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SYSTEM DESIGN DOCUMENT  
FOR AN OFFICE AUTOMATION SYSTEM  
IN THE BUREAU FOR AFRICA

AGENCY FOR INTERNATIONAL DEVELOPMENT  
WASHINGTON, D.C.

BOOZ·ALLEN & HAMILTON INC.

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May 28, 1982

Mr. Linwood A. Rhodes, Chief  
M/SER/DM/TM  
Agency for International Development  
Washington, D.C. 20523

Subject: IQC No. AID/OTR-I-1860, Work Order No. 6:  
AFR DESIGN STUDY

Dear Mr. Rhodes:

Booz, Allen & Hamilton Inc. is pleased to submit this System Design Document for the Wang OIS 140 system ordered for the Bureau for Africa (AFR). This report includes a Management Summary and organizes the study results into chapters recommending major design elements, system implementation plan and a strategy for future system enhancements.

We have appreciated this opportunity of working with SER/DM and AFR staff on this important assignment and look forward to continuing to assist the Bureau during system implementation.

Very truly yours,



John C. Newman  
Vice President

BOOZ, ALLEN & HAMILTON Inc.

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## MANAGEMENT SUMMARY

The Office of Data Management (SER/DM) secured the services of Booz, Allen & Hamilton Inc. to develop a detailed design for the implementation and operation of the word processing system which has been ordered for the Bureau for Africa (AFR). In the fall of 1981, AFR approved SER/DM's recommendation to acquire a Wang Office Information System (OIS) 140 (Model I). The basic components of this system have been acquired and are currently expected for July 1982 delivery in the Bureau. Current plans call for the remaining equipment components to be ordered as an exchange for AFR's current word processing equipment. It is anticipated that this exchange can be made by the fall of 1982 to avoid a long delay in AFR's receipt of the balance of the equipment in the initial configuration.

1. THE IMMEDIATE OBJECTIVE IS TO APPLY THE WANG OIS 140'S STANDARD FEATURES TO BOTH EASE AFR'S DOCUMENT PREPARATION WORK LOAD AND IMPROVE THE QUALITY OF ITS DOCUMENTS

SER/DM recommended the Wang OIS to AFR on the basis of its office automation requirements study which concluded that AFR's highest priority was for advanced word processing support. The Wang OIS 140 is a shared-logic system in which a central processing unit (CPU) is the main storage and processing source for all the workstations, printers and other pieces of equipment which are interconnected to the CPU.

This new word processing system is larger and offers more capabilities than AFR's current inventory of word processing equipment. Because it is technically feasible to link the OIS to other word processing systems in AID/W, as well as to the Agency's central computer, the Wang system also permits continued growth and expansion in AFR's use of both word processing and data processing support for its work.

This design effort has, however, focused on AFR's immediate requirements to successfully manage the OIS 140, rather than its longer-term office automation strategy. The primary goal of the design study was to plan for the integration of this new equipment configuration and its capabilities into AFR's work environment.

2. IN THE START-UP PHASE, SYSTEM USAGE SHOULD FOCUS ON SEVEN KEY AFR DOCUMENT PREPARATION PROCESSES

Since the benefits of word processing stem from the ability to efficiently revise documents, word processing should be selectively targeted on the kinds of documents

which undergo substantial revision. The series of documents prepared in AFR's planning, budgeting and implementation work processes meet this basic requirement and should be the first documents prepared on the system. The seven key AFR document preparation processes are:

- . Country Development Strategy Statement (CDSS) review
- . Annual Budget Submission (ABS) review and development
- . Congressional Presentation (CP) development and subsequent briefing preparation
- . Project design and review based upon the Project Identification Document (PID) and Project Paper (PP)
- . Project Implementation Orders for Technical Services (PIO/Ts) preparation and review
- . Congressional Notification (CN) processing
- . Project status reporting.

Management emphasis on use of the OIS to support these processes is expected to result in effective system utilization. In addition, skills developed in these applications can be transferred to the processing of other documents and such skill acquisition is a needed foundation for using the advanced word processing features.

3. THE STUDY RECOMMENDS PLACEMENT OF THE SYSTEM ADMINISTRATION STRUCTURE IN THE OFFICE OF PROGRAM MANAGEMENT RESOURCES (PMR) AND THE ESTABLISHMENT OF A SYSTEM ADVISORY COMMITTEE

The CIS 140 system requires a single management and decision-making source to:

- . Establish and enforce system operational procedures required for coordinated and effective system use in the various AFR offices
- . Assess overall system status and recommend system improvements to AFR management.

The system administrator provides this role and is supported by an assistant system administrator who carries out routine system operations and maintenance activities.

There is a functional line of supervision between these staff roles and a lead operator in each AFR office who serves as the local source of system operations expertise.

Booz, Allen recommends placement of the system administrator and assistant system administrator in PMR. The Bureau-wide service functions of PMR well-position this office to respond to all AFR OIS system user needs as well as to evaluate Bureau-wide needs.

To provide local user input and technical expertise, a small system advisory committee representing major AFR programmatic functions is also recommended.

#### 4. THE STRUCTURE OF OIS IMPLEMENTATION IN AFR OFFERS OPPORTUNITIES AS WELL AS CHALLENGES

The near-term system implementation effort is expected to demand a large amount of staff effort, especially during the transition phase of equipment installation and start-up use of the OIS 140 in AFR offices. While system implementation is usually demanding, the planned two waves of equipment installation and system start-up is expected to produce several challenges for AFR and system management staff. Among the most significant are:

- . Repetition of many implementation tasks, e.g., training
- . Staff competition for access to the initial equipment configuration in the interval between its installation (projected for July 1982) and receipt of the total equipment configuration (currently anticipated for the fall of 1982)
- . The long transition period will result in a longer period of system stabilization while unanticipated problems are evaluated and needed system refinements are developed.

AFR management can minimize the implications of several of these challenges by careful implementation planning. Implementation activities should begin with acceptance of the system design, well in advance of equipment delivery dates.

The two waves of equipment acquisition also provide AFR opportunities to learn and apply experience gained with the smaller, initial equipment order to the larger second equipment order. In addition, AFR staff's high

level of interest in the OIS 140 and awareness of some of the critical changes in office routine which it will produce should contribute to establishing a successful word processing system in the Bureau.

## I. BACKGROUND

The Office of Data Management (SER/DM) contracted with Booz, Allen and Hamilton, Inc. to design an office automation system in the Bureau for Africa (AFR). This background chapter describes the purpose of the study, its scope and approach and presents the organization of the report.

### 1. THE PURPOSE OF THIS STUDY IS TO DESIGN AN OFFICE AUTOMATION SYSTEM FOR THE EQUIPMENT CONFIGURATION WHICH HAS BEEN ORDERED FOR THE AFRICA BUREAU

At the request of the Africa Bureau and as part of an overall agency strategy, SER/DM undertook a series of studies to identify AFR's office automation needs and to establish an office automation system for the Bureau. On the basis of a requirements study, SER/DM recommended an advanced word processing system and placed an order for acquisition of a Wang OIS 140 configuration. Installation of the first wave of equipment is planned for the summer of 1982.

The primary goal of this design study is to plan for the successful integration of the OIS equipment configuration into AFR's current work environment. In addition, the study identifies some longer term office automation system design elements, which will enhance the system's capabilities once the advanced word processing system has stabilized. The specified objectives of this design study include identification of system organization, management and technical applications:

- . Describe the document preparation process to be supported by the Wang OIS 140
- . Review SER/DM's recommended equipment configuration and location
- . Recommend an appropriate OIS system management structure
- . Identify the system's training requirements
- . Develop a blueprint for system implementation.

The results of this study are intended to assist the AFR Bureau in anticipating the activities and issues that must be addressed as it manages the process of acquiring and implementing an advanced office automation system.

2. AID'S EXISTING OFFICE AUTOMATION STRATEGY HAS ESTABLISHED A THREE-PHASED APPROACH FOR IMPLEMENTING OFFICE AUTOMATION SYSTEMS

The Agency is pursuing a strategy of implementing office automation in response to established needs within each organization. A three-phased office automation concept is guiding these Agency-wide office automation efforts.

- . Phase I - Requirements Study
- . Phase II - System Design
- . Phase III - Selected System Implementation Assistance.

For the AFR Bureau, SER/DM conducted the Phase I requirements study and secured Booz, Allen's services for this Phase II design effort. SER/DM's plans for the provision of Phase III implementation assistance are not complete at this time.

This system design effort for AFR was undertaken within the framework of this strategy and builds upon SER/DM's requirements study. Completed in the fall of 1981, the study included the gathering of all basic data including work load composition and volume, characteristics of document preparation tasks, and analysis of comparative system costs and benefits. On the basis of this study, SER/DM concluded that word processing was AFR's highest priority need, resulting in the acquisition of the Wang OIS 140.

3. A STUDY METHODOLOGY BASED UPON THE ANALYSIS OF KEY PRODUCTS WAS USED TO IDENTIFY SYSTEM REQUIREMENTS AND TO DEVELOP THIS SYSTEM DESIGN

The product approach refers to a standard methodology for designing an office automation system and is an approach which Booz, Allen has used with clients in the public as well as the private sector. Its name stems from the rationale behind the approach. This rationale is that a significant portion of an organization's work is often centered on the preparation of a relatively small set of key products or documents.

The following seven processes, each organized around the preparation of an approved final document were selected for emphasis in the design effort:

- . Country Development Strategy Statement (CDSS)
- . Annual Budget Submission (ABS)

- . Congression Presentation (CP)
- . Project Identification Documents (PIDs) and Project Papers (PPs)
- . Project Implementation Orders (PIOs)
- . Congressional Notifications (CN)
- . Project Status Reporting.

The work of assessing the preparation of these key documents included analysis of the other documents produced during the work cycle, such as briefing papers, issues papers, cables, correspondence and memoranda.

The participation of selected managers, officers, and secretarial staff in AFR organizational units was needed to obtain the required data base. A series of personal interviews were conducted in AFR offices to collect detailed information on work flow in the seven key processes and on office environment characteristics as a basis for designing the office automation system for the AFR Bureau.

#### 4. THE RESULTS OF THIS STUDY ARE ORGANIZED INTO SEVEN CHAPTERS

Each of the chapters addresses a separate topic related to the process of developing an office automation system design which meets AFR's needs and objectives. The contents of each chapter are summarized below:

- . This chapter has introduced study results by discussing its background, purpose and approach.
- . Chapter II, Current Environment, presents study findings on existing work flows and document preparation procedures as a basis for identifying system requirements and issues.
- . Chapter III, Equipment, presents study conclusions and recommendations on needed refinements to the OIS 140 equipment configuration.
- . Chapter IV, Applications, presents study recommendations on how the OIS 140's features and capabilities can support more effective processing in the seven key document preparation procedures.
- . Chapter V, Management, presents study recommendations on the management and administrative structure the acquired system requires.

- . Chapter VI, Implementation Plan, describes the steps AFR management needs to take to install the equipment and to manage the transition period.
- . Chapter VII, Planning for the Future, outlines a recommended strategy for future enhancements to the basic AFR office automation system.

Additional information is provided in four appendices to the report for ease of reference.

## II. CURRENT ENVIRONMENT

This chapter presents study findings on current document preparation and information handling activities in AFR which shape the office automation system design presented in the chapters which follow.

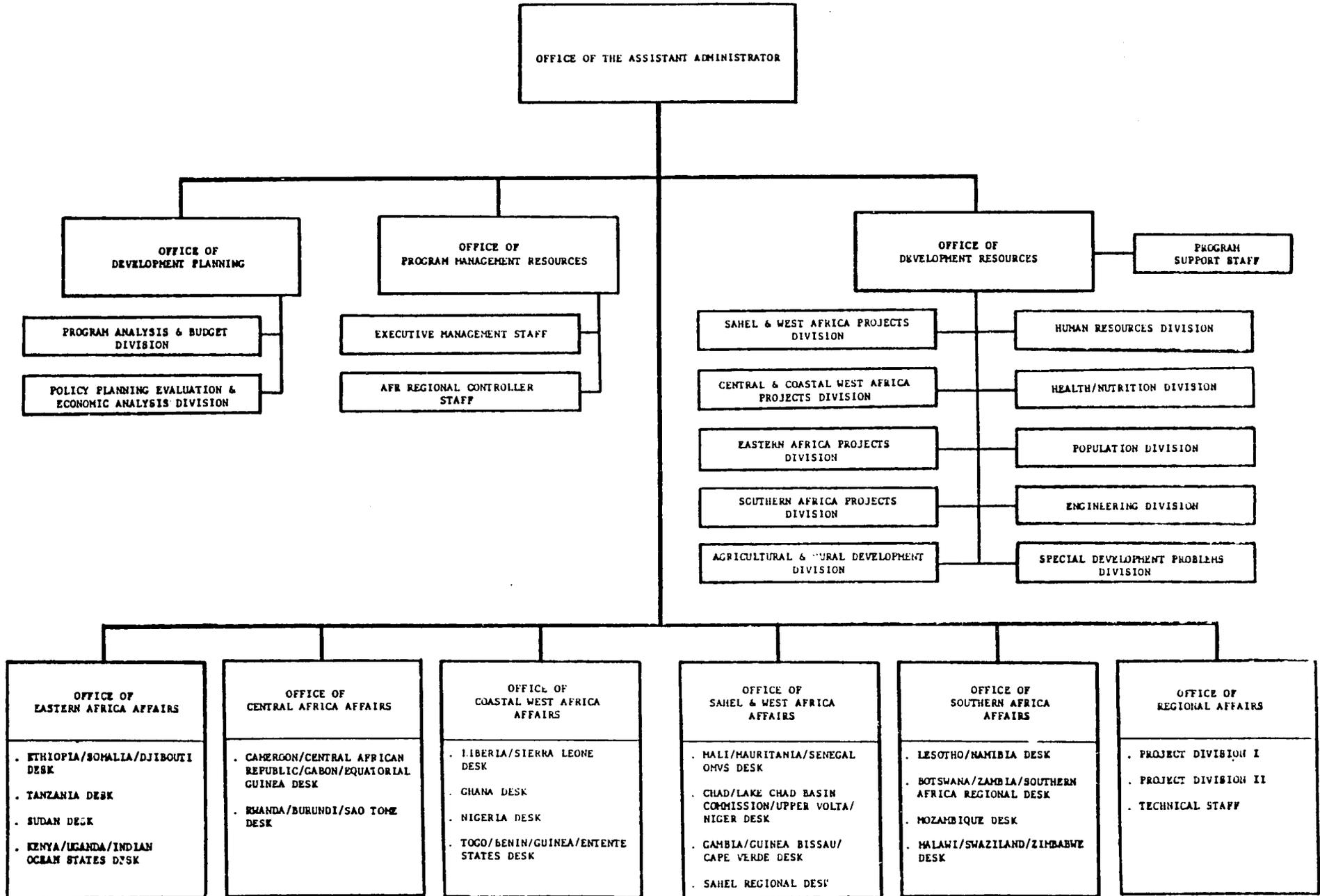
### 1. THE BUREAU FOR AFRICA (AFR) SUPPORTS THE PROGRAMS OPERATED BY ITS OVERSEAS MISSIONS AND SERVES AS THE INFORMATION LINK BETWEEN THEM AND OTHER AID/W OFFICES

