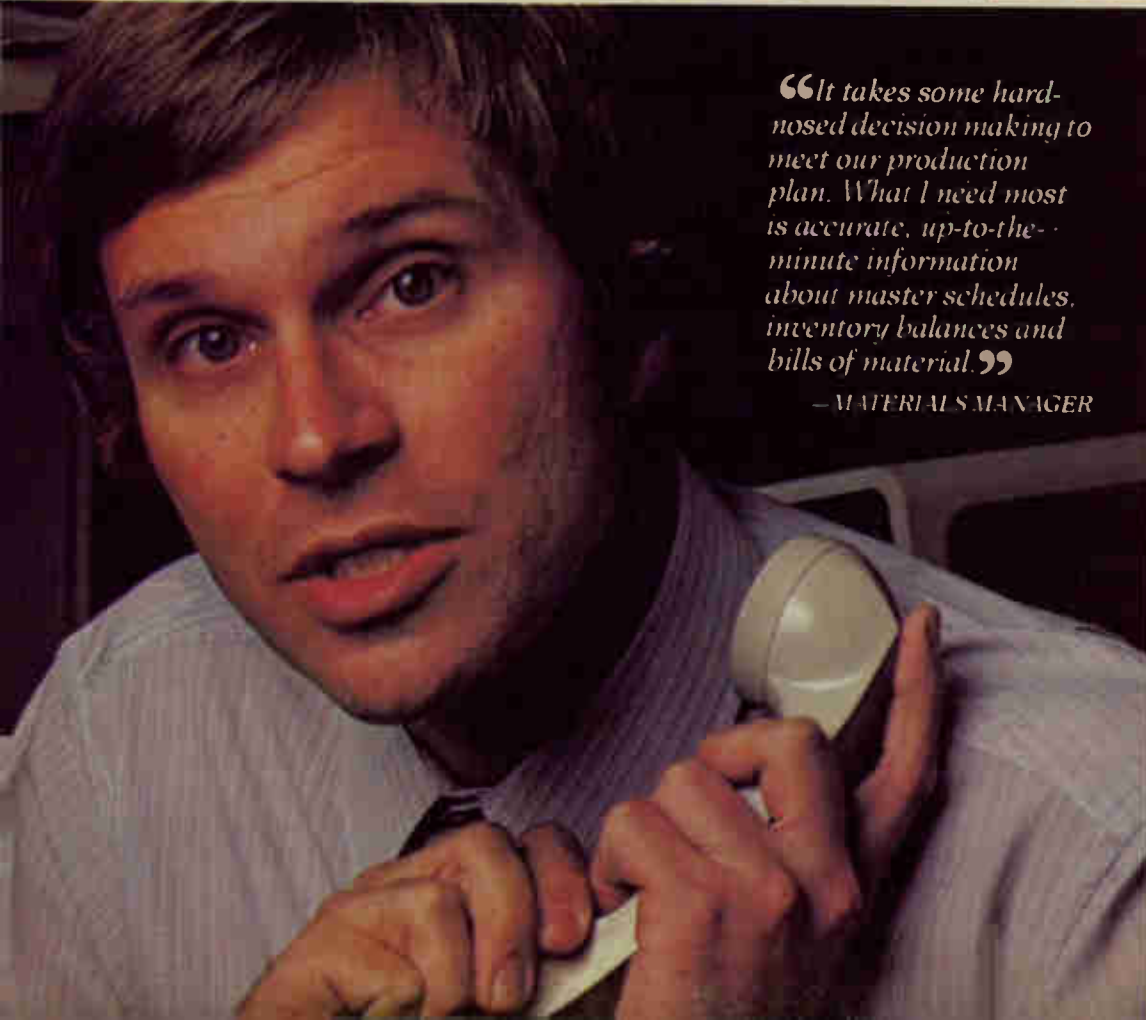
“I'd consider off-the-shelf software, but I need a system that works the way my company works. I'm not going to change my business to fit a computer.”

—VP OPERATIONS



“All I can say is that the system better be easy to use. Here in the stockroom, we don't have time to become computer experts.”

—STOCKROOM MANAGER



“It takes some hard-nosed decision making to meet our production plan. What I need most is accurate, up-to-the-minute information about master schedules, inventory balances and bills of material.”

—MATERIALS MANAGER



management system just for you.

At last there's a new approach to application software for manufacturing—a materials management system that you can tailor to fit your company's needs. Without programming. And with continued support from Hewlett-Packard.

We call it Materials Management/3000.

Designed to run on our powerful HP3000 computer, Materials Management/3000 gives you the information you need to help reduce your inventory investment and still meet your delivery schedules.

Customize as you go.

Materials Management/3000 comes ready to run. So you won't

have the headaches of a long, costly implementation process. But it's also easy to customize to fit more closely the way *you* work.

With a simple "fill-in-the-blanks" approach, your staff can define the kinds of information you'll need and determine the best ways to present it; set up data entry forms like the ones your people are used to using; establish security levels; and change any of these at any time to keep up with the growth of your business.

What's more, Materials Management/3000 is on-line and interactive, so your information is always accurate and up-to-the-minute. And it's available with just a few simple keystrokes whenever you need it.

The building blocks for building products.

Ten separate modules work together to give you a firm handle on your materials plan. You can monitor purchase and work orders, as well as materials issues and receipts. The Master Production Scheduling module lets you simulate new plans before implementing them. Rough Cut Resource Planning helps you spot critical resource problems early. And the MRP module pulls it all together to generate the plan for ordering all parts and material.

A partner in productivity.

HP manufacturing specialists will work with you right from the start to help you plan your Materials Management/3000 system. And even after you've customized it, they can continue to give you full support, training, consulting and documentation as well as the latest software enhancements.

If you'd like to see Materials Management/3000 in action, or any of our computer systems for manufacturing, call your local HP sales office (we're listed in the White Pages) and ask for a hands-on demonstration. For details, call or write Hewlett-Packard (Canada) Limited, Attention: Paul Mosley, 6877 Goreway Drive, Mississauga, Ontario L4V 1M8.



**HEWLETT
PACKARD**

“Developing your own in-house materials system is one alternative, but it's an extremely lengthy, and costly, proposition. I need a system now, and one that won't tie up my programming staff.”

—EDP MANAGER

DDP system backs data entry for service bureau

Distributed processing system communicates with mainframe to support data entry operations for Winnipeg-based payroll service bureau.

IN 1968, accountant William Loewen set out to convince Winnipeg businessmen that his new payroll service company, Comcheq Services Ltd., could provide them with a better system for less money than doing it themselves. The response was enthusiastic, but commitments were few.

"Everyone was interested, but not many were willing to take a chance on it," says Mr. Loewen.

For a reasonable fee, Loewen promised to take over all the functions of payroll preparation. The customer simply provided the necessary information, and Comcheq would do the rest.

It wasn't long before Comcheq had its first customer. Soon the company was growing at a rate of 50 per cent per year. And last year—11 years later—Comcheq processed 2.5 million paychecks for 750 customers in all

provinces but the Maritimes. Most of those customers who took a chance in the beginning are still customers today. In 1970, Comcheq opened its first branch office, and has since expanded to Edmonton, Calgary, Montreal, and Vancouver. The company remains headquartered in Winnipeg.

"There seemed to be a need for a payroll service that would serve small companies," says Mr. Loewen. "We found a way to overcome the problem of having a large number of different cheque formats for each company. With that idea, we developed the system and started selling it." Comcheq's customers now range in size from firms with ten employees to as many as 1,500.

Mr. Loewen attributes the company's ability to provide increased services and still maintain a 24-hour turnaround time to the Series 21 distributed processing systems from Mohawk Data Sciences which, since 1977, have been the backbone of Comcheq's data entry operations. Each system communicates with other MDS systems in the Comcheq offices, and with the main computer located at Cybershare Ltd., a computer service utility in Winnipeg. Each branch uses Cybershare to process its payrolls, through batch communications using a 3780 protocol, and to communicate with each other.

Move to DDP

Cybershare—with 2,500 clients throughout the country—operates two large computers, a Honeywell 66/40 and a Control Data Cyber

171. If a client is thinking about installing data entry equipment, Cybershare usually recommends the Series 21 systems because in their experience they have proven successful in many customer installations.

Comcheq initially used IBM card punches for data entry and had no communications capability. Thus, data was entered from source documents provided by the customer. The cards were then boxed and transported to a local time-sharing service by car or truck for processing.

When processing was complete, a Comcheq staffer would appear at the computer centre, pick up the cards, paychecks, and payroll distribution information. A different service bureau was used in each location, which required the company to maintain programs on several different computers.

As the firm's business grew, so did its storage of punched cards, which were kept for several months as a back-up to the central files at the time-sharing services.

Data comm capability

Without a data communications capability, Comcheq relied upon over-the-road transportation of data, which was time-consuming and costly. The DDP systems solved both these problems. Cybershare eliminated the confusion of program maintenance at several computer centres, and consolidated all the company's processing requirements.

"We've seen a substantial saving in data entry costs and labor costs," Loewen says, "and a major saving in card and card storage costs. Communications costs are also down."

Comcheq now offers a more sophisticated package of payroll services that can be tailored to meet the needs of nearly any potential customer. The basic package includes signed paychecks, payroll details reports, payroll registers, and payroll deduction and distribution summaries. Government requirements for reporting are met or exceeded by the basic services, including a Statistics Canada report, year-end T-4 forms, and record of employment forms. Workers compensation reports, year-end payroll summaries, and personnel lists round out the package. The customer also benefits from the fact that paychecks may be printed in any city in the network, regardless of



*Comcheq's William Loewen:
Anticipating new needs.*

Turn to page 32

Meet the first family of compatible computers.

The Prime 50 Series is the first family of 32-bit computers to feature total compatibility. It's a unique feature. And if you intend to grow, you won't want to be without it.

No growing pains. Compatibility is a word we don't use loosely. It applies across the line to every computer system we make.

In fact, all Prime computers use the same operating system, the same file structure, and the same communication system. So no matter what level system you start with, you can easily and economically expand capacity by upgrading your current system or adding another member of the family.

First and foremost. Prime means first. And we've had a lot of them. We were first with a family of compatible 32-bit computers.

First to put mainframe capabilities - like large on-line disk storage and DBMS - on a mini. First with a single operating system and a common file structure across an entire product line. First with virtual memory on a mini. And first to open an X.25 transatlantic communications link.

At Prime, being first has become a habit.

Meet the family. In a time when the relationship between price and performance has become vitally important, you should make it a point to meet our family. In Canada, write Prime Computer of Canada Limited, 130 Skyway Avenue, Rexdale, Ontario M9W 4Y9, Tel: (416) 675-7870.

PRIME Computer



DDP SYSTEM BACKS DATA ENTRY

From page 30

where the input originates.

Comcheq chose its distributed processing equipment for reasons including:

- equipment cost was less than any package with similar features;

- the building-block architecture of the Series 21 allowed a minimum, customized initial purchase for each branch office. System enhancement is easy, with a minimum of hardware replacement;

- the communications capability allows rapid transmission of data to and from the central processor;

- diskette storage replaced the punch cards, and

- data entry would be easier, because of large CRT display screens and a Formatted Data Entry (FDE) package offered by the manufacturer.

When the equipment was installed, Mr. Loewen found that it did not take long for his operators to make the transition from card to diskette-based data entry. The FDE package allowed operators to begin using the system without extensive training. This package provides a visible format on the CRT screen, and the operator keys the data into the proper fields. The software meets most of Comcheq's requirements, but for more detailed applications, programs have been written in MOBOL (Mo-

hawk Business Oriented Language), a high-level programming language offered by MDS.

