

edge the right communications can be selected to meet organizational needs.

BISYNC and SDLC are good for long distance communications. Using modems, communications to anywhere can be achieved. Additionally, the BISYNCH and SDLC cable is relatively small in size, meaning that it can easily be run within a building without much trouble. On the other hand, the remote communication rate of these two methods is slow, usually somewhere in the area of 9600 bps.

Twinax from the Series/1 using 5250 emulation on the PC is good in that it gives us a high-speed 500K bps interface. This cabling too is small, allowing it to be strung easily throughout our buildings. On the other hand, it is a local connect, meaning that the maximum distance from the Series/1 to a PC is less than 5,000 feet.

The ASYNC connection between the PC and the Series/1, the PC and the host and the 3101 and the Series/1 allows for long distance communications with the use of modems. Since the cabling is quad-wire, it is convenient to use. Often quad-wire is found already in buildings for its telephone system. Yet the 9600 bps communication rate makes interactive processing difficult if not impossible.

The 370 channel interface to the Series/1 allowed us a super-fast 1600k bps interface for high-speed data transfers between our host data base and a distributed Series/1 processor. If the distributed intelligent terminal were not local or if it were not capable of a host channel interface, such as is the case of a PC workstation, that device would need some other processor or interface to gain high speed access to a 370 host.

In summary, we found that the Series/1 is an excellent smart device controller and protocol converter. The PC on the other hand functions well as a distributed intelligent terminal connected to a controller such as the Series/1.

What, then, is our current strategy? We intend to use PCs as a multi-function workstation which can perform pass-through emulations of 3270, 5250 and 4978 terminals, as well as distributed host functions. The Series/1 can be used as a virtual PC diskette, network controller and a device controller for OEM devices.

As the data processing industry changes, user expectations and requirements change. In order to meet such needs data processing must be able to make use of those tools that become available.

SESSION REPORT



61	C307	Managing Personal Computers in the Corp. Env.	600
SHARE NO.	SESSION NO.	SESSION TITLE	ATTENDANCE
		Integrated Personal Computer	CSR
		C. Wrangle Barth	INST. CODE
		PROJECT	SESSION CHAIRMAN
		Computer Sciences Corp., 11700 Montgomery Rd., Beltsville, MD 20705	
		SESSION CHAIRMAN'S COMPANY, ADDRESS, and PHONE NUMBER	

MANAGING PERSONAL COMPUTERS IN THE CORPORATE ENVIRONMENT

John Gosden and Joy Strasser

The Equitable Life Assurance Society of the United States
1285 Avenue of the Americas
New York, N.Y. 10019

Installation Code: ELA

Integrated Personal Computers Project

Session Number C307

ABSTRACT

As the use of Personal Computers continues to expand in the corporate environment, proper management of them involves maintaining a good balance between encouragement and control.

Personal Computer Growth

In only a few years, the use of personal computers in the office has grown very rapidly. The growth is fueled by a number of factors: general consumer expectation, computer-minded staff, decreasing cost and increasing capacity of personal computers, availability of good software and, of course, the nationwide advertising and enthusiastic articles extolling the wonders of personal computers for the office.

A major factor behind the growth of personal computers for both office and home is consumer expectation of faster and more useful services. The message from consumers is "I Want It Now". Marketers have responded with cash machines and extended business hours, 800 phone numbers and shop-at-home services. Computer services that have been marketed for the home computers include: electronic mail, stock quotations and airline flight information; while cable TV supplies the local weather, community news and first-run movies.

Employees bring their expectations of faster and easier to use service to the office. While most corporations have their major business systems computerized and many of them have word processing to support the general office, they lack systems to meet rapidly growing management information needs. When managers find they cannot get the information they need from the data processing department in the timeframe they need it, they are motivated to buy personal computer systems of their own to meet these needs.

Computer-minded employees in the corporation are a second driving force behind much personal computer use in the office. Many employees learn computer programming in school and have their own small or hand-held computers at home. They are very often innovators who design their own software and interfaces and are a rich source of personal computer ideas and information.

The decreasing price and increasing capacity of personal computers is a third factor fueling personal computer growth in the office. The price of a standard PC configuration for the office has stayed in the range \$3000-4000, which is a price range that is considered acceptable for most middle managers. However, the capacity of personal computers has increased tremendously. Personal computers are being manufactured with more expansion slots to hold computer memories available in larger and larger increments.