The Bureau for Africa (AFR) is responsible for the planning, formulation, implementation, management and evaluation of U.S. development assistance programs within the region. Approximately 180 full-time and 10 part-time staff positions are authorized for FY 82 to support the programs operated by its overseas missions and offices located in approximately 44 countries.

The Bureau's current organizational structure is shown in Exhibit II-1, on the following page. A review of the major functions of each of these offices and the major documents they prepare provides an overview of the Bureau's work.

- . Office of the Assistant Administrator (AA/AFR) --  
has 6 staff positions and exercises management leadership and policy guidance for the entire Bureau. The major documents prepared in this office are correspondence and memoranda. The office provides final clearance and approval for all major AFR documents and it serves as the control point for Congressional and general correspondence.
  
- . Office of Program Management Resources (AFR/PMR) --  
has 16 staff positions divided among 3 divisions and is responsible for providing guidance and assistance in overall management of the Bureau and its resources. The major documents prepared are standard forms, cables and memoranda. The operating expense portion of the Annual Budget Submission is also prepared by this office.

Exhibit II-1  
 ORGANIZATION OF THE BUREAU FOR AFRICA



II-2

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- . Office of Development Planning (AFR/DP) -- has 22 authorized staff positions divided among three divisions and is responsible for managing the programming, budgeting and fiscal monitoring functions of the Bureau. The major documents processed by the office are the Country Development Strategy Statement (CDSS), Annual Budget Submission (ABS), Congressional Presentation (CP) and Congressional Notification(CN).
- . Geographic Offices -- Currently, there are five geographic offices with 58 authorized staff positions. It is expected that two of the offices (CWA and CA) will be consolidated. Each of the geographic offices is composed of country desks which maintain country expertise, provide back-stop services and monitor field activities for field missions. The offices are involved in all of the key documents, as well as general correspondence, memoranda, cables and briefing papers. Among the documents they are most involved in are the Country Development Strategy Statement (CDSS), Annual Budget Submission (ABS), Congressional Notifications (CN), and Congressional Presentation (CP).
- . Office of Regional Affairs (AFR/RA) -- has 15 staff positions and is responsible for assisting in the formulation of Africa-wide policies and strategies, as well as in developing and supervising regional or Africa-wide programs and projects. With its mission, AFR/RA is involved with all of the key documents. The major documents prepared in the office are the Project Implementation Document (PID), Project Paper (PP), Annual Budget Submission (ABS), and Congressional Presentation (CP).
- . Office of Development Resources (AFR/DR) -- with 76 staff positions and 12 divisions, AFR/DR is the largest office in the AFR Bureau. It is divided into four functional entities which have major roles in the Bureau's project development, approval and implementation processes. In addition to the regular correspondence, memoranda, cables, AFR/DR has prime responsibility for both Project Papers (PP) and Project Implementation Orders (PIOs).

2. THERE ARE CURRENTLY 15 STAND-ALONE WORD PROCESSING UNITS DISPERSED AMONG AFR OFFICES

Exhibit II-2, on the following page, presents the inventory and location of AFR's current word processing equipment. As the exhibit shows, this equipment is limited to stand-alone, single or half-line display units which provide basic text processing capability. Representing three different vendors, these units are incompatible, which means that work prepared on one vendor's equipment cannot be continued or revised on another vendor's unit.

AFR secretaries and officers reported mixed levels of satisfaction with the existing system. While acknowledging the efficiency of these units over use of typewriters, several problems were identified:

- . Ease of use
- . Training
- . Staff expectations.

Some of the units are difficult to use in preparing AFR documents. A frequent example was creation of large tables on the single-line display units. Training was reportedly inadequate and compounded in offices where only one operator was trained. In these not infrequent cases, work would be delayed when the trained operator was not available. Finally, staff spoke of unrealistic expectations about equipment capabilities, such as speed of document production, which created frustration and confusion for both secretaries and officers about office automation's potential.

3. AFR CURRENTLY HAS THREE REMOTE DATA PROCESSING TERMINALS ACCESSING FOUR AUTOMATED APPLICATIONS

AFR has taken advantage of several data processing applications supported by the Agency's mainframe computer. They are:

- . Congressional Presentation (CP)
- . Annual Budget Submission (ABS)
- . Operating Year Budget (OYB)
- . AFTRAK.

## EXHIBIT II-2

## CURRENT WORD PROCESSING EQUIPMENT

<u>Current Equipment</u>	<u>Office Location</u>	<u>Own/ Lease</u>
A.B. Dick MAGNA II	1 AA	Own
	2 DR	Own
	2 SWA	Own
Dictaphone 3000	1 CWA	Lease*
	3 DP	Lease
	4 DR	Lease
	1 RA	Lease
IBM MC/A	1 DP	Lease*
TOTAL UNITS	<u>15</u>	

\* The lease expiration date is September 30, 1982, and lease can be terminated with 30 days notice.

The CP and ABS data processing applications support their respective AFR budget document preparation processes. These automated programs produce the standard numeric tables found in the CP and ABS documents. The OYB system is a day-by-day budget tracking tool used to provide AFR staff the status of its program/project dollars. AFTRAK is a monitoring system for projects under design. AFR staff are interested in the future potential for accessing these ADP systems through the OIS 140 workstations which may reduce their hardware costs and manual document preparation steps.

Another capability under development is the linkage of the Agency's FACS to AFR. AFR anticipates this linkage by fall of 1982.

4. BASED ON SER/DM'S REQUIREMENTS STUDY, AN ORDER FOR AN INITIAL WANG OIS 140 EQUIPMENT CONFIGURATION TO EXPAND WORD PROCESSING SUPPORT IS IN PROCESS

As a result of the requirements study, SER/DM concluded that the AFR Bureau had a high priority for advanced word processing support. While a total word processing equipment configuration based on a Wang OIS 140 was recommended, funding limitations permitted ordering the basic system without the full set of workstations and printers. The initial order is expected to be installed in July 1982.

The additional OIS equipment to complete the configuration is to be acquired as a replacement for word processing equipment which is currently leased, when those leases expire (September 30, 1982) or are terminated. Chapter III, Equipment, of this design study provides a more detailed discussion of the current status of AFR's equipment configuration.

5. THE AFR BUREAU'S LARGE ANNUAL VOLUME OF PAPERWORK IS RELATED TO EXTENSIVE REVISION CYCLES IN ITS DOCUMENT PREPARATION WORK FLOWS

SER/DM established during its requirements study that the AFR Bureau had an annual document preparation work load of approximately 255,500 pages, almost half of which is revision pages. This study focused on the production of documents in seven key AFR processes which form the majority of AFR's work load. In the course of the study, Booz, Allen documented through interviews with AFR staff the major characteristics of information handling and document preparation activities in AFR offices.

The five most significant findings about these work characteristics are summarized below.

- . Many of the documents sent by the missions to AFR are revised and edited by AFR staff.
- . There are a series of informal review cycles which affect the work flows and production of revision pages.
- . The AFR review and clearance processes have many variations depending on the document type and its content.
- . Many of the key document preparation processes are cyclical.
- . Documents are usually distributed in multiple copies to a wide range of offices.

These five characteristics of AFR's document preparation processes are key factors in the document revision cycles that contribute to the Bureau's large annual volume of paperwork.

6. AID'S DOCUMENT PROCESSING REQUIREMENTS RESULT IN A HIGH DEGREE OF INTERACTION AMONG AFR OFFICES AND MISSIONS

There are several different types of interaction among AFR offices and other Agency organizations located in AID/W. They may be characterized as follows:

- . Internal AFR interactions -- one of the pivotal linkages is among the AFR offices located in AID's Washington headquarters. The interactions include:
  - Information sharing and referencing of background country and project information
  - The transfer of documents for both the formal and informal review cycles.
- . Other AID/W office interactions -- AFR staff frequently exchange information and documents with staff in other AID Bureaus and offices. These interactions include:
  - Information sharing to keep other AID staff appraised of AFR developments related to their area of expertise

- Technical assistance and professional advice
- Final document clearance and processing.
- . Interactions with the Agency's computer -- AFR staff work in close coordination with other AID offices in the production of several key documents resulting in several ADP linkages supporting program and administrative activities.

In addition, AFR offices have frequent interaction with missions. For example:

- . AFR staff frequently depend on missions for inputs needed to complete their work
- . AFR staff serve as the major transfer point for information coming in from the field and information going to the field.
- . AFR staff are ultimately responsible for the review and approval of many decisions and documents originating in the missions.

This network of interaction between AFR and its missions is extensive and frequent, and it appears to be critical in the preparation of many AFR documents.

7. SEVERAL AFR MANAGEMENT INITIATIVES WILL AFFECT THE SYSTEM DESIGN AS THEY BECOME EFFECTIVE

The AFR Bureau is currently in the process of executing several management initiatives which will impact on the ultimate design of an office automation system. They are as follows:

- . Moves are planned for several AFR offices in the summer of 1982.
- . The AA's office is being reorganized to include three deputy positions.
- . The Office of Development Resources (DR) is being reorganized into two separate organizational units.
- . DR has begun to develop and install a central records management unit supported by microfiche equipment.

Since these changes will not become effective during the course of this study, the system design may require some modification when the full implications of these initiatives are realized.

8. SER/DM'S REQUIREMENTS STUDY INDICATES THE KEY MANAGEMENT, EQUIPMENT AND APPLICATIONS ISSUES TO BE INCLUDED IN THIS DESIGN EFFORT

This design effort is being conducted within the framework established by SER/DM's requirements study. Following through on that study, this chapter has identified four major characteristics of AFR's document preparation process which indicate needed office automation system capabilities. They are:

- . High volume and variety in documents produced
- . High level of information and document exchange among offices
- . Large volume of revision pages
- . Compilation of numerical information.

The ordered system is not capable of processing classified material. Since approved security features\* are not yet available for the OIS 140 and since fully secure systems tend to cost almost twice as much as unsecured systems, the Agency has not acquired secured systems. Classified material will continue to be produced using the Bureau's manual or electric typewriters. Limited Official Use (LOU) material may be prepared on office automation equipment if all tapes, magnetic cards and diskettes storing LOU material are secured each day\*\* in accordance with uniform security regulations.

In developing the system design for the AFR Bureau, four critical areas must be examined. These areas can best be expressed as the following questions:

- . What equipment refinements result from the detailed design?
- . How can the OIS 140's standard features and capabilities best support key AFR document preparation processes?

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\* "Electromagnetic Radiation Security of Office Equipment; "5 Foreign Affairs Manual 600; September 19, 1978.

\*\* "Processing Limited Official Use Information", IG/SEC Notice; March 25, 1982.

- . What is the OIS system management structure best suited for AFR?
- . After the OIS 140 has stabilized, what strategic options for system enhancement should AFR begin to assess?

The following chapters of this report address these key questions and provide AFR management and staff an orientation to the implementation activities needed to establish an effective OIS system serving AFR's document production needs.

### III. EQUIPMENT

This chapter presents an overview of the capabilities of Wang OIS system ordered for AFR and discusses recommendations for refinements to this equipment configuration resulting from the detailed system design developed in this effort.

#### 1. THE RECOMMENDED WANG OIS 140 EQUIPMENT CONFIGURATION REPRESENTS AN ADVANCED WORD PROCESSING SYSTEM WHOSE CAPABILITIES EXCEED THOSE OF THE EXISTING SYSTEM

The AFR Wang OIS 140 is a distributed shared-logic system. As a shared-logic system, all peripheral devices such as workstations and printers are connected to a central processing unit (CPU) permitting shared system operations and capabilities by all users. While up to 32 peripheral devices can be connected to the CPU, the AFR configuration recommended by SER/DM used 31 connections to support 19 workstations and 12 daisy-wheel printers. The total equipment configuration recommended for AFR on the basis of SER/DM's requirements study is shown in Exhibit III-1 following this page.

