REPORT BY THE

RELEASED

Comptroller General

OF THE UNITED STATES

Strong Central Management Of Office Automation Will Boost Productivity

Office automation has the potential to improve the productivity of Federal managers, professionals, and clerical workers. Federal agencies plan to spend several hundred million dollars on this technology in the next few years. However, the lack of strong central management and effective guidance has resulted in the development of office automation systems that duplicate existing systems, are not compatible with other systems, and are not cost effective.

GAO believes that to reap the benefits without wasting resources, agencies should establish strong, central management of office automation with better guidance from the General Services Administration.

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COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON, D.C. 20548

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The Honorable Mark O. Hatfield
Chairman, Committee on Appropriations
United States Senate

The Honorable William Proxmire
Ranking Minority Member, Committee
on Appropriations
United States Senate

This report is submitted to you in response to a July 1, 1980, letter from the former Chairman of the Committee, jointly endorsed by Senators Sasser, Stevens, and Young (ret.) requesting us to perform a comprehensive review of the management of office automation in the Federal Government.

The Committee was concerned that agencies are beginning to spend substantial resources on office automation technology. Although office automation has the potential to improve Federal productivity, if inadequately managed, it may waste rather than save scarce resources.

We are sending copies of this report to Senators Sasser and Stevens. As arranged with the Committee, unless you publicly announce its contents earlier, we plan no further distribution of the report until 15 days from its date. At that time we will send copies to the agencies reviewed, the companies contacted, and others who request them.

Charles A. Bowsher

Comptroller General
of the United States

COMPTROLLER GENERAL'S
REPORT TO THE CHAIRMAN
AND RANKING MINORITY MEMBER
COMMITTEE ON APPROPRIATIONS
UNITED STATES SENATE

STRONG CENTRAL MANAGEMENT OF OFFICE AUTOMATION WILL BOOST PRODUCTIVITY

D I G E S T

The use of automated data processing, word processing, and telecommunications technologies--office automation--is revolutionizing Federal agencies. It appears to hold considerable potential for increasing productivity, and agencies may spend several hundred million dollars to reap the benefits.

According to private firms GAO visited, the successful development of office automation requires strong central management to (1) avoid development of systems that are not cost effective, are incompatible with existing systems, or duplicate other systems and (2) provide sufficient assistance to user-level managers. Management of office automation in the four agencies GAO reviewed--the Departments of Labor and the Navy, the National Aeronautics and Space Administration, and the Department of Agriculture's Forest Service--is, for the most part, fragmented and weak. Thus, the agencies are now encountering the same problems successful private companies have tried to avoid. These problems are likely to grow as these agencies expand their office automation efforts.

GAO believes, therefore, that strong central management, coupled with more effective guidance and leadership by the Office of Management and Budget (OMB) and the General Services Administration (GSA), will increase these agencies' ability to overcome their problems and get the maximum benefits of office automation.

This review responds to a Senate Appropriations Committee request that GAO examine the management of office automation in the Federal Government. The Committee expressed concern that office automation be both effectively managed and cost effective.

EXISTING PROBLEMS CAN BE AVOIDED THROUGH STRONG CENTRAL MANAGEMENT

The four agencies GAO reviewed are not reaping and will not be able to reap the maximum benefits or

productivity gains from office automation because they lack strong central management. They have not:

--Established organizationwide plans for managing the development and implementation of office automation. In the Navy, for example, the lack of such a plan has resulted in duplicate equipment and software being procured for essentially the same type of correspondence control activities in the offices of the Secretary of the Navy, the Chief of Naval Operations, and the Chief of Naval Material. A recent Navy study concluded that $1.1 million in operational costs could be saved by combining and acquiring compatible equipment and software for these applications. A private firm GAO visited also experienced such problems because it had not developed an organizationwide plan. (See pp. 6-7.)

--Conducted economic analyses to insure that procurement and use of office automation systems were cost effective. In examining over 70 feasibility studies for word processing and office automation in the four agencies, GAO found the actual analyses were often just reviews of different types of available equipment. This situation was also evident in many private firms visited. (See p. 7.)

--Provided assistance to user-level managers to help them develop and effectively manage office automation. Assistance to these managers was either unavailable or ineffective in three important areas:

- Technical assistance to aid in keeping abreast of changing technologies, evaluating equipment capabilities, and providing assurance that any new equipment will be compatible with existing systems. (See p. 9.)

- Managerial assistance for evaluating the feasibility, cost effectiveness, and productivity potential of new systems. (See p. 10.)

- Human resource assistance to aid in obtaining user acceptance of new technology, conducting training programs, and designing workplaces that would reduce hazards and discomforts of new systems. (See p. 10.)

The private firms GAO visited learned that assistance in these three areas is crucial for successful office automation.

Strong central management of office automation can be achieved by these agencies if they take advantage of the Paperwork Reduction Act (Public Law 96-511). (See p. 13.) Under the act, these agencies appointed a senior official to be responsible for information management. This official can either take the lead in managing the agency's office automation program or appoint a strong central management group to carry out this responsibility. At the time of this review, however, it was too early to tell whether these officials had taken advantage of this opportunity.

MORE EFFECTIVE GUIDANCE AND BETTER DIRECTION BY THE CENTRAL MANAGEMENT AGENCIES IS NEEDED

The central management agencies--OMB, GSA, and the Department of Commerce's National Bureau of Standards (NBS)--have an important role to play in helping agencies get the maximum benefit from office automation. Unfortunately their guidance and direction does not meet the agencies' needs. What little direction they have provided is confusing, and the guidance developed is directed primarily at word processing and automatic data processing equipment and stresses acquisition control rather than management assistance. In addition, these central agencies have been unable to develop a means for the agencies to share and transfer their office automation experiences, thus preventing the duplication of costly mistakes. (See p. 19.)

Responsibility for providing this "how to" guidance is shared by three central agencies. OMB is responsible for overall leadership; GSA is responsible for developing regulations and guidance; NBS is responsible for technical advisory services.

GSA has provided very little guidance, and what it has provided has been inadequate. Only NBS, with its issuance in 1980 of a management guide specifically addressing integrated office automation systems, has made a significant written contribution in guidance. (See p. 17.)

A primary reason these agencies have been unable to provide adequate leadership and guidance is that a clear delineation of responsibilities and coordination among them is lacking. (See p. 20.) The resulting problems have been reported in numerous studies, but no action had been taken to correct them.

Tear Sheet

Two recent actions, however, offer the potential for correcting these problems.

--Efforts by OMB and GSA to carry out the 1980 Paperwork Reduction Act, which provides a framework for reviewing past Government-wide guidance and leadership problems in information management. (See p. 22.)

--Consolidation of GSA's information management activities within a subagency and plans to move NBS information activities to GSA. (See p. 23.)

Although these actions, especially those within GSA, have the potential to lead to better direction and management guidance concerning office automation, no actions have been taken to date to ensure that this assistance will be forthcoming.

RECOMMENDATIONS TO THE AGENCIES

GAO recommends that:

--The Administrator of the National Aeronautics and Space Administration establish a central group with responsibility for coordinating efforts to plan, develop, and implement office automation.

--The Secretary of Agriculture direct the Chief of the Forest Service, and the Secretary of Defense direct the Secretary of the Navy, to designate similar central groups within the Forest Service and the Navy.

--The Secretary of Labor hold the Directorate of Information Technology accountable for providing strong central leadership of office automation throughout the Department.

The senior officials appointed under the Paperwork Reduction Act for each of these agencies should be given responsibility for implementing these recommendations.

--All senior officials appointed under the act should review their approaches to office automation and designate, wherever needed, central groups responsible for overall management of office automation.

RECOMMENDATIONS TO THE ADMINISTRATOR OF GENERAL SERVICES

GAO recommends that the Administrator of General Services:

--Issue "how to" management guidelines for the agencies that provide criteria on planning, developing, managing, and evaluating office automation systems. These guidelines should be periodically reviewed and updated on the basis of new technological developments in office automation. They should also be approved by OMB before being released.

--Establish a forum of agency managers to exchange information and experiences on their past, current, and planned office automation efforts.

AGENCY COMMENTS

The Administrator of General Services agreed with the recommendations to provide "how to" management guidance and a forum for agency managers to exchange information and promised that action would be taken as soon as possible. (See p. 36.)

The Departments of Agriculture, Defense, and Labor, and the National Aeronautics and Space Administration reacted favorably to the report. Three out of the four indicated they have implemented or are planning to implement GAO's recommendation to centralize their management of office automation. NASA did not indicate that it plans to take any immediate action to implement the recommendation. (See pp. 30 to 41.)

Contents

ABBREVIATIONS

ADP	automatic data processing
ADTS	Automated Data and Telecommunications Service
GAO	General Accounting Office
GSA	General Services Administration
NARS	National Archives and Records Service
NASA	National Aeronautics and Space Administration
OMB	Office of Management and Budget
OPM	Office of Personnel Management

CHAPTER 1

INTRODUCTION

Rapidly advancing technologies are changing the office environment. Computers, word processors, and a host of other types of high technology equipment are being blended together into what is now termed "office automation." The driving forces behind this change are the combined pressures of (1) a need for higher productivity, (2) the steadily increasing costs of the office work force, and (3) the rapidly falling costs of the technology.

