A DPer's INTRODUCTION TO OFFICE AUTOMATION TRENDS, TECHNOLOGIES, AND APPLICATIONS

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INTRODUCTION

The MIS Director for the manufacturing division of a Fortune 500 company is returning to his office after grabbing a cup of coffee. When he walks past the Marketing department, which is a big mass mailing system user, he notices two large boxes in the secretaries' area. He asks about these, and discovers that they contain word processing stations, which were purchased from another vendor without his knowledge. When he comments, "we could have handled that for you," he is told that marketing was not very happy with the technical nature of the mailing system, and so did not approach him for help. Shaking his head, he continues on, and is stopped in the hall by one of the group of managers which is participating in a local MBA program. He is asked: "We need some personal computers for our labs in class, and might as well purchase good ones, so we can use them in our jobs, too. Which one should we buy?" When he remarks that all of the capabilities needed for this computation is provided by terminals on his system, and that five languages are available, not to mention the data these managers work with, the requestor backs away, thinking of the general reputation of the MIS group in terms of complicating simple issues.

The MIS Director returns to his office, sits down, and thinks about all he has done in the past few years so that he can start to offer state-of-the-art services. This year, he is planning on implementing capacity planning and shop floor control, financial and market modelling, and other direct uses of the total data base for managers. Yet he has just encountered two indicators that these plans do not really address the desires of the mass of his users. He is discovering that his expertise in data processing does not promise that he can meet the information handling needs of his entire organization. He wonders: "How can I stop this 'creeping office automation' in my company and maintain MIS' position as the information center for the company?"

This paper is based upon the assumption that the primary systems growth which will be encountered in most organizations in the next few years will be in the form of "Office Automation." In order for these systems to truly meet their potential, it is crucial that data processing management is fully cognizant of Office Automation, and able to respond accordingly. If this does not happen, we will continue to see massive growth in the loss of control indicated in the above scenario. I am assuming that the reader is a data processing professional who would like to learn more about Office Automation; my intent is to help these individuals to gain a fuller basic understanding of Office Automation - what it is, why it is important, how it can be used, and what should be done to begin to deal with it. First, it is important to discuss exactly what OA IS.

Many long and academically interesting papers have been published regarding the definition of Office Automation and Office Systems. From the standpoint of a data processing professional, I would like to define Office Automation as follows:

> Office Automation is the introduction of a new technology into an office environment with the intent of resolving a specific problem or class of problems by bringing an individual or group of individuals into contact with this technology.

By this definition, we see many Office Automation (from now on we'll refer to it simply as 'OA') applications which we might not have expected: mailroom equipment, copiers, telephone equipment, and of course, computer systems. This indicates what the future of the office holds, and it helps when a data

processing-oriented person thinks of DP as a part of OA, which it in fact is. If this is denied, either summarily or subtly, the results will likely be similar to those indicated above, and DP may find that it never reaches that "Information Center" status which we all hope for.

Another question which needs answering is "Why is Office Automation important?" The answer is quite clear, and can be given by providing a few facts. Between 1970 and 1980, the US spent $35,000 and 25,000 per worker on agricultural and industrial workers, and achieved 185% and 90% respective productivity gains. In the office, we invested a whopping $2,000 per worker, and were given a 4% productivity increase in return. When you fold in the fact that about 50% of an average organization's payroll goes to office workers, it is clear that OA will grow simply because the Office is the area that is now holding back organizational growth and effectiveness.

Another issue is, of course, technology. Simply stated, in 1960 the ratio of hardware vs. people costs was 50:1. In 1982, it was 1:50 - a complete reversal! This indicates that, due to a technology explosion, rising labor costs, and pent-up demand in office workers, especially managers and "knowledge workers," we WILL see significant investment in OA in the next ten years. This is so obvious that all of the leading 10 computer vendors have indicated that OA will be a top priority for them, and we have begun to see significant growth in computer-based office systems. The danger here is that the customer is a data processing professional, and without a basic understanding of OA, he/she can easily be sold an irrelevant solution by an overzealous vendor. Since our definition above starts with the key word 'technology,' we should start our exploration of OA with a review of the technology involved.

TECHNOLOGY

Office Automation can be seen as a convergence of technologies - in order for an OA solution to be effective, these technologies will need to become more directly related. The illustration below indicates this convergence, and the technology sources which are involved.