In keeping with AID practice, this distributed network of workstations and printers permits the use of current staff positions to operate and maintain the system rather than the assignment or hire of dedicated word processing operators. Additionally, it allows greater access and flexibility in gaining use of the OIS to a broader range of user-types.

##### (1) This System Has Many Standard Features Supporting Document Preparation

The Wang OIS 140 includes all necessary hardware and software to support document preparation tasks. The system software features of particular interest to AFR staff are:

- . Powerful editing -- the ability to make simple (e.g., change one alpha character) to complex (e.g., move a paragraph to a new page) corrections without retyping the completely corrected text
- . Libraries -- the organization of documents by originating office or division for control and rapid access

EXHIBIT III-1  
Total AFR Configuration Recommended In  
SER/DM's Requirements Study\*

Wang Office Information System (OIS) 140, Model I

- 1 Central processing unit
- 1 System disk
- 11 Workstations
- 8 Archival workstations
- 12 Daisy printers [2 of which have twin-sheet feeder attachments]

Other Equipment

- 1 Wang 5 stand-alone workstation
- 1 Wang 5 printer

Optional Software

List processing

\* Includes several modifications made to the original SER/DM recommendation as of April 1982.

- Document ID numbers -- the assignment of unique numbers to identify documents which provides timely and shared access to designated documents
- System security -- the ability to assign passwords to a document to protect it from unauthorized access
- Glossaries -- a convenient means to store and retrieve repetitive keystrokes, instructions and formats to facilitate routine document preparation functions (e.g., cables)
- Mathematic support package -- the ability perform simple arithmetic calculations within documents on the system without an external calculator
- Document merge -- the ability to generate individual documents by merging of standard (e.g., distribution or mailing lists) with variable (e.g., specific correspondence) information.

For ease of reference, Appendix A to this report presents definitions of the most frequently used OIS equipment and feature terms.

(2) This System Also Includes List Processing, An Advanced Feature

The features discussed above support the preparation and revision of documents. In addition to these standard software features, the optional list processing software package has been acquired for use in AFR.

The list processing feature provides a basic capability to store and use information in the form of records and files. While automated records and files are usually tools used in a data processing environment, list processing provides the AFR user the ability to manipulate simple records in a word processing environment. A user who is thoroughly fluent in Wang text processing operations, can enhance his/her daily work activity by combining word processing knowledge and ability with list processing. Together, these Wang functions can become a powerful tool in developing small scale records management systems such as travel budget control, personnel career rotation tracking, and project status tracking.

List processing is an advanced function which requires skill for application development and operation. Accordingly, this study's emphasis is on full utilization of the OIS 140's standard software features as part of the necessary foundation for use of this advanced feature.

2. CURRENT PLANS ARE TO INSTALL A BASIC EQUIPMENT CONFIGURATION IN THE SUMMER OF 1982 AND TO TRADE EXISTING WORD PROCESSING UNITS FOR THE ADDITIONAL EQUIPMENT TO COMPLETE THE CONFIGURATION

The total configuration shown previously in Exhibit III-1 represents a major and expensive acquisition for which full funding was not available. As the first necessary step toward the total configuration, a basic system has been ordered as shown in Exhibit III-2, on the following page. Two points about this first order should be noted.

- . It includes all equipment required for provision of the system's standard features supporting AFR document preparation.
- . Additional workstations and printers will spread the system's support more extensively throughout the Bureau.

AFR has been working with SER/DM and SER/MO in anticipation of receipt of this first equipment order scheduled for delivery in early July 1982.

AFR has accepted SER/DM's recommendation that the remaining workstations and printers be acquired as a trade-in for the 15 current word processing units.

3. THE RESULTS OF THIS DESIGN EFFORT INDICATE A NEED TO CONSIDER THE CONTINGENCY OF SATURATED CAPACITY IN THE LONG TERM, AND, IN THE NEAR TERM, SOME MINOR CHANGES TO THE TOTAL RECOMMENDED EQUIPMENT CONFIGURATION

The requirements study was undertaken by SER/DM with an assumption that the more detailed design study might result in some refinements to the recommended equipment configuration. Installation and operation of 31 peripherals in the AFR total configuration can result in an increased burden on the operations of the central processing unit (CPU), causing slower workstation and printer response times.

The increased burden and reduced response time would be experienced when a majority of the workstations and printers were in operation. This could occur during peak

EXHIBIT III-2  
Initial Configuration Ordered For AFR\*

Wang Office Information System (OIS) 140, Model I

- 1 Central processing unit
- 1 System disk
- 8 Workstations
- 7 Daisy printers [2 of which have twin-sheet feeder attachments]

Optional Software

List processing

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\* Includes several modifications made to the original SER/DM recommendation as of April 1982.

work loads, with growth in the work load processed by the system over time, or diversity of system usage, i.e., telecommunications, and list processing.

Two options are available to AFR senior management to relieve this potential overload of the CPU. They are:

- . Exchange of a limited number of OIS workstations with standalone Wang word processors to continue meeting AFR document preparation needs and preserve AFR's office automation system compatibility.
- . Consideration of acquiring a second OIS central processing unit to support the current total AFR configuration.

This design study generally supports SER/DM's original assessment of hardware requirements and recommends consideration of two minor refinements:

- . Reduction in the number of workstations by at least one unit to provide room for eventual system linkages.
- . Acquire more than 2 twin-sheet feeders for easier usage of the 12 daisy printers.

Each of these considerations is based on AFR's near- and longer-term planned usage of the OIS 140.

The first is related to AFR's longer-term objective of linking the OIS to other systems.

- . As currently configured, the system's 31 pieces of equipment provide essentially no room for expansion since the OIS's total capacity is for connection to 32 pieces of equipment.
- . A minimum of two and preferably three of the system's ports will need to be free for projected connection to:
  - An optical character reader (OCR)
  - Other systems in AID/W
  - Agency's central computer.

Acceptance of this adjustment would reduce the number of OIS workstations from a total of 19 to a total of 17 or 18. It is assumed that it will be easier for AFR management to implement this change now before equipment is installed rather than to remove equipment later. There is also the possibility of acquiring one or two Wang stand-alone units to replace the OIS workstations.

The second consideration to expand the number of twin-sheet feeders is designed to ease processing and reduce the time required to print documents. Twin-sheet feeders are attached to daisy printers to automatically feed paper into the equipment, thus eliminating the need for a staff member to manually feed each page. The twin-sheet feeder is used for all paper types except multiple-copy forms which must be manually and individually fed into the printer. These are fairly expensive pieces of equipment at a purchase unit price of approximately \$1700 each, and their acquisition will depend upon the availability of funding.

Because twin-sheet feeders are expensive, AFR may also wish to consider using continuous feed paper to reduce operator time on the printers. To the extent that continuous feed paper is available to AFR and of an appropriate document quality, this approach can reduce the number of printers which need the twin sheet feeder. Continuous feed paper's largest disadvantage is that it produces copies which are usually appropriate for draft and informal documents, but of insufficient quality appearance for final copy.

4. RECOMMENDATIONS ON OFFICE LOCATIONS FOR THE EQUIPMENT ARE DEPENDENT UPON THE TWO-STAGED ACQUISITION OF THE TOTAL OIS CONFIGURATION AS WELL AS THE IMPENDING OFFICE MOVES

Two exhibits, presented on the following pages, present preliminary equipment location recommendations. Exhibit III-3 suggests best placement for the total SER/DM equipment configuration and includes the study recommendation to reduce the number of OIS workstations from 11 to 10 and to increase the number of standalones from 1 to 2. As shown in the exhibit, DR/ENG as well as AFR/EA would be supported by a Wang 5 standalone unit rather than an outlying OIS workstation. Exhibit III-4 presents recommendations for the placement of the first equipment order.

These recommendations are based upon the following criteria:

- . Document preparation work load
- . Role in the seven key document preparation processes
- . Physical location and accessibility to other offices and their equipment.

Final decisions on the timing of the planned office moves and the equipment delivery may result in changes to these recommendations.

EXHIBIT III-3  
 Recommended Office Locations for SER/DM's  
 Total AFR Bureau Equipment Configuration

<u>Office</u>	<u>OIS Work- Station</u>	<u>Archival Work- Station</u>	<u>Daisy Printer</u>	<u>Twin Sheet Feeder</u>	<u>Stand Alone Print</u>
AA/AFR	1		1		
AAA/PMR PMR/EMS PMR/RCS		1	1		
AAA/DP DP/PAB DP/PPEA	1  1	1	1	1	
AAA/DR DR/PSS DR/ENG DR/HN		1	1		1
DR/SDP	1				
DR/EAP	1				
DR/CCWAP		1	1		
DR/SAP	1		1		
DR/SWAP	1				
DR/ARD		1	1	1	
DR/PDP DR/EHR					
AFR/SWA	1	1	1		
AFR/SA		1	1		
AFR/CWCA	1		1		
ARF/EA					1
AFR/RA		1	1		
<u>CPU Room</u>	<u>1</u>		<u>1</u>		
<b>Total</b>	<b>10</b>	<b>8</b>	<b>12</b>	<b>2</b>	<b>1</b>

EXHIBIT III-4  
 Recommended Office Locations for SER/DM's  
 Initial AFR Bureau Equipment Configuration

<u>Office</u>	<u>OIS Work Station</u>	<u>Daisy Printer</u>	<u>Twin Sheet Feeder</u>
AAA/PMR	1	1	
DP/PAB	1	1	1
DP/PPEA	1	1	
DR/CCWAP	1		
DR/ARD	1	1	1
AFR/SWA	1	1	
AFR/SA	1	1	
<u>CPU Room</u>	<u>1</u>	<u>1</u>	<u>1</u>
Total	8	7	2

#### IV. APPLICATIONS

This chapter provides an overview of the Wang OIS 140's potential support for AFR as well as specific descriptions of how the OIS's standard features can be used to support AFR's seven key document preparation processes.

1. THIS SYSTEM'S ABILITY TO MORE EFFICIENTLY REVISE DOCUMENTS AND TO PERMIT SHARED ACCESS TO DOCUMENTS PROVIDES OPPORTUNITY FOR IMPROVEMENT TO AFR MANAGERS AND STAFF

Growing experience with and performance feedback data on the OIS system indicate that the best strategy for realizing the full potential of office automation's benefits is an incremental one. Booz, Allen recommends that AFR management should direct initial system usage to the seven key document preparation processes selected for this design study. These are:

- . CDSS review and supporting documentation
- . ABS review and development
- . CP development and subsequent briefing
- . Project development, review and supporting documentation based on the PID and PP
- . Congressional notification process
- . PIO/T preparation
- . Project status reporting.

The rationale for concentrating on skill development in accessing OIS support for these processes is that:

- . These processes represent a majority of the existing workload.
- . System use in these processes should result in immediate benefits and positive performance evaluation data.
- . The skills acquired in these applications provide a solid foundation for skill transfer to other areas and for acquisition of more advanced skills.

There is also a recognition in this strategy that not all AFR documents are appropriate candidates for word processing support. Emphasis on these seven critical processes can minimize inappropriate use of the OIS and direct its support to the work which will provide the greatest pay-off to the Bureau.

(1) The Wang OIS 140 Provides Several Capabilities and Benefits to the AFR Bureau

As stated earlier in this report, the Wang system AFR is acquiring represents a major improvement over the existing system. The improvement is associated with the power and sophistication of OIS features not available on AFR's current equipment.

AFR will systematically harness more of the OIS 140's potential capabilities to its work requirements. During the first stage of transition while staff are becoming proficient in automated processing skills, the following system capabilities will be most frequently accessed for immediate assistance:

- . Ease of revision
- . Large storage on-line (information on the System Disk) and almost unlimited off-line (information on diskettes)
- . Internal AFR communications network
- . Shared access to on-line information in the central processing unit
- . Ability to protect specific sets of information with passwords
- . Storage and retrieval of prescribed formats and tables in the glossary.

All of these capabilities are associated with the system's standard features and do not require a high level of experience or knowledge of the system's more advanced features.

(2) The Cornerstone of the System's Benefits is Its Text Processing Support

An illustration of how the OIS 140 is used in basic document preparation readily shows its potential. The system's benefits are largely associated with the greater efficiency in text revision of both narrative and tabular or numeric material.

The most appropriate type of document for the OIS has at least one of the following three characteristics:

- . More than several pages in length
- . Subject to extensive revisions
- . Standard or prescribed format (forms, tables, and exhibits).

The document is typed into the system on the workstation where the operator can see one full page of text on the visual screen for ready identification of errors. The typing of the document would be facilitated by several standard features, e.g.:

- . Glossary to guide entry of information in prescribed formats, such as cables or personnel forms
- . Math support package to verify arithmetic calculations in tabular material.

The original document is stored on-line at this time on the system disk. The operator can then request print of a hard-copy of the original document at a convenient daisy printer.

This original document continues to be stored on-line on the system disk while undergoing clearance and revision. The document may be circulated to reviewing offices in several ways. Alternatively to being sent a hard copy, AFR offices connected to the OIS can be given the document ID number (and password if used) to call up the document:

- . At a workstation for visual reading only
- . At a printer to produce a hard copy.

Other AID/W reviewing offices continue to receive hard copies, but offices with Wang equipment may be given a diskette for entry into their system. AFR offices would create a diskette on an archival workstation located near their location for submission to these other AID/W offices with compatible equipment.

