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People, Events, Techniques

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people, events, techniques

Confusion Over 'Value of Money' Held Responsible for Poor Inventory Performance in Industry, Retailing

Why hasn't the introduction of computers significantly improved today's inventory-to-sales ratios from what they were a decade ago?

This was the question studied by Burr W. Hupp, a director of the New York management consulting firm of Drake Sheahan/Stewart Dougall, Inc., in a recent survey of major American firms.

Mr. Hupp and his associates found that in the last ten years the median industry in manufacturing and construction improved inventory performance by 6 per cent. In wholesaling the median remained the same. In retailing it was 5 per cent poorer than it had been at the earlier date.

The research group questioned

physical distribution executives who were members of the National Council of Physical Distribution Management, believing them to be in the forefront of modern inventory management practice.

"Opportunity costs" not used

Mr. Hupp reports, "One of the most startling findings of the informal poll we made throws light on the whole question of inventory management: Fewer than 10 per cent of the companies we talked to make use of the concept of 'opportunity costs' in their inventory decisions. . . . More than 9 out of 10 of the companies think of 'value of money' as being what they have to

pay for it rather than as the goal they set up for the return they want to earn on their investment. In brief, management can make its money work harder by varying the value it assigns to money."

Several years ago, Mr. Hupp says, it was predicted that U.S. firms could reduce their stock of goods on hand by \$33 billion. He still believes this is a practical goal through better inventory control.

Mr. Hupp recommends three things be done to achieve this control. In firms where physical distribution management and marketing are treated as separate activities he believes they should be housed under the same roof.

Secondly, he says, "If top man-

Errata

The editors of MANAGEMENT SERVICES regret two errors that occurred in the November-December issue. Through a printer's mistake, not caught in the editorial process, two headlines were set incorrectly. The very first article, appearing as "The Uses of Work Management," should have been entitled "The Uses of Work Measurement." The last article, entitled "Role in Advisory Management Services," should have been entitled "Role in Management Advisory Services."

agement is not directly to blame for the poor showing in inventory management over the last decade, certainly there have been some serious errors of omission: in the failure to define the inventory management mission as well as in the failure to give adequate authority to those best equipped with the modern tools of inventory management."

And finally he says, "Inventory management involves both the determination of optimum inventory levels and the exercise of the requisite controls for maintaining those levels."

Major Computer Users' Share of Installation Value Is Declining

Although the top 100 industrial computer users have increased the value of their EDP equipment 20 per cent within the past year, they account for a smaller percentage of the total installed value of computers than they did in 1968-69.

This evidence of the increasing importance of the small computer user was uncovered by an annual survey in *EDP Industry Report*, a publication of International Data Corp., Newton, Mass.

The top 100 users accounted for 17 per cent of total installed value of computers in mid-1968. They currently hold only 15 per cent. They now own \$3.3 billion in computing equipment as compared with \$2.7 billion last year.

Listed as the top five computer users are General Motors, General Electric, Boeing, Ford Motor Co., and McDonnell-Douglas. These five account for more than \$800 million worth of EDP equipment throughout the world.

Electrical-electronic companies have the largest share of installed equipment, valued at \$765 million. Aerospace companies rank second and automotive companies third.

According to the report, the aerospace industry has the highest average computer value of \$30.20 per \$1,000 sales and \$60.32 per \$1,000 assets. It also ranks highest in terms of computer value per employee, \$758.

Listening Is Key to Communication Problems, Says Hayakawa

S. I. Hayakawa, embattled president of San Francisco State College and noted semanticist, has written a short article on "How to Attend a Conference."

A copy of Dr. Hayakawa's article, reprinted from *ETC.*, quarterly journal of the International Society for General Semantics, can be obtained free from the Society, 540 Powell Street, San Francisco, California 94108.

In the article, Dr. Hayakawa says the way to ensure a maximum flow of information between people is for all to abide by one rule: "It is that we refrain from agreement or disagreement with a speaker, to refrain from praise or censure of his views, until we are sure what those views are."