The distributed processing concept appealed to Mr. Loewen because the company could centralize its database but still retain the ability to perform processing functions at each location. The same basic system configurations are installed in each location. However, since not all require exactly the same level of sophistication, the number and type of peripherals varies.

Varied peripherals

For example, the corporate headquarters in Winnipeg uses three System 21/40's, each with three CRT displays and data-entry keyboards, three diskette drives and a system controller. One 300-lpm printer serves the needs of all the keystations. Also in operation is a System 21/20 with one CRT display and keyboard, one diskette drive, and a station controller. At the Toronto branch, two System 21/40's are in operation, each with four CRT displays and keyboards and four diskette drives, served by a 300-lpm printer.

The DDP systems have streamlined the company's day-to-day operations. During the day, data comes in from the customer and is entered into the Series 21 system. By the end of the day, the operators have captured all the data they must process that night. Around 5 or 6 pm they transmit the data to Cybershare to be processed, after which an edit report is sent from Cybershare. When the data has been

checked, the company paychecks and other payroll reports are printed.

Added bonus

The Comcheq staff has taken advantage of the system's communications capability to yield an added bonus: electronic mail. The company formerly used Telex equipment to transmit information among its offices. Now they communicate through Cybershare. Messages are entered in Toronto, for example, and transmitted to Edmonton, where they are printed on the standard system printer. The result is not "correspondence-quality" copy, but the message gets across at a fraction of the cost of the previous service, which has now been eliminated throughout the company.

For the future, Mr. Loewen hopes to set up communications directly between his offices and his customers, eliminating the over-the-road transportation of data. The company is now in the process, with the help of Cybershare, of incorporating the Houston Automatic Spooling Program (HASP) into its network in order to save money by transmitting data to and from Cybershare more rapidly.

Mr. Loewen expects the company's growth pattern to continue at a steady rate in the future, despite many competitors. He notes that his firm is a smaller, more flexible company, allowing it to more easily tailor payroll packages to suit customer needs.

"Comcheq is a specialist in its marketplace," he says, "and that is our bread and butter." □



Programming Manager John Neufeld at MDS 21/40 operator station.



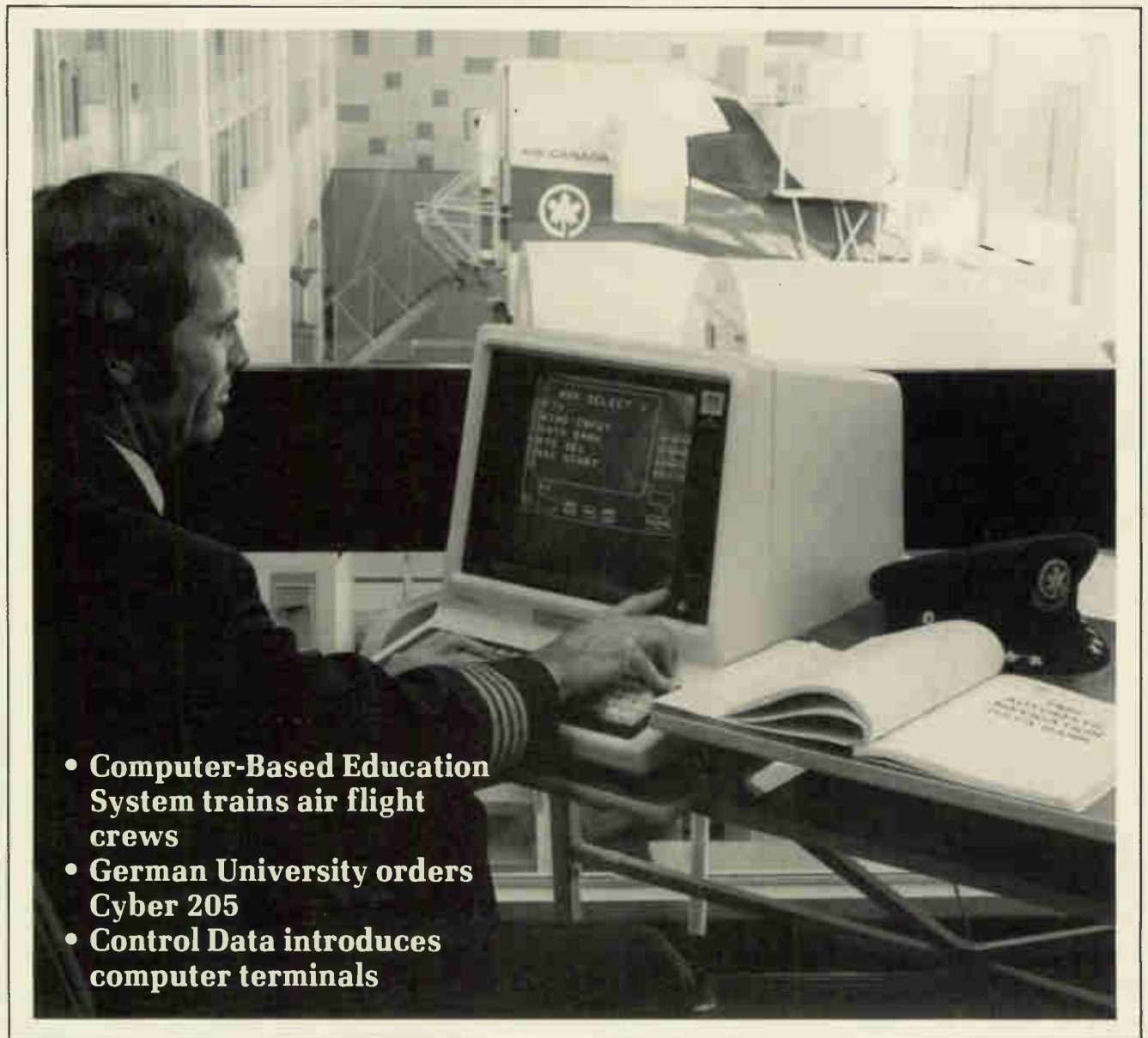
Line printer produces customer information, interoffice correspondence.



Data entry operators at firm's Winnipeg facility enter information provided directly by customer.

INFO

GD
CONTROL
DATA



- **Computer-Based Education System trains air flight crews**
- **German University orders Cyber 205**
- **Control Data introduces computer terminals**

Control Data's Computer-Based Education System To Train Air Canada Flight Crews

Control Data Canada, Ltd. is developing a training simulation that provides hands-on simulation training for Air Canada flight crew members via Control Data's computer-based training system - PLATO. The simulation is being developed by the Professional Services

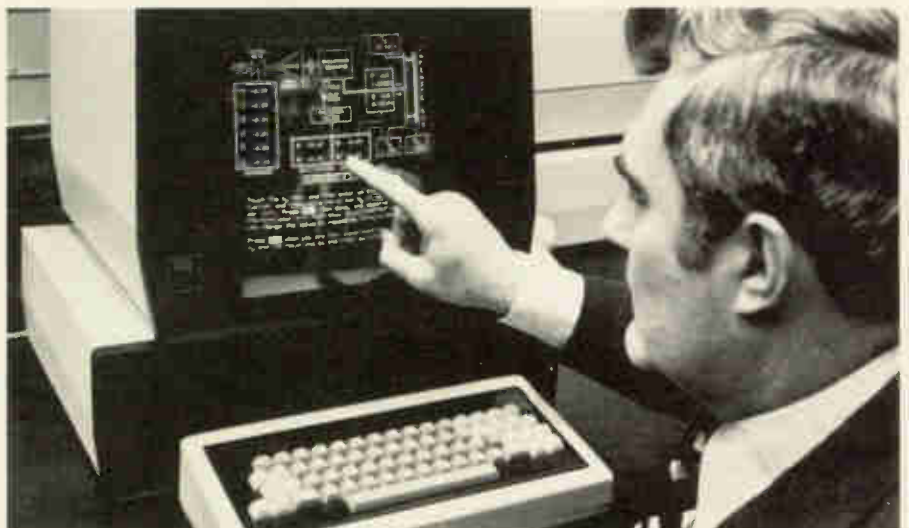
Division of Control Data Canada, Ltd. and will be used by Air Canada pilots who will learn to use on-board computers. In early 1981, Air Canada will take possession of six new Lockheed 1011 Series 500 planes, equipped with advanced avionic instrumentation. One of these instruments,

called the Flight Management System, is designed to help pilots optimize the performance of the airplane and to achieve significant fuel savings. To realize this important saving, all L1011 pilots must learn to use the Flight Management System; however, the new avionic technology introduces a completely new man-machine interface to which the pilots must be exposed. Each pilot must develop automatic reflexes and the same confidence in using these computers as with any other avionic equipment. Reports written by various members of the aerospace industry indicate that hands-on exercises with drill and practice are the most efficient training methods. Under the direction of a project manager, a team of course designers, course developers and computer-assisted instruction programmers from Control Data's Professional Services Division are presently developing the training simulation with subject matter experts from Air Canada. The final product will permit flight crew members to interact with a simulated Flight Management System displayed on PLATO terminals. The touch sensitive screen of the PLATO terminals will allow pilots to manipulate the simulated Flight Management System. □



The Control Data Plato System To Train and Educate People More Effectively

CONTROL DATA's PLATO Computer-Based Education (CBE) system provides effective, cost-efficient, high quality education and training for business, industry, government and academic institutions. It offers two major characteristics desired for educational and training materials: accountability and individualization. Presently installed in universities and businesses throughout the United States, PLATO was first used in Canada at the University of Quebec where it has enhanced the teaching capacity of the university by linking many of the 30,000 students on a network of campuses in communities throughout the province to the best instruction available. People use the PLATO system through special terminals linked by telephone lines to a central Control



A computer-based system, called Control Data PLATO, is offered by Control Data to help train engineers and support personnel in electric utilities engineering/operations programs. By merely touching the screen, users can answer questions or change parameters in a power system to study load flow, switching techniques, outages and other utility problems.

Data CYBER computer system. PLATO terminals consist of a keyboard, similar to a typewriter, and a display screen. The terminal display screen can present impressive and highly useful designs, foreign languages and a wide variety of technical symbols. It also has a distinctive touch-sensitive panel which allows users to answer questions, to re-position items on the screen, and to supply other responses to the PLATO system by simply touching the display screen. Learners, working at PLATO terminals, progress at their own rate. They take pre-tests which determine their prior knowledge and

the test results determine which material they should study and allow them to bypass any material they have already learned. Once learners have completed the testing, the PLATO system gives them a variety of lessons and various media to choose from and acquaints them with the type of information they are expected to know after they have completed a specific lesson. The PLATO system performs two basic types of functions: 1) it provides learning material and activities to students; and 2) it handles testing and student management tasks, such as record keeping and prescribing learning activities. PLATO learning activities



and the student management and testing functions can be used individually or together. PLATO system is capable of sophisticated testing and comprehensive record keeping. It can also prescribe the appropriate media — test, audiovisual or PLATO learning activities — for an individual student or trainee, while it enables the teacher to devise the management strategy most appropriate for the educational or training situation. □



The cardiology program, used in the University of Alberta's second year medical program to familiarize students with the symptoms of the most common coronary complaints, was demonstrated at the announcement of the University of Alberta's acquisition of a large-scale Control Data PLATO computer-based education system. Dr. Richard Rossall of the School of Medicine at the University of Alberta is the author of the program being demonstrated here by Wayne Osbaldeston, a specialist in computer training for medical applications, who programmed the patient simulations.