The originating office retrieves the document from on-line storage and incorporates comments into the revised document. Only those sections of the document being changed need to be retyped on the system. Sections can be automatically moved or

reformatted as necessary to accommodate the revisions, e.g., new paragraph insertion and re-ordering of material on a page. When the final copy is prepared, the hard copy is obtained from the printer for use in photocopying duplicate copies for distribution. Depending on the nature of the document and its potential for being re-used as a base document to create new documents, this final copy may be copied on diskette for off-line storage and is then erased (deleted) from on-line storage on the system disk.

With the preceeding overview of the Wang OIS 140's capabilities and basic usage as a general orientation, the following sections of this chapter outline initial use of its features for each of the seven selected applications.

## 2. THE CDSS REVIEW PROCESS CAN BENEFIT FROM THE LARGE ON-LINE OIS STORAGE CAPABILITY

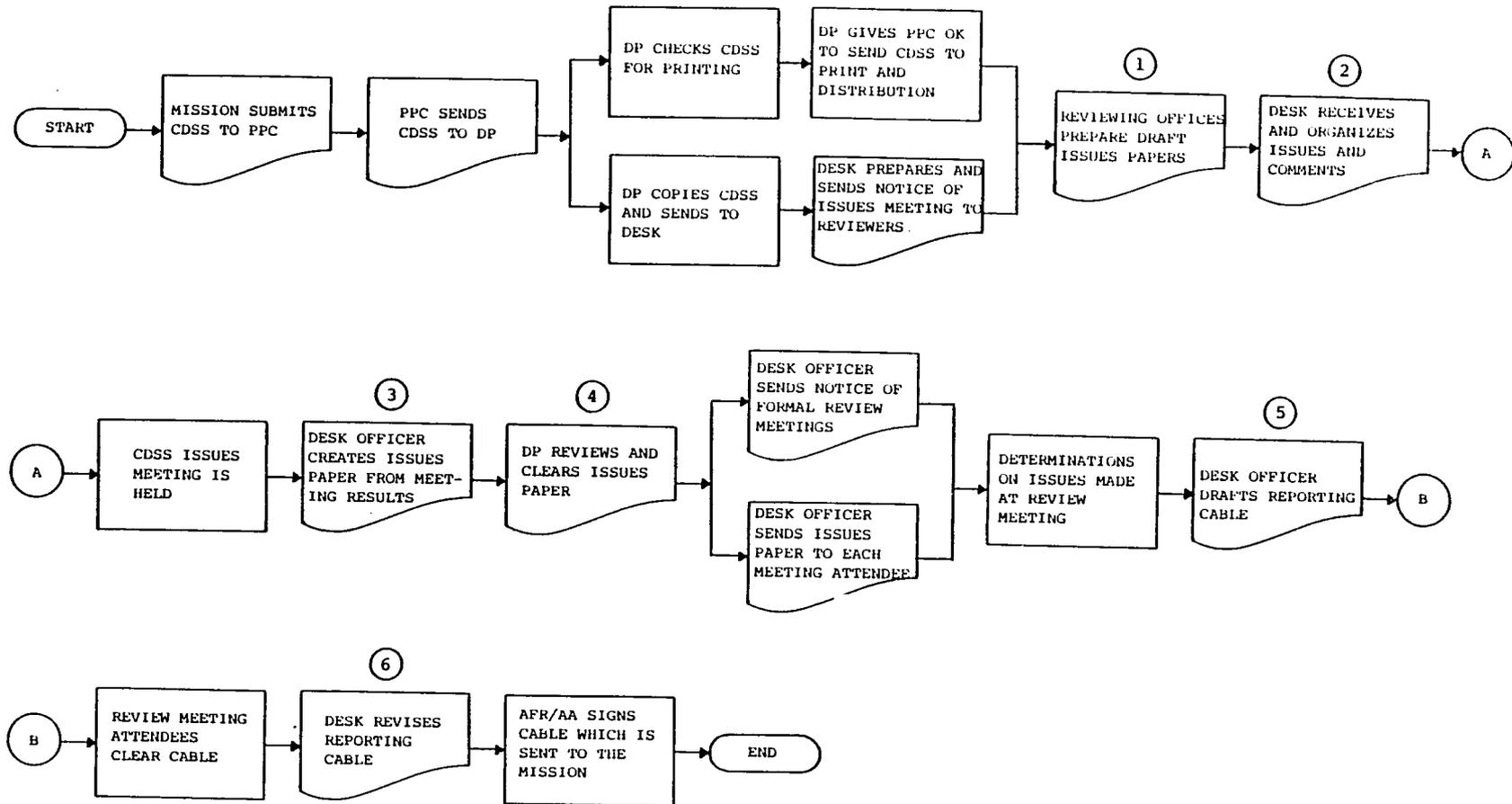
The CDSS is prepared and submitted by the mission for review and approval in AFR. Comments and recommended modifications to a mission's CDSS are proposed in issues papers and decisions are conveyed to missions in a reporting cable. Exhibit IV-1, following this page, illustrates how the OIS 140 system supports the CDSS process in AFR offices.

- . Each issues meeting attendee types his or her draft issues paper on the equipment. The document ID number is given to the desk officer for meeting coordination. (Steps 1 and 2)
- . The desk officer creates the issues paper based on the meeting results or other draft issues papers (already on system) on the equipment. Desk officer gives the document ID number to DP for review and clearance on the workstation display or requests print at DP location. (Steps 3 and 4).
- . The desk officer may refer to the issues paper stored on-line as a basis for preparing the reporting cable which is typed on the equipment by using the cable format glossary to guide input. (Step 5)
- . The desk officer revises the reporting cable which is stored on the system during review and clearance. (Step 6)

In addition to the OIS 140 editing and glossary support, in the CDSS process this OIS provides on-line storage of the complete set of CDSS issues papers for ready reference by reviewing offices during the Bureau's analysis of the ABS and CP.

EXHIBIT IV-1

Country Development Strategy Statement (CDSS)  
Preparation Process



3. THE ABILITY TO EASILY REVISE BOTH TABULAR AND NARRATIVE MATERIAL CAN IMPROVE THE ABS REVIEW AND DEVELOPMENT TASKS

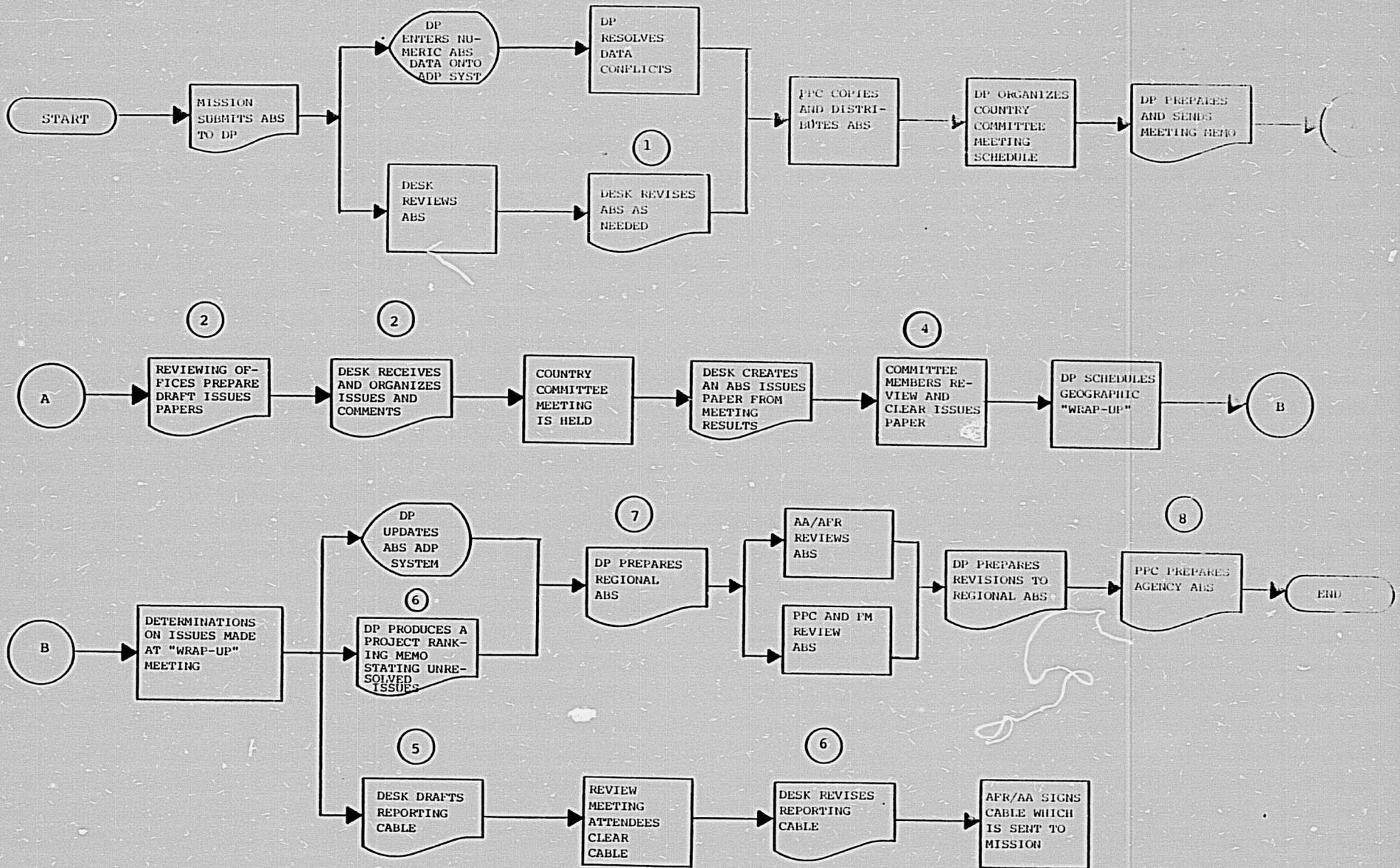
A country ABS is prepared and submitted by each mission for review, approval, and incorporation into the Bureau's regional ABS. The current ABS process uses an automated data processing (ADP) application to produce the regional ABS tables and electric typewriters for document revisions. Exhibit IV-2, following this page, illustrates how the OIS 140 system can initially support the ABS process.

The ABS review process can be supported in the following ways:

- . If a country ABS requires substantial revisions, the desk officer types and revises the edited sections on the OIS. (Step 1)
- . Reviewing offices can refer to the stored CDSS issues papers in analyzing the country ABS. The draft issues papers requiring extensive revision are typed and revised on the system. (Step 2)
- . AFR reviewing offices electronically forward their issues and comments to the appropriate desk by use of a document ID number or requesting print at the desk's location where the responsible desk officer can organize all reviewing offices' comments. (Step 3)
- . The distribution of the issues papers is supported by: (Step 4)
  - Use of a stored distribution list to create clearance list.
  - Electronic distribution of the issues papers to AFR offices connected to the system.
- . The desk officer can refer to the ABS issues papers stored on-line or off-line on a diskette as a basis for drafting the reporting cable to the mission: (Steps 5 and 6)
  - The standard cable format stored in the OIS glossary can guide cable typing.
  - The draft cable can be retrieved from on-line storage for incorporation of comments in preparation of the final cable copy.

EXHIBIT IV-2

Annual Budget Submission (ABS) Preparation Process



IV-7

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The OIS can also assist DP in regional ABS development by easing the revision and merging of the sections of this document created by various offices and by maintaining consistent quality appearance as the regional ABS undergoes review and revision.