One reliable way to learn the speaker's views is to listen to him, the semanticist writes.

"But few people, other than psychiatrists and women, have had much training in listening," Dr. Hayakawa says. "The training of most oververbalized professional intellectuals (which would include most people who attend conferences) is in the opposite direction."

In our competitive culture, he says, most people are so concerned with getting their own views across that they pay little attention to the speeches of others. Or if they do listen, it is in hopes of finding flaws in the others' arguments.

Listen, then question

A good listener is a questioner as well, Dr. Hayakawa writes. He suggests that the questions asked stress the uniqueness of the speaker's point of view rather than try to generalize what was said. At a conference questions should be asked for the sake of information not agreement, he believes.

Dr. Hayakawa concludes, "While the result of communications successfully imparted is self-satisfaction, the result of communications successfully received is self-insight. Let us attend conferences and take part in them not only for the sake of increased self-satisfaction but also for the sake of increased self-insight."

Most Employees View Profit Sharing as Management Gift

A recent study jointly sponsored by the Council of Profit Sharing Industries and the management consulting firm of Towers, Perrin, Forster & Crosby, Inc., noted that a majority of interviewed employees felt the money they earned through profit sharing was a gift from management.

For the study 142 personal interviews were conducted with man-

agers and employees of different-size profit sharing firms.

Both employees and managers interviewed felt that profit sharing could: provide basic and supplementary retirement benefits, create incentive, encourage employee thrift, attract and retain employees, and build morale and trust within the firm.

Although the managers questioned indicated they had no plans for changing their profit sharing plans, several employees said they would like some changes made. Some plan improvements they wanted were: better information, earlier eligibility, cash withdrawal, and better investment performance.

The researchers concluded that profit sharing could be used as a more effective motivator if better communication were developed.

The report stated, "Survey results indicate that messages must be carried on a regular basis by such communication vehicles as meetings, bulletin boards and posters, payroll stuffers, company publications. Employees must be reminded of their profit sharing plan, its objectives, its tie-in with profits, and profits' tie-in to their own personal performance. When employees think 'profit sharing,' they must also be made to think profits."

Friden Announces Office Copier, Computer Disc Storage Device

The Friden Division of the Singer Company has announced two new pieces of office equipment which it claims will be real money-savers, a plain-paper office copier and a computer disc-drive storage device.

Friden's copier, the Model 1070, uses an electrostatic image transfer process which eliminates the requirement for a metal drum and allows the machine to use any kind of uncoated paper. The 1070 can produce copies of up to 8½ inches

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by 14 inches at the rate of 15 per minute.

The company estimates the cost at less than a cent per copy, as compared to the 3.7 cents cost averaged by other existing office copiers on long runs. The copier sells for \$1,795 or may be leased.

Second place foreseen

R. J. Campbell, Friden Division president, said, "The new 1070 is just one of a family of innovative copiers that will help make Singer at least the second largest producer and marketer of copying machines within the next five years."

The Talcott 9311 Disc Drive is being manufactured, marketed, and serviced by Friden and leased by the Talcott Computer Leasing Division of James Talcott, Inc. The companies claim this new storage device can offer users a saving of up to 50 per cent over the most commonly employed competitive unit.

Greater reliability promised

Instead of employing the hydraulic system used in some other manufacturers' disc drives the 9311 has an electronic servomechanism. Friden says that because the servomechanism has fewer parts it has greater reliability and lower manufacturing costs.

Monthly lease rates for the 9311 are \$400 under a one-year contract, \$375 with a two-year contract, and \$335 with a three-year contract. The rates include Friden's customer service.

Bellevue Integrates Children's Health Records Through Computer

Bellevue Hospital, in New York City, has started to use computerized medical records to coordinate the health care of the 25,000 children who use its facilities and the

remaining 35,000 children living in its district.

"The purpose of this narrative, computer-stored medical system is to facilitate the rendering of comprehensive health services to these thousands of underprivileged children by integrating the widely scattered pieces of their health records," explains the report made by New York University Medical Center, where the Bellevue Pediatric Project was developed.