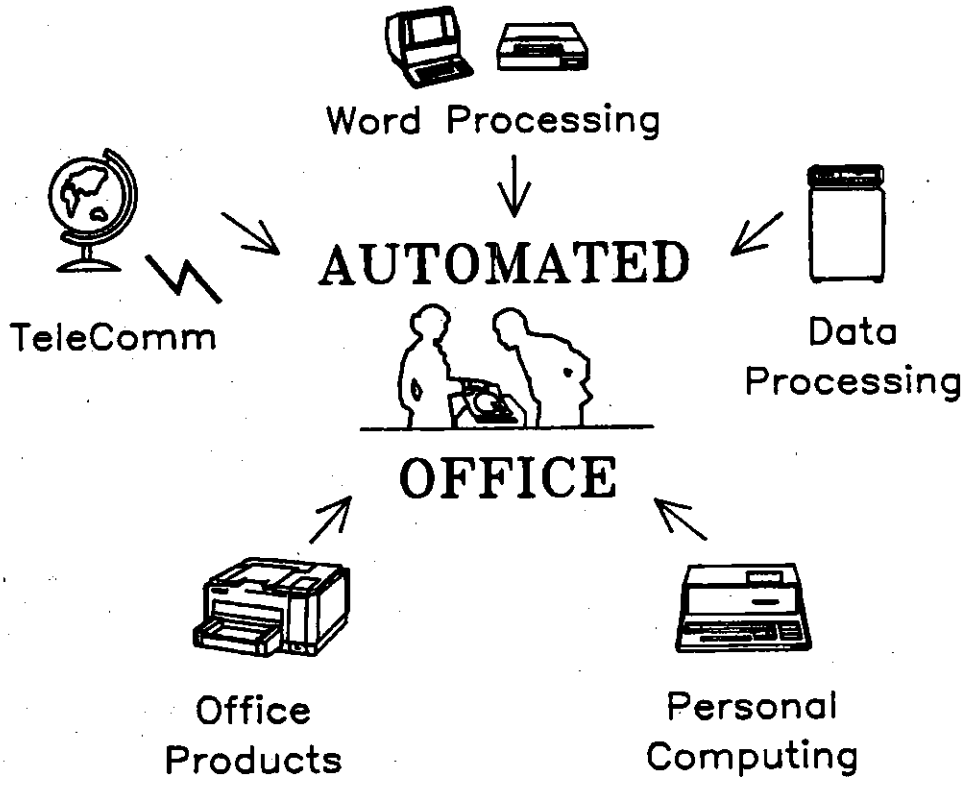

FIGURE 1: TECHNOLOGICAL CONVERGENCE

As you can see (and already know), many groups of vendors are inventing the Office of the Future, and it is important to understand their perspective when evaluating their solution. It is unclear that any vendor with a strong orientation towards any one of these technologies will be able to offer a solution as we will define it later. Proceeding counter-clockwise, let's quickly look at these technologies, and some of the developments in each area.

WORD PROCESSING

Historically, word processing has been provided through the use of specialized, stand-alone or dedicated systems, which has shown to be a long-term misappropriation of revenue. However, in recent years, significant changes have been made by the more notable word processing vendors, outlined below.

WORKSTATIONS. Early WP stations were hardware-based; now most WP workstations are software-based. This allows evolution of the system's capabilities, and also acknowledges that a word processor is actually just a standard microprocessor. We are now seeing the results of this as WP vendors are also providing limited data processing power, on local and central processing units.

PRINTERS. Printer technology has also changed significantly in the past few years, providing enhanced final products at much lower costs and higher reliability. Mechanical devices such as daisy-wheel printers are still heavily used, but laser and ink jet technologies are beginning to provide higher density printing and color output capability, as well as integration of words, graphics, and data processing output. Because of the maintenance required for impact technologies, non-impact technologies, including laser, ink jet, and thermal technologies will become much more prevalent, especially in distributed desktop print workstations.

LOCAL AREA NETWORKS. As a response to the lack of central processors in environments established with stand-alone devices, a facility was needed which would substitute for a central processor in transporting documents from station to station. Using coaxial cable, several vendors began to provide "local area networks." Because of the cable used, extremely high-speed, high-bandwidth communication was available, so LANs began to be explored for multi-media, multi- -vendor transfers, including voice, video, and digital information. The future of LANs is unquestionably bright, but has been clouded by a lack of vendor-independent standards for how they should operate. Now that standards are beginning to appear, such as the IEEE 802.3 standard, the "Information Network" plug we've seen in the XEROX advertisement may become a reality. Because of the high costs involved, it will probably be quite some time before the LAN issue is settled, and many PBX-based local office networks will be put in place as (at least) interim solutions.

TELECOMMUNICATIONS

This area is primarily characterized by the telephone, but we know that it has grown into data-handling in the past few years. Additionally, the reorganization of the Bell System will result in significant and quick growth in this area.

The most basic development in telecommunications is the growth of the carriers which transport a signal, be it voice or data.

Through the implementation of new technologies such as fiber optic cables, digital (DDS) lines and Satellite stations, data integrity and line speeds have increased from faded voices to data transfer rates in excess of 56kB per second.