- . DP types, revises and prints the project ranking memorandum on the OIS using a glossary to guide input and revisions to standard format pages and tables. (Step 6)
- . Using the document ID numbers for various sections of the ABS, DP can combine these documents into the regional ABS in one of two ways: (Step 7)
  - On the system, by automatically merging the documents together and printing the total ABS at DP's printer
  - Manually, by printing each section separately and combining them into the total ABS document.
- . Revisions due to reviewers' comments and changes can be made to sections of the ABS prepared on the OIS. (Step 8)

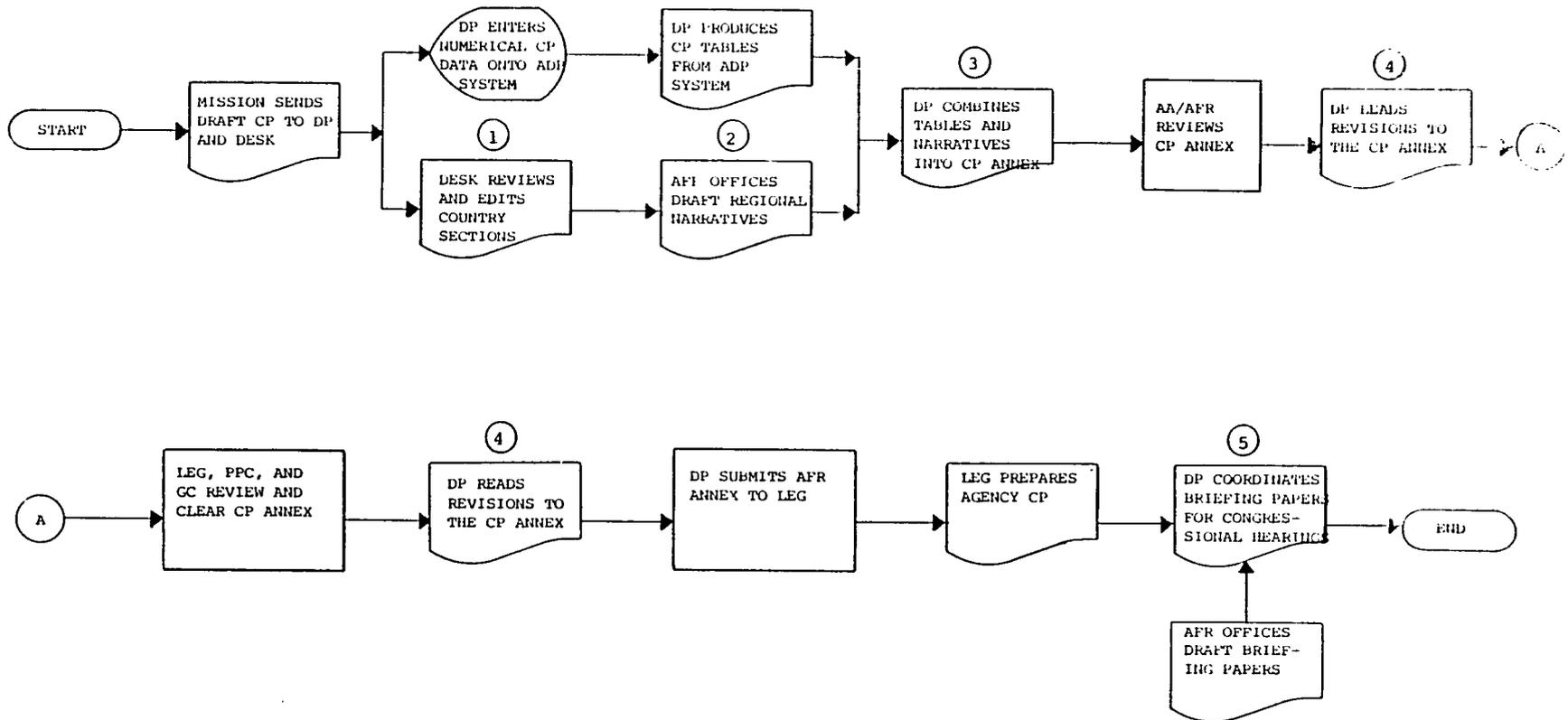
As AFR missions acquire Wang word processing support, the ABS process in AFR will be further enhanced by the ability to receive the mission ABS on diskette. These diskettes can be entered into the OIS 140 via an archival workstation to decrease typing time and to perform revisions in a more timely manner. Until AFR missions have this ability, AFR can acquire an interim capability by using an optical character reader to transfer the mission's hard-copy onto the OIS for future use.

#### 4. CP PRODUCTION IS ENHANCED BY USING A GLOSSARY TO FORMAT THE DOCUMENT

The CP preparation process begins in the field with creation of documents which are incorporated into AFR's CP Annex. The current CP process uses an ADP application to produce the CP tables and a combination of electric typewriters and stand-alone word processors for document revisions. Exhibit IV-3, following this page, illustrates how the OIS 140 system can initially support the CP process.

EXHIBIT IV-3

Congressional Presentation (CP) Preparation Process



- . The desk types the country narratives and project activity sheets into a document ID for subsequent review and revision using basic text processing and glossary to guide standard format typing. (Step 1)
- . AFR offices preparing regional narrative and exhibits also use glossary to guide typing. (Step 2)
- . The country and regional CP drafts can be electronically sent to DP by providing DP the document ID numbers so they can review the documents on the workstation display or can print at a designated location. (Step 3)
- . DP can either request that the original drafting offices revise draft CP sections at their workstation or can perform minor revisions electronically on the drafts stored on-line for shared access by all AFR offices during CP preparation activities. (Step 4)
- . DP coordinates the production of briefing papers by having the AFR offices draft these papers on the OIS 140 for direct electronic submission to and review by DP. (Step 5)

These briefing papers can be organized and stored off-line on diskettes with an on-line library index listing for later retrieval by AFR staff for use, such as, in preparation of the Assistant Administrator's briefings before Congressional hearings.

As AFR missions and other AID/W offices acquire Wang word processing support, the CP process in AFR/W will be further enhanced by:

- . The ability to receive mission CP materials on diskette
- . Having CP guidance and format using glossary established by LEG and placed on diskette for Bureau use.

These diskettes can be entered into AFR's OIS 140 system using an archival workstation to decrease initial document preparation steps and to perform revisions in a more timely manner.

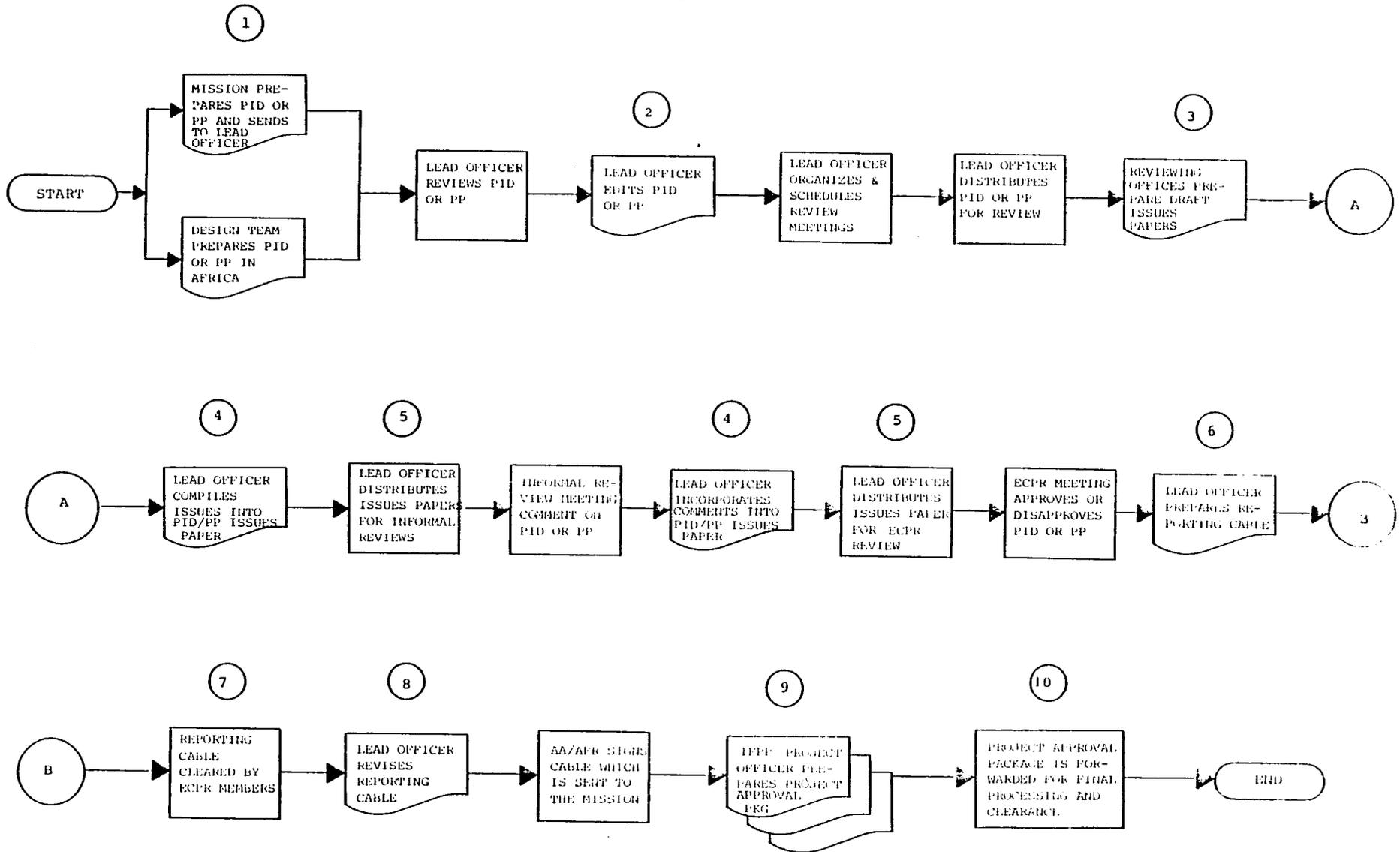
5. THE PID AND PP PROCESSES WILL BENEFIT FROM THE OIS SYSTEMS REVISION AND SHARED ACCESS CAPABILITIES

The Project Identification Document (PID) and the Project Paper (PP) are the basic documents in the design and planning of a program or project. In the AFR Bureau, the geographic desk currently has lead responsibility for the PID review process, while the project officer in DR is responsible for the PP review process. Although some PIDs and PPs are prepared in AFR (e.g., for RA projects), the majority of the documents are prepared in the field. Exhibit IV-4, following this page, illustrates the document preparation steps in the PID and PP review cycle which can be supported by the OIS 140.

- . If the document is prepared in AFR, the PID or PP is typed and revised on the OIS using its text processing and editing support. (Step 1)
- . If the document submitted by a mission requires substantial revision, the lead office types and revises the edited sections on the OIS using the text processing and editing support. (Step 2)
- . PID/PP reviewing offices prepare their draft issues papers on the system and may send their issues to the lead officer by hard copy or by giving the document ID number for electronic retrieval at either the lead officer's workstation or printer. (Step 3)
- . The lead officer prepares the PID/PP issues paper for the first series of review meetings by incorporating reviewers' issues and comments into the document using the OIS's on-line storage and document merge features. (Step 4)
- . Issue paper distribution can be enhanced into two ways (Step 5):
  - Retrieval of stored PID/PP reviewing offices distribution lists for merge with covering action memorandum
  - Use of the system's shared access capability to electronically distribute the issues papers to AFR offices connected to the OIS by giving the document ID number permitting AFR offices to receive the issues paper at their workstation (in visual form) or printer (in hard copy).

EXHIBIT IV-4

Project Identification Document (PID) And Project Paper (PP) Preparation Process



IV-12

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- . The lead officer can refer to the PID/PP issues paper stored on-line or on diskette as a basis for drafting the reporting cable which can be prepared using the standard cable format stored in the OIS glossary. (Step 6)
- . The draft reporting cable can be distributed for review and clearance using a stored distribution list to address the covering action memo and can be electronically distributed to AFR offices connected to the OIS. (Step 7)
- . The lead officer can receive AFR reviewers' comments in hard copy or electronically and incorporate them into the final reporting cable. (Step 8)
- . The lead officer edits and/or prepares the project authorization memo and other documents for the project authorization package. (Step 9)
- . The project authorization package can be submitted to final clearance processing offices (e.g., AFR/GC) in both hard copy and diskette to facilitate final document revisions. (Step 10)

The use of the OIS's editing power and shared access to designated documents facilitates the PID and PP production and review process. The immediate benefits of the system will be realized with the ease in which documents can be stored and accessed for later editing or reuse.

6. PIO/T PREPARATION CAN ALSO BE IMPROVED BY THE OIS'S REVISION CAPABILITIES AS WELL AS BY DISKETTE EXCHANGE WITH SER/CM

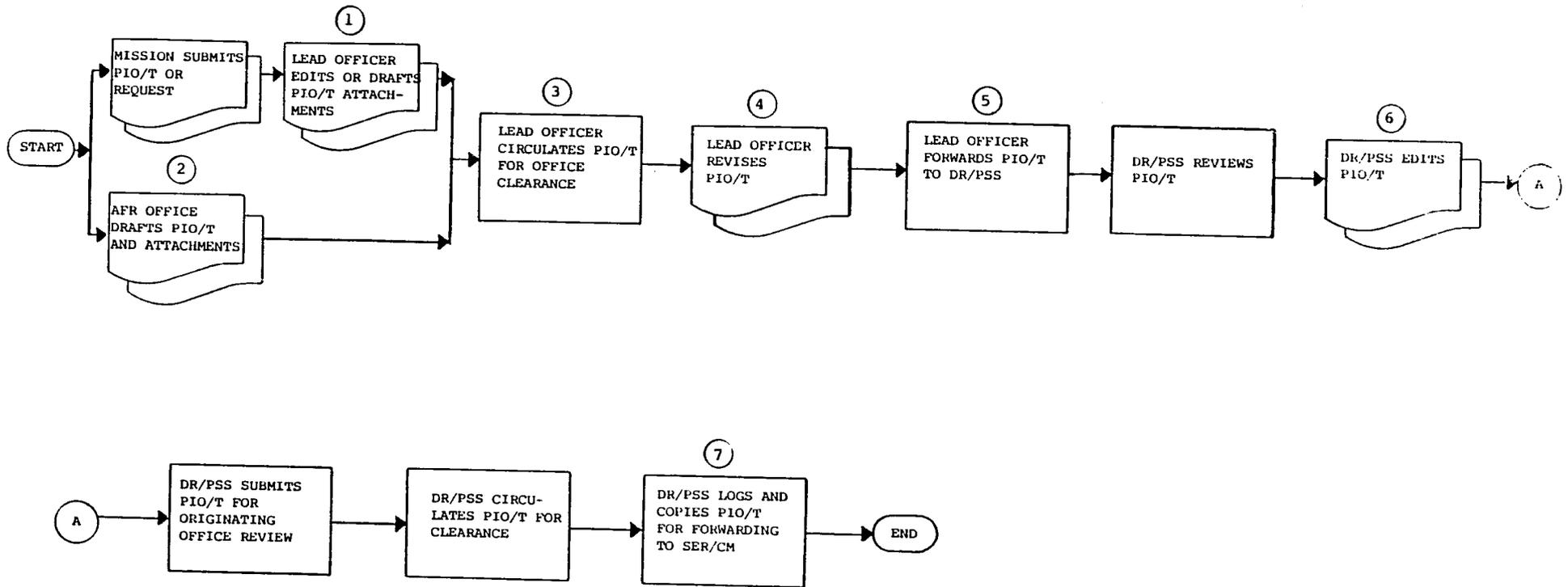
Project implementation orders for technical services (PIO/T), the basic document for acquisition of outside staff resources, are prepared in both the field and AFR offices. When the PIO/T is prepared in the missions, it is received and reviewed by the responsible lead office in AFR which edits and/or revises the PIO/T.