Supported by HEW

The project was supported by the Children's Bureau, United States Department of Health, Education and Welfare, under Title II legislation of the 1965 Social Security Amendment. N.Y.U. began work on the project in June, 1966.

All data available

The computerized record makes available to authorized physicians and paraprofessional personnel master identification of patients and records, priority medical information reports of last medical contact at most clinics, doctors' appointments, a list of last diagnoses and dates, and key data segments of patients' medical histories, all in narrative form.

Included in off-line storage are all documents for medical contacts of pediatric patients, all tabular data, and programs for the analysis of clinical data. For this record retrieval high-speed printers are being used at Bellevue.

UNIVAC system used

The Bellevue Pediatric Project is utilizing a UNIVAC 1108 computer system operated by N.Y.U. Bellevue is equipped with remote data terminals connected by telephone lines to the computer center.

The computer system, valued at approximately \$2.5 million, also serves the data processing needs of several schools of New York University.

Commerce Holds EDP Seminar for Shipping Company Officials

The U.S. Department of Commerce has decided that it is about time shipping line executives learn management and computers can work very well together. Consequently, the Maritime Administration held a three-day conference last month especially for shipping administrators.

"We believe," Maritime Administrator A. E. Gibson said, "that the application of modern computer and management techniques to the marine industry has not kept pace with improvements in the techniques themselves."

He explained the purpose of the seminar was "to acquaint high-ranking shipping line officials with the full range of computer capabilities today with particular emphasis on their implications for shipping management."

Very Young Executives To Play Senior Role in 70's, Consultant Says

The 1970's will see many top-level business executives in their 20's and 30's, predicted John B. Joynt at the thirteenth annual business conference of St. John's University's College of Business Administration in New York recently.

Mr. Joynt, board chairman of Resource and Management Systems Corporation, a consulting firm located in New York, said the low birth rate of the 1930's will force corporations to look for capable managers among younger staff members rather than in the traditional 40-plus age group. This will necessitate earlier identification of managerial potential and accelerated development into key positions, he said.

"We face a tremendous human

resources gap that must be bridged by in-depth training programs sponsored by individual companies or by industry associations," Mr. Joynt said.

The young executives will be earning higher salaries than their predecessors, Mr. Joynt said, noting that this might be a fact older businessmen will find hard to accept.

To meet the challenge of the

decade ahead Mr. Joynt emphasized the need for business organizations to give top priority to corporate planning and development and management information systems. He recommended companies take a more "task- and project-oriented" approach that would allow the establishment of organizational units to accomplish specific goals.

Mr. Joynt pointed out that computer managers and computer spe-

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Sponsored jointly by the University of Michigan Graduate School of Business Administration and the National Association of Accountants, this program is designed for accounting and finance executives who hold responsible positions in the middle and upper ranks of management. Its primary purpose is to broaden the business skills and develop the management abilities of those individuals who face greater executive responsibility either in general management or at higher levels of financial management. Specific objectives of the program are:

- To develop the perspective and ability to think about and solve problems from a corporate viewpoint.
- To provide insight into the nature of human behavior, interpersonal relations, motivation and the communications process.
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The role of unions and industry — the collective bargaining process.

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cialists must learn to speak the same language so that available information can be utilized at every level of the operation.

Sarnoff Suggests Plan For Systems Study to Revitalize Washington

RCA President Robert W. Sarnoff has called upon the business community to take an active lead in a comprehensive systems effort to revitalize Washington, D.C., and its environs.

Speaking before the recent fourth annual Computer Age Conference of the National Industrial Conference Board in New York, Mr. Sarnoff proposed a massive pilot program that would include housing, transportation, race relations, employment, health, welfare, education, communications, law enforcement, and air and water pollution.

He said such a revitalization program would provide a full-scale test of how well the systems approach can solve the nation's urban problems.

"The time has come," Mr. Sarnoff said, "for a demonstration project to determine whether the techniques that have succeeded in other fields can be applied to the urban and environmental crises."