DIGITAL NETWORKS. In traditional telephone lines, the signal is an analog waveform, and devices are required to modulate and demodulate this signal from digital computer form into analog form, and back again. This is very time-consuming and error prone. The DDS line uses a digital signal to start with, so the only equipment needed is an access device.

SATELLITE STATIONS. Earth-based telephone circuits are limited by the type of wire or cable used to carry the signal (electrons or light beams). Thus, if a circuit from New York to Alaska involved DDS in New York, but old wire-based electromechanical switches in Alaska, the DDS is of limited help. Now, we can use satellites as switches, and remove the wires/cables from most of the circuit. We simply transform the pulse in the circuit into radio signals, send them up to the satellite, then down to the destination, and decode them. The amazing attribute of satellite systems is that, even though the signal travels beyond the atmosphere and back, satellite transmission is much, much faster than earth-based systems.

PBX. As you know, the personal telephone has become as feature-rich as the computer terminal. This is because of the advent of the Private Branch Exchange, or PBX. This facility allows all telephones in an organization to connect to a central control unit, which then connects to the external telephone system. This technology was pioneered by private vendors such as ROLM and Northern Telecomm, but public systems are now becoming available. The significant development in PBX systems was

the acknowledgement that most PBX systems are now controlled by digital mini- or microcomputers. Because of this, PBX systems can handle either voice (analog) or data (digital) signals, and can convert from one form to another. This means that, at minimum, a PBX customer can connect a computer terminal at any telephone plug, given that the PBX system has the ability to interface directly to the computer network. This also means that we will see more and more telephone/CRT/PC workstations, with data and voice capabilities, so that voice messages may be digitized, routed/stored/filed using the computer, and "played back" to another telephone/ workstation.

FACSIMILE. To most of us, a FAX device is a box near the copying machine with a rotating drum and a modem which can be used to send a photocopy of a paper document to another office, usually very slowly, and with very low-quality output. Well, the FAX device has also seen the introduction of the microprocessor, and digital FAX stations are now becoming both cheaper and more prevalent. Because the image is digitized before transmission, the speed and quality of output is dramatically improved. Also, the digital nature of the document means that FAX can potentially act as an input device to a PBX or computer-based electronic mail system. Rarely, however, could one "see" the document except through the use of another FAX station, since the document format is not standard or "processed", but rather a matrix of dots.

PUBLIC DATA NETWORKS. An application of some of the carrier technologies shown above is the PDN, also referred to as an X.25 PDN, the name of a network standard. The PDN is a computer-based facility which handles "packets" of information by inserting an address on each packet and passing it through a pool of "nodes" or remote network locations. Eventually, when the recipient "sees" a packet addressed to it, it will be accepted and delivered. The benefit of PDNs, which are offered through private industry, is that large volumes of data can be handled cheaply because dedicated telephone lines to the destination are not needed - they are already part of the network. New locations can "tap" the network as needed. An application of this is found in DS/3000, where a group of HP3000 CPUs (and terminals, if desired) can connect to a PDN for normal DS operations, so that a terminal user in Kansas City might connect via local PDN and run a VPLUS application in Los Angeles, through remote interactive DS operations. The user does not know that all of the screens are being broken into "packets" and rebuilt at the other end.

OFFICE PRODUCTS

Another infrequently-mentioned source of OA technology is the Office Products industry. Again, introduction of microprocessor technology has led to changes in many services provided.

COPIERS. Clearly, the most visible of this class of devices is the copying machine. Two things are happening to these devices: size and intelligence. Micro-based desktop copiers now handle as much work as the traditional "mainframe" copier, and are distributed throughout an office. Because computers are now used to drive many copiers, the ability to connect a digital copier to a network has appeared. An example of this is multi-functional laser printer/copier devices offered by IBM. It is still relatively rare to see small, low cost copiers with RS232 capability, but the new generation of copiers are being called "Intelligent Printer/Copiers," and promise to be a major part of a complete office solution.

MAILROOM SYSTEMS. This is an area which has derived a great deal of benefit from technological advances. Rather than describing these systems, suffice it to say that most mailroom operations can now be accom- plished with the help of digital processors, and that connection of mailroom systems to computer systems are coming soon.

MICROGRAPHICS. Systems involving miniaturization of written information, notably micro-film and -fiche, are becoming incredibly sophisticated. Where we once had a shoot-and-view environment, most complete systems now include computer-based indexing, keywording, and re- trieval, frequently from CRT devices. The records management industry served by micrographics is exploding, and it is becoming difficult to understand when a micrographics system is not an on- line DBMS system. An interesting-to-note technology which shows promise for archiving and training applications is laser disk/ compact audio disk technology, where data, voice, and moving picture storage is available in digital form.

