

Office Automation, A Cautious Approach

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Office automation has been touted for the past several years and has now been thrust into the limelight through an intensive industry campaign to educate the business community. Unfortunately, through all of this hoopla comes no clear definition of what office automation is, or exactly what the benefits are supposed to be in terms of hard dollars and cents savings. This information will eventually surface after several companies have done some rather expensive experimenting and gone through the trial and error phase which all new endeavors must experience. This paper is intended not to dissuade the potential entry into office automation but, to the contrary, to encourage a more rational entry into this much needed boost to office efficiency and productivity.

Office automation IS needed but until all of the wrinkles are ironed out, purchases of specific hardware solely for office automation should be carefully considered to avoid the possibility of early obsolescence and incompatibility with future developments. The major manufacturers of office automation systems are all coming up with their own methodologies, "standards", terms, networks and a variety of clever ideas. The single vendor solution was desirable in the past because one would only have to depend on that vendor for all support service. With the variety of approaches available, your vendor may have the wrong approach for your company, or one that just won't remain viable or cost justifiable in the years to come. I encourage you to shop around and become thoroughly confused by the cornucopia of devices, gizmos, widgets and software packages that are supposed to make your company ten times as profitable as it is without them. No doubt, there are many inventions and programs that truly will save your

company money, but care should be taken to get the right solution for today, yet with an eye toward the future as well.

Before we go on, maybe I should take a stab at defining the areas of a company that might be automated.

- a. The secretarial pool or function has basically remained unchanged in any major way for over a century. A secretary had a typewriter and a steno pad in the past, and they have them now. It is true the typewriters of today are faster, easier, and quieter than their old counterparts, but they are basically the same machines. Copiers, dictation equipment and a few other pieces of office equipment have helped to streamline the secretarial function, but not too radically.

Areas such as mass mailings, report generation and reformatting of long reports have been avoided in the past due to the large effort required to accomplish these tasks on conventional typing equipment.

- b. Management of a company is the lifeline for success or failure of many companies. Often, a company's resources can usually only afford a given number of these more expensive individuals, and thus their time must be utilized as efficiently as possible. A good manager should be able to organize his day so that he can get everything done between 9:00 AM and 5:00 PM, but that isn't always possible since demand for his or her time far exceeds the supply in

most cases. Automation of some of the more time-consuming aspects of a manager's job can help to alleviate this bottleneck.

- c. Communication is most likely the chief area of concern for managers and thus office automation should definitely address this aspect of the managerial role. Communication covers the areas of telephone communication, creation and distribution of memos, reports and meetings.

Ineffective communication can be the downfall of many well laid plans if the information needed is not received on time or is misunderstood by those who receive it. The areas of electronic mail, calendar scheduling, and teleconferencing are key ingredients of any office automation system.

Many managers are no longer alien to the thought of typing their own memos since they have found that they can type one in using two fingers as fast or faster than they could write it in longhand, and they don't have to wait for a secretary to type it. This reduces the time it takes to get a memo out. A typical scenario is for a manager to type something and then have a secretary turn it into English, since many managers can't spell to save their lives.

- d. Meetings that require the attendance of individuals from diverse geographic areas are time consuming and expensive. Video conferencing can reduce or even eliminate the bulk of an executives time spent traveling for many meetings and conferences at far less expense.

- e. Since the U.S. mail is expensive, slow, and unreliable the evolution of electronic mail is inevitable. Some bottlenecks still exist to prevent full implementation in the next year or two. We must first wait for the Washington political mechanism to make a few decisions that will affect the success or failure of electronic mail on a wide scale. It may be decided to let the U.S. postal service run an electronic mail system which could lead to numerous delays and undesirable changes in what

might be a defacto standard developed by industry. For the time being most companies should be satisfied with a local form of electronic mail for use within the organization.

- f. Scheduling of meetings and events as well as reminders becomes a problem that is easily solved through the use of computer software geared toward the calendar scheduling function. Some forms of this software can broadcast messages to users about upcoming events as well as allowing the users to leave themselves or each other reminders about meetings or things to be done.

- g. Computer graphics has been around for a number of years but until recently has not ended up in the hands of the casual user. Business graphics can be an invaluable tool for reducing numeric information to an easily understandable form. Graphics might be considered a form of communication that is a valuable time saver in that it reduces the amount of time and effort required to convey relatively complicated information.