Business lead said essential

He selected Washington for the program because it is the nation's capital and suggested that the first phase of the revitalization be scheduled for completion in 1976, the country's two-hundredth anniversary. The knowledge gathered from the Washington project could then be applied to other beleaguered cities, he said.

Although this plan would rely heavily on governmental agencies he urged business to take a lead in program suggestions and participation to help overcome what he de-

scribed as a deep American prejudice against government planning.

"We can, for example, correct the notion of planning as an attempt to impose a rigid outline of the future and to make reality conform to it," he said. "This is, indeed, a primitive idea of today's systems methods."

Mr. Sarnoff added, "It is even possible that long-range planning with wide public participation would strengthen the democratic institutions that lately have come under such sharp attack."

Testing, Evaluation Service for Business Equipment Offered

A testing and evaluation service for business equipment and services has recently been announced by International Evaluations, Inc., of Hauppauge, New York.

The new service aims to provide subscribing buyers with impartial comparative evaluations. It will test equipment for durability and efficient operation as well as suitability, much as Consumers Union does with consumer products.

Factors affecting employee productivity will be included in the evaluation, such as the noise level of the machine in operation and the positioning of controls.

Typewriters, copying machines, filing systems, data processing equipment, and dictating machines will be evaluated as well as such business services as temporary office worker agencies, car and truck rental agencies, insurance plans, and employee benefit programs.

Three forms of report

Subscribers will receive new product and evaluation reports in three ways. A bi-monthly journal will include evaluations of three categories of equipment and re-

ports on three services. The first issue, due in February, will discuss programable electronic calculators, electrostatic copiers, computer service bureaus, preventive maintenance, and minimizing copy costs and will take a close look at who should do company buying of office equipment and services.

The second way subscribers will be informed of International Evaluations' research is through a bi-monthly product Trendletter that will include latest pricing and model-change information on equipment previously evaluated. The Trendletter will also give some basic buying tips and information on new products being developed.

The third way is through a customized computer evaluation of any product category requested by a subscriber to meet his particular requirements. One such evaluation is covered by the \$225 yearly subscription fee; extra evaluations will be available at an additional charge, not yet set.

Xerox President Says Business Success Stems From Worker Motivation

"The secret of successful innovation in business or any sector of society, I feel, is how well we manage and stimulate our people," said Raymond A. Hay, president of Xerox Corporation's Business Products Group, at last month's Rochester Regional Conference of the American Institute of Industrial Engineers.

Mr. Hay stated that to promote individual employee innovation the appropriate climate has to be maintained. He suggests "an understanding between business and its people that penalties and criticism will fall less from mistaken action than inaction" is necessary.

Besides the usual methods for recognizing superior performance,

such as raises or bonuses, he points out there are avenues of recognition within the business environment. Talks before professional groups and bylined articles are two of these.

For stimulating innovation Mr. Hay said total communications is a basic requirement.

"All of our technical people should be familiar with competitive situations, total financial resources required, positive and negative cash flow forecasts, and projected returns on investment and sales," he said.

This type of communication builds confidence in the company and in technical management, Mr. Hay said. It also helps increase the degree of dedication people feel to their work.

Mr. Hay sees innovative young people coming into the business world as a force for keeping industry attuned to business-society relationships.

"These young people will be attracted to the kinds of organizations which will make best, unprogrammed use of their skills and innovative talents and at the same time offer some real service to society," he said.

In concluding, Mr. Hay suggested that businessmen not only concern themselves with their company's problems but with society's as well.

"I believe strongly," Mr. Hay said, "that this unified approach to business and to life is becoming essential to recruiting and retaining the sort of strongly motivated, socially conscious young people who have so much to offer to business . . . people whose scientific and technological capabilities are leavened with informed humanism."

Management Services Forum appears on pages 19, 20, and 21 of this issue.