Exhibit IV-5, following this page, illustrates the preparation process of the PIO/T using the OIS 140 system.

- . If the mission-prepared PIO/T requires substantial revision, the revised PIO/T and attachments (e.g., waivers and supporting documentation) are typed and revised on the OIS using a glossary to guide input on standard sections. (Step 1)

EXHIBIT IV-5

Project Implementation Order/Technical Services (PIO/T)  
Preparation Process



IV-14

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- . When the PIO/T and its attachments are prepared in AFR offices, they are typed and revised in the OIS system using the PIO/T format guides stored in the OIS glossary. (Step 2)
- . Staff in the originating AFR office review and clear the draft PIO/T by use of the document ID number to visually retrieve the draft on the workstation screen or to receive a copy at their printer. (Step 3)
- . The lead officer revises the PIO/T and attachments to include any submitted comments using the OIS system's basic text processing functions. (Step 4)
- . The lead office can either send a hard copy to DR/PSS or provide the document ID number to allow DR/PSS to electronically receive the document at their own workstation/printer. (Step 5)
- . DR/PSS makes any necessary minor revisions to the PIO/T documents at its own workstation and returns the document to the lead officer for extensive revisions. (Step 6)
- . Upon receipt of the approved PIO/T documents, DR/PSS sends a printed hard copy and a diskette of the PIO/T and its attachments (particularly the Statement of Work) to SER/CM for further processing. (Step 7)

The PIO/T preparation process illustrates the future potential of the OIS for Agency-wide processing. While AFR offices will immediately benefit from more efficient document preparation work steps due to the system's glossary, editing, and shared access capabilities, the diskette exchange with SER/CM is a first step toward more far-reaching automation benefits. SER/CM has the opportunity to use the diskette as a basis for more efficient processing of the next stage of contractual document preparation and processing, e.g., an RFP statement of work.

7. THE CONGRESSIONAL NOTIFICATION (CN) PROCESS WILL BENEFIT FROM THE SYSTEM'S OFF-LINE STORAGE CAPABILITY

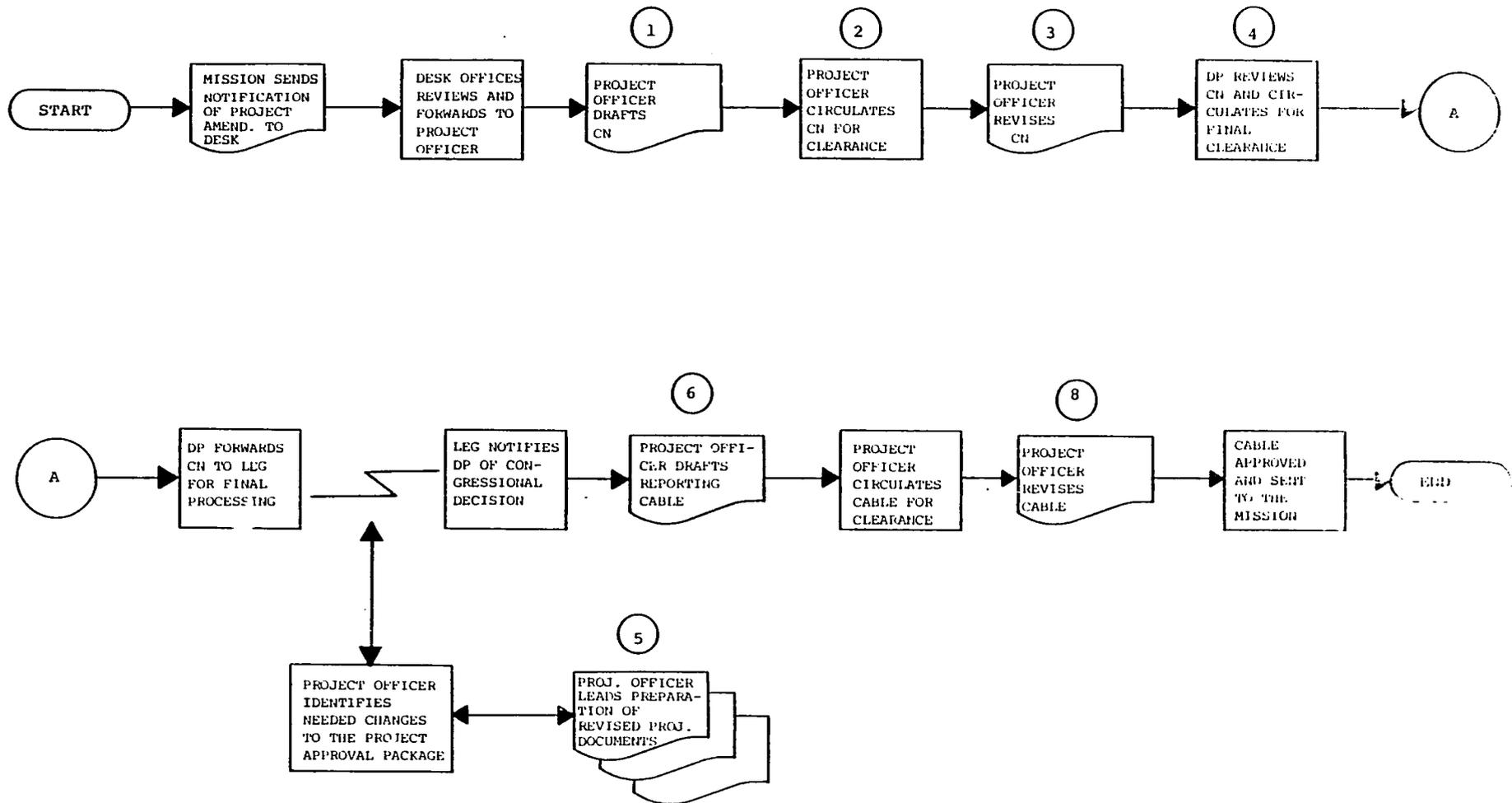
AFR missions initiate this process by drafting the project amendment(s) requiring Congressional review. Notice of these changes is sent to the desk which reviews the amendment(s) and forwards the mission's materials to the responsible project officer who prepares the two basic

CN documents -- the revised project activity sheet and the advice of program change memorandum. The OIS's support for this process is presented in Exhibit IV-6, on the following page.

- . Depending upon the extent of changes in the project, the project officer either: (Step 1)
  - Retrieves the original project activity sheet prepared for the CP from off-line storage on diskette and revises the sheet to incorporate the changes
  - Drafts a new original project activity sheet whose typing is guided by the stored glossary format for the CP project activity sheets.
- . The project officer has the option of distributing hard copies of the draft CN for clearance and/or providing the document ID number to AFR offices on the system to electronically receive and review the draft. (Step 2)
- . The draft CN can be efficiently revised on the system. (Step 3)
- . DP can receive the draft electronically by use of the document ID number, enter any necessary final revisions to the CN and electronically circulate it for final clearance among AFR offices on the system again by use of the document ID number. (Step 4)
- . If any changes in the project approval package result from the CN, the original documents prepared during the PID/PP process can be retrieved from off-line storage on diskette to assist preparation of revised documents. (Step 5)
- . Upon receipt of Congress's decision, the reporting cable can be typed by using the cable format glossary to guide input. (Step 6)
- . Cable clearance among AFR offices connected to the OIS can be done electronically by use of the document ID number. (Step 7)
- . Final revisions to the reporting cable can be made on the system. (Step 8)

EXHIBIT IV-6

Congressional Notifications (CN) Preparation Process



A major advantage of the OIS for the CN process stems from the ability to access stored original documents (the project activity sheet and the project approval package) as a basis for more efficient preparation of CN paper work. In the longer term, the system may provide even greater assistance since an automated monitoring system for tracking the status of the CN process could be established as a list processing application. Such status information could support project implementation reporting and provide ready response to field and other inquiries on the status of the processing and Congressional action.

8. PROJECT STATUS REPORTING CAN BE FACILITATED BY READY ACCESS TO PREVIOUSLY PREPARED DOCUMENTS

Both routine and special requests for project status reports can be supported by re-use of information stored in previously prepared documents. The feasibility of and the contributions from this type of application are dependent upon the prior existence of a well-organized and comprehensive project recordkeeping system.

The long-term potential for processing improvement in this area is large. Automated project monitoring systems providing a straightforward inventory of project status can be developed on the OIS. The OIS can also serve as a terminal for accessing automated data processing programs for project status reporting which may be created on the Agency's computer in the future.

9. THESE PROPOSED APPLICATIONS INDICATE LIBRARY ORGANIZATION AND INITIAL GLOSSARY REQUIREMENTS

All information processed on the OIS is organized into libraries to ease reference and access. Booz, Allen recommends that AFR maintain several libraries for AFR-wide usage and assign each office a specific library for storage of its documents.

It is also recommended that the 52 separate library units be assigned gradually as they are needed rather than all at once. Since AFR is acquiring the equipment in more than one phase and since some AFR offices will need more libraries than others, this gradual approach to library assignment provides flexibility to organize the OIS's libraries with judgements based on experience.

Libraries which will store "limited official use" documents and other sensitive information must be protected through the use of a password. The password is used together with the document ID number to restrict access to the document only to authorized staff.

Four types of glossaries need to be established for immediate use in the seven key AFR processes:

- . Cable
- . PIO/T
- . Project activity sheets for the CP and congressional notifications
- . Selected tables in the ABS and CP.

In addition, glossaries may support the preparation of AFR personnel, budgeting and other administrative documents. Further investigation through testing is needed to establish the relative advantages and disadvantages of processing certain forms, such as the SPAR, on the OIS rather than on electric typewriters.



## 7. MANAGEMENT

This chapter discusses study conclusions and recommendations on several related management topics including the overall AFR management structure and its implications for staff responsibilities, new operational procedures and additional staff training needed to incorporate the system's capabilities into AFR office practices.

### 1. A NEW MANAGEMENT STRUCTURE IS NEEDED TO DIRECT AND CONTROL OPERATION OF THE ADVANCED OFFICE AUTOMATION SYSTEM

While the introduction of the OIS 140 into AFR offices will not affect basic Agency processing and work flow requirements, it will affect many established office routines. It is always a challenging undertaking to manage changes in the work environment. A single source of management is needed to plan, monitor and administer the successful integration of the OIS 140 into AFR offices.

In the AFR Bureau as in most organizations, a new management structure must be established to assume these office automation responsibilities since current job positions and descriptions do not correspond to the functions required to manage the OIS 140. The OIS management structure is composed of the following staff roles:

- . System administrator who directs and enforces system policies and procedures to control system-wide operations
- . Assistant system administrator who supervises daily routine system-wide operations
- . Lead operators who guide daily system usage in their offices.

Appendix B to this report inventories the large set of responsibilities associated with each of these three staff roles.

These system management responsibilities should be assigned to current AFR staff. The Agency's funding and staff situation do not support creation of new positions and hiring new staff to fill these roles. Consequently, these responsibilities must be assumed as collateral duties by incumbent AFR staff by incorporating these new responsibilities into their position descriptions.

2. LED BY THE SYSTEM ADMINISTRATOR, THE SYSTEM MANAGEMENT STRUCTURE IS ORGANIZED ALONG FUNCTIONAL LINES OPERATING WITHIN AFR'S EXISTING MANAGEMENT STRUCTURE

The functional line of supervision between the system administrator and other system management staff does not affect the direct supervisory line established in AFR's organizational structure. Staff assigned to these roles continue to report to and to be evaluated by their current supervisors. Performance evaluation, however, would include assessment of system management responsibilities.

To assure that the system administrator role operates within the recognized decision-making structure and line of command, AFR senior management must determine the level of policy authority the system administrator may exercise. One approach would be to delegate operational policy decisions to the system administrator while retaining decisions affecting AFR staff and budget at the AFR management level. Delegated operational policy decisions would include:

- . Standards for documentation of applications
- . Enforcement measures to maintain system integrity and effectiveness
- . Local office user reporting requirements to monitor and evaluate system performance.

Decisions which should be retained by AFR management would include:

- . System management roles and staffing
- . Training strategy
- . Major equipment modifications.

Such clarifications in authority would permit the system administrator to carry out major responsibility for maintaining a smoothly operating and productive OIS system and to assume the lead role in defining system issues and options for AFR management's consideration and clearance.

The major responsibilities of each of the AFR system management roles are outlined in the sections which follow.

(1) The System Administrator Has Primary Responsibility for System-Wide Management and Decision-Making

The system administrator role includes the following types of responsibilities:

- . Supervision of system start-up
- . Provision of technical guidance
- . Coordination with SER/DM, Wang and other offices on office automation topics
- . Development and enforcement of system operating policies and procedures
- . Formulation of issues and recommended strategies in office automation for AFR senior management.