- h. Training of staff is a major area of concern in many corporations due to the great expense and relatively high turnover of clerical personnel. Training programs are expensive and thus alternatives such a video training are being explored.

Basically the aforementioned fields are the major areas that we intend to address in this discussion. Office automation can reach into numerous other areas as well.

Word processing, electronic mail, teleconferencing, video training and calendar scheduling are the major areas that we feel will be the principal focus of the major manufacturers in the coming decade of rigorous development. To date the offerings in all of these fields have usually left the potential buyer apprehensive because there are gaps between the buyers' expectations and the vendors' solution in all but the most rare instances. An ideal word processor would be one that "intuitively" knew what the operator wanted, without the operator having to "tell" the machine every little detail. This would be nice, but at present and for a long time to come, if ever, word processors will need to be told what is required of them, thus creating a gap between some prospective

buyers' expectations of the ultimate and reality.

Electronic mail is another example of a good idea that is not quite ready for implementation. There is no widely accepted network in place and thus electronic mail is a tool that can only be used internally within a company for the time being. A company that spends a lot of money setting up a communication network with its related software and hardware, but doesn't conform to whatever twists MA Bell has in store is going to be left isolated. Despite all of the discussion about protocols, local networks, message switching and the like I am still apprehensive about where this is all going to lead in terms of the "true standard". The major manufacturers, fearing loss of ground by not taking a stand are trying to develop the best network for their own purposes with an eye toward what each believes will become the standard. Its a game with some very high stakes and both the buyers of such systems as well as the vendors are risking some financial setbacks if the assumptions about standards are way off base. An example of this syndrome lies in those companies who believed the myth that mainframes were the only way to go, and that minicomputer and distributed processing didn't stand a chance of being cost effective or viable solutions. Every HP customer must have some belief that distributed processing and minicomputers are here to stay and I totally agree. Companies that took the plunge and purchased that 2 million dollar mainframe with hopes of growing into it are now purchasing minicomputers to round out their systems and get computing into the field where it is most needed. I am not saying that mainframes don't have their place, but instead too narrow an approach to such a problem might have caused a company to dedicate too much capital toward the purchase of a mainframe rather than a combined approach with minis and a smaller mainframe for about the same cost but with more utility.

Video teleconferencing is one of the more exciting aspects of office automation since the benefits are obvious and a great relief to the travel weary executive. One video conference between 10 executives who may have had to spend the better part of two days traveling could save a company 20 days of executive time and possibly a few hard dollars in the process when the costs of food, travel and lodging are all added up. Additionally, more people can now attend a meeting or conference since the costs will vary only slightly for the larger attendance.

Calendar scheduling is an important but often overlooked part of office automation that requires a dedicated effort if it is to succeed. The reason calendar scheduling might be a problem is that if a secretary is responsible for maintaining the calendar on the computer and an executive makes appointments in his day timer, conflicts will be numerous and embarrassing. The only way a calendar system can work for scheduling a persons time is if everyone involved maintains the information on the computer in a timely and reliable fashion.

Tickler files or reminders are another form of calendar scheduling where, upon a certain date or time, the computer will notify the person or persons of an event or activity. This type of usage of calendaring makes more sense, as it is meant only to serve as a reminder and thus can have no negative effect and is easier to control.

The above components of office automation are all somewhat related with the exceptions of teleconferencing and video training. All of the functions of word processing, electronic mail, and calendar scheduling can be handled by a general purpose computer system.

Other approaches to implementing office automation direct us toward dedicated word processors and special function terminal networks and elaborate telephone systems with some level of intelligence. Dedicated systems are a risky choice if the premise that a standard has not truly been recognized is correct. Although many stand alone systems have some ability to connect to a mainframe or host computer, this link is usually something less than ideal and is often rather expensive in terms of time, effort, and equipment. In addition, as improvements in technology are announced to the world, the owner of dedicated equipment is oftentimes put into the used equipment business until he can unload the old equipment so that he can purchase the more desirable devices with the latest features.

It is hard to imaging a future office automation system that does not include micro computers (personal computers) since these tools can perform a variety of functions. To date, micros have only done a fair job in the areas of word processing and other simple office automation tasks due to their limited storage capacities, inability to programatically access information on a host computer. I feel that the largest single benefit of the micro computer are the electronic spreadsheets and graphics capabilities that have made them

so popular. These two areas are where micros shine. Even though they do not have the immense storage capability or greater speeds of larger systems, the problem of system degradation involved in large computers is eliminated. The drawback to micros is that they do not readily access the information on the larger system and thus the age old problem of compatibility.