PLATO



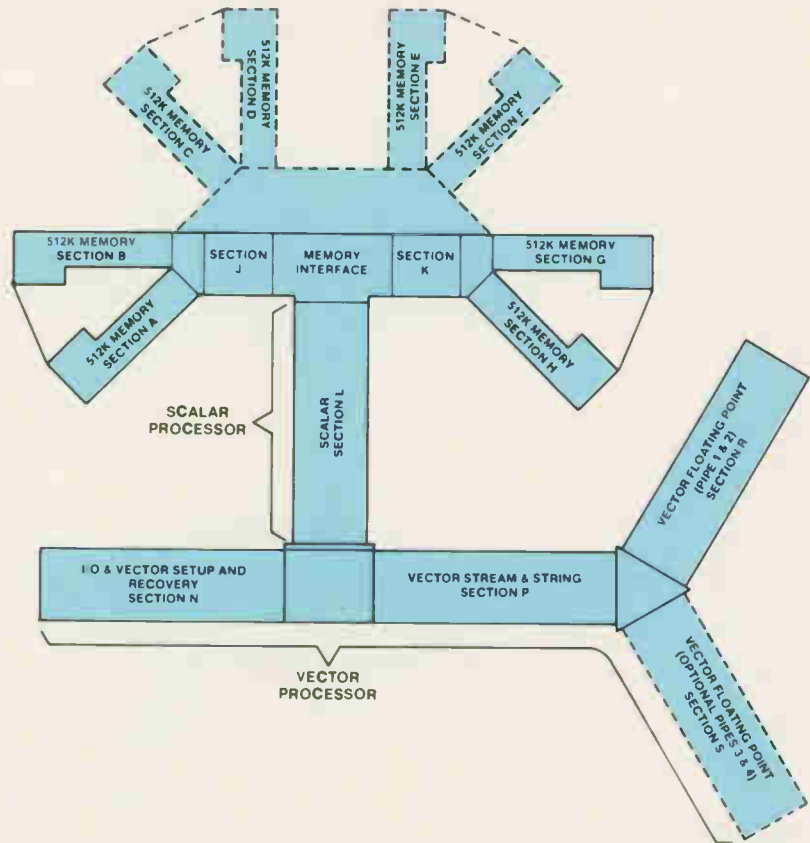
INFO is published quarterly by Control Data Canada, Ltd., 1855 Minnesota Court, Mississauga, Ontario L5N 1K7. Peter Lowry, vice-president, public affairs. Editor: David G. Smith, 416-826-8640.

Regional Offices: Toronto: 50 Hallcrown Place, Willowdale, 416-492-4200/Data Services 416-492-4130. Montreal: 300 Leo Pariseau, 514-845-4201. Ottawa: Suite 1105, Varette Building, 130 Albert Street, 613-238-2325. Calgary: 112 Fourth Avenue S.E., 403-265-8500.

Business Products Division: Toronto: 45 Commander Boulevard, Scarborough, 416-291-7151. Montreal: 925 McCaffrey Street, St. Laurent 514-737-3641. Ottawa: Suite 1105, Varette Building, 130 Albert Street, 613-238-2325. Calgary: 112 Fourth Avenue S.E., 403-265-8500. Vancouver: 1225 East Hastings Street, 604-255-8401. Winnipeg: 551 King Edward Street, 204-774-3493. Edmonton: 112 Fourth Avenue S.E., Calgary, 403-265-8500. Computing Devices Company, P.O. Box 8508, Ottawa, 613-596-3810.

German University Orders Control Data Cyber 205

The CYBER 205 was designed by computer. Like its predecessor system, the CYBER 203, it was developed utilizing computer-aided design simulation techniques. The new system is capable of handling input and output of information at the rate of 3.2 billion bits per second. The central memory capacity is up to 4 million words and it has a virtual memory capacity ranging up to 2.2 trillion words.



CYBER 205

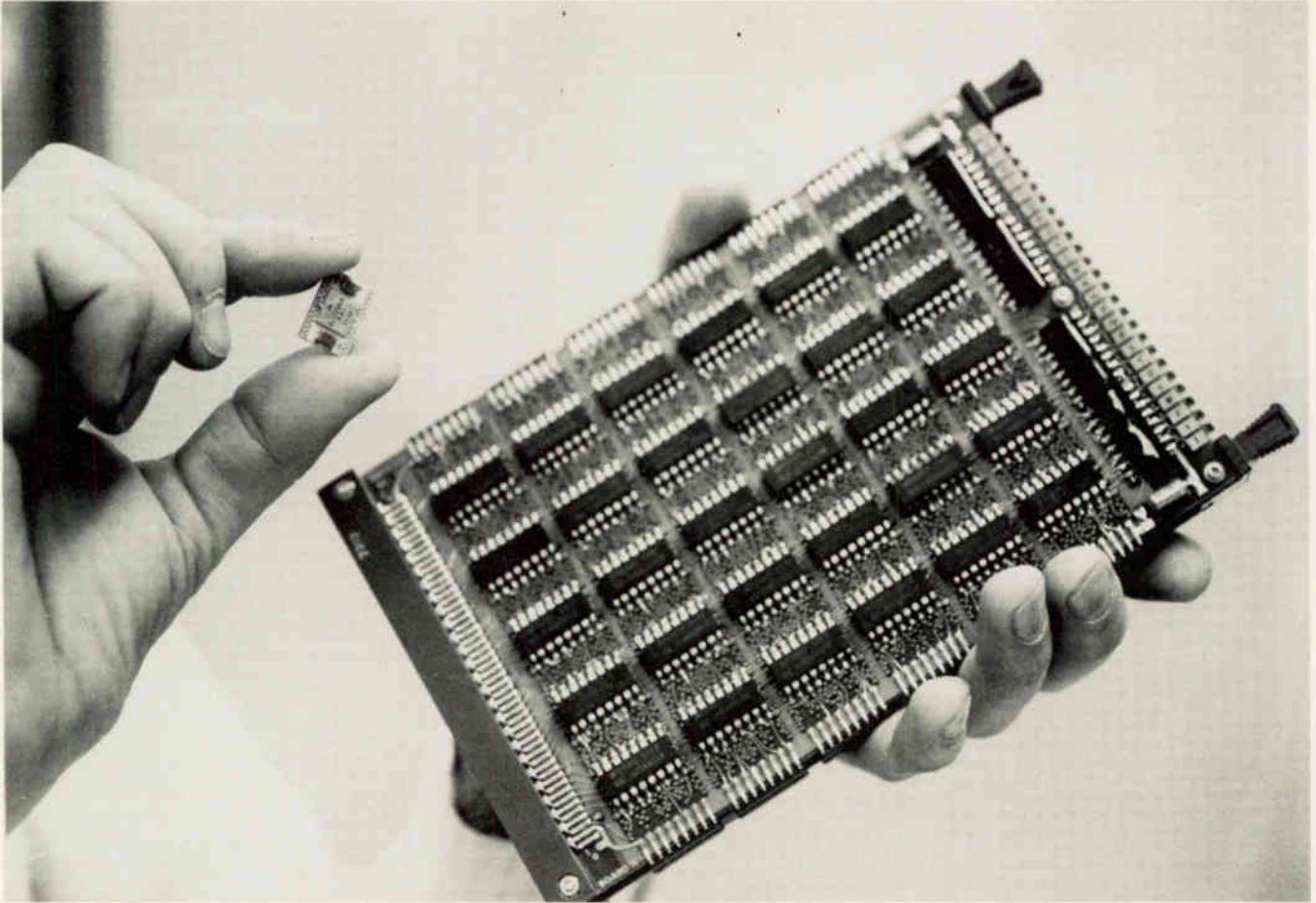


The Control Data CYBER 205 is the world's most powerful computing system. It performs up to 800 million operations in a single second. The CYBER 205 is especially designed to handle the complex problems related to petroleum exploration, weather forecasting, manufacturing, nuclear power plants and large-scale construction.

The University of Bochum, Germany, has ordered a Control Data CYBER 205 computer system valued at \$11 million.

When installation of the system is completed in September, 1981, The University of Bochum will be the first academic institution to operate a CYBER 205, the world's most powerful supercomputer. The new machine is capable of performing up to 400 million operations per second and has a virtual memory capacity of 2 trillion words. With optical equipment, the system can be expanded to a capability of 800 million operations per second. Located in the region of Westphalia, The University of Bochum is noted for its extensive research programs and engineering curriculum. With the CYBER 205, the university plans to become a regional computer facility for area universities and research institutes, providing the level of service possible only with vector data processing. Users will also have access to the two CYBER 175 computers that are included in the configuration to handle communications and preprocessing for the CYBER 205.

The CYBER 205 was announced in June, 1980, and specially designed for use in environments requiring sophisticated data management and simulation. □



Advances in computer logic technology are highly visible in this comparison of the large scale integrated (LSI) circuitry (left) used in the CYBER 205 and the equivalent logic of the Control Data STAR-100. The LSI circuitry is among the improved technologies and architecture of the CYBER 205, which is capable of performing up to 800 million operations in a single second.

The computer system, the CYBER 205, is more than three times faster than any computer currently available.

In announcing the product in Canada, George J. Hubbs, president of Control Data Canada, Ltd., said that this massive scientific and engineering computing power was needed for faster, more accurate world-wide weather forecasting, to better define oil

reservoirs, and to improve production for the energy industry. Other uses for the supercomputer are to provide greater operational safety for nuclear power plants, to simulate expensive testing procedures for aircraft and automobile manufacturers, and to provide finite analysis for engineers in designing multi-story buildings, dams, off-shore drilling rigs and other highly complex structures.

In addition, the system combines scalar (the traditional processing technique) with vector processing which performs arithmetic functions on arrays or streams of data with a single instruction. The scalar unit of the processor performs at 50 million instructions per second and directs the vector unit which can produce up to 800 million operations per second. □

Personnel Management Analysis System Aids Control Data's Information Needs

"At last I've found a system that controls my information handling needs, gives me immediate turn-around time, and provides graphics for presentation purposes," says Wilma Backus, manager, personnel services, Control Data Canada. Many key managers in large corporations do not receive the information they need to manage their particular function — at least, not in a format they can use, when they need it.

Control Data's Management Time-Sharing Services offers a system

specially designed to solve this problem — Personnel Management Analysis System (PMAS). PMAS is invaluable to personnel departments in the areas of:

- Recruitment, selection and source-of-hire analysis
- Promotion and transfer requirements
- Wage and salary administration
- Benefits and compensation analysis
- Training administration
- Organization and manpower planning

• Employee performance
Upon investigating this system for Control Data's own Personnel Department, Mrs. Backus found that, "Programming PMAS is easy to learn and can be done by personnel staff themselves. We have the luxury of accessing the information we want instantaneously, in the format we want, suitable for boardroom presentation.

"Recently, in a morning meeting with senior management, I made a presentation that needed some adjustment for an afternoon meeting. I turned the material around in two hours and gave them an entirely new scenario! That instantaneous access to information is what makes a personnel manager look good."

Development

The Management Time-Sharing Services approach is to first identify management's exact needs and to select and adapt existing high-level, user-oriented languages to solve them.

In Control Data's case, Management Time-Sharing Services marketing representatives, Al Hazelton and David Edwards, met with Bruce Newton, vice-president, Personnel and Administration at Control Data Canada, to set the schedule for education, system definition, implementation, testing, and final approval.

Management Time-Sharing Services - What it is?

Management Time-Sharing Services are available to provide business executives with tools for better planning, control and analysis in business areas which are key performance determinants for their organization. There are over 200 computerized services which have been specifically designed for business managers who have no data processing or programming background.