Set of Programmed Accounting Machines Introduced in New York

A series of computerized accounting machines for invoicing, accounts receivable, inventory control, payroll, general ledger, and all related reports has been introduced by the North American Philips Corporation, of New York.

The New Philips P-350 Series is composed of three basic systems with pre-programmed software packages and an assortment of peripheral equipment. The systems use fourth generation micro programming techniques. Rentals start at \$175 per month and purchase prices range from \$7,900 to \$50,000.

P-350 installations do not need special site preparation, electrical wiring, or air conditioning. The units occupy 24 square feet of floor space. Up to 16 peripherals on site can be added to the P-350 series, and four can operate simultaneously.

Two types of keyboards are used, a conventional typewriter keyboard for alphanumeric data input and a ten-key numeric keyboard for direct numeric data input.

The new office computers are delivered as total hardware-software packages with Philips Assembler Language (PAL). Training in this COBOL-like language is included in the package. Educational centers for instruction, service, and technical assistance are being established by Philips in the principal markets.

Periodic Market Research Programs Now Available For Electronics Industry

Appropriately, the electronics industry has been selected by Quantum Science Corporation for its new computer-based market forecasting service.

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Quantum Science clients can receive MAPTEK forecasts either in the form of Corporate Strategy Services, which interpret the MAPTEK analyses in terms of specific market and planning strategies for decisions of the client companies, or in the form of computerized data bases.

A seminar and workshop program covering the entire U.S. economy is part of the MAPTEK program. Conclusions on each important market are presented by the technical staff in a formal seminar at the client's office, followed by a workshop. In the seminar, market areas which are important to the client's future corporate growth are pointed out, technological and other major industry trends are forecast, and detailed market data supporting the MAPTEK conclusions and recommendations are given.

While charter associates, those having complete access to the data base, are charged \$50,000, individual MAPTEK Strategy Studies, with the accompanying seminar, are available at \$3,000. Continuing information programs can be subscribed to for \$9,000 and up. Segments of the MAPTEK Data Base can be purchased at prices of \$250 and up.

Organization to Serve Project Managers Established in East

After five years of planning the Project Management Institute has come into existence.

The Institute is meant to serve those actively engaged in the man-

agement of individual projects, whether industrial, academic, or military. Among PMI's expressed objectives are: providing a forum for open exchange of information, coordinating industrial and academic project management research, and fostering professionalism in the field.

PMI's founders come from industry, education, and the consulting field. They are: James R. Snyder of Smith Kline & French Laboratories, Philadelphia; Edward A. Engman of McDonnell Automation Company, Houston; J. Gordon Davis of the Georgia Institute of Technology, Atlanta; John King of Bell Telephone Laboratories, New Brunswick, New Jersey; and Eric Jennett of Brown & Root, Inc., Houston.

Annual membership in PMI is \$15. Information about the new organization can be obtained from: PMI, Membership Committee, Post Office Box 43, Drexel Hill, Pennsylvania 19026.

Multiterminal Data Entry Retrieval Shown; No Computer Required

A self-contained data entry and retrieval inventory control system that works without a computer has been developed by Video Systems Corporation, Pennsauken, New Jersey.

Inventron VS 100 entries, deletions, and updating are done in alphanumeric code on a standard keyboard attached to a desk-top video terminal screen.

The printer automatically makes a punched paper tape record at the same time a permanent written one is made. Information is stored in a cabinet 42 inches high, 24 inches deep, and 24 inches wide, which also holds the system's electronic mechanism.

A small Inventron system has capabilities of 4,000 displays of 25 characters, or 2,000 displays of 50

characters. It leases for \$325 a month.

The larger Inventron has capabilities of 48,000 displays of 25 characters or varying combinations of displays and characters. It leases for \$445 a month.

Additional terminals with keyboards that can be tied into the central memory are available for \$39 each per month.

Investment Advisory Services Pay Off, FEI Article Reports

Investment advisory services are able to select stocks which offer better than average return on investment, reports Harlan L. Cheney after studying the performance of four prominent services during the period 1957 to 1969.