A few years down the road we will most, likely see a tighter coupling of micros with their larger relatives which will eliminate the problems related to capacity and information accessibility. Until then micros will most likely not be considered the total solution to the office automation problem for all but the smallest organizations.

A general purpose system, such as an HP-3000, has far more flexibility in dealing with improved technology since software can be readily changed to accommodate new advances in equipment and also to incorporate new software features as they are formulated. Additionally, having an office automation system on a general purpose computer allows clerical users and managers access to the information which already resides on the system. More advanced word processing systems have the ability not only to handle ordinary text entry and formatting, but also to actually be "programmed" to produce reports based on information to be extracted from date base or data files as part of longer documents. Other system information can be used to produce mailings, dunning letters, reminders and a wide variety of correspondences all automatically without the need to convert or re-key information. Some of the less sophisticated packages available require a complex sequence of steps to extract information from data files and then merge it into text files which is sometimes acceptable. Stand alone systems are even more cumbersome when attempting to deal with large volumes of data and oftentimes require the re-keying of some or even all data to be used.

Another advantage of the general purpose computer approach is that every terminal on a computer system can perform all of the functions of word processing, data processing, calendar scheduling, electronic mail and a variety of other applications. Some of the word processing programs available today require the use of a specific terminal which gives the user the advantage of a more dedicated or "stand alone like" approach. Also

included is a higher price tag. The bulk of the word processing programs do not require the use of specific terminals, although there are many that have some restrictions as to the compatibility or brand of terminals to make use of all the program features.

A major advantage of having all terminals able to perform the functions of word processing, electronic mail and scheduling as well as the normal data processing is that the cost of implementing such a system is quite low and with very little risk if the terminals to be used are already in place, or are to have dual roles for data processing as well as office automation. In many cases, little or no additional hardware need be purchased to implement a first pass at office automation, just the purchase of one or more software applications. The choice of the software applications for office automation is quite important, not only due to the cost of the software, but more importantly, oriented toward a successful implementation. Spending several thousand dollars for software is trivial when the costs of installing a bunch of applications that are hard to use and don't really do the job can be a major setback in terms of time, training, and morale. An initial failure in this area can also make a second attempt very difficult, if not impossible.

Lets take a look at some of the costs involved for the purchase of different types of solutions.

a. Dedicated hardware.

Word processing stations normally run between 5 and 10 thousand dollars each with the price gravitating toward or above the high figure when communications capability is added.

Of the dedicated systems that we have seen none can do all of the office automation functions of word processing, report writing, electronic mail, mass mailings, text editing, and tickler files. So that the comparison to a general purpose computer system is not totally even, although they are getting better all the time.

b. Micro computers.

Most of the micro computers being purchased for business usage have a starting price around \$3,500 to \$4,000 but can easily gravitate toward \$10,000 with the addition of \$2,000 or more in software and \$4,000 and up in hardware. Many companies have unwittingly turned their

executives and secretaries into mini DP departments. As time goes on the cost of micro computers will continue to tumble and the performance will increase.

As one might imagine, purchasing \$10,000 micro computers for each person that wishes to do a little word processing can get a quite expensive, especially when we consider the drawback of most micros in that they do not easily share peripherals. Micro computers will become a larger part of office automation systems when they learn to communicate with each other, the peripherals and larger systems in a more cost effective way than they currently do. Additionally, a standard operating system and possible a standard architecture may have to evolve to reduce the chances early obsolescence of your chosen micro system.

For those that have made a large commitment to CPM based systems, the MS-DOS "standard" thrust on the market by IBM may cut off the availability of new software packages in the future. Most of the manufacturers of micro computers and related software are directing their efforts toward the IBM compatible market.

c. Various Software Systems.