More than 80 percent of the Federal work force comprises white collar workers--clerical, technical, professional, and managerial--whose principal activities are office bound and involve the creation, processing, and dissemination of information. Because this work force is so information oriented, use of advanced technology in office and information functions appears to hold considerable potential for improving Federal productivity.

Improving the productivity of the Federal work force is always important. The cost of that work force in 1980 was $81 billion. 1/ Recent executive branch and congressional actions to significantly reduce agency budgets and personnel ceilings highlight an even greater need for productivity improvement and cost savings at this time. Since productivity means getting more with the same or fewer resources, productivity improvement is a way of ensuring that vital Government services continue to be delivered and that they are delivered both efficiently and effectively, particularly in the face of budget reductions.

Productivity improvements through office automation have not been widely documented. However, a management consulting firm that studied 14 companies and 1 Government agency, believes that 15 percent of managerial and professional time can be saved, with a relatively short payback period, by properly using office automation. Although such a savings in the Federal work force would be significant, our study shows that several barriers must first be overcome.

This report responds to a request from the Senate Appropriations Committee that we examine the management of office automation in the Federal Government. (See app. I.) The Committee expressed concern about whether increased applications of office automation would be effectively managed and would lead to reduced costs and/or increased benefits in the delivery of public services. The Federal Government's earlier experiences with individual applications of automatic data processing (ADP) and word processing demonstrated serious problems in the planning, acquisition, management, and use of these systems and the unnecessary expenditure of hundreds of millions of dollars--problems which might be repeated on an even broader scale with office automation.

1/This figure excludes the U.S. Postal Service.

WHAT IS OFFICE AUTOMATION?

Office automation is not new. The terminology has been used intermittently since the 1950s, when electronic data processing equipment first took over manual clerical tasks, such as bookkeeping. In the late 1960s and early 1970s, the phrase "office automation" was sometimes used to refer to word processing equipment, which was developed to improve typing productivity. In the late 1970s office automation was reborn as the "office of the future," combining under one banner the various components of information technologies--word processing, data processing, and telecommunications--1/ and referring to the automation of functions performed by not only clerical, but professional and managerial staff as well.

Today, because of rapidly advancing and converging technologies, office automation is in a tremendous state of flux and a universally accepted definition does not exist. In its simplest and broadest sense, "office automation" is the use of advanced communications and computer technology to perform office functions. The General Services Administration (GSA) defines office automation as the use of information processing technology "to create, process, store, retrieve, use, and communicate information to improve the performance of managerial, professional, technical, or clerical tasks." Regardless of definition, the basic objective of automation has remained unchanged throughout this 30-year period--that is, to increase office efficiency and effectiveness.

Word processors exemplify today's rapidly changing technologies. While once limited to automated typing, word processors can now perform many functions that used to require a computer. Some word processors on the market today, for example, can receive information from remote locations, create graphics, and communicate with other word processors or computers. Similar dramatic changes have taken place in data processing. Some of today's minicomputers and microprocessors are inexpensive, small, and easy to use. Often it is difficult to determine if a piece of equipment is a word processor or data processor because it can perform both, or very similar, functions.

What also appears to distinguish today's office automation from earlier systems is (1) the integration and interconnectedness of word processing, data processing, and telecommunications technologies, (2) the application of these technologies to professional and managerial as well as clerical activities, and (3) the direct use of equipment by nonspecialists. While traditionally only data processing specialists and word processing operators had "hands-on" contact with the equipment, now professionals and managers are users--inputting, manipulating, and extracting data and words.

1/Some organizations also consider micrographics, reprographics, and electro-optical devices as office automation technology.

THE FEDERAL GOVERNMENT'S EXPERIENCE WITH OFFICE AUTOMATION EQUIPMENT

The Federal Government, like many private companies, is experimenting with integrated office automation systems for use by clerical, professional, and managerial staffs, and, within the next few years, plans to spend several hundred million dollars on this technology. The Government has, however, had considerable experience with individual applications of ADP and word processing systems for clerical staff. While substantial cost savings have been achieved from using ADP and word processing equipment, considerable problems have been encountered that reduced the savings.

Numerous studies by special task force groups and by us attest to (1) problems experienced in designing, acquiring, using, and managing Federal agencies' ADP systems and (2) the hundreds of millions of dollars that were wasted on systems that were not cost effective, did not meet agency needs, took too long to develop, and simply did not work. These problems ranged from inadequate planning and control; equipment obsolescence; lack of cost effectiveness or cost benefit evaluations; and lack of guidance and leadership from central management agencies, such as the Office of Management and Budget (OMB) and GSA.

The Federal Government's experience with word processing has in many respects mirrored its ADP experience. Our 1979 report, "Federal Productivity Suffers Because Word Processing Is Not Well Managed" (FGMSD-79-17, Apr. 6, 1979), discussed serious deficiencies in agencies' management and use of word processing equipment, including failure to justify the need for equipment and failure to evaluate its impact on productivity. Further, the appropriate central management agency--GSA--was not providing adequate guidance on planning, implementing, and evaluating word processing systems.

The problems that have been a part of the Government's experience with ADP and word processing present an even greater concern for integrated office automation systems. As agencies' investments in these systems increase, the management and guidance may not be available to meet their needs.

OBJECTIVES, SCOPE, AND METHODOLOGY

Our principal objective was to examine the problems facing agencies as they seek to install office automation to improve productivity. During the initial stages of the study in July 1980, we were asked by the Senate Appropriations Committee to specifically address (1) the steps agencies must take to insure successful implementation of office automation to improve productivity, (2) the role central management agencies must take to effectively provide policy and technical assistance to agencies on office automation, and (3) the savings that the Federal Government can realize from office automation.

In accord with the request, we evaluated (1) how Federal agencies were planning for and implementing office automation and whether agencies were measuring and documenting productivity increases and cost savings and (2) the extent of office automation guidance and technical assistance available from the central management agencies. In addition, we analyzed certain private sector applications of office automation that resulted in reported productivity increases and dollar savings to determine potential transferability of their approaches to Federal agencies.

We closely examined the planning, implementation, and management of office automation systems at the Departments of Labor and the Navy, the National Aeronautics and Space Administration (NASA), and the Forest Service of the Department of Agriculture. These agencies were selected because they had acquired or were acquiring office automation systems. Within these agencies we analyzed their office automation systems, both in headquarters and in their regional offices. We interviewed agency users and officials responsible for the systems and reviewed agency directives and guidelines on office automation procurement and management. The systems reviewed ranged in complexity from standalone word processors to main frame computers designed for use by clerical, professional, and managerial staff.

We conducted a legislative history of the policies, regulations, and procedures dealing with office automation in the Federal Government and interviewed agency officials of the four central management agencies--OMB, GSA, the National Bureau of Standards, and the Office of Personnel Management (OPM)--to assess their roles and responsibilities in office automation and productivity improvement. In addition, we analyzed regulations, circulars, guidelines, policy memorandums, and handbooks in both published and draft form, that these agencies developed on the acquisition, use, and management of office automation equipment.

We conducted a literature review and attended conferences to acquire information on the planning, design, implementation, and evaluation of office automation systems. We also met with numerous representatives from the vendor community and private consultants who had performed office automation studies and were considered experts in the field.

Finally, we talked with numerous private company officials and identified 45 candidate firms involved in office automation. From these 45 companies, we selected four--Avon Products Incorporated, the Bank of America, the Continental Illinois Bank, and the Exxon Corporation--for a detailed review. These four were selected because they had considerable experience with office automation and could, therefore, offer Federal agencies the value of their experience.

We conducted this review in accordance with GAO's current "Standards for Audit of Governmental Organizations, Programs, Activities, and Functions." The fieldwork for the review was completed in January 1982.

CHAPTER 2

STRONG CENTRAL MANAGEMENT OF OFFICE AUTOMATION IS NEEDED TO ASSURE PRODUCTIVITY GAINS

In the next few years Federal agencies may spend several hundred million dollars on office automation to improve productivity. Our work in both private companies and Federal agencies shows, however, that productivity improvements do not come easily. According to private firms that appear to be successfully implementing office automation, any organization--private or public sector--must give specific attention to

--adequate management over systems development and implementation of office automation and

--sufficient assistance to user-level managers.

These companies feel that without central management, the systems developed

--will not be adequately evaluated and may, therefore, not be cost effective;

--will not be properly procured and may, therefore, be incompatible with existing systems; and

--will be independently developed and may, therefore, duplicate existing systems.

In the four agencies reviewed, management of office automation was, for the most part, fragmented and weak. Only in the Department of Labor was responsibility assigned to a single group and even there, it was not being adequately discharged. Without strong central management, these agencies were beginning to encounter many of the problems the successful private companies try to avoid.

We believe that unless agencies centralize and strengthen the management of office automation, a great deal of money will be spent with little assurance or likelihood that productivity will be improved. The recently implemented Paperwork Reduction Act (Public Law 96-511) provides an opportunity for agencies to strengthen their management of office automation and correct many of the aforementioned problems.

FEDERAL AGENCIES ARE NOT ADEQUATELY MANAGING OFFICE AUTOMATION AND ARE NOT PROVIDING EFFECTIVE ASSISTANCE

The agencies reviewed were not adequately managing the development and implementation of office automation or effectively assisting user-level managers. They had not

--established organizationwide plans for managing the development and implementation of office automation;

--conducted economic analyses to insure that the procurement and use of systems were cost effective; or

--provided technical, managerial, and human resource assistance to help user-level managers develop and operate systems.