The first personal computer recommended for use at the Equitable in 1982 was the Apple II and had 48K. Personal computers of 256-512K are now commonplace at Equitable and there is one IBM PC in use with 1000K of memory. This processing power, comparable to past generations of mainframes, creates a market for more sophisticated micro computer software.

The fourth factor in the growth of personal computers in the office is the availability of software that allows a user to leapfrog into a new way of doing work. VISICalc, introduced for the Apple computer in October 1979, is one such product. The ability to set up a spreadsheet and specify all the functions for automatic re-calculation changed the way many office workers used financial information. VISICalc spurred the interest in buying microcomputers for the office in the same way that word processing did for minicomputers. VISICalc has started a whole new market for spreadsheet packages, each one having more and better options. Lotus 1-2-3 is one of these - a super VISICalc that allows users to combine spreadsheets, program automatic interfaces and graph spreadsheets interactively. The next leapfrog may be in the direction of Apple's LISA computer, which gives the office worker an entirely different way of dealing with personal computers by supplying a mouse to point to menu options and a screen that simulates a desktop. LISA, which is advanced both in software and hardware, sets new standards for ease of use in personal computers.

The fifth factor fueling personal computer growth is the nationwide advertising campaign by computer vendors that stresses the benefits of personal computers in the home and the office. Whole sections of magazine stands are devoted to microcomputer publications that promote the use of micros in the office. The product is sold so convincingly that many consumers believe personal computers require no effort and can eliminate much work for them immediately.

Problems

Reaction in corporations towards the growth of personal computer use ranges from full corporate support to edicts banning all personal computers. The problems that personal computers can cause are explained by managers of different corporations in "The Struggle to Manage the Micro", an article by Sherry Siegel in Institutional Investor (January, 1983 pp 257 - 260). We see the following as problems:

Infecting Management

Top management must support new technology for that technology to get widespread acceptance in an organization. Moreover, in order to get support for the best use of personal computers in corporate-wide projects of the future, there is a need to infect executives with growing interest in the use of personal computers in the office. This amounts to training everyone in the company from executives on down to be computer literate.

Personal Computer Support

The growth of personal computer use by naive users in the corporation generates special support problems. Physically, the personal computer is a set of components that requires installation and maintenance. New software may require upgrades to the personal computer that the user cannot or should not deal with himself. The marketplace for personal computer software changes very fast. Many times the only source of information on software that the personal computer user has is the vendor itself. Most software packages require some training and many have errors that need to be corrected. Data processing departments who are set up to handle central computer problems find it difficult to help such a large variety of decentralized users.

Cost-Justification

Most corporations have stopped trying to justify the cost of acquiring a personal computer for an office worker. Work measurements and productivity figures have proved difficult to generate for the professional and managerial workers who are the bulk of personal computer users. While individual microcomputers fit easily into budgets, large acquisitions of personal computers are still under scrutiny for benefits to justify the cost.

Expense

While the costs of personal computers in the office can add up, it is the software, not the hardware, that is the largest expense. Software packages generated for use in the office are becoming more comprehensive and more expensive. Vendors have installed internal locks to ensure that products will not be copied for distribution to other users. As a result, each user must buy the package for himself.

Proliferation

With the large number of microcomputer vendors in the marketplace, there is a potential for users to buy personal computers that cannot share information or programs because of incompatible hardware and software. Developing interfaces for micro computers so that they can communicate with each other and with the corporate computer systems becomes more expensive in such an environment. Moreover, proliferation of different software packages can lead to different managers using the same information and getting different results.

Computer Security

Personal computers are small, lightweight and many models are portable. Personal computers come in components that can be detached and carried unobtrusively past security guards. The loss of a personal computer is an inconvenience to the user, but also a loss of time, money and information to the corporation. With the potential for each employee having a personal computer in the office, these thefts can add up to a sizable loss over time.

Data base security

Most personal computers are used as standalone processors into which a user must key the information to be analyzed. Connecting personal computers to the mainframe computer would allow the user to get the information easier, but creates a data base security problem for management. Many systems have no data security other than password protection, which will allow a user access to the entire system. Executives needing information on their home computers an even more difficult security problem, since the data transfer would have to be over telephone lines.