Managers have special requirements. They need efficient access to data, data reconfiguration to produce useful management information, effective performance tracking methods, planning/forecasting, examination of effects of assumption changes, and tools which are flexible enough to address unanticipated and diverse



"We have the luxury of accessing the information we want instantaneously, in the format we want, suitable for boardroom presentation," says Wilma Backus, manager, personnel services, Control Data Canada, Ltd.

problem situations.

Management Time-Sharing Services offers: specialized managerial business systems, immediate results, quick set-up and implementation, no front-end investments, experience accrued by being part of the largest data services supplier organization in the world.

PMAS is an information system developed and used by Control Data's Personnel Department using Management Time-Sharing Services' X/L (Executive Language) which organizes relevant information from employee payroll/salary data in the most meaningful way for management's needs.

It allows personnel management to control the handling of their information needs, to retrieve information in a specified format — and they can obtain the information quickly through the Management Time-Sharing Services System. Because the system is easy to learn (personnel staff themselves handle the input and requesting of information), development occurs quickly as a result of a new management need.

PMAS helps Control Data Canada maintain competitiveness in the salary market; reduce the cost of training through reduced turnover; and react quickly to the changing market in order to keep ahead of it. "It lets us produce a more cost-effective program because we can explore more alternatives," says Mrs. Backus.

Monthly data from the Control Data payroll system is transferred by tape to Management Time-Sharing Services' X/L data base. Then, standard, user-defined reports are generated using the X/L Reporting Language. Specific selection, addition and replacements, tabulations, graphics, and simple reporting can be done interactively using the X/L Data Handling Language. X/L is a fully interactive system design specifically for storing, maintaining and manipulating, ad-hoc inquiry and reporting on large data bases.

XL-Executive Language highlights include:

- Requires no previous data processing experience
- One-word English commands
- Easy to use
- Easy to learn, self-paced, on-line education
- Allows user to build own expertise
- Inquiry capability - direct access
- Immediate hard copy results - suitable for boardroom presentation
- Graphics capabilities, including colour
- Built-in links to a family of business applications software - pre-written and pre-tested to address such applications as planning, analysis, forecasting and control. □



Management Time-Sharing Services marketing representatives David Edwards (right) and Al Hazelton worked hand-in-hand with Control Data's personnel staff so the users gained full understanding of their own system and gained self-sufficiency in handling their own information needs.

Control Data Introduces First of New Family of Computer Terminals

Control Data has introduced the first of a family of operator-oriented computer terminals. The units are compatible with all Control Data computing systems that support TTY-compatible, asynchronous terminals.

The Control Data 722 Display Terminal is a microprocessor-controlled, asynchronous terminal for both local and remote data processing with advanced levels of reliability, maintainability and safety. And, the units are silent in operation.

The terminals provide asynchronous, character-by-character transmission consistent with established teletype-writer communication conventions. Line coding is compatible with the previously announced Control Data 752 Display Terminal. The 722 can also be set to operate in advanced mode for extended control functions.

Each terminal features a 1,920-character display, transmission

speeds of 110 to 19,200 bits per second, an 85-key keyboard which includes a numeric pad and 12 special-function keys, N-key rollover circuits to prevent loss of input data, data highlighting including dual-intensity and blink features, and interface for optional impact or non-impact printers.

The display is a 12-inch (305 millimeter) diagonal CRT with a maximum capacity of 24 lines of 80 characters per line (1,920 characters). The terminals permit the storage and display of the 95-character ASCII set and provides, in addition, 33 control-code characters. Operating in the advanced mode, the terminal can display an additional line drawing set consisting of 31 characters. Characters are displayed in either mode within an 8-by-10 dot matrix measuring 0.219 by 0.1 inches (5.56 by 2.54 millimetres in height and width).

The unit has been licensed by the West German Post Office and has been tested to meet the West German Association of Electrical Engineers' requirements for safety. □



Control Data's 722 Display Terminal is the first of a family of operator-oriented computer terminals compatible with all Control Data computing systems that support TTY-compatible, asynchronous terminals.

Control Data's Cybernet Services Offers ESP-1 Building Energy-Consumption Analysis.

A complete program that helps architects pinpoint the energy demands of a building is now available through the CYBERNET Data Services of Control Data Canada, Ltd.

With ESP-1, building designers have the means for modeling the performance of heating, cooling and other energy-consuming systems or equipment. It simulates on an hourly basis the building's mechanical

systems, taking into account the building's heat gain and loss, weather data, operating schedules, and building thermal storage and its analysis. Alternate building characteristics and different heating, ventilation and cooling systems can be studied.

The program is applicable to major commercial or industrial buildings, both new and existing. □

Control Data Announces Three Dec-Compatible OEM Semiconductor Memories

Control Data has announced three semiconductor memories — two memory modules and a complete memory system — designed for original equipment manufacturers (OEM's) who incorporate Digital Equipment Corporation (DEC) computers into complete computer systems.

The three Control Data add-in/add-on memories and the DEC processors for which they are designed include the 94134P module (DEC PDP 11/34 and 11/44), the 94178 module (DEC VAX 11/780), and the 94170 system (DEC PDP 11/70). The 94134P add-in semiconductor memory module can be configured

with storage capacities ranging from 32K to 256K 18-bit words, and operates with either the standard or modified Unibus System.

Compatible with DEC VAX 11/780 computers, the new 94178 add-in semiconductor memory module is available in a 32K by 72-bit configuration with read, write and refresh operating modes.

The new 94170 semiconductor memory system for the DEC PDP 11/70 is a self-contained add-on memory that is installed in memory cabinets of the central processor unit. Storage capacity ranges from 512,000 to 4 million bytes of data in 512,000 byte increments. □

Control Data Announces Direct Access Storage Units and Controller Compatible with IBM 3380/3880

Control Data Canada, Ltd. has announced new direct access storage devices that are compatible with the IBM 3380 storage unit and can store up to 2.52 billion characters of information.

The announcement also includes a new storage controller, the 38800, that directs the storage and transfer of information between IBM — and compatible — computer processors and the new 33800 storage devices. The new 33800 disk storage units, designed for users of large IBM and compatible computer processors, provide double the storage capacity of Control Data's largest current direct access devices.

Information can be read and written on the new units at a rate of three million characters per second, more than twice the speed of the 33502, through the use of new thin-film head data recording technology. □

The computer people at Control Data. Problem solvers you can learn from.

You cannot deny the urgent need for more effective and cost-efficient ways to train and educate, especially when you consider the fact that there has never been so much to learn at all levels of industry and education, from basic skills to complex, high technology.

The Control Data PLATO computer-based education system is a unique, revolutionary solution to the need for improved productivity and cost-efficiency in industry and education, from the most elementary learning to advanced post-graduate instruction.

Computer-aided and computer managed instruction, the PLATO system operates at each student's own pace, frees instructors from teaching by rote so they can give students individual attention, and actually shortens the learning process.

The first PLATO installation in Canada has enhanced the teaching capacity of the University of Quebec by successfully linking many of its 30,000 students on campuses in communities throughout the province to the best instruction available.

When it comes to career-entry training, our unique Control Data Institutes in Toronto and Montreal are highly successful in providing a continuing stream of qualified computer operators, programmers and technologists for business, industry and government.

Through seminars and on-site training programs, our



Institute for Advanced Technology helps computer professionals and management personnel develop new skills and keep abreast of the latest developments in computer usage.

In Canada, as around the world, Control Data is an acknowledged leader in designing and manufacturing computers and providing data services.

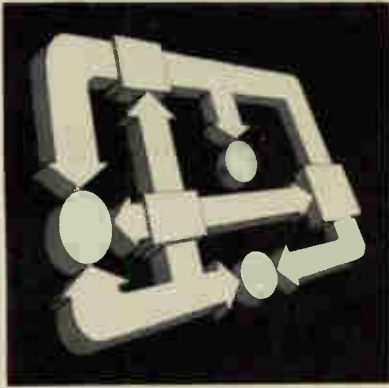
Over the years, we have channelled our computer technology, financial resources and industry expertise into problem-solving capabilities not normally expected of a computer company.

By focusing our highly-sophisticated computer applications expertise on specific needs and problems in many fields of human endeavour, we at Control Data Canada are helping to improve productivity and the quality of life for all Canadians.

Tell us your problem and we'll tell you how you can learn from us.

GD
CONTROL
DATA

Control Data Canada, Ltd.,
1855 Minnesota Court,
Mississauga, Ontario
L5N 1K7



Changes in user sophistication in DP and in general management place new pressures on the DP function. Here are practical guidelines and methods of coping.

What to remember about managing the DP function

By WAYNE H. PETERS

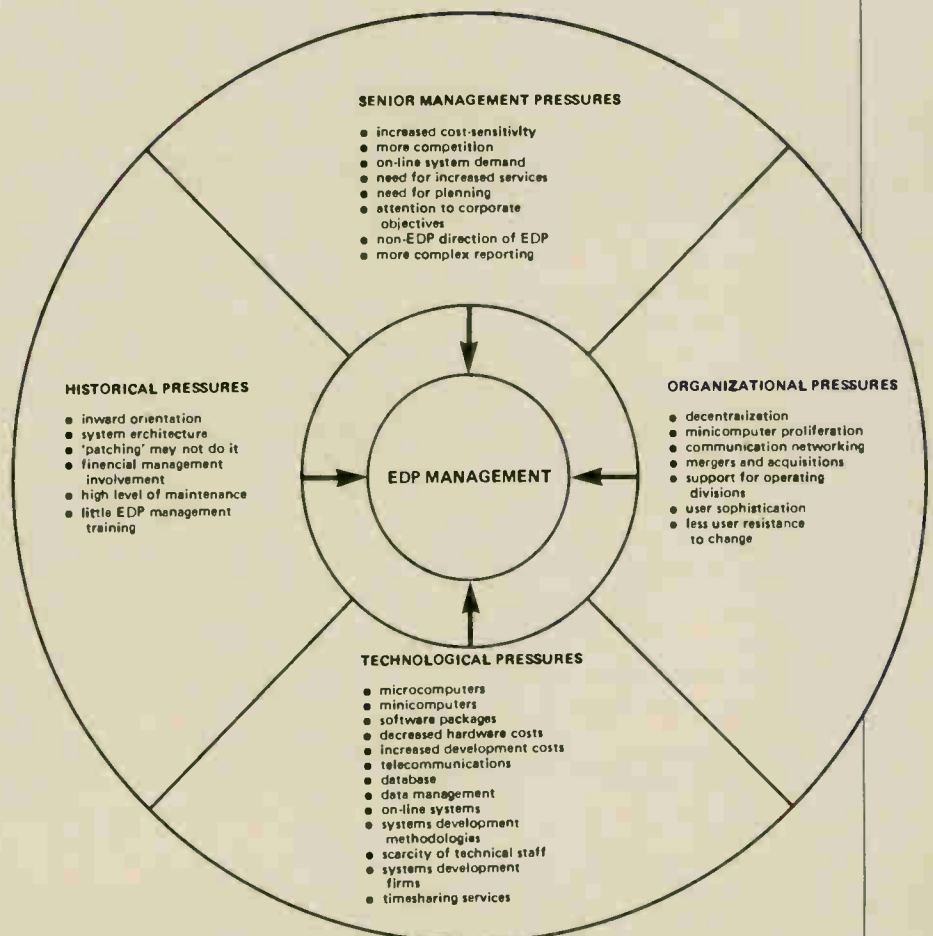
INCREASINGLY, EDP executives are facing pressures that could precipitate radical restructuring and redirection of their EDP group.