The firms visited have learned that these three elements are important in successfully developing and implementing office automation.

Agencies have not developed organizationwide plans for office automation

Organizationwide plans provide a mechanism for managing the development and implementation of office automation. With these plans an agency can avoid unnecessary proliferation of equipment, while assuring that systems will properly support an organization's overall objectives. Private firms have learned through experience that organizationwide plans can help (1) identify the areas with the greatest opportunity for productivity improvement through automation, (2) prevent the duplication of office automation efforts, and (3) preclude the development of uncoordinated individual plans and strategies. The Exxon Corporation strongly believes in the need for long term, organizationwide plans. Therefore, Exxon stresses the need for and, when requested, helps each Exxon affiliate develop such plans. These plans (1) identify user and office functional requirements and opportunities for improving performance through office automation and (2) provide details on testing and then implementing new systems.

Three of the four agencies reviewed did not prepare any overall plans. Only the Forest Service has recently begun preparing one. The primary constraint on developing plans, according to agency officials, is the fact that none of the organizations has a single group with overall responsibility for office automation. The lack of plans has resulted in some significant procurement problems. For example:

--A Forest Service regional office developed and acquired an office automation system without its headquarters' full knowledge, and, as we reported, 1/ significant resources were wasted. Forest Service officials said this approach had been changed and future acquisitions would be better planned and controlled at headquarters.

--The Department of Labor found itself with many pieces of office automation equipment that were not compatible because

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1/"Forest Service's Region 5 Should Consider Less Costly Ways To Meet Word and Data Processing Needs," CED-81-15, Oct. 23, 1980.

it lacked a coordinated plan. The Department's equipment had many different keyboards, coding schemes, functions, disc formats, and other features. Thus, the Department could not use much of its equipment for telecommunications and electronic mail applications.

--Between 1975 and 1979 duplicate systems were obtained for performing essentially the same type of correspondence control activities in each of the offices of the Secretary of the Navy, the Chief of Naval Operations, and the Chief of Naval Material. A 1980 Navy study initiated by these three groups to resolve the problems with their individual systems concluded that $1.1 million could be saved by consolidating these systems and acquiring compatible software. The savings from this new consolidated system would result from (1) reducing software maintenance costs by 43 percent because only one version of the software would be required, (2) reducing the number of operators from 12 to 6, and (3) cutting hardware maintenance costs by 50 percent. At the time of our audit, the Navy was proceeding with this consolidation.

--NASA has not prepared any organizationwide plans for introducing office automation. In addition, we were unable to identify any comprehensive plans for their 11 centers.

We believe similar problems will recur in countless agencies if they cannot develop organizationwide plans for managing office automation.

One private company we reviewed also experienced problems because it had not developed such a plan. This company is now developing one because users have demanded integrated systems and because the company wants to alleviate the high cost of developing and maintaining individually tailored and duplicative systems.

Agencies have not made economic analyses of office automation applications

Economic analyses enable agencies and companies to insure that individual office automation systems are procured and used cost effectively. Such analyses should be performed both before equipment is purchased and after installation. Prepurchase analysis generally is associated with an overall feasibility study and includes obtaining current productivity and cost data and projecting future productivity trends and costs. This information is, at a minimum, necessary to ensure that money is not wasted. We eliminated many firms from this review because they had neither collected productivity data nor conducted adequate cost-benefit analyses and, therefore, could not demonstrate to us that their systems were, in fact, cost effective.

Postinstallation cost-benefit analysis (postanalysis) is needed to tell management that savings are either being achieved or that further action is needed to obtain planned benefits. Postanalysis can also provide information on excess equipment capacity--knowledge that can affect decisions to buy more equipment.

Despite a general recognition of their value, the four agencies reviewed generally were not conducting adequate cost-benefit analyses. Specifically, the majority were not conducting feasibility studies; collecting baseline productivity and cost data; or estimating the expected productivity, benefits, and costs of new systems. In our examination of over 70 studies for word processing and office automation systems in the four agencies reviewed, the justifications were often merely reviews of different types of available equipment. Many other systems we reviewed were procured with no justification whatsoever. For example, at NASA, one official estimated that 25 percent of the headquarters word processing equipment had been installed without feasibility studies. Also at NASA, an office automation system was installed with no preanalysis, cost $382,000 to develop, and will cost $140,000 per year to operate. The equipment, which is to be used to perform legal research, case tracking, and other support for NASA's Office of the General Counsel, may in fact be cost effective, but the agency has not conducted an analysis to confirm it is improving the productivity of its legal staff and is the most cost effective alternative.

Postanalyses are also seldom performed. We found only two systems which had been subjected to postanalyses--one in the Forest Service, which was analyzed in response to a GAO recommendation, and one in Labor's Employment Standards Administration. Of the four companies reviewed in depth, only Exxon insisted on postinstallation analyses. Avon, which believed that such assessments should be made to determine if anticipated savings and benefits had been realized, curtailed such reviews because of tight resources. Continental Illinois Bank, on the other hand, did not conduct such analyses but instead monitored systems usage. It believed that because system costs were paid for from an individual manager's budget, the systems would be used cost effectively.

The impact of omitting postinstallation analyses within the Federal Government can be significant because underused systems may not be revealed as readily as those in private companies. For example, GSA's National Archives and Records Service (NARS) concluded from a review of five agencies that the agencies had about double the word processing equipment they needed and estimated that about $4.5 million could be saved by removing excess equipment. 1/

Agencies have not provided assistance to user-level managers

The recent and rapid development of sophisticated office automation equipment has left many organizations unable to provide the assistance user-level managers need. As a result, in many organizations managers find themselves dependent upon consultants and equipment suppliers for advice on procurement and use. Private

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1/National Archives and Records Service, Word Processing Management in the Federal Government, Aug. 1981.

firms have learned through experience that it is useful to develop their own capability to provide assistance in three areas:

--Technical assistance to aid in keeping abreast of changing technologies, evaluating equipment capabilities, and assuring that any equipment being considered is compatible with existing equipment. This last item is particularly crucial for integrated office automation systems.

--Managerial assistance for evaluating the feasibility, cost effectiveness, and productivity potential of new systems.

--Human resource assistance for obtaining operator acceptance of new technology, designing workplaces that will reduce hazards and discomfort, and conducting training programs.

In our review of Federal agencies, user-level managers consistently identified the lack of all three types of assistance as major barriers to obtaining the best results from office automation.

Technical assistance in word processing and ADP was found to be available in most agencies. This assistance, however, was not properly directed at office automation in these agencies. We found that responsibilities for office automation were fragmented between word processing and ADP, making it difficult for managers to obtain the full range of needed technical services. Word processing was generally managed by the administrative management component of the organization, and the assistance it provided was usually oriented toward developing systems to be used by clerical personnel. ADP, on the other hand, was generally managed by individuals trained in computers and telecommunications systems, and the technical assistance they provided was oriented toward large and/or complex systems which were usually operated by technical personnel.

Without the needed technical expertise in office automation, an organization is forced to rely on consultants, equipment vendors, or possibly the organization's own personnel who may have only limited experience with office automation systems. In NASA and the Department of Labor, we found office automation projects that relied far too heavily on technical information provided by a vendor. In those cases the capabilities of the technology were oversold and, as a result, systems that were developed and implemented were not properly used. We also briefly examined office automation systems either implemented or in pilot stage at other agencies such as the Department of Education. Members of that experimental office automation effort indicated that because they lacked the technical expertise to properly evaluate alternative systems, they had purchased a system that was too sophisticated for their needs and was incompatible with existing systems.

Two of the four firms reviewed--Avon Products and the Continental Illinois National Bank--believe that a primary reason for their success in office automation is their in-house technical expertise with advanced ADP systems. The other two firms--Exxon and the Bank of America--have worked hard to develop this expertise. Exxon has

spent substantial resources to train its headquarters office systems staff by holding its own office automation seminars, participating in office automation forums, and providing extensive hands-on experience with integrated systems. It believes this experience will help its staff be better equipped to develop an ideal system for users.

Managerial assistance also needs to be significantly strengthened at all agencies examined. The four agencies we reviewed have not developed their own managerial assistance staffs or the necessary guidance to aid in evaluating the cost effectiveness of new office automation systems. Three of the four companies reviewed, however, have managerial assistance staffs, and each has developed a standard methodology for evaluating proposed applications of office automation technology. Without such a staff, Federal managers have to rely on existing Government-wide and internal word processing or ADP guidance, which does not address the major actions required to evaluate equipment feasibility, cost effectiveness, and the productivity potential of office automation systems. (See ch. 3 for more details on currently available guidance.)

Human resource assistance and expertise was also generally lacking at all the agencies reviewed. This assistance is necessary to ensure that (1) new systems will be accepted by employees, (2) systems are easy to use and the potential hazards--such as eyestrain--of the new workplace have been reduced, and (3) adequate training programs are developed for users.

Each of the four firms reviewed has recognized the importance of human resource assistance, especially in getting users to accept new systems. Exxon has tried to raise the organization's awareness of automated office systems through presentations, information exchange, a quarterly office automation bulletin, and an annual conference on office systems for its managers and professionals in the office systems, ADP, and telecommunications areas.