PERSONAL COMPUTING

There is so much going on here that it would be impossible to discuss all OA implications of the personal microprocessor. There are two basic areas where this device is maturing into an OA workstation. First, data communication and software standards are becoming prevalent, so a PC user who is running WORDSTAR on an IBM PC can move a document up to a network processor and distribute it to any user of an MS-DOS-based PC which runs a compatible version of the same software. Secondly, the PC

has begun to sort out applications which are personal and private in nature, and therefore belong on personal computers rather than networks and multi-user systems. These include personal diaries, card files, VISICALC and similar applications. The Personal Computer will without doubt become one of two types of workstation on any complete OA network.

DATA PROCESSING

We all know how much Data Processing has changed in the past 20 years. Basically, there have been four changes which relate directly to Office Automation.

INTERACTIVE COMPUTING. Any system designed to be used by office workers must be an interactive, on-demand system which gives the impression that the user is working on his/her very own computer. Because of the improvements made in interactive computing hardware and software, notably workstations and application generators, data processing systems are viable as central office processors.

MULTI-FUNCTIONALITY. Many vendors, including Hewlett-Packard, understand that the base CPU of a commercial computer system does not necessarily JUST handle data processing. As a result, these on-line systems are being utilized for many of the functions we've seen above. Rather than simply data processing, retrieval and reporting, a good system should be able to handle all aspects of an office's information needs.

NETWORKING. Facilities such as DSN/DS, DSN/IMF, and DSN/PBX indicate that many computer systems vendors have already dealt with the problems of interconnecting interactive workstations in various geographic locations. This is a critical requirement for OA - the system must not simply handle an object, but also provide access to individuals needing this object, regardless of location.

CPU SIZE/POWER. Because of significant research into memory and CPU technologies, relatively powerful data processing machines now occupy the size of a two-drawer filing cabinet, and can be inconspicuously placed in the corner of an office while providing all individuals in that office with OA capabilities.

SOFTWARE/ERGONOMICS. Along with these technological advances, data processing devices are now being provided with novice-oriented software, which is very well-suited to office applications. In the next section, we will look at the basic functions of OA in general, in other words, what can we DO with all of this hardware capability?

OFFICE APPLICATION SOFTWARE

Not surprisingly, understanding the functional intent of most office applications software requires understanding the jobs of the office workers who are asking for it. In fact, if you make a list of the functions performed by and between office workers, including yourself, you will develop the list of classes you will see below! It is surprising how much OA hardware and software is purchased without spending the time to understand the actual work to be performed, and looking at the performance of the equipment/ programs in this context. Basically, office software can be broken into the following functional areas. Programs written to handle one functional area probably do not excel in another, and it is not really very reasonable to expect this. Rather, it is usually better to find software which provides the needed classes of capabilities very well, THEN focus on integrating the different functions for the final office users.

WORD PROCESSING. WP provides users with the ability to create, edit, and print documents. It is very important to match the orientation of each user (technical, managerial, secretarial, casual, dedicated) with a WP facility which matches this orientation.

LIST PROCESSING. This facility allows users to create, modify and maintain "lists", or personal groups of fields/records. A telephone list is a good example of an application for this. Though list management can be provided by DBMS capabilities, List Processors are usually very user-driven and flexible, with little computational power. Lists are frequently merged with word processing documents for mass mailings, etc.

FILING/RETRIEVAL. Though all functions involve "filing", electronic filing and archiving facilities provide the ability to store and find ANY type of object: data, voice, WP, graphics, etc. Keyword retrieval and scanning are frequently-found features.

ELECTRONIC MAIL. This function provides the ability to distribute information from one OA user to any other user or group of users. Like the physical mail system, it should provide the ability to do this by name only, and regardless of information. It should also be able to handle ANY type of information in an OA system, not simply messages.

DECISION SUPPORT. Decision support systems can take many forms, but they include any program which a professional office worker can use to extract and analyze information in the comprehensive data base, providing some specific functions to assist the user in making a decision. This class can therefore include ad-hoc reporting systems, graphics, and modelling systems. One frequently encounters "decision support" systems which provide only retrieval capabilities - unless they provide some analytical FUNCTION, they are not truly decision support systems.

PRESENTATIONS. This includes any facility which allows the user to generate the necessary package to make presentations to others, including flip charts, transparencies, and handouts. A good decision support and word processing package is limited unless another tool is available to "sell" the decision reached using the above tools.

CALENDAR. Meeting scheduling, room scheduling, and personal diary facilities are provided by this type of software. A good package will allow one to attach presentation materials, WP documents, and other notes to an appointment in the system, and handle multiple- person meetings automatically.