Mr. Cheney, vice president of the Appalachian Finance Association and former professor of finance at Georgetown University's School of Business Administration, made his research findings known in an article that appeared in last month's issue of *Financial Executive*, a publication of the Financial Executives Institute.

The investment advisory services offer, Mr. Cheney writes, "advice which, if followed by the subscribers, promises to provide him with a return on his investment which is greater than the increase in the Standard and Poor's 500 Composite Stock Index. In the aggregate, the lists of common stocks recommended by the advisory services increased in value by 353.3 per cent compared with an increase in value of 225.7 per cent by the S & P 500. Both percentages include dividend income."

Individual lists also praised

In addition, Mr. Cheney observed, "The above-average performance of advisory services is also true for their individual lists of growth stocks and income stocks

and for their lists which combine the income objective with the capital gains objective.”

Endorsing the subscription advisory services, Mr. Cheney claims they offer the investor improved portfolio performance and reduced risk.

G.E. Reverses Earlier Stand; Now Plans to Unbundle Software

Despite earlier statements that it would not separate its computer hardware and software prices, the General Electric Company has announced plans to “unbundle.”

Effective December 1, G.E. will also increase its prices on some equipment. This will mean “an effective increase overall of 6 per cent for typical process control systems,” the company said.

Application engineering included in the equipment prices will be limited to one man-month. Separate pricing will come into effect after that period. All customer training and other assistance to customers will be priced individually.

A/R System, Compatible With Variety of Computers, Announced

An accounts receivable system which processes both on an open item and a balance forward basis has been developed by Executive Computer Systems, Oak Brook, Illinois.

The ECS accounts receivable system is made up of 22 COBOL programs and sorts. Though originally designed for the IBM 360/30, either in tape or disk configuration, it can be used on larger 360 configurations and will run on the Honeywell 200 series and the Burroughs B-3500 systems as well.

ECS points out its accounts receivable system features multi-company processing, automatic calculation of trade discounts, net amounts, and service charges, and automatic aging of accounts receivable.

Variety of reports prepared

Some of the reports produced by the system are validation reports for product file and master file update data, product file code book, product file maintenance report, account master file maintenance report, account master listing, and preliminary transaction validation.

Pricing and technical information is available from ECS, 1211 West 22nd St., Oak Brook, Illinois, upon request.

Software Contractors Rating Guide Is Now Being Published

Software Contractors: Credentials and Capabilities is a publication now being offered for the first time by System Interaction Corporation, of New York City.

The service includes complete staff profiles (job titles, billing rates, and experience levels) of approximately 300 software companies. Other information provided is area of specialization, development and language strengths, and equipment experience. Every two months the book will be updated.

Subscription to the service, including the basic book and the bi-monthly updating, is \$350 per year.

Specialized profiles available

Profiles of contractors with a defined strength can be purchased for \$45 per area of specialization, such as companies specializing in operations research, employing a particular language, familiar with a specified manufacturer's equipment, compilers, etc.

New York Exchanges Endorse Machine Legible Securities Documents

Formal endorsement of all kinds of securities documents which are machine readable and processable has come from the governing boards of the New York Stock Exchange and the American Stock Exchange. (See M/S Sept.-Oct. '69, p. 6.)

The endorsement was made on the same day a North American Rockwell report on the securities industry operations was made public. Amex commissioned Rockwell to study Wall Street's workings and then to make recommendations on how to improve efficiency and reduce the paperwork jam.

“The stock certificate is at the heart of the paperwork problem,” Rockwell's researchers found. “Part of the solution is to make stock certificates readable by machine and to monitor their movement certificate by certificate, rather than by the total number of shares,” the report said.

Physical handling major problem

In a joint statement issued by New York Stock Exchange President Robert W. Haack and American Stock Exchange President Ralph S. Saul, physical handling chores were pointed out as a major factor in contributing to the industry's recent paperwork backlog.