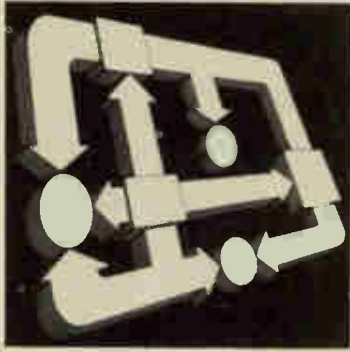
This observation is based on recent experience in assisting EDP managers, Chief Executive Officers and corporations in the overall management and direction of the EDP function. The emerging pattern appears to be consistent across all sizes of organizations and in all segments of the private and public sectors.

This article analyzes the factors that contribute to this trend, suggests

Turn to page 42

Wayne Peters has more than 15 years experience in EDP, the last seven in consulting to senior management. He is a principal in the computer consulting group at Woods Gordon's Toronto office. He also worked as CEO of a data processing service organization serving more than 260 customers; as company EDP manager; and as Director of Management Consulting for a software firm. In his present position he is responsible for a group of EDP management consultants who have helped many organizations through the assessment and planning steps outlined in this article.





Managing the DP function

From page 41

how you can assess your situation, and provides practical methods for dealing with the challenges.

Data processing has entered the Eighties with more pressures than ever before. These emanate from four main sources.

- Historical pressures that exist by virtue of the evolution of EDP through the past two decades;
- Technological pressures that result from the explosive growth in all aspects of technology;
- Organizational pressures from changes in the EDP function and in the organization as a whole; and
- Senior management pressures that are being exerted on EDP as senior management attempts to respond to the much changed business environment of the eighties.

Fig. 1 summarizes these sources of challenge to the leadership of the EDP function.

Historical pressures

Each EDP department is facing major pressures due to its own unique situation. The pattern evident in the Seventies was:

- Emphasis on improving performance within EDP and, to a lesser extent, in the user interface;
- Increasing use of standardized technical methodologies for development and maintenance activities;
- Some decentralization of data entry, less of operations and less still of system development;
- A tendency to respond to pressure for on-line systems by adding on-line enquiry to pre-existing systems;
- A shift towards systems supporting operational functions of the organization;
- A high percentage of effort directed

at system maintenance and minor enhancements;

- A reluctance to respond to increased user demand for more control over his data;
- An increasing number of users acquiring their own systems and processing capability despite the objections of the central EDP group.

Only the most enlightened organizations have moved aggressively to reorient their EDP function in major ways. Rather, each has tended to respond by changing the historical evolution in minor ways.

History has left EDP management with an interdependent set of applications running on one or more central computers. These applications are typically of a wide variety of ages, technical quality, user acceptability and efficiency. Often they are not well documented and their maintenance and operation consumes a high proportion of the technical resources available. This results in a 'mainframe/application software' inertia which curtails the EDP manager's

Strategic thinking places new demands on the DP executive's management skills and on his ability to work effectively with other areas of the organization.

ability to respond fully to the explosive growth in user demands. It also curtails his ability to respond to pressures generated within his own department for usage of newer technologies and methodologies.

Technological pressures

Most firms have a substantial investment in their suite of applications. Many of these applications are relatively old and they are often designed for previous generations of hardware and systems software. They would be costly to replace and so are often retained. Their presence can curtail the extent to which newer technologies such as database, telecommunications, data management, etc. can be effectively utilized. For example, few business DP shops today use the full capabilities of database systems. Also, when applications are adapted for on-line capability, the solution is often a technical compromise. The result is that technical staff are less able to develop state-of-the-art experience

and will be less motivated, with higher turnover rates inevitable.

Availability of minicomputers, timesharing, systems development and other services from outside sources further complicate the picture. It means that increasing need is placed on EDP management to be technically current, to be competitive and to work harder at cultivating the confidence of the user. A much greater emphasis is needed on a user service orientation and, with the 'mainframe/application software' inertia discussed above, this is often difficult to attain.

Organizational pressure

Shifts in organizational factors are often difficult to perceive and to translate into concrete EDP department responses. Many organizations are going through a movement to more autonomy for geographical and divisional entities. This may eventually result in a need for a major shift in the overall system architecture that has been built up over the past 10 years. But where are you *now* and what should trigger action on this scale? This decision is all the more challenging when you consider that the trends are gradual and may be difficult to perceive with any clarity if you are caught up in them.

Some additional pressures worthy of monitoring are:

- Entry into a period of acquisitions, mergers and consolidation may well mean you should be bringing different skills and resource levels into the department;
- General reduction in user resistance to change may mean previously unfeasible system projects are not only feasible now but are being actively sought by the awakened users; and
- Minicomputers and microcomputers are increasingly being acquired in user areas.

Issues raised by organizational pressures are likely to be deep and to cut to the very foundations of the EDP department. Thus, they should not be treated lightly or tackled by the EDP manager alone. If action is needed, the EDP executive would be wise to precipitate discussions at the Chief Executive Officer or Chief Operating Officer level.

Senior management pressures

Senior management in most organizations are looking at a much changed business environment in the 80's. Their organizations face increased competition, greater demands for gov-

Turn to page 44

Silent partner.

In the business world of today, just about everybody could use a silent partner. After all, they give your operation a real shot in the arm and hardly ever make a sound.

Now Lear Siegler can fill the bill. Because our 310 Ballistic™ Printer is one silent partner that knows when to HUSH up.

The 310 is the quietest dot-matrix printer in its class. In fact, the 310 Ballistic Printer with HUSH checks in at a soothing 56 dBA. That's quieter than most typewriters. And when

you stop to think of the accumulated noise beating on your eardrums all day, the 310 emerges as a valued colleague indeed.

As if that weren't enough, the 310 also features an expandable print buffer with up to

2048 characters. It gives you complete horizontal and vertical forms control. And it's compatible with all LSI terminals.

Other outstanding features include the 310's printing characteristics. And a 9 high by 7 wide dot-matrix provides true underlining and lower case descenders.

In addition, the sophisticated 310 is multi-lingual. Because character sets are available in a variety of languages. At 180 cps, the 310 Ballistic Printer with HUSH gives you high throughput. It's rugged and durable but stylish in design and fits right into any office decor.

The 310 Ballistic Printer with HUSH is a real business secret. Why not make one your silent partner today and see what a difference it makes.



LEAR SIEGLER 310 BALLISTIC PRINTER WITH HUSH.

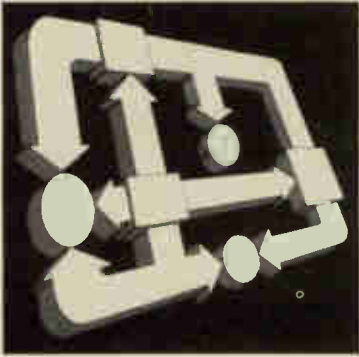


LEAR SIEGLER INC
DATA PRODUCTS DIVISION

Lear Siegler, Inc. Data Products Division, 714 North Brookhurst Street, Anaheim, CA 92803, 800 854-3805 In California 714 774-1010 TWX 910-591-1157 Telex 65-5444 In Canada contact Zentronics Calgary 403/230-1422 • Edmonton 403/463-3014 • Montreal 514/735-5361 Telex 05-827535 • Ottawa 613/238-6411 Telex 053-3636 • Vancouver 604/688-2533 Telex 04-507789 • Waterloo 519/884-5700 • Winnipeg 204/775-8661 • Toronto 1355 Meyerside Drive, Mississauga, Ontario L5T 1C9, 416-676-9000 Telex (6-9)83657

Ballistic™ Printer is a trademark of Lear Siegler, Inc.

Reader Service Card Number 43



Managing the DP function

From page 42

ernment reporting, increased pressure on profit margins and decreased lead-time in which to respond to competitors. These translate into these EDP management concerns:

- Much greater pressure to provide systems support to operating functions of the organization, often on a decentralized basis;
- Increased cost-sensitivity which means greater need for sound feasibility studies prior to project commitment;
- Need for much better EDP planning and clearer communication with senior management;
- More complex financial reporting and analysis;
- More need for on-line systems;
- Much greater demand that the EDP executive be responsive to organizational objectives.

Despite the fact that the technological tools in the EDP area have never been better, the above considerations can represent major challenges. This is particularly true when you consider the inertia built up due to the historical evolution of systems in the organization. Thus, the 80's represent a challenge to EDP executives on a scale and diversity never experienced before.

Sizing up your situation

A comprehensive diagnosis of your EDP situation should be the first step. You should develop a list of the pressures you face as completely and objectively as possible. This is a step where a third party skilled in EDP management can be invaluable. You may find yourself too immersed in the day-to-day functioning of your department to step back and size it up with an objective and comprehensive perspective.

The next step should be to distin-

guish between operational issues and strategic issues. Operational concerns generally:

- Involve improvement in current systems operation and minor application software enhancements;
- Revolve around how to best accomplish relatively minor changes in the current situation;
- Often relate to better resource measurement, project planning, use of standards, etc.;
- Can be dealt with primarily within the EDP area;
- Focus on the 'how' of EDP, not the 'what'.

Strategic issues, on the other hand, are much broader and more fundamental in that they:

- Generally focus outward in response to increased pressures from users, top management, customers and suppliers;
- Concentrate on the future rather than marginal improvement to the present;
- Deal with high level priorities and

It is generally much better if a strategic review is initiated by the EDP executive rather than forced upon him by senior management

alternatives such as installing minicomputers to replace all or part of the services of the current mainframe;

- Require a broad general management perspective to understand and address;
- Require significant involvement of users and senior management outside EDP to properly resolve.

Thus strategic thinking places considerable demand on the EDP executive's general management skills and on his ability to work effectively with other areas of the organization.

You should categorize each pressure on the EDP department into an operational or a strategic concern. If the major concerns are in the operational area, you may be able to put together a proposal to senior management which will respond adequately by making changes primarily within EDP. If, however, the major concerns are in the strategic area, you will generally be unable to develop an adequate response within EDP alone. You will need to initiate a broad strategic review of all aspects of the organiza-

tion's usage of EDP systems.

Be proactive, no, responsive

It is generally much better if a strategic review is initiated by the EDP executive rather than forced upon him by senior management. You should not, however, initiate this process if you are merely trying to gain support for a pet project or idea. Generally, the results of a strategic review initiate radical changes in how the organization uses EDP resources. If you are not committed to this level of change and personal growth, you should not precipitate a strategic review.

Some points to remember in structuring a strategic review are:

- Start with a comprehensive review of current and potential user perceptions on all aspects of current and potential services provided by EDP;
- Conduct a comprehensive review of the functioning of the EDP Department, including operations productivity and performance, systems development productivity and performance, hardware utilization, hardware planning, response to user requests, use of standards, documentation, maintenance level and performance, application architecture, extent of effort on systems programming, organizational structure, costs, time reporting, project control and staffing levels;
- Involve a senior executive steering committee composed primarily of line executives outside EDP in guiding the strategic review;
- Isolate the 2 or 3 most practical strategic options (eg. minicomputers vs. mainframe) and have the steering committee review these in detail and provide direction on the preferred alternative;
- Ensure that senior management is committed to turning the preferred alternative into a comprehensive systems plan for the next 2 to 3 years;
- Seriously consider engaging a management consultant to conduct the strategic review, including all assessments and the giving of steering committee presentations. They often can achieve the balanced perspective needed and, if properly selected, can provide the insight, support and practical experience needed.