Management skills are more essential than technical expertise in performing these duties. It is anticipated that the initial start-up phase will demand considerable system administrator time and be reduced as the system enters routine operations.

(2) The Assistant System Administrator Carries Out Daily System Operations Supervision

The assistant supports the system administrator in managing the system. Exhibit V-1, on the following page, distinguishes between these two key roles in several functional areas of responsibility.

The major responsibilities of this role include:

- . Provides expert technical assistance on operations on the OIS 140
- . Carries out daily maintenance functions, i.e., brings the system up and takes it down
- . Maintains supply inventory
- . Supervises daily usage in accordance with established procedures, i.e., system storage
- . Maintains AFR performance logs for evaluation.

EXHIBIT V-1  
Major Responsibilities of the AFR System Administrator  
and Assistant System Administrator

<u>Functional Area</u>	<u>System Administrator</u>	<u>Assistant System Administrator</u>
Technical Expertise	Serves as primary resource in system use and representative to SER/DM and Wang	Serves as first source of technical application assistance to equipment operators
Library and Glossary Organization	Assigns libraries and glossaries	Monitors library and glossary usage
Training	Establishes training strategy and assesses results	Schedules and monitors training
Enforcement	Takes corrective action to maintain system integrity by all system users	Monitors and reports on infractions of policy and procedures
Evaluation	Reviews monthly reports and coordinates post-installation evaluation with SER/DM	Prepares monthly SER/DM reports with data from lead operators
Refinement	Identifies and assesses need for system updates and new acquisitions	Maintains records of operational problems and office suggestions

Following a brief transition period into the new responsibilities, the assistant system administrator's role should require several hours a week.

(3) Lead Operators Serve as the Source of Operational Expertise For Their Offices

A lead operator should be appointed in each AFR office to supervise the use of equipment it is assigned. The primary role of lead operator is to:

- . Serve as the office's expert on system operations
- . Orient office staff to appropriate use of system capabilities
- . Coordinate their office's system usage with the system administrator
- . Bring system-related problems and initiatives to the attention of the system administrator.

In addition, each office manager may wish to appoint a professional staff member to back-up the lead operator on recurring decisions such as work priorities and diskette storage procedures. This role would be similar to the system working group role currently assigned to representatives of each AFR office.

3. BOOZ, ALLEN RECOMMENDS PLACEMENT OF THE SYSTEM ADMINISTRATOR ROLE IN THE OFFICE OF PROGRAM MANAGEMENT RESOURCES AND THE ESTABLISHMENT OF AN ADVISORY COMMITTEE

The Office of Program Management Resources (PMR) appears to be the best location for the system administrator for several reasons:

- . PMR has an AFR-wide perspective
- . The types of responsibilities complement PMR's existing service functions
- . PMR is in a position to coordinate the proposed expansion of office automation in the missions with enhancements to AFR's system.

To promote coordination, the assistant system administrator should also be located in PMR to permit the frequent interaction and complementary support needed between these two roles. Experience in other offices suggests that the system administrator be selected from professional staff while the assistant system administrator be selected from senior administrative or support staff.

Booz, Allen recommends that AFR establish a system advisory committee to the system administrator. The primary purpose of this committee would be to provide local office user input as well as supplemental technical expertise to AFR office automation management. Exhibit V-2, on the following page, graphically represents the recommended AFR system management structure.

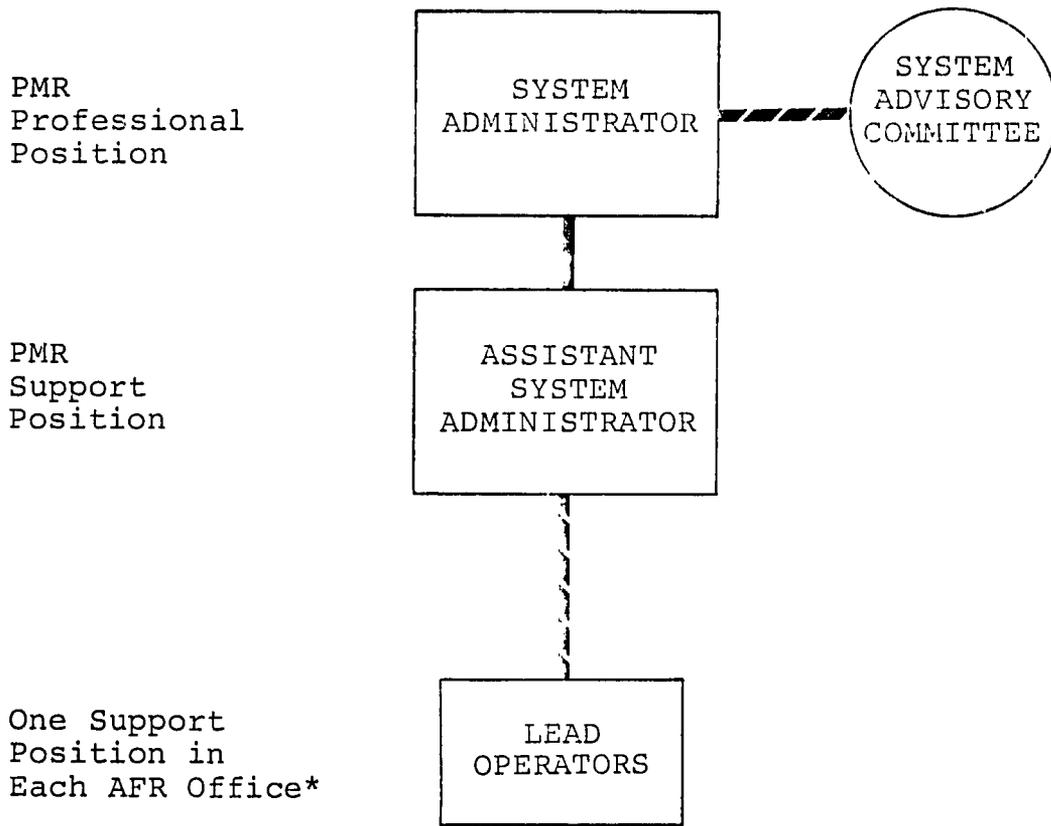
To increase the effectiveness of the system advisory committee, it should be structured to include the following characteristics:

- . Small size for efficiency and quick response when needed
- . Representation from DR, DP and the geographic offices
- . Ability to assume special assignments when needed to support the system administrator.

The committee membership should not be larger than three or four. A large committee, such as has been appropriate for the AFR working group, is not an efficient deliberating body for providing the kind of rapid responses and suggestions as are envisioned from this advisory committee. Representatives from the three functional programmatic areas in the Bureau are needed not only to provide contact within AFR's large organizational size but also to share programmatic insights affecting the feasibility and benefits of alternative decisions which will need to be made. Finally, these committee members should be able to carry out special assignments which require their expertise, e.g., equipment considerations for the proposed OCR capability.

While the recommended system advisory committee would strengthen system management, it is imperative that its advisory relation to the system administrator be maintained. The system administrator must be the single source of overall-system decision-making and enforcement, and the committee must assist, not direct, the system administrator as he or she carries out these responsibilities.

EXHIBIT V-2  
Recommended AFR System Management Structure



\* The total number of lead operators equals the total number of AFR office-level organizational units. Since there are currently a total of ten AFR offices, this would result in ten lead operators which could be reduced to nine if the assistant system administrator can serve as PMR's lead operator.

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4. AN OPERATIONAL PROCEDURES HANDBOOK WOULD ASSIST AFR MANAGERS AND STAFF IN INTEGRATING THE SYSTEM INTO CURRENT OFFICE ROUTINES

In addition to requiring a new system management structure, the introduction of an office automation system also requires the development of new operational procedures to assure effective use of the system and to minimize potential problems. These new procedures need to be organized into an AFR-specific operational procedures handbook which is disseminated to all AFR managers and staff. Such a reference document provides a basic set of controls which should reduce staff frustration during start-up and avoid some risks which can seriously disrupt office operations and productivity.

(1) Operational Procedures Need To Be Specified As AFR-Wide Guidance On A Large Number of Topics

AFR staff will need a wide range of information on how the system is organized and its capabilities, when it should be used, who should operate it and how it should be operated. The procedural topics include the following information:

- . Overview of AFR system concept and operation
- . Location of equipment
- . Scheduled hours of operation
- . Names and overview of system management and operations staff
  - System administrator
  - Assistant system administrator
  - Lead operators
  - Other trained operators
- . Overview of equipment capabilities
- . Use of document ID numbers
- . Content of the available glossaries
- . Standard revision marks
- . Establishment of document priorities
- . Library availability
- . Library maintenance
- . Guidance for filing documents to diskette

- . Back-up policy (copying to diskette)
- . System security
- . Care of diskettes
- . Glossary origination
- . Circulation of system update information
- . Circulation of SER/DM system bulletins
- . Supply acquisition
- . Technical support acquisition
- . Maintenance support acquisition
- . Scheduling on-going training
- . Recording equipment utilization statistics.

Appendix C to this report provides definitions of each of these needed procedures as well as specific recommended procedures for AFR usage where appropriate.

(2) Experience in Other Offices Indicates Areas Where Operational Problems Are Most Likely to Appear

AFR can benefit from the lessons learned by other organizations during system start-up and ongoing operations. Recurring procedural problem areas are identified below:

- . Failure to label material with reference document ID numbers
- . Inadequate verification of original input data for reports
- . Leaving material on-line with no back-up copy of diskette
- . Competing work priorities for system use.

The establishment and enforcement of system procedures will address the serious consequences which could result from improper system usage.

Some examples help to illustrate the importance of procedures. At inconvenient times, the system will go down, and some work will be lost. Back-up procedures and transfer of important information to diskettes will ease this problem. There will also be times when staff will compete for limited time on the equipment, and some work will be delayed. Clear work priority guidelines and professional staff discipline in scheduling can manage this problem. Finally, there will also be instances when staff will not clearly label a document with its reference ID number, and the work must be redone since it cannot be retrieved from the system. This problem can be largely prevented by maintenance of good document identification logs and staff support of this process.

(3) Developed by the System Administrator, the Procedural Operations Handbook Can Become A Valuable Training Tool

System procedures should be drafted by the System Administrator and reviewed and formally approved by AFR senior management. The procedures manual can then be prepared for distribution to AFR staff.

With some additions, this manual can be further expanded into a training tool for staff directly operating the equipment. Appendix D discusses the relation between these two manuals. The additional sections would provide application- and feature-specific guidance for staff to follow as they independently acquire skills or for staff to use as they provide instruction to others on AFR usage of the Wang OIS 140.

5. VENDOR-PROVIDED TRAINING MUST BE SUPPLEMENTED BY IN-HOUSE TRAINING TAILORED TO THE AFR SYSTEM DESIGN

The development of a training strategy will be one of the system administrator's and the system advisory committee's first priorities. Such a strategy establishes the guideposts for selecting appropriate training resources from among several options.

AID's contract with Wang provides for several training courses available to AFR as part of the system acquisition:

- . System administrator
- . Basic skill
- . Advanced concept.

On the basis of reports that Wang-provided training has not been sufficient in the past, SER/DM is in the process of developing and specifying needed additional training.

One of the major reasons why AID offices have not been satisfied with the Wang introductory training is that it concentrates on equipment-specific operations. Some translation of these skills to the AFR work environment is needed to provide a context which gives meaning to equipment features and functions. Booz, Allen recommends an applications-specific training approach which has been effective in other organizations. In this approach, operators learn how to complete a work process using automated support. Rather than emphasizing equipment operations, this approach emphasizes office-specific work routines. Equipment features, e.g., math and glossary, are not learned in isolation but as parts of the process of preparing a major series of exhibits in a recurring report. Such a learning approach permits the transfer of already acquired skills to additional work processes and directly harnesses the system's capabilities to improving important work documents and flows.

SER/DM has accepted these recommendations and is in the process of establishing at least two kinds of training courses:

- . Applications-specific training for operators on the OIS 140
- . Office automation and specific OIS 140 orientation for AID managers and professional staff.

At the time of this writing, it is not clear when such training courses may be available to AFR, and there is a real possibility that they may not be offered in time for AFR's equipment delivery schedule.

AFR must consider several alternatives then in developing its training strategy which are dependent upon the results and timing of SER/DM's initiatives:

- . AFR may be able to use Agency-provided application-specific training if it is available during AFR implementation.
- . AFR may have in-house resources if any AFR staff with training skills can be identified.
- . AFR may need to request contractor resources to develop and provide needed additional training.

The system administrator, advised by the system advisory committee, should be in a position to advise AFR management of a feasible training strategy in advance of equipment installation to provide sufficient lead time for adequate training. The equipment should not be operational until staff are trained to use it properly.

## VI. IMPLEMENTATION PLAN

AFR's implementation effort will face the challenges resulting from two waves of equipment installation. Consequently, many of the initial implementation tasks must be repeated and reviewed for possible modification as the second wave of equipment is installed. Exhibit VI-1, on the following page, provides an overview of the sequence of implementation activities in AFR.

This chapter provides a detailed plan which AFR management can follow in their initial transition to the use of the Wang OIS 140. Chapter VII discusses issues and options for system expansion which may be considered by AFR management after both implementation phases for the total OIS 140 configuration are completed.

Booz, Allen has identified eight key tasks in the implementation of AFR's office automation system. These tasks are outlined in Exhibit VI-2, following Exhibit VI-1, and are discussed in the sections which follow.

### TASK 1 STAFFING

The objective of this task is to properly define and assign the responsibilities of the staff who will manage and coordinate the Wang OIS 140 system.