The Bank of America has realized the importance of users in developing new systems by (1) involving employees in the planning and introduction of new systems and by reassuring staff that their job security will not be threatened by the technology and (2) developing a common user interface that will make it easier for staff to use all the Bank's systems. Avon, on the other hand, has learned that even when office automation offers a cost effective solution, the human factor can frustrate attempts to implement a new system. Avon tried to develop a capability for audiovisual teleconferencing and an electronic storage and retrieval system. It found that managers did not like the teleconferencing system because it was not interactive enough. They preferred to travel to meetings to make personal contacts, even though the system would substantially reduce the cost of meetings.

A particular human resource concern of some agency managers was the lack of adequate training for both the professionals and support staff that would be using the systems. For example, at the NASA Ames Research Center, an office automation system was acquired

for administrative, professional, and managerial staff; however, most of these individuals made little use of the equipment because they did not understand how to use it. Further, they could not obtain training because at NASA, as well as at other agencies reviewed, training on office automation was not available from a central source. Because agencies are not providing training, managers have relied heavily on vendors for this service. In the past, this training has been provided free upon installation of equipment, but vendors are now beginning to charge separately for training courses.

RESPONSIBILITY AND ACCOUNTABILITY FOR OFFICE AUTOMATION NEEDS TO BE CENTRALIZED AND STRENGTHENED

To adequately manage office automation development and implementation cost effectively, and to insure that users are provided the assistance they need in applying this new technology, agencies must overcome the barrier of fragmented and weak leadership. To do so they must clearly specify responsibilities and accountability for office automation. The Paperwork Reduction Act provides a framework for agencies to better manage their development and implementation of office automation. (See p. 22 for a more complete description of the act.)

Private firms we visited have learned through experience that a strong central group must be assigned responsibility for office automation. Two firms reviewed centrally controlled office automation from the start. The other two experienced significant problems developing office automation systems until they were able to consolidate responsibilities into a central management group. One of these two companies is a highly decentralized organization which made little effort to centrally control office automation at first. But as its office systems began to grow, so did coordination and control problems, making central control a necessity for the continued and orderly growth of office automation. The other firm was experiencing organizational as well as bugeting problems before it consolidated its management units under a new corporate level department.

A single group responsible for office automation is needed to insure consistent and comprehensive management, particularly in the face of rapidly changing technology. The role of such a group includes (1) establishing guidance and procedures covering procurement and use of systems, (2) developing plans and strategies for applications, (3) disseminating the results of office automation projects, and (4) insuring the availability of technical and managerial assistance to users. These firms indicated that fragmented responsibilities and weak leadership had resulted in poorly conceived office automation projects, duplication of developmental efforts, and an inability to assess the expected cost effectiveness of individual office automation efforts.

Fragmented responsibilities and weak leadership were problems at all agencies reviewed. At three of the agencies, responsibilities were split among several organizations. At the Labor

Department, the one agency that has a single organization with full responsibilities for office automation, very little has been done to discharge this responsibility. Specifically, we noted the following:

--Responsibility in the Navy was split; one office was responsible for word processing and several offices were responsible for ADP. Consistent with this division, each piece of office automation equipment had to be labeled as either word processing or ADP equipment. Since the distinction was often unclear, the various offices often fought for jurisdiction, resulting in little central control or coordination over Navy office automation projects.

--In NASA, the Director, Information Systems Division, was responsible for developing NASA policy for agencywide information systems and computer resources. However, within this office, one group was responsible for word processing systems and another for ADP systems. Despite the close organizational relationship between these two groups, office automation projects, which may include both word processing and ADP, were not always well managed. In addition, although NASA does have a number of sophisticated office automation systems, it has yet to develop guidance for office automation. An official in the NASA Office of the Inspector General attributed the lack of centralized direction to the fact that no headquarters unit was strong enough to effectively exercise agencywide leadership of office automation. He said that, since there was no central guidance, each office in headquarters and each center must "reinvent the wheel" to develop its own office automation systems. These problems may exist in many other agencies that have regional structures as well.

--Responsibilities for the Forest Service's office automation was divided among three headquarters organizations; no one group had management responsibility for the program. One group was responsible for implementing office automation systems. A second performed technical and policy reviews of proposals for acquiring ADP, automated office equipment, telecommunications equipment, software, and services. The third group's responsibilities included developing policy and procedures for analysis and design of the workload, workflow, and organization of office systems.

--Within the Department of Labor, the Assistant Secretary for Administration and Management was responsible for administering and coordinating departmental office automation; ADP; and telecommunications policies, standards, and procedures. In December 1979, the Directorate of Information Technology was created within the Office of the Assistant Secretary for Administration and Management to perform these policymaking and oversight functions. However, at the time of our review, this office had not formulated a departmental policy for dealing with office automation nor did it know

what Labor subagencies had done individually in this area. Moreover, it had not issued guidance on office automation systems nor developed long range plans for implementing office automation projects within the Department.

The Paperwork Reduction Act offers these agencies the opportunity to strengthen their management of office automation, thus providing them with a mechanism for correcting many of the aforementioned problems. The act required that each agency designate by July 1981 a senior official responsible for information resources management. This official can either be assigned or can take the responsibility for (1) developing agency policy, procedures, and practices for office automation, (2) managing the agency's office automation resources, (3) approving the allocation of resources for office automation, and (4) overseeing and reviewing management of office automation within the agency. At the time of this review, however, it was too early to tell whether these officials had effectively carried out their new responsibilities.

AGENCIES PLAN MAJOR EXPENDITURES FOR OFFICE AUTOMATION SYSTEMS DESPITE MANAGEMENT WEAKNESSES

Federal agencies may spend hundreds of millions dollars on new office automation systems. Unless these systems are properly developed and managed, a great portion of these funds can be wasted and potential productivity gains reduced through proliferation of unneeded, incompatible, and duplicate systems. Even more can be wasted by the inefficient use of these systems once installed.

Data on total Federal expenditures for office automation systems are not available and have not been estimated by GSA. We believe, however, Federal agencies are already committed to spending hundreds of millions to begin automating their professional and managerial work forces. This estimate is based on the fact that the four agencies examined plan to spend over $100 million on new office automation systems in the next few years.

--The Navy alone has committed almost $70 million for just three office automation projects.

--The Forest Service is developing a nationwide office automation system that is expected to cost almost $25 million.

--The Department of Labor's Employment and Training Administration is completing the testing of an experimental telecommunications system in headquarters and five regional offices. To date, the Department has spent almost $350,000 on equipment alone for the system.

--NASA either has developed or is developing a number of large office automation systems. One such system, used to support public information needs for the flights of the space shuttle, will cost over $9 million for its first 4 years of operation.

Federal expenditures for word processing equipment alone have grown significantly since we issued our report on word processing in 1979. 1/ At that time the latest available estimate for word processing purchases and leases was slightly over $80 million for 1977. In that report we also predicted word processing expenditures would be over $300 million by 1982. According to a GSA survey, the 44 largest agencies spent about $200 million in 1980 to purchase and lease word processing equipment. We believe, therefore, that Federal expenditures for word processing alone will exceed our early estimates for 1982.

CONCLUSIONS

Federal agencies we reviewed were not adequately managing the development and implementation of office automation nor providing effective assistance to user-level managers. In the next few years, however, these same agencies are projected to spend several hundred million dollars to automate the work of their professionals and managers. We believe that if they do not substantially strengthen their management of automation, (1) a substantial portion of these funds will be wasted on systems that will not improve productivity and, therefore, will not be cost effective, (2) they will develop systems that will not be compatible with existing equipment and, therefore, will reduce the productivity enhancement potential, and (3) they will be unable to provide adequate managerial, technical, and human resource support to users to enable them to effectively install and use these new systems.

We are not suggesting that private firms are doing all the right things in developing and implementing office automation systems and Federal agencies all the wrong things. Rather, Federal agencies can learn from the experiences of these four firms, which are farther along in their implementation of office automation and which achieved considerable success by overcoming many of the problems discussed in this chapter. Further, we believe that the Paperwork Reduction Act offers agencies the opportunity to overcome many of these problems and to more effectively manage office automation.

RECOMMENDATIONS

We recommend that the Administrator of NASA establish a central group with responsibility for coordinating efforts to plan, develop, and implement office automation. Similarly, we recommend that the Secretary of Agriculture direct the Chief of the Forest Service and that the Secretary of Defense direct the Secretary of the Navy to designate similar central groups within the Forest Service and the Navy. We recommend that the Secretary of Labor

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1/"Federal Productivity Suffers Because Word Processing Is Not Well Managed" (FGMSD-79-17, Apr. 6, 1979).

hold the Directorate of Information Technology accountable for providing strong central leadership of office automation throughout the Department. The senior official appointed under the Paperwork Reduction Act for each of these agencies should be given the responsibility for implementing these recommendations. We also recommend that all senior officials appointed under the act review their approaches to office automation and designate, wherever needed, central groups responsible for overall management of office automation.

AGENCY COMMENTS

All four of the agencies reviewed reacted favorably to the findings and conclusions of the report. Three of the four indicated they were already implementing our recommendations or were planning to take action to implement them as rapidly as possible. Specifically:

--The Department of Agriculture recently created its Office of Information Resources Management that will address many of the issues raised in the report. In addition, recent actions within the Forest Service have been taken to strengthen its management of office automation. (See p. 30 for more details.)