The strategic review normally takes from 2 to 6 months, depending on the size of the organization, its complexity and on the current state of the EDP function. During this period, it is important that the EDP staff are available to assist in the review. Thus a step commonly taken is significant curtailment of systems development work to make these staff available to the review project. □

VISUAL ATTRIBUTES.
Reverse video, reduced intensity, and reverse video/reduced intensity combination. Enhance your ability to manage data on the CRT screen by highlighting key elements of the display

GATED EXTENSION PORT.
Selectively prints data sent from the host

TELETYPEWRITER KEYBOARD.
Designed for efficient data entry
Numeric Keypad with 0-9
numerals period Comma Tab
Minus And return Plus
separate cursor keys for single
stroke Up/down/left/right
And home

LOWER CASE STANDARD.
A 5 x 9 character matrix provides full 2-dot descenders

EDITING KEYS.
For limited editing capabilities
Erase to end of line or
end of page



The new ADM-5 Dumb Terminal® video display from Lear Siegler is the latest addition to a great Lear Siegler tradition. A tradition that has consistently delivered data terminals of the highest caliber. Not the least of which is our Dumb terminal series. And now, Lear Siegler brings you a totally new Dumb Terminal with visual attributes and limited editing.

The ADM-5 is human engineered to provide all the performance you'd normally expect in a conversational terminal. Plus just

the right combination of operator conveniences and capabilities typically found only in more expensive editing terminals.

Conveniences that make it easy on the operator, reduce input errors, and increase all-around efficiency and throughput. Plus special added capabilities for those handy performance extras — without the added price.

The ADM-5 is a great new general purpose terminal and is designed to suit the majority of applications.

Now available from Zentronics, your terminal Distributor. We're keeping alive a tradition of excellence.

THE LATEST ADDITION TO OUR CRT FAMILY

 **zentronics**
1355 MEYERSIDE DR
MISSISSAUGA, ONTARIO L5T 1C9
(416) 676-9000 TELEX 06 98 3657
A Division of Westburne Industrial Enterprises Ltd

 **Authorized
Distributor**
LEAR SIEGLER INC - DATA PRODUCTS DIVISION

CALGARY
(403) 230 1422

EDMONTON
(403) 463 3014

MONTREAL
(514) 735 5361

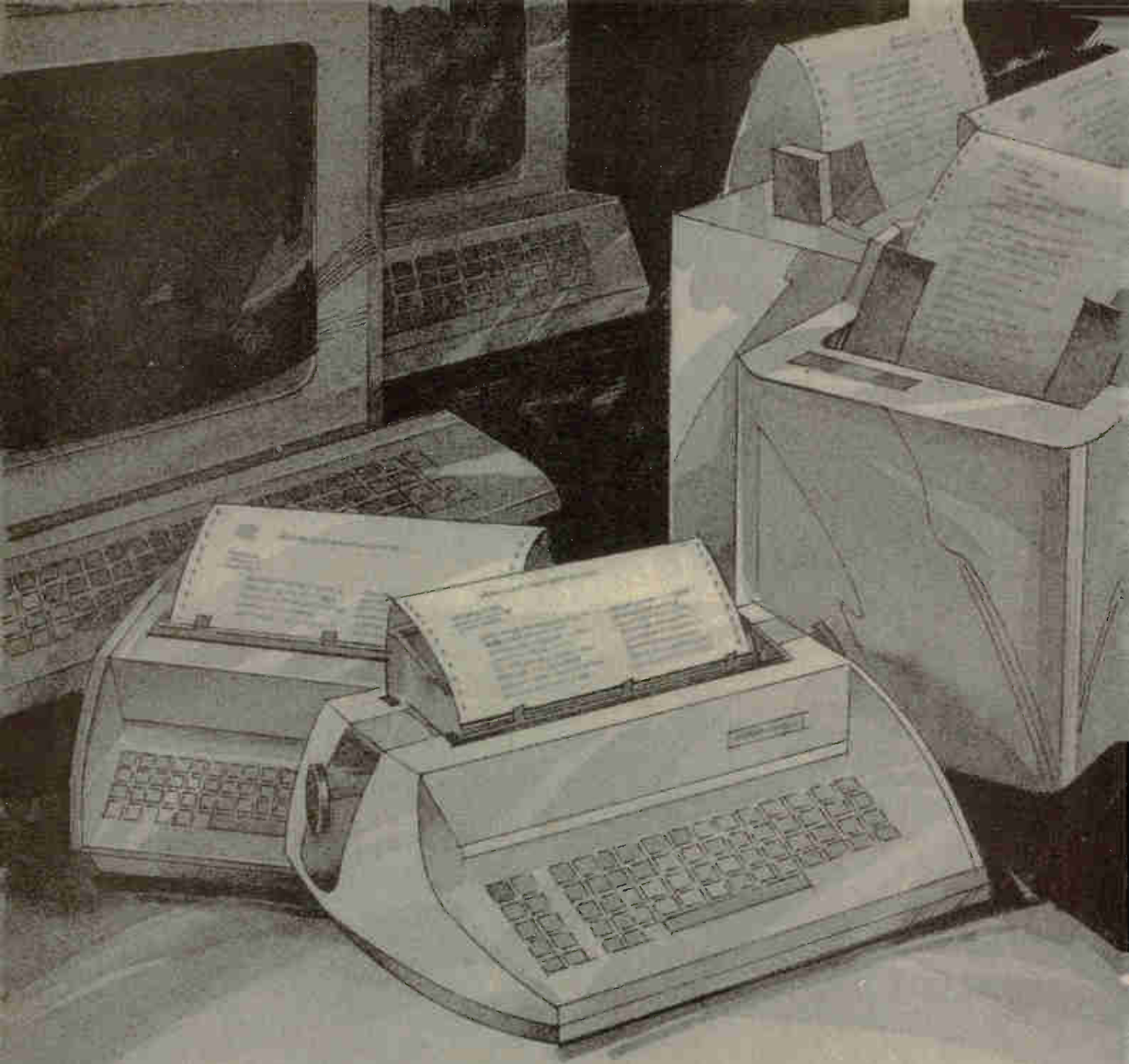
OTTAWA
(613) 238 6411

VANCOUVER
(604) 688 2533

WATERLOO
(519) 884-5700

WINNIPEG
(204) 775-8661

Reader Service Card Number 162



Success is built on a strong foundation

Ahearn & Soper built its reputation as a major supplier to the Canadian EDP industry by providing quality products and supplies at competitive prices... and backing it up with after-sales

support and service across Canada.

That hasn't changed. From low-cost video to letter-quality hard-copy, quality and service is still our major product.



Ahearn & Soper Inc.

A Canadian Company with offices in
Montreal (514)487-7240 Toronto (416)245-4848 Ottawa (613)238-8828 Calgary (403)275-7808 Edmonton (403)474-0486 Vancouver (604)251-3242

Reader Service Card Number 101

Rip Hummer



rip hūm'mər (org. Flem. rippen; phonetic: hmmm) faster than a speeding electron, this impatient workhorse knows Leasametric delivers data processing peripherals overnight. Motto: Action must be taken!

Call Leasametric for overnight delivery of these products and thousands more:

Manufacturer	Item	Description	Manufacturer	Item	Description
Texas Instruments	745	Portable Printer	Gandalf	LDS-140	Modem
Hewlett-Packard	2621A	CRT	Texas Instruments	785	1200 Baud Printer
NEC	5520	Letter-Quality Printer	Texas Instruments	820 KSR	Printer
Lear Siegler	ADM-3A	CRT	DEC	LA-34	Printer
Teletype	4320 AAK	Printer	Cybernex	XL-84	CRT

Plus μ P development systems, test instruments and telecommunications equipment.
Call us now and you'll even get a free rental equipment catalog.

Do you ever feel forgotten by the turtles who are supposed to supply your data processing peripherals? Is it a major disaster when you ask for another terminal or printer? Don't sit there and wait forever. Be a Rip Hummer. Pick up the phone and call Leasametric for on-line access

to the largest inventory of DP, microprocessor development systems, general purpose electronic test equipment, telecommunications and microwave equipment in the rental industry. Act fast! Act already! The question is, are you a Rip Hummer or not?

1-800-268-6923 Leasametric

In Ontario and Quebec call 1-800-268-0921.

Reader Service Card Number 113

Computer modelling regains its former popularity

Once described as 'playing games without risk,' financial modelling by computer is making new gains as improved computing techniques help make it more economical.

THERE'S every indication that financial modelling is regaining its former popularity. One of the reasons is that forward planning has become increasingly difficult with manual methods because of the changing dynamics of the world economy. Fluctuating interest rates within short time frames, changing demand and supply factors, and other aspects have made planning difficult and managements are looking to computer-backed planning to cope.

These changing parameters are compelling companies to be more flexible and to evaluate a wide range of alternate scenarios or strategies. It forces them to adapt to change faster to update plans not only annually, but quarterly, monthly or even weekly. New computer techniques are of help. A new forecasting aid, for example, provides an economic modelling capability to reflect the uncertain inflationary environment. In addition, 'off-the-shelf' preconstructed models are reaching the market, bringing the costs of modelling in the 1980s within the reach of smaller firms, with revenues of around \$2 million.

What is a model?

A 'model' is a representation of factors that can be manipulated to simulate a real life situation. A financial model, which uses financial terms, is simply a mechanized way of following the same logical, but limited, steps an accountant takes to determine the future performance of a company using ratios based on past performances. The basic difference from this manual approach is that a computer permits use of an unlimited number of variables.

Models answer "what if" questions about the future; help minimize difficulties in coming to grips with risk and uncertainty; overcome traditional restraints imposed on multiple scenario planning; and are available on a continuous basis to assist decision-making.

That's the theory. In practice, however, only about half or little more than half the number of models are successful and provide most of the benefits they were designed for; the rest fail because of problems of ill-defined specifications, bad design, unfulfilled expectations, inadequate documentation, failure to produce useful results, failure to meet deadlines, insufficient data, etc.

Modelling is an outgrowth of Operations Research, which evolved during the Second World War. A few O.R. people realized that situations could be simulated and, starting in the late 1950s, a few very large companies—large enough to commit the necessary resources involved—began to build customized corporate models from the ground up.

Out of this grew the structuring of models, the building of modelling systems, with built-in facilities to input data, define calculations and report formats, so that it would no longer be necessary to have a programmer or computer expert spend a great deal of time and effort to develop a program from scratch in the computer languages of Fortran, Basic or APL to model a given situation.

By the mid-1970s modelling systems of this type were being utilized by a number of companies, as well as by computer service utilities under licence arrangements. Many utilities came to the conclusion "why pay out royalties when you can develop your own modelling system?" and a number of them began to specialize with their own systems.

One possible limitation for using a services company is that the user is stuck with that particular firm and

cannot purchase the system outright to use on an in-house computer when the economics might justify this course of action. Others maintain that many utilities do not have the human resources to support these models (they understand the computer part, but not the application, they say).

From this need has emerged the management consultant who specializes in financial planning and computer modelling. Walter Jennings of W. J. Jennings & Associates, management consultants of Oakville, Ont., is one of these specialists.

He has had considerable 'hands-on' experience as a model user, because until a year ago he was Director of Corporate Finance & Planning at Brascan Ltd.

"We used modelling at Brascan for quite a few years," he explains, "mostly for overall corporate financial planning on a five-year basis. We started out with Rio Tinto FPS, which was pretty well the start of the modelling languages. This was good in its day but they didn't make the improvements they should have. We then looked at a number of second-generation modelling systems and there are about 50 of these available in Canada. Apparently the only Canadian system is MPS-F from MPS Management Consultants Ltd. of Toronto. This was the one we chose, because it was specifically developed with a view to Canadian situations, is supported here, and happens to be flexible in the choices it allows. To my mind it represents the current state of the art in financial modelling, and is a more evolved system than others I've worked with."