MENUING. Given all of the above categories of application, some technique must be employed to remove the user from the operating system, system hardware, and network arrangement. For instance, suppose a user would like to choose between a local WP printer, central laser-based IP/C, or a remote ink jet printer. On an HP3000, this would require a :FILE statement, filling in a menu, and possibly :DSLINE/:REMOTE commands. Using a good menuing facility, the user, who is thinking "pick a printer", would have a menu function which said "PICK A PRINTER". Upon poking this button, the user would see a display of the names of each printer (Betty, Copier, Wichita, etc.), simply pick a name, and the menuing facility would handle the commands and the connection. Since the functions above are discreet tasks (ie: text manipulation is NOT an electronic mail function), a menuing or task management facility is the tool which should provide the link, both functional and cosmetic, needed to "integrate" dissimilar functions from the users' standpoint.

THE HP3000 AS AN O/A NETWORK PROCESSOR

Now that we've looked at the overall hardware and software which will be involved in an OA environment, let's look at the potential functionality of an HP3000 in such an environment. On the next page you will see a chart showing the tasks which can be performed either by or through an HP3000-based network. Rather than discuss this in detail, it is adequate to note that, based upon this diagram, it is clear that the HP3000 and related peripherals, software and networking facilities are functionally more than adequate to act as the basis for a completely automated office.

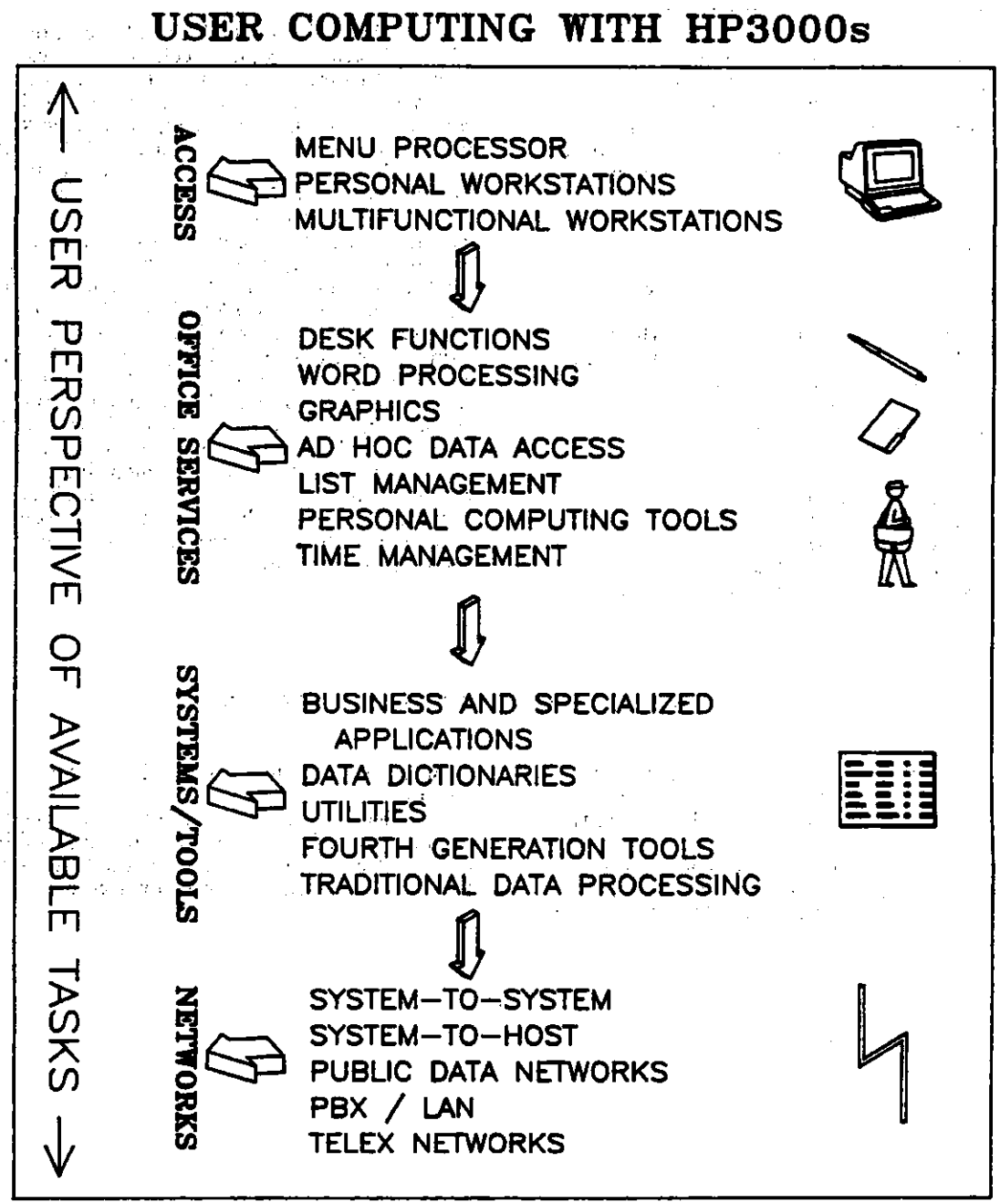

FIGURE 2: HP3000 OFFICE APPLICATION POTENTIAL

Once we know this, another more fundamental - and frequently overlooked - question needs to be answered: how should this capability be applied, and how can we go about identifying these applications?