Supporting a punch card certificate with data encoded for optical scanning suggested by the American Bankers Association, the presidents said, “The proposed card-size certificate retains the safeguards of the complex, engraved graphic work of the traditional certificate and at the same time provides for tighter inventory of ownership and security controls.”

Methods of counterfeit prevention remain to be worked out for a punch card securities system.

UNIVAC Offers Data Transfer System for Its Units, IBM's

A subsystem for data communications between UNIVAC 9000 series computers and IBM System 360 computers has been developed by the Univac Division of the Sperry Rand Corporation.

The subsystem was announced at the same time a new Univac buffered terminal was introduced.

The DCS-IC Binary Synchronous Data Communications subsystem is compatible with the IBM 2701 Data Adapter Unit and a Synchronous Data Adapter Type II. Supporting software will be available for the DCS-IC.

\$350 monthly rental

Typical rental for the sub-system at \$350 per month, and the selling price would be about \$13,920. Deliveries will begin in November, 1970.

The new UNIVAC DCT 1000 is a terminal designed to work with a central computer located locally or remotely. It consists of a control unit, a keyboard, and an asynchronous, input/output printer with 132 print positions, operating at 30 characters per second.

The buffer serves to aid visual verification and correction of the data before it is transmitted to the central computer. The terminal can operate in either a batch or a conversational mode.

Monthly rental price for the terminal is \$140 and purchase price is \$5,300. Delivery is set for July, 1970.

Sharp terminal rise foreseen

Univac has recently formed a new group called the Communications and Terminals Division. Company spokesmen call the terminal market the fastest growing segment in the computer hardware industry. According to industrial studies, Univac reports, 8 per cent

of the present total computer investment is in terminals. By 1975 it predicts a rise to 16 per cent.

Optical Reader Designed For Accounts Receivable Work Is Announced

A new optical reader designed to cut time and error in the processing of account receivables has been developed by Allied Computer Systems, Inc., of Madison, Connecticut.

The ReaDoc system consists of an optical reader, keyboard, adding machine, and computer input vehicle housed together in a desk-sized unit.

To operate the system a person puts the document returned by the customer (bill stub, subscription form, etc.) under the optical reader, which reads the account number. The amount of the accompanying check is entered on a numerical keyboard by the operator. This amount is flashed in a display so that the operator can correct any error made.

Automatically the account number and payment are recorded on paper tape, magnetic tape, or punched cards. Simultaneously the dollar amount is fed to an adding machine, for batch control and deposit totals.

Batch and corresponding sequence numbers are imprinted on the checks and documents, which are gathered in separate stacks within the machine.

William H. Gunther, Jr., president of Allied Computer Systems, Inc., said ReaDoc can reduce the cost of processing billing documents from the present average of between 6¢ and 25¢ apiece to a cost between 1¢ and 2¢.

Mr. Gunther also points out that since the system can process documents of varying sizes with variable length and positioning of scan line it is adaptable to most turn-around document applications.

Source Best Guide to Data Package Utility, Reports Diebold

Appraising the source of a software package provides a good measure of the package's ultimate cost effectiveness, states a recent Diebold Research Program report.

The research program is a continuing study supported by 150 corporations. It surveys the ways in which changes in management and information systems affect decisions and planning. The program is conducted by the staff of The Diebold Group, Inc., an international management consulting firm.

Four major recommendations

Based on case histories the researchers made four recommendations:

"(1) Direct cost of a package can be related only incidentally to its quality. Pricing is based on totally different criteria.

"(2) The package should be operational and modifications to the user's hardware or software should not be necessary. If the package is not operational, the user must be willing to establish a long-term close relationship with the supplier during its development.

"(3) The modularity and usefulness of the package is often established when the initial concept is developed.

"(4) During the next few years there will be significant structural changes in the software industry. More packages will be conceived as long-term products and services. The emphasis on effective marketing will tend to rationalize the pricing systems."

The researchers also urge that a formal checklist for all software specifications be made because inexact specifications will result in an inexact program.

Another suggestion the report strongly makes is for the adoption of a system for assigning weights to system goals and developing from this a system rating.