--The Department of Defense supported the findings of the report and indicated it is currently taking action on the report's recommendation. The Department of the Navy also agreed with the recommendation to establish a central management group, but expressed concern over the implications of two of the examples used. (See pp. 34-36.) The Comptroller of the Navy will be responsible for the implementation of our recommendation. (See pp. 32-36 for more details.)

--The Department of Labor concurred with our recommendation and indicated that its Directorate of Information Technology is already providing both central leadership and management of office automation. It also believes that the work of this group is now beginning to pay dividends to the agency. (See p. 34 for more details.)

--NASA agreed in general with the report's findings but did not indicate that it plans to take any immediate action to designate a central group to manage office automation. We still believe that strong central management of office automation in NASA is crucial to its ability to develop successful office automation efforts. Therefore, we urge the agency to form such a headquarters group as soon as possible. (See p. 36 for more details.)

CHAPTER 3

CENTRAL MANAGEMENT AGENCIES MUST PROVIDE BETTER DIRECTION AND GUIDANCE ON OFFICE AUTOMATION

OMB, GSA, and the Department of Commerce's National Bureau of Standards (NBS) need to provide better direction and guidance so that agencies can effectively and efficiently plan, develop, manage, and evaluate their office automation systems. Unfortunately, the direction and guidance provided has not been adequate to meet the agencies' needs. To the extent that these central management agencies have provided guidance and direction, it has been confusing and almost all of it has been equipment specific; that is, it has been directed at word processing equipment or ADP equipment, rather than integrated office systems, and has stressed acquisition control rather than management assistance. In addition, the central management agencies have not provided a means for agencies to share information on office automation experiences, which is necessary to prevent costly duplication. The fragmentation of responsibilities among the central agencies as well as within GSA has hindered its ability to provide adequate guidance and direction.

Recent actions, however, should help correct these problems. They include:

--Efforts by OMB and GSA to carry out the 1980 Paperwork Reduction Act, which provides a framework for alleviating past Government-wide guidance and leadership problems in the information management area.

--Consolidation of GSA's information management activities within a subagency of GSA and plans to transfer the information activities of NBS to this same subagency.

EXISTING CENTRAL MANAGEMENT AGENCY GUIDANCE DOES NOT ADEQUATELY ADDRESS OFFICE AUTOMATION

Government-wide guidance is important in assisting Federal agencies in planning, developing, managing, and evaluating their existing and planned systems. The guidance that is available, however, is both inadequate and confusing. In fact, only one piece of guidance developed by NBS exists, and that guidance has limitations. Our work over the years in evaluating ADP systems and private sector experiences, however, has demonstrated the importance of good management guidance.

Our report "Government-Wide Guidelines and Management Assistance Center Needed To Improve ADP Systems Development" (AFMD-81-20, Feb. 20, 1981) summarized our findings from 64 reports which identified common problems in the design and development of large Federal ADP systems. We believe that those findings and lessons

learned are applicable and transferable to the future development of office automation systems as well. We found that the problems--for example, ADP systems are not being cost effective or meeting user needs--were caused by inadequate planning, insufficient or ineffective management and user involvement, inadequate management approaches for controlling systems development, and inadequate budget and financial control. As a result, ADP management deficiencies were costing the Federal Government hundreds of millions of dollars. Yet Government-wide guidance to address these problems was not--and still is not--available.

One company reviewed, Exxon, believes that its development of corporate guidelines, methodologies, tools, and assistance have been key factors in its success in office automation. The company has developed a range of assessment and guidance aides including questionnaires to assess user and office needs, methodologies to develop cost and benefit estimates, and long range plans and periodic technology assessments and forecasts. At the time of our review, Exxon was developing a methodology for assessing the effectiveness of office automation systems and guidance for assessing productivity improvements realized by its professional staff.

Three central management agencies--OMB, NBS, and GSA--are responsible for providing management guidance to agencies developing office automation systems. 1/ Except for the NBS guideline, the guidance these agencies provide primarily

--addresses individual pieces of ADP and word processing equipment rather than integrated systems, which are the heart of office automation systems and

--is acquisition oriented and provides little management assistance support.

The OMB guidance has been limited to acquisition policy for ADP equipment and stresses justification requirements rather than management assistance. OMB circulars do not accommodate office automation systems.

The National Bureau of Standards has issued the only management guide specifically addressing integrated office automation systems. The guideline, "Guidance on Requirements Analysis for Office Automation," was published in December 1980. According to NBS officials, the agency published the guidance because it had received many requests for assistance from Federal agencies on how to install office automation. The guide suggests a detailed methodological approach for assessing the feasibility of office automation systems, for evaluating a system once implemented, and for

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1/Appendix II thoroughly describes the roles and responsibilities of these central management agencies.

measuring white collar productivity. It does, however, have several drawbacks, including (1) not sufficiently addressing the human factor in implementing and evaluating an office automation system and (2) not providing enough information to enable an analysis of alternative systems.

At the time of our review, responsibilities for providing management guidance on office automation were split between two GSA subagencies--the Automated Data and Telecommunications Service (ADTS) and the National Archives and Records Service. (These subagencies have since been consolidated, as discussed later in this chapter.) Consistent with this split, ADTS developed guidance for ADP, and NARS developed word processing guidance, neither of which is fully applicable for integrated office automation systems. ADTS guidance has been primarily procurement oriented. In fact, ADTS management guidance exists largely in its procurement regulations.

In accordance with Public Law 89-306, commonly referred to as the Brooks Act, the ADP regulations require extensive front-end planning, including a requirements analysis and cost-benefit studies to justify the equipment. This guidance does not sufficiently take into account human factor considerations, such as user involvement in designing a system, and does not adequately address productivity, both of which we believe are critical elements in the planning process. In addition, these regulations do not require postimplementation or evaluation studies of the systems. While such acquisition control is necessary, guidance is also needed to insure proper, efficient, and effective planning, systems design, management control, and equipment use.

NARS word processing guidance provides more direction on "how to" manage, evaluate, and control systems than ADTS guidance for ADP. Unfortunately, the NARS guidance has had limited usefulness because of the long delay in its release. In addition, changes in word processing procurement regulations have reduced many agencies' ability to develop consistent word processing guidance.

In 1975, NARS established a Government-wide word processing program to help agencies implement and control word processing systems. A 1975 Federal Property Management Regulation (later amended in 1977) specifically charged NARS with (1) establishing word processing policies for the Federal Government and (2) providing procedures for conducting word processing feasibility studies and standards for evaluating productivity associated with word processing. NARS has been quite tardy, however, in carrying out these charges.

Early on, NARS had planned to publish a "how to" handbook for use by agencies. The handbook, however, is just now being published--more than 6 years after NARS' efforts were first initiated. Unfortunately, such a considerable timelag will probably dilute the utility of the guide because word processing technology and its potential applications have changed tremendously since 1975.

While word processing terminals are now used by all levels of white collar workers for sophisticated office automation functions, the handbook deals with word processing as text editing only and with productivity in terms of lines of typing output. Further, the delay in disseminating the handbook caused some Federal agencies to similarly delay developing internal guidance on word processing or to issue guidelines and handbooks which do not address the need to evaluate productivity as required by the Federal Property Management Regulations.

Existing word processing procurement regulations have also been a significant source of confusion for agencies. GSA has reclassified word processing twice within the past three years. First, in April 1979, GSA reclassified word processing as ADP, because agencies were procuring general purpose ADP equipment under word processing regulations and thereby escaping the procurement controls of the Brooks Act. This reclassification caused considerable management problems for the agencies.

--It created confusion regarding which GSA regulations agencies should follow when acquiring word processing equipment.

--It resulted in some agencies rescinding internal guidance for managing word processing systems since they were now considered ADP resources and fell under existing ADP guidance.

--It created jurisdictional disputes between the administrative groups that had traditionally managed word processing and the technical groups that had traditionally managed ADP.

Largely in response to agencies' concerns and confusion, GSA once again reclassified word processing, in May 1981, placing it this time in a new category--office systems equipment. At the time of our review, agencies had just been notified of this second reclassification. Accordingly, the effect of this latest reclassification is unclear. However, it does not appear that the second reclassification will solve the problem of inadequate and inapplicable guidance for integrated office automation systems because it continues to require agencies to follow either existing word processing or ADP guidance.

NO GOVERNMENT-WIDE MECHANISM EXISTS FOR SHARING INFORMATION ON OFFICE AUTOMATION

A central contact point responsible for sharing and transferring information and agencies' experiences in applying office automation could provide agencies with a valuable opportunity to benefit from lessons learned by others. No such mechanism exists, however.

GSA--and before the recent GSA reorganization, primarily NARS, under the Federal Records Act as amended (44 U.S.C. 2904)--has

responsibility for operating a clearinghouse on information technology, including office automation. However, despite a brief effort by NARS to expand services in late 1979 and early 1980, the information-sharing activity has never been particularly active. According to NARS officials, NARS does not, given budget constraints, view its clearinghouse responsibilities as a priority effort. In addition, NARS believes that clearinghouse functions--gathering, cataloging, and disseminating data--are expensive, but often ineffective, devices for sharing information. NARS' sister agency, ADTS, however, has seen a need for clearinghouse services and had developed a detailed plan in 1980 for establishing a Federal Technology Management Center which would offer such Government-wide services on ADP, communications, and office automation. GSA never approved the proposal. Thus, no mechanism for sharing information on office automation is currently operational, even though agencies repeatedly stressed an urgent need for information transfer.