Many corporation auditors are against using personal computers for corporate data access for these reasons. They also warn that misrepresentation of information to outside clients, whether done intentionally or not, is a lot easier and can look as official as a report from the corporate computer system. With personal computers there are more opportunities for unauthorized individuals to get access to confidential information.

The Pluses

Balanced against the problems of managing personal computers in the corporate environments are the number of benefits that can accrue to the organization from their use. Some of the pluses are: accessible computer power, quality work, computer-literate employees, and the ability to use the personal computer as a lead-in to other services: office information, electronic mail, mainframe data bases, and outside services.

Personal computers are a low-cost source of computer power that can be placed wherever there is a need for information analysis in the company. Computers have never before been so accessible to the average office worker. Many office jobs contain routine tracking, reporting and summarizing chores that can be handled and controlled with personal computer software. Their growth in capacity at a steadily decreasing cost allows personal computers to be considered for systems that used to require a minicomputer. Additionally, hard disks make possible the storage and manipulation of larger data files.

Employees who use personal computers on the job tend to generate higher quality work. Work done on a computer can be copied, modified and re-used again and again, saving the effort needed to re-do what has been done before and eliminating the errors caused by re-typing. Micro computers also allow the user to manipulate the information, summarize it in different ways and search for alternative ways of looking at the same data.

Computer literacy is a necessary skill for knowledge workers hired in corporations today. Many companies have automated their offices or use computerized services to generate the information they need for their work. Librarians use terminals to do research, financial people run analysis and report programs routinely. More managers are asked to be able to judge what of their work can and cannot be handled effectively on a computer. Corporations who promote computer competence in their staffs, place themselves in the position of being able to react faster to outside market pressures by reorganizing work and moving staff to meet their changing business needs.

Personal computers are the workstations for the office networks of the future. Interfaces are being developed in many corporations that will allow personal computers to communicate with local office systems, mainframe computer systems and outside services. Networks that will allow personal computers to access internal electronic voice and mail and videotex services are being planned.

Objectives

In managing personal computer use at Equitable, we have a number of basic objectives. We feel that Equitable needs:

- o to be able to connect virtually all such devices to an electronic network. We need to limit the variety of devices to limit the expense of doing this;
- o to ensure that user skills and interfaces can be easily transported from one group to another to avoid problems and re-training expense that will occur from transfers and reorganization;
- o to be able to provide a central maintenance service with reliable vendors to support ongoing and future operations;
- o to use its buying power to negotiate discounts and preferred service;
- o to ensure that any system developed can be easily integrated later and can have continued support in spite of personnel and management changes;
- o to ensure that data bases are treated as basic resources and meet common standards; and
- o to have systems that back each other up.

The approach that Equitable has selected to deal with the management of personal computers is to centralize the approval and purchasing functions and to select and support preferred models, to encourage preferred configurations and to select preferred software.



Conclusion

Management of personal computers in the corporate environment requires maintaining a balance between control and encouragement. The goal is to address the problems raised by the proliferation of personal computers in the organization and, at the same time, to take advantage of their capabilities and future potential wherever possible.

Our approach to managing personal computers at Equitable has been to put an organization in place to follow four basic steps;

- DISCOVER what the personal computers can do for us,
- INFORM the rest of Equitable how they can be used innovatively,
- INFECT management and staff with interest in using them, and
- CONTROL their acquisition centrally with standards and policy.

This strategy has been effective for us, allowing us to support a growing personal computer user population and to develop numerous projects that use personal computers for communicating management information.

SHARE SESSION REPORT

SHARE NO.	SESSION NO.	SESSION TITLE	ATTENDANCE
61	C316	IBM PC Assembly Language Tutorial	250
		Integrated Personal Computer Project	J. Kral
PROJECT		SESSION CHAIRMAN	FNC
		First National Bank of Chicago, 1 First National Plaza, 60670	(312) 732-8767
SESSION CHAIRMAN'S COMPANY, ADDRESS, AND PHONE NUMBER			

The speaker, Mr. Joshua Auerback of Yale University (YU), presented the following paper on the assembly language, and its coding, for the IBM Personal Computer. Questions were taken from the floor.

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