OFFICE AUTOMATION APPLICATIONS

Suppose our MIS Director decides to deal with his "creeping OA" problem by becoming quite knowledgeable about OA hardware and software, the technology involved, and the trends likely in the next few years. He also works with his vendor to develop a plan for installing the OA hardware and software available from that source over the next 12 months. Finally, he assigns an analyst to interview Marketing department staff and identify information processing needs within this group. After 2 weeks, the analyst returns, saying that he can deal with about 60 percent of the needs of the group, but is embarassed to note that 100 percent of these needs are addressed by the stand-alone word processors.

Data processing analysis works in terms of Information, Processing, and Availability. The analyst in the description above has discovered the difference between data processing and user computing. An entirely new class of users is involved in office automation, and their needs, orientation and expectations are quite different than those involved in production data processing, including user-driven on-line applications.

The most important difference is a focus upon TASK. When a secretary works on a mass mailing, he/she sees is as a series of steps, not a flow of information or processes. Without addressing every single task, the secretary cannot accomplish the mailing When data processing is involved in Office Automation, the proposal all too frequently addresses only a part of the work involved, so office workers see little or no benefit. The assumption of our secretary is that any tool he/she needs to accomplish the mailing (paper, printer, envelopes, telephone, address list, mail cart, etc.) is accessible. In another example, when I sit down to prepare this paper, I need to assume I will have all of the tools I need. Word processing alone is not enough - I need scissors, PressType, graphic arts, etc. to completely perform my task.

Once we begin to focus upon the orientation of office users, it is clear how to identify potential office applications: understand the tasks involved in a person or organization's job. The easiest way to do this is with an interview process - in a high- visibility or complex environment, it might be reasonable to have an OA analyst perform the job right along with the prospective user to fully understand the needs and frustration involved in problem areas. All persons involved in a potential application should be included, especially management and professional staff - if management is not interested in an Office Automation application, the project will likely fail, no matter who is involved.

As specific applications are explored, it is important for data processing management to work with top management in looking at overall company/organizational goals, objectives, etc., to find areas of organizational performance which need work or are desirable targets for Office Automation. In a distribution environment, for instance, excellent customer service might be a basic company objective, and communication with salespersons and sales offices, including order processing, customer service, and credit approval staff might be deteriorating with growth. This would be a good target area because of a clear need, available technology, and overall management concern. Needless to say, it is quite easy to "sell" a project when it involves a concern of top management and a board of directors.

As we have noted, OA applications involve many variables - top management support, technological feasibility, user willingness, a need to address the issue, and a clear benefit which can be measured against at the conclusion of the project. Typically, data processing staff respond to demands to office services by attempting to understand technologies and software attributes, rather than the jobs of the requestors, and the related organizational objectives. This usually leads to difficult relationships, and frequently failure and loss of control. The best position to look for is one of leadership, where a beneficial application can be identified with the cooperation and interest of the user, and problems can be prevented rather than simply met with response.

ELEMENTS OF AN OFFICE SOLUTION

It would be simple to discuss likely OA applications, but we would rather provide more concrete information for use in tackling requests for OA assistance in your organization. To do this, we have identified seven ingredients which most office automation applications have in common. Below is a figure to illustrate these attributes.