While we agree that certain forms of clearinghouse activities can be expensive and may sometimes be ineffective, we believe a central point of contact can be established inexpensively to share information on the status of office automation in agencies. Without it, Federal agencies potentially are missing opportunities to learn from one another and may be duplicating each other's costly mistakes. Avon Products Incorporated, for example, realized the need for such a mechanism and formed the Office Automation Roundtable in 1977. This largely informal group of over 20 firms meets regularly to exchange office automation experiences, common problems, and ideas. Given the success of this group, we believe that an office automation forum for the Federal Government should be established, led by GSA. Its activities could include

--establishing and coordinating regular meetings of Federal agency officials involved in office automation to exchange experiences,

--serving as a repository for contacts and sources of expertise within and outside the Federal Government, and

--disseminating results of successful office automation projects to agencies.

We believe such an approach would be considerably less expensive than a clearinghouse and would achieve the major objectives of a clearinghouse, that is, the sharing of information and experiences.

FRAGMENTATION OF RESPONSIBILITIES AND LACK OF COORDINATION AMONG CENTRAL MANAGEMENT AGENCIES HAVE CAUSED PROBLEMS

Because central management responsibilities have not been clearly delineated and coordination among these agencies has been

lacking, the central agencies have not provided adequate Government-wide leadership or guidance in office automation. These problems have been reported in numerous studies. For example, the President's Data Processing Reorganization Project found a general lack of teamwork or coordination among the central management agencies, a situation which created role ambiguity and confusion for all agencies. More recently, the National Academy for Public Administration determined that a clear delineation of policymaking responsibilities between GSA and OMB was lacking and that, as a result, the development of--and accountability for--policy and guidance on ADP, telecommunications, and office automation was hindered.

Numerous examples of coordination problems can be found among the central management agencies. NARS was not involved in NBS' development of the office automation requirements analysis document, despite the potential for overlapping and conflicting guidance from the two agencies. In addition, we found major coordination problems within GSA where responsibility for ADP equipment and word processing was, at the time of our review, organizationally split between ADTS and NARS. NARS, for instance, was not involved in the reclassification of word processing as ADP equipment even though NARS was responsible for the efficient management and use of word processing. An internal GSA study acknowledged that the division in roles between ADTS and NARS had resulted in weak, uncoordinated, and even conflicting guidance to agencies.

Recently, the central management agencies have undertaken some efforts to assert a more active leadership role. For example, NARS recently studied five operating office automation systems to determine how office automation improved productivity. In another example, the Office of Personnel Management (OPM) recently asserted an active management assistance role in the office automation area. OPM established an office systems center which offers courses in the human factors of office automation and plans to expand its focus to include performance reviews of office automation systems.

These agencies have also joined together in several efforts to better coordinate their activities. For example, in July 1979, OMB, GSA, and NBS sponsored a senior executive conference on information technology in Gettysburg, Pennsylvania, and in February 1980, OMB, OPM, and GSA cosponsored the second annual management conference in Cherry Hill, New Jersey, where sessions were devoted to office automation. As an outgrowth of these conferences, OMB, OPM, and GSA are now jointly sponsoring a demonstration project entitled "Project PROFIT--Productivity Through Office Information Technology." The project's primary purpose is to examine the productivity and personnel enhancement of Federal workers when given office automation technology. As a principal byproduct of the project, the central management agencies hope to develop some Government-wide guidance specifically addressing office automation. Yet, while these efforts are steps in the right direction, problems of coordination continue.

These problems are best illustrated by Project PROFIT. Project participants have complained that the central management agencies have not been providing the direction and guidance which they expect and need. In addition, ADTS and NBS have not been involved in PROFIT even though ADTS has management and procurement authority over ADP and telecommunications and procurement authority over word processing, while NBS has issued the only available guidance addressing office automation. Of the original five project locations, only two remain active.

THE PAPERWORK REDUCTION ACT PROVIDES A FRAMEWORK FOR ACHIEVING ACCOUNTABILITY AND COORDINATION

The Paperwork Reduction Act, which was signed on December 11, 1980, and became effective on April 1, 1981, provides a framework for correcting some guidance problems and for achieving accountability and coordination in the policy formulation and management of information and information technology, including office automation. Along with reducing the Federal paperwork burden, a principal purpose of the act is to

> "insure that automatic data processing and telecommunications technologies are acquired and used by the Federal Government in a manner that improves service delivery and program management, increases productivity [and] reduces waste and fraud."

The act

--designates OMB as the responsible central focal point for all information policy in the Federal Government,

--establishes within OMB a new office--the Office of Information and Regulatory Affairs--to carry out the legislation, and

--designates GSA to take a lead role in helping OMB carry out the information resource management activities of this act.

Initial implementation of the act's information technology provisions by OMB has not been promising. At the time of our review, OMB had primarily focused on regulatory review in accordance with Executive Order 12291 on Federal Regulations, for which its office of information and regulatory affairs is also responsible. OMB officials identified their office priorities as (1) regulatory reform, (2) paperwork reduction, and (3) information management and technology. Not surprisingly, although OMB has developed preliminary task plans addressing specific information technology provisions of the act, little action has been taken on the plans.

The Paperwork Reduction Act has, however, been a catalyst for GSA in consolidating its information resources management activities

within one subagency. In April 1982, GSA abolished the Office of Records and Information Management in NARS and assigned its staff and functions to the Office of Government-wide Information Management in ADTS. In addition, legislation is being drafted by OMB to place the Institute for Computer Sciences and Technology of NBS under ADTS. With these organizations in place, GSA should be in a better position to effectively carry out its lead role in developing guidance for office automation.

CONCLUSIONS

Government-wide management assistance is inadequate for helping agencies effectively plan, develop, manage, and evaluate their office automation systems. Without adequate guidance, agencies may be developing systems that are not cost effective and/or do not meet user needs, and, therefore, may needlessly cost the Federal Government millions of dollars. A primary reason for this lack of guidance is the fragmentation of responsibilities among the central management agencies. Two recent actions may correct this problem. They include

--enactment of the Paperwork Reduction Act (Public Law 96-511) to coordinate and better direct information policy in the Federal Government and

--consolidation of GSA's information management activities under one GSA subagency, ADTS, and plans to move NBS' Institute for Computer Sciences and Technology to GSA.

These changes, especially within GSA, may lead to better direction and assistance to the agencies in office automation. This new consolidated office in GSA should have as a high priority the development of management guidelines for office automation and formulation of a mechanism for information sharing on office automation. Guidelines should address office automation along with word processing and ADP systems. To date, however, no action has been taken by the central management agencies to assure that this management assistance will be forthcoming.

RECOMMENDATIONS

We recommend that the Administrator of General Services:

--Issue "how to" management guidelines for the agencies that provide criteria on planning, developing, managing, and evaluating office automation systems. These guidelines should be periodically reviewed and updated on the basis of new technological developments in office automation. They should also be approved by OMB before being released.

--Establish a forum of agency managers to exchange information and experiences on their past, current, and planned office automation efforts.

AGENCY COMMENTS

The Administrator of General Services agreed with our recommendations to provide "how to" management guidance to agencies and a forum for agency managers to exchange information on office automation. He also agreed to implement these recommendations as soon as possible. (See p. 36 for more details.)

APPENDIX I

United States Senate

COMMITTEE ON APPROPRIATIONS
WASHINGTON, D.C. 20510

July 1, 1980

Honorable Elmer B. Staats
Comptroller General of the United States
Washington, D.C. 20548

Dear Mr. Staats:

The Committee on Appropriations is deeply concerned with the need to improve Federal productivity. Recent initiatives to trim and ultimately to balance the Federal budget underscore the need for productivity improvement -- for reductions in the budgets of Federal agencies without commensurate productivity improvements can only lead to cuts in public service.

The Committee recognizes that the application of office automation technologies hold great potential for making Government more effective and the Government employee -- professional and clerical alike -- more productive. The Committee is also aware the Federal agencies are now gearing up to purchase and install new office automation systems at a substantial cost to the public.

Your recent report on word processing and its impact on productivity predicted that by fiscal year 1982, word processing alone will account for over $300 million in expenditures. The report also pointed out serious agency deficiencies in justifying the need for and evaluating the effect of word processing on office productivity. Finally, it highlighted the insufficiency of agencies responsible for providing government-wide guidance on implementing and managing word processing systems. The Committee, is therefore concerned that Federal agency growth of office automation systems -- whose technology and expense extends well beyond word processing -- be orderly and cost effective and lead to measureable productivity increases, thus reaping the benefits from this technology.

The Committee is aware that GAO is in the initial stages of an audit on office automation which will address many of our concerns. Accordingly, the Committee requests that during its evaluation, GAO identify (1) the steps agencies must take to insure successful implementation of office automation in order to improve productivity, (2) the role the central guidance agencies -- Office of Management and Budget, Office of Personnel Management, and General Services Administration, and Commerce -- must take to

APPENDIX I

effectively provide policy and technical assistance to federal agencies, and (3) the potential savings that can be eventually realized from the application of office technology. To coincide with our fiscal year 1982 appropriations hearings, we request a briefing on the study's findings by early spring of 1981. Along with the final report the Committee requests that GAO prepare a series of questions for the agency appropriation hearing in order to enable the Committee to determine whether an agency's efforts to improve their productivity through office automation will result in (1) reduced costs and/or (2) increased benefits in the delivery of public services.