Now that he's on the other side of the fence, Mr. Jennings spends a great deal of his time convincing companies that they should get into some form of financial modelling:

"Modelling is a highly specialized business and it's essential that you first very carefully define what you want and then write the specifications. Because it costs a lot of money, it's important that companies approach modelling the right way, be aware of the many new directions coming up."

Mr. Jennings now works closely with MPS Management Consultants in promoting financial planning and modelling systems in general, and MPS-F in particular.

MPS-F uses the worksheet concept, an English-like command language, incorporates a data base capability, performs data checking, has an excellent and flexible consolidation/allocation facility, several modelling routines, multiple model logics, report

Turn to page 50

Someday other printers might give you all this.

Today, only the General Electric TermiNet® 2030 does.

Compare the standard features of the TermiNet 2030 printer—the 30 cps machine with 1200 baud capability—to the competition, including their options. You'll see why it's today's best printer value.

Office Quiet: A printer you can use at your desk without disturbing your neighbor.

Great Impressions: Prints an original and two copies on standard paper.

Stylish and Lightweight: Its modern design enhances any workplace decor. And at 22 lbs., it's easy to move from office to office.

Friendly Keyboard: Color-coded annotated keyboard permits quick and easy changes of formats and set-up modes. No long keystroke sequences to remember.

Remote Control: Complete remote format set-up capability makes sure your data is printed in the form you want.

Unforgettable Memory: Multi-year battery protects all horizontal and vertical formats, print parameters, and set-up modes even when printer is unplugged or power is interrupted.

General Electric Service: GE has one of the highest rated printer service organizations. Hundreds of factory-trained service technicians are stationed worldwide ready to keep you up and running.

Throughput Leader: Logical bidirectional printing, combined with 80 cps catch-up rate, improves your productivity.

1200 Baud Capability: Sends and receives data at 1200 baud (9600 baud with Text Editor or Line Buffer Option), yielding significant operating cost savings for many applications.

640 Character Buffer: Up to five times the capacity of comparable standard model printers gives you the capability to operate efficiently at 1200 baud.

Practical Display: Advanced LED information display indicates printer status, print position, and self test/diagnostic readouts—all in plain language.

- Powerful Options**
- 300 baud Modem
 - 16,000 character Line Buffer
 - 32,000 character Text Editor

Mail today to: Canadian General Electric Company Limited
Terminet 794-53G
396 Attwell Drive
Rexdale, Ontario
M9W5C3 Telephone:
(416) 675-7500

- Send me more information about the new TermiNet 2030 printer.
 - Have a sales representative contact me.
 - I'm also interested in a TermiNet 2030 printer demonstration.
- CDS-5-81

Quality that will make a lasting impression



Data Communication Products

Name _____
Title _____
Company _____
Address _____
City _____ Prov. _____ Code _____
Telephone _____



For service departments
that just manage
to get
through the day...

Micos SMS will *manage* the day. It's a powerful, easy-to-use Service Management System that monitors every assignment from receipt of call through to invoicing and inventory control. It allows the service manager complete control and instant status reports in three areas; dispatch, management service reports and inventory.

Micos SMS owners know at any instant, where every serviceman is, how long he will take and if any calls have been unattended.

Loaner equipment, service parts throughout the system and installations under warranty or contract are instantly monitored. SMS also provides comprehensive reports; MTTR and MTBF by equipment type, technician efficiency, customer down time and equipment returned to depot.

An A/R system interface provides for automatic invoicing.

Micos SMS will take your service department through the day, through the month, through the years, profitably and efficiently. With optional programs for preventive maintenance schedules, mailing lists, customer lists, price lists, form letters and Roladex cards. Micos SMS can become the

information work horse of your company. Contact Micos Computer Systems Inc. for full details.

Micos Computer Systems Inc.

1295 Eglinton Avenue East
Mississauga, Ontario L4W 3E6
Phone: (416) 624-0320

Toronto, Montreal, Quebec, Sarnia,
Winnipeg, Edmonton, Vancouver



micos[®]

Coping with security in the small data centre

In the small DP centre, what one calls security consists merely of a backup of master files and a couple of fire extinguishers in the computer room. Here's a way for the small shop to boost security.

By François Lustman, Dr.Eng.

FOUR INGREDIENTS are needed to implement an efficient security program: management's cooperation, money, manpower and discipline; but with the small to medium-sized business data processing centres, all four ingredients are usually lacking. To sustain this claim let's look at a typical computing shop.

It is part of a company whose income is anywhere between \$10 and \$40 million. Its budget runs at most in the \$300,000 range. The staff hardly reaches twelve persons, including data entry people, and the hardware is a mini or medium-sized computer.

Often, management has no data processing background, and looks at its DP shop as a mysterious printing mill whose staff speaks a strange language and whose department head always asks for more money. In other words, management is rather unsympathetic regarding data processing needs. The internal aspect of the centre is quite different from sophisticated installations in large corporations. It is usually located where room is available, regardless of security norms and frequently lacks the space required for an efficient set up.

Strongly production-oriented, the staff is always busy, always trying to catch up with schedules or special inquiries. Shortage of people coupled with output preoccupations has produced a typical

way of working where everyone has many tasks and where most of the documentation is in the minds of the people. The small size of the centre and the necessity of doing the job regardless of qualifications or duties, has created a very friendly working climate. This compensates the rather hectic workload and makes it not only acceptable but pleasant. As one could easily guess, there is a price attached to it which is the lack of discipline, the absence of procedures and working organisation, and very poor documentation.

If we sum up all characteristics, we come to: poor administration support, lack of money, no time for support tasks and no discipline. The consequences are:

- No procedures;
- No division of tasks;
- No documentation;
- Poor physical protection.

In fact, often in these centres, what one calls security consists merely of the backup of master files and a couple of fire extinguishers in the computer room.

Three basic questions

Is it really necessary to do more? Obviously the answer is yes because even small, the size of the data centre is in accordance with that of the company and a loss of one million dollars is as harmful for that company as a ten times this amount to a large business. Security should therefore be as important and as well cared for in the small data centre as in the large one. To implement it, three basic questions will have to be answered:

WHO will take the burden of the program?

WHAT can he do, given the short re-

sources?

HOW can he implement his program without adequate means?

In large companies, security of the data centre is part of an overall program in which particulars regarding computing have been designed by a committee comprising the head of the department, the head of security, upper management, etc. Nothing of this kind is to be expected in the smaller business. The director of information systems will have to take charge of all the program. First, because nobody else seems to be interested. Secondly, if something goes wrong, he will be responsible for it even if it was not the fault of his department. To accomplish this new mandate, he will have to use several tools, some of which are familiar to him, like diplomacy and brains, some new ones, like up-to-date software development techniques, and some unpleasant ones, like authority.

His first target will be upper management, for there is no astute way to detect a starting fire, other than automatic devices, which have to be purchased, which means expenses. The awareness of his superiors could, for example, be developed by slipping on his desk an article about an accident in some computer centre or about that nice Halon extinguishing system, his competitor just installed. Whatever means are used, there is no escaping the fact that some extra money will be needed. It could however be kept as low as possible because the company cannot afford too much. In order to achieve that, the DP manager should make full use of what justifies his salary bracket: his intelligence and skills.

Probabilities

The idea is to replace usual security measures which may not be affordable, by low cost ones. The best known example is that of composition of probabilities. If two events are independent, the probability of both happening simultaneously is the product of their individual probabilities. Applied to back-up for example, this means that a fireproof cabinet for duplicate files can be cheaply replaced by ordinary storage in two distinct and unrelated locations. More generally, the three usual levels of security measures i.e. prevention, protection, recovery are not equal regarding costs. Prevention measures are usually less costly but require more planning, disciplining and control.

This is the third facet of the low cost security package. Some measures requiring a strict compliance cannot be replaced and regardless of the way they will be received, unpopular measures will have to be taken. No smoking is a must in a computer room; keys of the various doors and cabinets should not be avail-

Turn to page 56

François Lustman is a Montreal-based consultant with the Raymond, Chabot, Martin, Paré & Cie.

Data security

From page 55

able to everyone even if it is convenient and, however nice it may be to have all lunch or coffee together, the computer should not be left unattended during business hours. Many such examples could be given of measures which hinder only slightly the production, while improving greatly security.

Another way to improve security is to relieve as much as possible the workload of the staff. It is rather ironic that DP people, who try to automatize whatever

they can in other department's administration, use it so poorly for themselves. Filing systems, library documentation should be computerized as should production procedures to lighten the operator's burden. In other words, whatever aspect of the department's work which can be handled by the computer at low manpower cost, should be transferred to it.

The last area of prevention we will deal with is the application development process. System design, programming, testing should be taken out of craftsmanship and given up-to-date working methods like structured design, use of high level languages, programming standards, quality control.

In some cases, the DP manager, caught over the years with his production, may

not be very familiar with these techniques. He should take the time and pain to learn and implement them in his department. Program and data security will improve, production will increase and, not to be neglected, his own curriculum will come out refreshed.

The conclusion of that exercise is to try to make something effective with rather poor means. According to the criterias used in large data centres, this should not work. It is however in this way that the data processing departments concerned here, were started and often still run: short of money, equipment, staff, short of almost everything except work. If they have succeeded in setting up their systems and making them work, there is no reason why, regarding security, they should not succeed as well. □

Computer, sensors link up to locate subsurface materials

A system that combines sensitive electronic detection devices with advanced computer technology is helping researchers locate buried trash and treasures.

The geophysical survey unit was developed at the Dept. of Energy's Pacific Northwest Laboratory, in the U.S. to provide subsurface pictures as deep as 20 feet underground. It has already been used to locate radioactive waste materials at government nuclear facilities, buried toxic chemicals, and discarded munitions.

Battelle Laboratories' Gerry Sandness, project manager, said the survey unit has potential for surveying chemical dumps, munition impact areas, and archeological sites. Other applications include locating

buried pipelines, bedrock, or shallow water tables.

Sandness said the system differs from other scanning techniques because of its unique capabilities for data interpretation and subsurface imaging. "We've focused our research efforts on using computers to derive visual information from a mass of incoming digital signals," he said.

The primary data collection instruments are a ground-penetrating radar unit and a magnetometer. These are mounted on a small self-propelled survey vehicle which travels across the area to be surveyed. Metal detectors, similar to the compact units which treasure hunters use to find coins and other metal objects, are also used.

The digital signals—about 3.5 million data words for every acre scanned—are automatically fed into a nearby computer. The computer converts the data into color or black-and-white images of the surveyed area. The system can produce a simulated aerial view for locating objects or a vertical profile for determining depths. The geometric patterns emerging in the horizontal views often provide important clues to the identity of buried objects.

Sandness said the unit is extremely sensitive and will often locate metal fragments with cross sections as small as 10 to 20 square inches buried at a depth of several feet. It can also pinpoint features such as covered wells, buried wastes, pipelines and old building foundations.

Software package becomes planning tool at Abitibi-Price

A software package that was initially acquired as a time saving device for yearly budgeting has become a key strategic planning tool at Abitibi-Price in Toronto.

After analyzing software needs and capabilities the newsprint and paper producer recently installed the Interactive Financial Planning System (IFPS) from Execucom Systems Corp., Austin, Tex., on its IBM 3031. The new software was needed to handle the yearly budgeting which had been in the past very time consuming.

Derek Cathcart, Controller, Abitibi-Price, notes that computer-based strategic planning literally began with the acquisition of the software.

"We found that the same software that could handle the grinding of budget numbers could be strategically used in countless applications which would substantially increase our overall productivity and efficiency," he said.