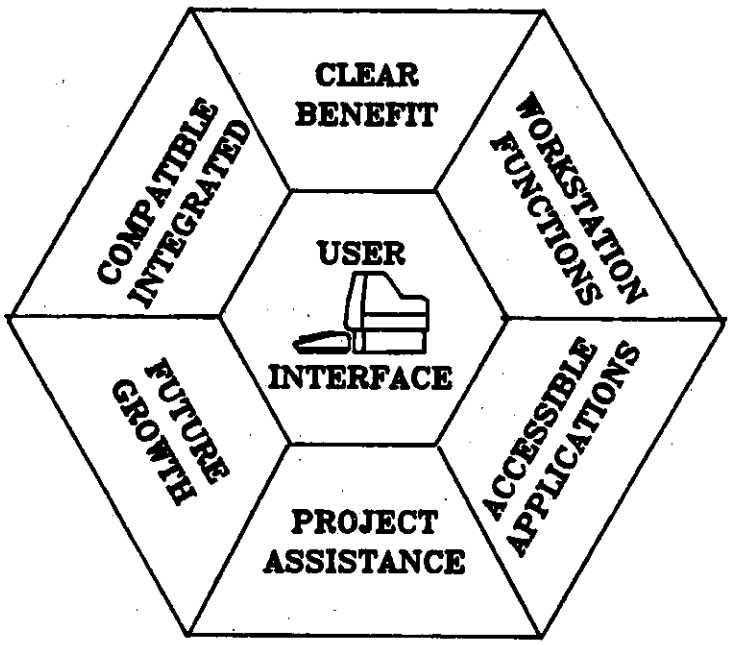

FIGURE 3: ELEMENTS OF AN O/A SOLUTION

USER INTERFACE. Without question, the most important indicator of the success of an OA application is the target user's initial reaction to the way the application looks and feels, or the "user interface". This will determine their willingness to work with it - without a willing participant, all of the following points are irrelevant.

WORKSTATION. In addition to the user interface, the workstation(s) involved should also be thoroughly examined. Will it stay up? Will it handle all potential applications for this user in the next three years, or will it need to be replaced? Can it act as a personal computer? Will it connect to any network available now as well as in the near future? Office workers use only one telephone - they will not accept 2 workstations.

ACCESSIBLE APPLICATIONS. Especially when offering computer-based OA facilities, it is important that their availability is clearly stated and will meet the needs of the user population. I can count on my calendar being available, in my briefcase, 7 days a week, regardless of my location. Therefore, I need (nearly) such access to a computerized calendar. An important detail in providing such accessibility is involvement of operations staff - backup and shutdown procedures will need to be considered. Additionally, system loads must measured, projected and covered BEFORE the application project is started. If these issues are not covered, rumours of poor response and downtime will certainly be encountered. Since - like the telephone - OA applications are frequently close to the pulse of an individual's job, they must remain accessible.

PROJECT ASSISTANCE. Implementation of OA is a project, not a product or program. A vendor who understands this will provide not only the product and training, but also full project assistance for the duration of each pilot group, which usually lasts for 4 to 8 weeks. This is frequently at additional cost, but a vendor who does not take every action necessary to insure your success is simply looking for short-term business. As you see the vendor in this light, the end user sees you in the same light. You will need to handle all aspects of the user's initial implementations of the product. We will discuss these requirements further below.

FUTURE GROWTH. OA applications are usually steps in completely automating the office, whether this is planned or not. If a word processor is purchased to prepare internal memos and personnel-related materials, can it later be used to transport these documents to all possible recipients using an electronic mail system? Will they be readable by users without a WP station or terminal? Again, only a multi-functional system capable of evolutionary application growth is sensible given the quickly-changing nature of today's DP and OA community. It is quite common to see users

wish to solve a short term problem while creating a long term problem, and data processing and MIS individuals can help to avoid this.

COMPATIBLE/INTEGRATED. If a solution such as the one above is implemented, and an electronic mail function is employed, how is it integrated into the user's menu? How many steps are required to move the WP document into the mail system and make it readable? A helpful exercise in this area is to make a list of all "objects" (you presently call them files...) your final OA system will handle. Across the page, indicate each "function" (WP, EMail, etc.) which will be offered in the complete system. In this matrix, indicate how each function needs to use each object (create/edit, print, file, include, etc.) - this will help to qualify vendors, and insure that users' needs have been thoroughly identified. Nothing can be more frustrating than spending $100,000 on a complete office system, simply to find a user with a pair of scissors and tape, performing functions which will not be able to be shared throughout the system.

CLEAR BENEFIT. Though this has been mentioned before, it is absolutely critical to the success of new OA applications to state the planned benefit of the application, and have management, DP, and office users of this application agree that this is the desired result. All too many OA applications have been implemented without doing this, and even when they are successful, it is usually because they are technically intriguing. Finally, how will this benefit help to achieve a higher level organizational objective?

O/A : IMPLICATIONS FOR DATA PROCESSING

Office Automation applications indicate some impact on existing Data Processing organizations which are involved in these solutions. Not surprisingly, they tend to fall into the categories of technical issues and support issues.

TECHNICAL IMPACT

Four technical issues are involved here. First, the system will now be used to "handle objects" rather than "process information", and these objects will need to be managed. Who will archive, retrieve, and perform housekeeping on these objects? Frequently, electronic filing and retrieval is needed on top of the original user application.

Next, how will the devices involved (printers, plotters, PC's, etc.) be made available, and who will support them? Will you need mini-courses on troubleshooting for end users? It is very common to see WP users circled around a malfunctioning printer with no idea of how to isolate the problem, and no help available.