Numerous software packages are available from a variety of vendors to provide the functions of word processing, text processing, mailing list processing, electronic mail, report generation, text editing, memo generation, and calendar scheduling. Software packages of this type normally sell for between \$2,500 and \$10,000 each. If one package were purchased for each function of word processing, electronic mail, editing/text processing, memo generation, reporting, mass mailing and calendar scheduling at an average cost of \$5,000 we would be looking at a cost of \$35,000 for a complete system. This is just the tip of the iceberg since training and internal support for so many different software systems will be extremely expensive, probably requiring the full time efforts of at least one computer oriented person at an annual salary of up to \$35,000 per year. This does not include any overhead associated with the running of the system or the various other costs related to computer usage and ongoing trouble shooting.

d. Integrated Software System

A more rational approach to office automation is to purchase one or more software packages that provide an integrated and uniform solution to the office automation needs of a company. This solution requires a package or packages that are designed to operate under one master menu or control program, allow for a minimum amount of training on each function, and that the training be additive. By additive we mean that each training session uses the previous session as reinforcement and adds to the cohesive approach required for a truly successful implementation. When we refer to an integrated software system we refer to a system where a base set of rules, features, commands, menus and training allows each user to add new functions to their repertoire as they become capable of assimilating the next step of the system implementation. An integrated system is also beneficial, as all system users are dealing with a common set of tools and thus they can share their experiences, discoveries, and knowledge. This reduces the need for dedicated support staff.

We only know of one software system which performs all of the above mentioned functions and this package sells for \$9,500 and would most likely require the assistance of a programmer type for initial training and possible ongoing support if all functions are to be implemented. Assuming one fourth the time of the same \$35,000 programmer is required, we are looking at \$8,750.

What we are pointing out here is that we feel that the cautious approach dictates that a minimum investment be made to procure software that does the "complete job". We do not mean to infer that you should cheap out on software, just purchase the best package or packages that take as much of the office automation concept into account as is feasible with an eye toward the costs of training and implementation. Don't simply buy software from a large vendor because they are large, look at the total picture and you will probably find that the hardware manufacturer that sells software is really leading you into a need to buy more and more hardware and possibly more software to get the complete solution.

Office automation is here to stay, but just as Robert Fulton's paddle boat was a fine solution to a problem, it was not the final solution to the needs of river travelers. A careful study of office automation systems will allow you to see that there are many great sounding ideas but none have really proven themselves. We recommend that your first plunge into office automation be made by adding software which, if worse comes to worst, can be replaced at a relatively small cost.

A point that is often overlooked in any implementation is training. To date I have found no system that is very capable that requires absolutely no training for personnel. Most systems that are "so easy to use that anyone can use them" are so easy because they can do so little. A full function word processor requires training for clerical personnel since the concepts are new and very few people are willing to train themselves. I think that this is the most common failing of those managers who have tried to implement office automation and have failed. These managers will point their employees in the direction of a new word processing system, give them twenty or thirty minutes to figure out how to turn the thing on and then start handing them numerous documents that must be finished before noon.

Training must be handled in a logical fashion with plenty of "free" time for experimenting, mistakes, and extra time for those first several documents. Yes, word processors are designed to make secretaries work easier and faster, but don't expect the results to show up for a week or two and sometimes even longer than that.

The bottom line on a cautious approach is; make use of existing equipment (your HP-3000 and HP terminals), buy a software package that has all the features you will need now and in the future so that you will have an "integrated" solution, and don't overlook training.

I feel very positive about the future of office automation and am glad to be involved in the early stages of such an exciting area of computing. Future developments will bring the cost of hardware down so that we can afford to extend the capabilities of the office automation products to more and more individuals. I hope that this paper will serve to stimulate those thinking about office automation into shopping around and seeing what office automation can do for them. Don't sit back and wait, now is the time to get your feet wet -- just take care not to get in over your head.

About the author:

Mr. Bradford is the president of Bradford Business Systems, Inc. of Laguna Hills, California. Mr. Bradford worked for Hewlett-Packard for 6 years in various capacities ranging from sales to technical support on the HP-9800 series desk top computers, HP-1000, HP-250, HP-300, HP-2000, and HP-3000 computer systems as well as being a data communications specialist for the HP computer products.

Since leaving Hewlett-Packard, Russ has formed his own company which is actively involved with development and marketing of products relating to his experience with Hewlett-Packard products and office automation systems. Immediately after leaving HP Russ performed consulting services concerning a variety of areas, with heavy emphasis on data communications. Since then, Bradford Business Systems has developed products which embrace Russ' feelings as expressed in this paper. His experience in data communications and the various HP systems as well as the time consulting with companies of all sizes has given the products developed by Bradford Business Systems more flexibility and usability in the environments for which they were designed.

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