Ted Stevens
Ranking Minority
Subcommittee on the
Legislative Branch

Jim Sasser
Chairman
Subcommittee on the
Legislative Branch

Milton R. Young
Ranking Minority
Committee on Appropriations

Warren G. Magnuson
Chairman
Committee on Appropriations

RESPONSIBILITIES OF THE FOUR GUIDANCE AGENCIES

Responsibilities of the four guidance agencies were originally set forth in (1) OMB Circular A-71, March 6, 1965, (2) the Brooks Act, Public Law 89-306, October 1965, which amended the Federal Property and Administrative Services Act, and (3) the Federal Records Act, as amended. In addition, a series of executive orders since 1965 and the recently enacted Paperwork Reduction Act (Public Law 96-511) have redefined, and in some cases realigned, responsibilities of these agencies.

OFFICE OF MANAGEMENT AND BUDGET

Since enactment of the Brooks Act and issuance of OMB Circular A-71, OMB has been responsible for providing overall executive branch leadership and coordination, and for formulating fiscal and policy controls related to the acquisition and management of Federal ADP systems. In addition, OMB has been responsible for fostering the development of standards for ADP equipment and for serving as arbitrator in procurement disputes between GSA and Federal agencies. In 1978, Executive Order 12046 further extended OMB's technology policy responsibilities to telecommunications. 1/

Under the Paperwork Reduction Act, OMB has been designated as the policy focal point for the management of all Federal information resources, involving their creation, use, processing, and dissemination by Federal agencies. As such, OMB is charged with broad oversight and policy activities encompassing records management, paperwork reduction, reports clearance, statistics, and privacy considerations, as well as ADP, telecommunications, and other information (that is, office) technology equipment. OMB is also responsible for promoting the use of this equipment by Federal agencies.

OMB carries out its functions principally through the development and dissemination of circulars, bulletins, and memorandums and through the budget review process. Circular A-109, which establishes policies for acquiring major ADP systems, illustrates the type of policy guidance OMB provides.

GENERAL SERVICES ADMINISTRATION

GSA has principal responsibility for developing regulations and guidance on procurement, implementation, and management of office automation systems. At the time of our review, responsibilities for office automation were split between two subagencies--NARS and ADTS.

1/For a brief time (1973-75), OMB's responsibilities were shifted to GSA by Executive Order 11717.

NARS, in accordance with the Federal Records Act, as amended, was responsible for the Government-wide records and information management programs. NARS provided policy, guidance, and assistance to agencies in creating, using, and maintaining Federal records. In carrying out this program, NARS tried to promote the cost effective management and use of Federal information systems and technology (for example, word processing and micrographics) by developing performance standards, helping agencies design and manage records and information systems, inspecting agencies' records and information management programs, and providing training.

ADTS, under OMB Circular A-71 and the Federal Property and Administrative Services Act, as amended (primarily by the Brooks Act), is responsible for the economic and efficient purchase, use, and maintenance of ADP and telecommunications equipment by Federal agencies. Essentially, ADTS develops Government-wide policy and plans for ADP and telecommunications equipment. It establishes sources of supply for equipment and services for all Federal agencies and prescribes acquisition procedures promoting competition and economy.

Both NARS and ADTS issue regulations (Federal Property Management Regulations and/or Federal Procurement Regulations), bulletins, and guidelines setting down Government-wide policies and procedures related to information systems and technology. In addition, these subagencies provide some technical assistance to agencies and have operated clearinghouse activities. The recently enacted Paperwork Reduction Act basically reinforces GSA's operational responsibilities in information management, though it does shift policymaking responsibility for records management from NARS to OMB.

In April 1982, the Office of Records and Information Management, NARS, was abolished and its personnel resources and functions assigned to the Office of Government-wide Management, ADTS. This new office has been renamed the Office of Information Systems. In addition, staff of NARS' regional records and information management divisions were also transferred to regional offices of ADTS.

NATIONAL BUREAU OF STANDARDS,
DEPARTMENT OF COMMERCE

The Department of Commerce is responsible for (1) providing scientific and technological advisory services to help Federal agencies acquire and use computer technology and (2) developing uniform Federal ADP standards. This responsibility was originally set out in OMB Circular A-71 and the Brooks Act, but was more recently reiterated in the Paperwork Reduction Act.

Commerce has delegated the administrative responsibility for standards development to NBS. NBS strives to promote hardware and software equipment compatibility and interconnectedness by

developing, for example, protocol, interface, and formatting standards. Those standards apply to global, national, and international networks; local data networks; and computer-based office systems (such as message interchange formats). NBS disseminates guidance through Federal Information Processing Standards, bulletins, and special publications.

Plans are underway to transfer NBS' Institute for Computer Sciences and Technology to ADTS. OMB is drafting legislation to make this change.

OFFICE OF PERSONNEL MANAGEMENT

OPM is responsible for developing position classification standards and career tracks for executive branch staff and for providing or sponsoring Government-wide training programs. Specific responsibility for the personnel management aspect of ADP were first delineated in OMB Circular A-71. Basically, OPM deals with the human factor, or people issues, in the technology area.

Within the past few years, OPM has undertaken some initiatives in office automation, beyond its position classification and training responsibilities. OPM has been looking at the application of office automation as a way of improving Federal work force performance. Recently OPM has begun to provide agency-specific training and technical assistance on office automation.

OPM issues position classification standards through Federal Personnel Management regulations and bulletins. The agency operates a training center and has recently established a separate office systems center. OPM also offers onsite training programs on various subjects.

United States Department of Agriculture | Forest Service | Washington Office | 12th & Independence SW
P.O. Box 2417
Washington, D.C. 20013

Reply to: 1420

Date: JUN 23 1982

Mr. Henry Eschwege, Director
Community and Economic Development Division
United States General Accounting Office
Washington, D.C. 20548

Dear Mr. Eschwege:

We have reviewed your draft report entitled, "Office Automation is a Productivity Improvement Tool, But Requires Strong Central Management."

The report is an excellent statement of office automation problems and concerns. We believe the report was basically correct in its assessment of our automation program at the time it was compiled. Since then, there have been developments that have significantly improved the office automation efforts and we ask that they be recognized in the final report.

At the Department level, the recent reorganization of staff functions and the creation of the Office of Information Resources Management has resulted in an organization which will address many, if not all, the issues raised in this report. Policies and procedures relative to office automation are being developed in the following areas: (1) Planning, (2) Acquisition: technical advice, technical approval of procurements, and review of implementation plans, (3) Telecommunications: technical assistance and maintenance of Departmental networks, (4) Standards, (5) Security, (6) Records management, and, (7) Post-installation review and evalaution. We believe these Departmental initiatives will contribute to improved performance in the selection, procurement, and use of automated systems.

Forest Service efforts include the following:

1. Directives. Forest Service Manual 6600, revised and distributed in the spring of 1980, gave strong direction for the planning and management of computer and word processing equipment and systems. All equipment and facility plans, Service-wide, must be approved through the Deputy Chief for Administration.

2. Distributive Processing. Forest Service Manual 6617 provides the basis for planning a new Service-wide distributive processing network. A competitive bid is now "on-the-street" for a single contractor to provide compatible equipment for support of office automation and data processing throughout the Forest Service. These facilities will provide tremendous productivity improvement potential.

3. Organization. Based on a study team report, a new organizational alignment for managing information as a resource was approved and implemented

FS-6200-11 (8-80)

APPENDIX III

in December 1981. The new organization assigned a senior agency official, the Deputy Chief for Administration, the sole responsibility for office automation systems. The new organization satisfies all of the requirements of the Paperwork Reduction Act (Public Law 96-511).

This new strengthening of central management has improved Forest Service communications and has provided more flexible working and staffing assignments to accomplish office automation. Our Regional Offices are quickly aligning their staffs with the same objectives, i.e., to improve communication, coordination, and implementation of office automation.

We believe the current Forest Service operations are meeting the GAO recommendation for centralized management of office automation.

Thank you for the opportunity to comment on the draft report.

Sincerely,

for R. MAX PETERSON
Chief

APPENDIX III

ASSISTANT SECRETARY OF DEFENSE

WASHINGTON, D.C. 20301

COMPTROLLER

29 JUN 1982

Mr. W. Sheley, Jr.
Director, Mission Analysis
and Systems Acquisition Division
U.S. General Accounting Office
Washington, D.C. 20548

Dear Mr. Sheley:

This replies to your letter of May 21, 1982, to Secretary Weinberger regarding the draft GAO report, "Office Automation is a Productivity Improvement Tool, but Requires Strong Central Management" (OSD Case #5989).

We support the general recommendations contained in the report. At the same time, we are enclosing comments from the Navy which address those findings in the report which relate to specific office automation activities in the Navy.

On April 9, 1981, the Defense Audit Service (DAS) issued a report on "Management of Word Processing Resources in the Department of Defense" (Report No. 81-080). Your draft report extends and reemphasizes many of the findings and recommendations of the DAS Report. The Department of Defense has already taken action to meet many of the recommendations contained in both reports. Highlights of our efforts are as follows.

- As senior official appointed under the Paperwork Reduction Act, I have established recently the Directorate for Information Resources Management Systems (IRMS) under the Deputy Assistant Secretary of Defense (Management Systems), in my office. IRMS has staff responsibility for the DoD-wide management of the major information resources and activities specified in P.L. 96-511. Automatic data processing, and office automation technologies are major aspects of the IRMS mission.