Given the idea of multiple types of objects indicated above, how will these objects need to be integrated for the user? Here we find a need for a "task/menu administrator" who can translate the system's technical needs into a button for a user to push. Again, all too frequently, we find DP personnel trying to teach administrative users how to user FCOPY rather than establishing a conversational menu function for the user.

Finally, will the system(s) used be able to support the application? If the solution is computer-based, CPU, I/O, and memory resources will be needed, and this need should be projected and handled. Again, "poor response" might better be called "poor system management". These things can be resolved without the user's knowledge that a central system is involved - this is not related to his/her office task.

SUPPORT IMPLICATIONS

In supporting office users, we cannot overemphasize the importance of providing non-technical support to these users. In most data processing organizations, this cannot presently be offered - no matter how "people-oriented" a programmer/analyst is, he/she will still have difficulty in being accepted by secretarial and managerial users during an OA project. The traditional support lines for data processing users are rarely sufficient to provide the necessary response and empathy needed for the personalities involved in office automation. Because of this, I recommend that data processing organizations establish an "office products coordinator", an individual who will provide ALL first-line contact for office applications, including training, user meetings, day- to-day support, interviews, etc. This person would then work directly with data processing personnel who have responsibility for supporting the OA software and hardware. Additionally, this individual should have direct access to OA vendor support.

Because of the significant differences in supporting an OA environment, this new focal point is needed to further acceptance of the

project and improve communications. A secretary will accept information from another secretary much more quickly than from a data processing professional, regardless of their orientation and demeanor. A possible support arrangement which includes this office support individual is shown below.

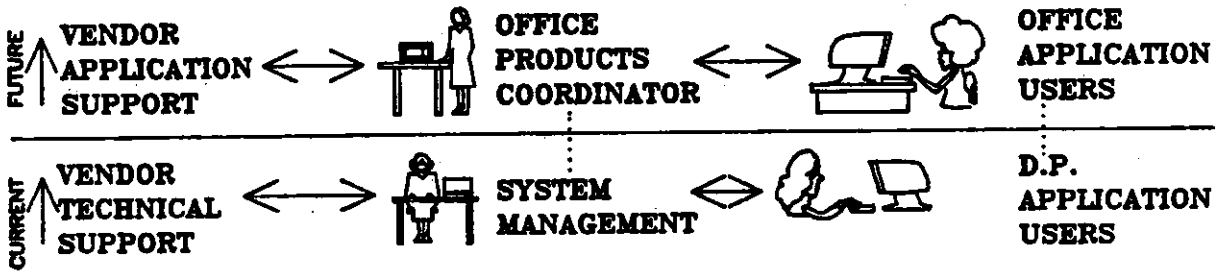

FIGURE 4: O/A SUPPORT IMPLICATIONS

CONCLUSION

Perhaps the best way to conclude an overview such as this is to suggest some activities which will help a data processing professional to become more involved in successful OA systems, and stay in the center of information processing for their organization.

First, start reading about office automation - there are several very good trade magazines and professional societies. Administrative managers or existing OA users in your organization can help you to find out more about these. This will help you to keep abreast of new developments, as well as become comfortable with the vocabulary of OA.

Next, determine what your current vendor(s) can do in OA, and explore how implementation of O/A might alter your future plans in data processing. While you are doing this, it would be helpful to conduct an informal survey within your organization to see where Office Automation would be of benefit, who would be interested in exploring OA, and who can afford an office solution. Further, it might be worthwhile to use the information you gather to conduct an "Office Automation Fair" using the facilities your vendor indicates are now available.

Finally, acting as a leading force in exploring OA, develop a short- and long-term plans for implementing Office Automation solutions. If your group already has an OA committee, join it and help them to develop this plan. Acting from a plan can save a great deal of time and money by implementing OA only where it can help, rather than simply where you are told to implement it.

One of the most interesting attributes of Office Automation from a data processing standpoint is that OA systems require very little technical effort to implement. For instance, a startup data processing organization may take 3 months to begin its first data processing application, but electronic mail can be available within hours of the initial startup of the system, and graphics can be running and used within 15 minutes by non-DP users! In the end, the most evident benefit of computer-based Office Automation is as a natural step in the evolution of user computing. Given the visibility and enjoyment it provides to any data processing installation, it remains a mystery why every HP3000 installation is not involved in Office Automation.

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Duane Schulz joined Hewlett-Packard in 1980 with nearly 10 years of experience in managing small data processing installations, in service, manufacturing, retailing, and distribution environments. As an HP customer, he began to implement and work with Office Automation applications.

Since joining HP as a Systems Engineer, Duane has become an Application Specialist for Office Automation, and has been involved in factory and field activities related to the development of HP office systems. He is an active participant in the HP3000 IUG, and speaks to groups of Office Automation and Data Processing professionals regularly.