"Because of the capital intensive nature of the paper manufacturing business, with its expensive machinery, large inventories, the need for process modifications and fluctuating prices, it is absolutely necessary to use a decision support system to track accurately and precisely our manufacturing capacity and utilization," Mr. Cathcart says.

"With the marketplace affected by so many internal and external variables," he continues, "we need to ask 'what if' questions about every aspect of our business. We now accomplish this analysis quickly with IFPS since it allows us great flexibility and a responsiveness which reflects the way managers actually think."

According to Mr. Cathcart, Abitibi-Price's evolutionary use of IFPS began with budgeting, progressed to strategic planning and is currently used for a monthly analysis of overall company transactions.

Projections are applied to such areas as

product costs, competitive product pricing, projecting supply and demand factors, as well as other applications.

"Most of the thirty to thirty-five people who use the system are not oriented to data processing," he commented, "but IFPS gives them a computer-based planning support tool which can be accessed through common business terminology."

"We have another modeling language in house," said Cathcart, "but primarily IFPS is the one we've chosen for future use."

Commenting on the increase in productivity, Mr. Cathcart notes that figures which used to take six weeks to grind out now take a couple of days. "In addition," he says, "it allows us time to discuss and explore various aspects and alternate strategies with other managers, enabling us to see a clearer picture of our overall company status. This is a definite enhancement to our senior managers' productivity," he concluded. □

CCG

DataCommunicator

CCG Files Messaging Service

Tariffs for a new public text-based messaging service were recently filed with the Canadian Radio-television and Telecommunications Commission (CRTC) by The Computer Communications Group (CCG) of the TransCanada Telephone System.

This new service, called Envoy 100™, represents the first TCTS offering in a family of advanced communications services which CCG will introduce to the Canadian business community in the 1980's.

John Farrell, director, The Computer Communications Group, explains: "Envoy 100 is designed to efficiently handle the communication of business information for a wide range of users from support personnel to administrative secretaries, managers and executives. It will economically meet the needs of users in either small or large organizations with low or high message traffic volumes. And Envoy 100 will not only meet the administrative messaging needs facing us today, it will also incorporate many advanced features which will satisfy future business communications needs."

This service will expedite the movement of information which is required to make decisions in today's fast-paced world. Users of Envoy 100 will have an effective means of sending business information such as sales orders, inventory up-dates and payroll statistics — all of which are essential to efficient business operation.

This service will also allow users to communicate on an interpersonal basis, without direct interaction, to perform such functions as establishing meeting agendas and confirming meeting times and dates, both within and among subscribing organizations. In each case, messages will be prepared and delivered quickly, and the accuracy and integrity of the message content will be ensured.

In addition, charges based on the amount of information sent, received,

A Triumph of Nationalism Over Regionalism

Last month marked the 50th anniversary of a significant happening in Canadian corporate history. On March 1, 1931, at Ontario's Minaki Lodge, with remarkable foresight chief executives of seven of Canada's major telephone companies signed the agreement that brought into being the TransCanada Telephone System.

It was an act of no little courage; at the very least it was a statement of faith in both the future of telecommunications and of Canada. It was all the more remarkable in the context of the times. This was the "dirty thirties" with Canada deep in the grip of the Depression.

No less forbidding were the fiscal prospects of the founding seven. And to meet their objective of an all-Canadian coast-to-coast communications network they would have to contribute \$5 million of hard found capital. That they did was a triumph of nationalism over regionalism.

Less than a year later, Canada had its brand new 4,263 mile telephone line. Over the decades, the milestones have been many: building of the world's longest single microwave radio relay system; the construction of the mid-Canada line for the Department of National Defence and the Canadian Switched Network for NORAD; the introduction of customer-dialed long distance calls; the world's first pay-as-you-use data transmission system; the world's first digital data network; coast-to-coast radio and television broadcast networks; packet-switched data communications services, and a host of others.

If Canada's telecommunications facilities are indeed second to none in the world, it is due in large part to the level of efficiency drawn from fifty years of cooperative effort and resource pooling by the members of the TransCanada Telephone System.

Today, those seven founding companies have become ten — Alberta Government Telephones; Bell Canada; British Columbia Telephone Company; The Island Telephone Company Limited; Manitoba Telephone System; Maritime Telegraph and Telephone Company Limited; The New Brunswick Telephone Company, Limited; Newfoundland Telephone Company Limited; Saskatchewan Telecommunications; and Telesat Canada.



or filed will ensure that customers' messaging costs are controlled and scaled automatically to their daily needs, while seasonal and other such fluctuations in business activity will still be accommodated.

CCG's public packet switched network, Datapac, will serve as the prime communications medium for Envoy 100, and as such will provide Envoy 100 users with reduced communications costs, virtually error-free information transmission, and a high degree of network reliability and availability.

This new nation-wide service will provide users with flexibility in their choice of terminals, including teleprinters, CRTs, and communicating word processors which operate in an ASCII, asynchronous, 110 to 1200 bps mode. Its terminal compatibility feature will enable terminals of different types and speeds operating on the Dataphone (DDD), TWX and Datapac networks to communicate with each other; therefore, customers will be able to choose the terminal which most cost-effectively meets their needs.

In the past, private and public messaging systems generally dictated that a separate terminal be dedicated to the messaging application. However, with Envoy 100, terminals can be utilized for existing applications as well as for accessing Envoy 100.

Users will be able to select from the many message preparation, correction and formatting features those capabilities which best suit their messaging needs. They will also have the option of having their messages delivered automatically to their terminal or retained by Envoy 100 until requested by the addressee.

Envoy 100 service will be available throughout Canada, via access to the Datapac network. And it will be available world-wide through public switched telephone network access to Datapac. Users of the U.S. packet switched networks will also be able to access Envoy 100 through Telenet and TYMNET's interconnection with Datapac. And arrangements are currently underway to provide access to stations on the international Telex networks.

Envoy 100 will be complemented by the full range of CCG support services including a business analysis of each company's communications requirements, tailoring the service to meet those requirements, and training customer representatives.

Future enhancements are planned to continually increase the features and capabilities of Envoy 100, and to develop other members of the Envoy family of advanced communications services to meet the growing needs and sophistication of Canadian business.

They are the TransCanada Telephone System. Keeping faith with that Minaki Lodge pledge of 1931 has kept them, and Canada, at the leading edge of technological development.

In the relatively short span of fifty years, the pace of telecommunications change has accelerated producing changes which have been many, and which have been great. The current rate of change is indeed breathtaking.

In the pursuit of change, the member companies of TCTS are pledged to continue the expansion of their services and their capabilities, to meet the existing and future telecommunications needs of Canadians.

Writing about the TransCanada Telephone System, author Ed Ogle said: "The telephone has been a precious boon to mankind. For Canadians, who populate the second-largest country in the world, it has meant the virtual elimination of distance. If the telephone hasn't yet made neighbours of us all, it's not because the TransCanada Telephone System isn't trying."

We're trying.

T.F. HEENAN

President TransCanada Telephone System



Last Splice Ceremonies in Fibre Optics Trial

Top Photo: Dick Taylor (left), president of Datacrown Inc., and Dave Durnford (right), Toronto GM for CCG, participate in the final 'pig-tail splicing' of fibre optics cable with Bell Canada engineer Jack Bowman (centre). This official 'last splice' connected Datacrown's computer centre to the nearest Dataroute switching office in Willowdale.

Bottom Photo: CCG's Dave Durnford (left), and Bill Boggs (right), president of Canada Systems Group (CSG), congratulate each other on the formal fusion of two pieces of glass fibre to link CSG's computer centre in Mississauga (outside Toronto) to the nearby Dataroute switching office. CCG engineer Ron Gibbs (centre) monitored the operation.

CCG Gives Crossley Karastan Red Carpet Treatment

Crossley Karastan Carpet Mills Ltd. believes that effective telecommunications is crucial to its success as Canada's foremost manufacturer and wholesale distributor of high quality carpets. So Crossley Karastan came to The Computer Communications Group of the TransCanada Telephone System for their magic communications carpet.

Crossley Karastan is truly national in scope — its head office, manufacturing plant, and maritime sales office are located in Truro, Nova Scotia, and it has warehouses and other sales offices in Montreal, Toronto, Calgary and Richmond, British Columbia.

Each of these sales offices handles a large volume of both in-house sales, and telephone inquiries. And it is in these areas that improved telecommunications became especially critical.

Carpet sales in the retail environment are highly competitive. Each time a customer selects a particular product, the salesman must respond immediately with details of that item, including its availability, quantity, and location.

Such information was previously handled by a Telex system, in conjunction with manually-processed stock card lists resident at each warehouse and sales office. But, there were problems with this system. With six plant expansions in the past twelve years, Crossley Karastan's requirements for sophisticated inventory control surpassed the system's capabilities. It was difficult and time consuming to maintain, the records became outdated rapidly, and, as a result, sales were lost.

CCG solved this problem by centralizing Crossley Karastan's inventory records for all branches in a host computer located in Truro. These records are instantly available to each order desk in each sales office and warehouse through thirty CCG-provided CRT's and printers. And these terminals, in turn, are connected through a customer-owned statistical

Fibre Optics On Film

CCG has produced a concise five-minute film clip describing the Toronto fibre optics data trial, including installation, splicing and cutover activities, as well as description of the development of fibre optics technology and its future for data communications. This film clip is available for rental at a nominal shipping charge from Modern Talking Picture Service, 143 Sparks Avenue, Willowdale, Ontario M2H 2S5, (416) 498-7290.



multiplexor to the Datapac network, and the host computer.

Now each Crossley Karastan salesman, wherever located, has immediate access to an instantaneous, up-to-date, reliable inventory control system to respond to customer inquiries concerning the quantity, availability and location of any carpet product sold by the company.

Dave Heuft, management system coordinator for Crossley Karastan says, "We wanted to provide better customer service, and at the same time, reduce our inventory investment. With the recent emphasis in the west, we had to become much more reactive to that new marketplace. And to do so, we had to rely even more heavily on communications.

"To support the western growth, we built a 100,000 square foot warehouse at the manufacturing site in Truro. This warehouse is supported by an on-line inventory capture system and the

associated CCG communications network.

"Datapac — CCG's network — proved to be the only economical alternative for a company our size to achieve a coast-to-coast inquiry network.

"And," he added, "this system has allowed us to manage our finished goods inventory much more efficiently and effectively; this is particularly important in light of Canada's current high interest rates."

In addition, Crossley Karastan has been able to remove the original Telex service entirely, because the new system can incorporate message traffic as well.

Increased sales . . . increased production . . . better inventory control . . . CCG helped Crossley Karastan Carpet Mills Ltd. achieve this, and more. Call us at Zenith 33000 today, if you too would like the red carpet treatment.

Datapac 3304 Service Approved

Datapac 3304, a TCTS service offering designed to support the IBM binary synchronous multi-leaving communications protocol, was approved by the Canadian Radio-television and Telecommunications Commission (CRTC) effective November 10, 1980. The principal users of Datapac 3304 are service bureaus, government and large business organizations which have customers or remote job entry (RJE) branches using the services of a centralized computer.

John Farrell, director, The Computer Communications Group said: "This service is designed for the remote batch/RJE users who generate about

two-thirds of all the data transmitted within Canada. Datapac 3304 provides these customers with lower communications costs, better utilization of computer resources, and the reliability of the Datapac network."

One of the main objectives of Datapac 3304 is to support multi-leaving terminals with little or no changes. Terminals are connected to the network via a network interface machine (NIM) which supports the multi-leaving protocol and converts blocks of data to packets, or vice versa.

Transmission speeds of 2400, 4800 and 9600 bits per second are available for each dedicated Datapac 3304 access line.