- The ADP Resources Management System (ARMS) has been redesignated as the Automation Resources Management System

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(ARMS). This system, which helps us to inventory and account for our information technology assets, is being updated and expanded to support a wide range of ADP and office automation management functions.

- As part of our information technology planning efforts we have produced a study of low cost computing including office automation. An outgrowth of this study will be the publication of an office automation handbook containing guidelines on management and productivity enhancement.

We support your efforts which are aimed at strengthening the management of office automation throughout the government.

Sincerely,

Jack R. Borsting
Assistant Secretary of Defense

Enclosure

APPENDIX III

Comments of the Department of Navy

1. Summary of GAO Finding and Recommendations: Referring to a 1980 Navy study, the GAO specifically cited combining the correspondence control activities in the Office of the Secretary of the Navy, the Chief of Naval Operations, and the Chief of Naval Material and the acquisition of compatible equipment as a means of saving $1.1 million over five years, thereby implying that separate and incompatible equipment had been previously acquired as a result of poor planning. The GAO implied poor planning in another area by stating that, "In another example of different equipment performing essentially the same functions, the Navy is planning to spend over $50 million on two separate office automation systems for small ships. Although one system is word processing oriented and the other is ADP oriented, their capabilities overlap, in that they both are intended to handle general administrative functions. At the time of our review, the Navy had yet to precisely define how these systems would relate to each other."

2. Statement of Navy Position. In the case of the 1/ correspondence control activities, the GAO has misinterpreted the basis for the savings cited in the 1980 Navy study. As for the systems for small ships, the GAO did not recognize the fundamental managerial and technical differences between the two systems which make them complementary to one another rather than overlapping. The Navy intends to begin implementing the recommendation to designate a central group now, rather than waiting for the final report.

The Navy disagrees with the implication that $1.1 million in savings, cited by a 1980 Navy study, resulted from combining and acquiring compatible equipment where previously separate and incompatible equipment had been acquired as a result of lack of planning. Navy plans did provide direction toward implementation of standard correspondence control software for Navy headquarters. Equipment which was being utilized for correspondence control was compatible and was using the same standard operating system and application software - the Navy's CORDEX software, with minor modifications at each site for separate reporting requirements. Eventually, the age of several pieces of hardware and the distribution of the various user organizations allowed significant savings through replacement of certain old equipment and physical movement of the new hardware to a consolidated site. The new equipment

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GAO Note: 1/Based on these comments and further review of the 1980 Navy study, we revised our description of those systems on p. 7 of the report.

permitted: (a) a reduction of hardware maintenance costs; (b) a reduction of system operating support costs; and (c) a reduction of software maintenance costs. The savings realized were precisely the result of good planning by the Navy.

The Navy also disagrees with the implication that two1/ office automation systems for small ships were planned whose capabilities overlapped, and that the Navy had not defined how these systems would relate to each other. These programs are two aspects of the same unified need, namely to provide urgently needed automated support to the operating forces as rapidly and efficiently as possible. The Shipboard Non-tactical ADP Program (SNAP II) was developed to provide general purpose data processing capability to small ships, using Navy developed and supported applications software and Navy supported logistics. Because of the complexity and scope of this effort, the equipment implementation is not estimated to be complete until 1988. The SNAP II life cycle is twenty years. The Fleet Word Processing Program (FWPP) was developed in response to a fleet requirement for word processing support to immediately begin reducing an onerous administrative burden on small ships, large ships, aircraft squadrons, deployable staffs, and other units of the operating forces. A concurrent program objective was to provide a standard, modern fleet word processor to replace the several hundred varied word processors that had been independently acquired by fleet units. The Navy exhaustively coordinated both SNAP II and the FWPP with Fleet Commanders in Chief and type commanders, Navy ADP and word processing authorities, and other affected Navy commands. No Navy software development was required for the FWPP and vendor supported logistics could effectively be used. Additionally, the FWPP systems were standalone, would not require extensive installation procedures, and had a four year life cycle. The Navy, therefore, negotiated a contract for the lease (with option to purchase) of a standard fleet word processor. The only area of "overlap" is a plan to incorporate a word processing capability into the SNAP II system, when the developing technology permits, that will be equivalent to the FWPP and which will eventually allow removal of FWPP equipment from those ships, which will have SNAP II systems installed. The following charts the differences:

Aspect	SNAP II	FWPP
Activities	Small Ship	Small Ships Large Ships Aircraft Squadrons Deployable Staffs Related Activities

GAO Note: 1/Based on the comments by the Navy that they have and will continue to actively coordinate these two projects, we eliminated this example from the report.

Capability	General purpose ADPE File Management Data entry	Word processing No DP language capability
	DP Language Capability	
Life cycle	20 years	4 years
Acquisition method	Purchase	Lease with option to purchase
Implementation	1988 complete	1983 complete

The Department of the Navy agrees with the recommendation to establish/designate a central group responsible for office automation, and intends to request the National Academy of Sciences to address this issue as part of their forthcoming study of the Navy ADP planning process. In the meantime, the Navy will develop interim guidelines for the planning, development, and implementation of office automation. The Comptroller of the Navy, as the single official under the Paperwork Reduction Act, will be responsible for implementing the GAO recommendation.

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U. S. Department of Labor

Office of the Assistant Secretary
for Administration and Management
Washington, D.C. 20210

JUN 28 1982

Mr. Gregory J. Ahart
Director
Human Resources Division
U.S. General Accounting Office
Washington, D. C. 20548

Dear Mr. Ahart:

In reply to your letter to Secretary Donovan requesting comments on the draft GAO report entitled "Office Automation is a Productivity Improvement Tool, but Requires Strong Central Management," the Department's response is enclosed.

The Department appreciates the opportunity to comment on this report.

Sincerely,

ALFRED M. ZUCK
Assistant Secretary
for Administration and Management

Enclosure

APPENDIX III

U. S. Department of Labor's Response To
The Draft General Accounting Office Report
Entitled--

Office Automation is a Productivity Improvement Tool, but Requires Strong Central Management

Recommendation: GAO recommends that the Secretary of Labor hold the Directorate of Information Technology accountable for providing strong central leadership of office automation throughout the Department.

Response: The Department concurs.

Comments:

The Department agrees with the conclusion of the draft report that office automation is a productivity improvement tool requiring strong management to realize its full potential. Recognizing this, in December 1979, shortly before the field work for the draft report was done, the Department established the Directorate of Information Technology to provide such central leadership and management. As predicted by the draft report, this approach is beginning to pay dividends as the Department moves forward with a well integrated, uniform system for providing both office automation and the more traditional automated data processing services.

APPENDIX III

General
Services
Administration Washington, DC 20405

JUN 19 1982

Honorable Charles A. Bowsher
Comptroller General of
the United States
General Accounting Office
Washington, DC 20548

Dear Mr. Bowsher:

We have reviewed the draft General Accounting Office (GAO) report, "Office Automation is a Productivity Improvement Tool, But Requires Strong Central Management." We agree with the report's recommendations that the General Services Administration (GSA) provide "how to" management guidance to agencies and a forum for agency managers to exchange information on office automation (OA). These recommendations will be implemented by GSA as rapidly as possible. We invite GAO to review this area again in late 1983 to assess the appropriateness of GSA activities in providing the leadership recommended by this report.

We have one suggestion to improve the report. Office automation is defined in the report as automated data processing, word processing, and telecommunications technologies. This definition omits such things as micrographics, reprographics, and electro-optical devices. We believe that the definition of office automation should be broad enough to include the wide range of technologies found in OA systems.

Sincerely,

Ray Kline
Deputy Administrator

NASA
National Aeronautics and
Space Administration

Washington, D.C.
20546

Reply to Attn of N

JUN 25 1982

Mr. W. H. Sheley, Jr.
Director
Mission Analysis and Systems
Acquisition Division
U.S. General Accounting Office
Washington, DC 20548

Dear Mr. Sheley:

Thank you for the opportunity to review the GAO draft report entitled, "Office Automation Is A Productivity Improvement Tool, But Requires Strong Central Management," (AFMD-82-54).

The report is comprehensive and we agree, in general, with the report findings. Our specific comments are provided in the enclosure to this letter.

Sincerely,

Walter B. Olstad for
Associate Administrator
for Management

Enclosure

Office Automation is a Productivity Improvement Tool
But Requires Strong Central Management

I have reviewed the General Accounting Office draft report entitled, "Office Automation is a Productivity Improvement Tool But Requires Strong Central Management". The report cites some of the blemishes that are present in our efforts to enhance productivity through office automation.

I agree that strong central management can, and often is, a solution to existing management problems. However, the evolutionary process to attain strong central management or, for that matter, effective office automation is in itself a process that requires a great deal of cooperation, understanding and perseverance. As our office systems evolve we realize more and more that the user is the paramount key to successful office automation implementation. The GAO recommendation to provide improved service to the user is vitally important. It is crucial that the nature of this service is understood and that the user and the service organization realize that the objective is to help the user help himself and that good management techniques are not the exclusive responsibility of the service or management organization but are to be absorbed by the using organization. Obviously, office automation can bring improvement to our offices in the Federal Government but the interrelationships that must be established, preserved and maintained between the service and user organizations is the goal that NASA hopes to reach and with that attainment demonstrate improved productivity through office automation.

Louis N. Lushina

(910314)

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