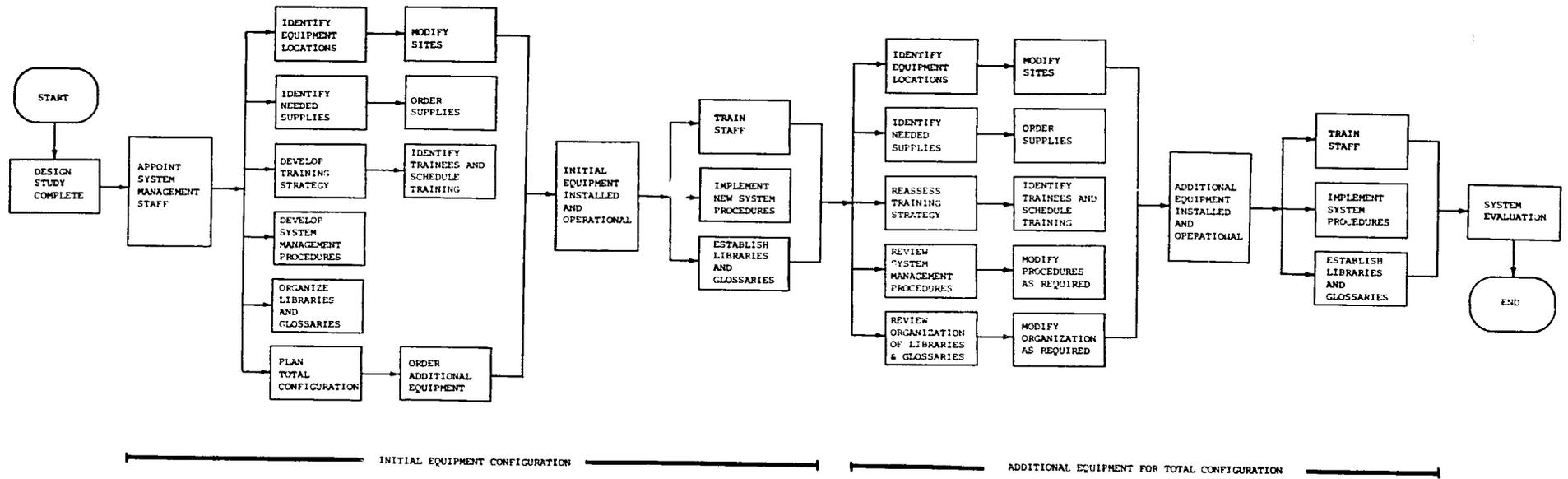
#### (1) Major Activity

AFR management must approve a system management structure as a foundation for subsequent staffing activities. The roles and responsibilities of the system administrator, assistant system administrator and lead operators should be specified and included as updates to formal staff positions. Finally, appropriate staff should be designated for the system management roles.

#### (2) Lead Responsibility

The system administrator and assistant system administrator roles should be reviewed and approved by AFR management which also approves staff selections for these roles. Lead operators and operators should be appointed by each office director.

EXHIBIT VI-1  
Sequence of AFR System  
Implementation Activities



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EXHIBIT VI-2

AFR SYSTEM IMPLEMENTATION PLAN

<u>TASK</u>	<u>LEAD RESPONSIBILITY</u>
1. <u>Staffing</u>	
. Define system administrator role objectives	BAH Design Study
. Outline system administrator role responsibilities	AFR Management
. Write formal system administrator role description	AFR Management
. Define lead operator role objectives	BAH Design Study
. Outline lead operator role responsibilities	BAH Design Study
. Write formal lead operator role description	AFR Management
. Determine staffing	AFR Management
- system administrator and assistant	
- lead operators	
- other operators	
2. <u>Total Configuration Planning</u>	
. Evaluate system configuration recommendations	AFR Management and SER/DM
. Order additional equipment	SER/DM and System Administrator
. Recommend office locations for Wang equipment	BAH Design Study

VI-3

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EXHIBIT VI-2 (Continued)

AFR SYSTEM IMPLEMENTATION PLAN

<u>TASK</u>	<u>LEAD RESPONSIBILITY</u>
3. <u>Physical Site Preparation</u>	
. Approve or modify the recommendations for office location	System Administrator and AFR Management
. Determine site preparation required	SER/DM and System Administrator
. Procure services to perform the site modifications	SER/DM and SER/MO
. Monitor site modifications	System Administrator
4. <u>Policies and Procedures</u>	
. Define initial policy and procedures required	BAH Design Study
. Outline technical issues for procedures	BAH Design Study
. Draft initial procedures	System Administrator
. Review, approve or suggest modifications to procedures	AFR Management
. Revise initial procedures	System Administrator
. Reproduce, distribute, and implement procedures	System Administrator and Lead Operators
. Identify revisions and update procedures	System Administrator
. Monitor and update procedures	System Administrator
5. <u>Equipment Installation</u>	
. Plan Wang equipment and furniture set-up	System Administrator
. Schedule equipment start-up	System Administrator and SER/DM
. Monitor start-up	System Administrator and SER/DM

VI-4  
4

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EXHIBIT VI-2 (Continued)

AFR SYSTEM IMPLEMENTATION PLAN

	<u>TASK</u>	<u>LEAD RESPONSIBILITY</u>
6.	<u>Training</u>	
	. Identify initial training needs	BAH Design Study
	. Recommend AFR-wide training strategy outline	BAH Design Study
	. Develop training strategy	System Administrator and SER/DM
	. Implement AFR-wide training program	System Administrator
	. Provide office-specific training	Lead Operators
	. Identify on-going training needs	System Administrator
	. Schedule on-going training	System Administrator
7.	<u>Library and Glossary Management</u>	
	. Identify initial set-up of libraries	BAH Design Study
	. Approve and coordinate initial set-up of libraries	System Administrator
	. Implement and update AFR wide libraries	System Administrator
	. Identify initial set-up of glossaries	BAH Design Study
	. Approve and coordinate set-up of glossaries	System Administrator
	. Implement and update AFR-wide glossaries	System Administrator
	. Implement and update office specific glossaries	Lead Operators
8.	<u>Evaluation</u>	
	. Provide evaluation guidelines	SER/DM
	. Specify AFR evaluation policy	System Administrator
	. Collect data and submit reports	System Administrator
	. Coordinate evaluation efforts	SER/DM and System Administrator
	. Use results to modify system (if necessary)	AFR Management

## TASK 2 TOTAL CONFIGURATION PLANNING

The objective of this task is to determine the total equipment configuration and initiate activities to acquire, install and operate the additional equipment.

### (1) Major Activity

There are four major activities:

- . Approve a final total equipment configuration for acquisition
- . Schedule return of existing equipment
- . Approve office locations for total equipment configuration
- . Establish office locations for the first wave of equipment.

### (2) Lead Responsibility

Upon approval of the configuration by AFR management, the system administrator is responsible for coordinating with SER/DM the work that must be undertaken to order and acquire the total configuration.

## TASK 3 PHYSICAL SITE PREPARATION

The objective of this task is to prepare the sites identified by AFR management for the installation and operation of the OIS 140 system.

This task will occur in two phases corresponding to the receipt of the two waves of the equipment. In both cases, the major activity and lead responsibility remain the same.

### (1) Major Activity

There are two major activities which must be completed in this task:

- . Confirming the locations for the OIS equipment and furniture
- . Laying the cables and attaching the connectors to link the workstations and printers to the CPU.

In order to carry-out the activities, the following items need to be determined:

- . Space available for the furniture and equipment
- . Amount of light available
- . Noise level of the printers
- . Temperature and humidity levels (especially for the CPU)
- . Cabling distances between CPU and workstations and printers within hardware specifications.

Wang provides a site preparation manual during its pre-installation visit which is helpful in addressing these and other installation considerations.

It is important that the site modifications be monitored by AFR staff to ensure that the following activities are addressed:

- . Cables should be labeled on the ends entering the CPU room to indicate from which room they originate.
- . Openings in the walls where the cables enter the room should be insulated (e.g., with a rubber socket) to prevent damage to the cables.
- . Exposed cables in each location should be reviewed for correct length considering the planned furniture placement.

## (2) Lead Responsibility

The system administrator determines the exact room locations for both waves of equipment and related furniture, with guidance from SER/DM and AFR management approval.

The requirements and responsibility for laying the cables, attaching the connectors to the cables, and any electrical modifications are SER/DM's and SER/MO's.

These offices will negotiate and secure the services necessary to address these requirements. However, it is the system administrator's responsibility to supervise the site modification work within the Bureau for proper compliance with the Bureau's needs.

#### TASK 4 POLICY AND PROCEDURES

The objective of this task is two-fold.

- . Establish uniform AFR policies and standards on system usage and integration into AFR operations. These policies are the foundation for all office automation functions and provide AFR management with a mechanism to guide and monitor office automation management and operational activities.
- . Establish a procedures handbook which will provide guidance to both the operators of the equipment and the staff generating documents as to the basic process by which a document is produced, revised and stored on the system.

These policies and procedures are vital to the smooth day-to-day operations of AFR's OIS system.

##### (1) Major Activity

In establishing policies and standards it is important to develop uniform regulations which can be utilized and followed by all AFR staff. AFR management must decide upon the role it wishes to play in maintaining control and tracking system operations. For example, AFR management might delegate operational (day to day) policy making to the system administrator, while retaining control over all decisions which affect personnel, budget or equipment.

The procedures handbook established by the AFR Bureau must accomplish the following:

- . Orient the professional staff as managers and system users
- . Provide operational guidance on effective system and equipment usage for operators.

Appendix C provides an outline of the major procedures that must be developed in the AFR Bureau.

(2) Lead Responsibility

The system administrator is responsible for establishing uniform policies and standards in a handbook approved by AFR management.

Once the documents are written and approved, they should be distributed by the system management staff to all AFR staff, both support and professional. As changes are made to the documents, the system administrator is responsible for updating the documents.

TASK 5 EQUIPMENT INSTALLATION

The objective of this task is to install the equipment in as efficient a manner as possible so that operations can begin as rapidly as possible.

This task will also occur in two phases corresponding to the receipt of the two waves of equipment. In both cases, the major activity and lead responsibility remain the same.

(1) Major Activity

The focus here is to ensure that the following tasks occur at the same time.

- . Completion of all site modifications
- . Delivery of equipment and furniture
- . Delivery of supplies (ribbons, print wheels, etc.)
- . Beginning of operator training.

In each of the equipment waves, the Wang equipment and related furniture should arrive simultaneously. Upon its arrival in AFR, Wang and SER/DM should be notified of its arrival so that the on-site installation process may begin.

(2) Lead Responsibility

It is the responsibility of the AFR system administrator to coordinate the four prime equipment installation activities with AFR management, SER/DM and Wang.

## TASK 6 TRAINING

The objective of this task is to provide the training required to effectively use the Wang OIS 140 system. As discussed in Chapter V, a successful training program is crucial to office automation success. The initial training program must address the production of key AFR documents as well as the basic and advanced operation of the system. By tailoring the training program to satisfy key document production as well as advanced office automation functions AFR can begin to form a core resource of in-house Wang expertise for new Wang users and applications.

This task will occur in two phases corresponding to the receipt of the two waves of equipment. The basic training strategy will be developed in preparation for the first equipment wave and may be modified by experience to guide subsequent training.

### (1) Major Activity

The focus in this task is in the completion of four activities:

- . Development of a training strategy
- . Identification of AFR trainees
- . Scheduling of training with vendor
- . Planning for provision of additional, AFR-specific training, probably through use of resources outside AFR.

An AFR training strategy should be established to direct the formulation of the training program. This strategy should cover such areas as:

- . Who should receive training, e.g., managers, users, operators
- . What should be included in each group's training
- . What specific equipment training is required, e.g., text processing, glossary, list processing
- . Type of outside supplemental training, e.g., Wang, M/PM/TD.

Appendix D to this report presents an outline of a Wang OIS training manual to guide training planning and strategy development.

(2) Lead Responsibility

The system administrator and the advisory committee have the lead responsibility in formulating and implementing the AFR training program. AFR management is responsible for approving a training strategy developed by the system administrator to guide the Bureau's training activities.

TASK 7 LIBRARY AND GLOSSARY MANAGEMENT

The objective of this task is to organize the system to support the document preparation functions. The initial, internal set-up of the Wang system requires the assignment of libraries and creation of glossaries.

(1) Major Activity

Libraries need to be assigned to each AFR office. As recommended in this report, each office should be assigned one library during start-up and additional libraries should be assigned later on the basis of system utilization information.

AFR requires four types of glossaries to support the seven key processes -- cable, PIO/T, CP project activity sheet and selected CP and ABS tables. These glossaries must be designed and programmed as soon as possible following equipment start-up.

(2) Lead Responsibility

The system administrator reviews and coordinates all glossary applications and library assignments. A copy of all glossary applications must be forwarded to SER/DM.

TASK 8 EVALUATION

Although AFR equipment will be arriving in two waves, a single evaluation should be conducted after a suitable period of full operation has passed (e.g., a year after system start-up). This will allow the evaluation findings to be accurately compared to the requirements and design studies.

The objective of this task is to prepare AFR to participate in post-implementation evaluation of the equipment with SER/DM. This evaluation is to compare projected productivity to the actual productivity achieved and to identify needed system refinements and possible corrective actions.

The primary indicators, e.g., pages produced and the hours used, are selected by SER/DM to meet National Archive Records Service (NARS) requirements for office automation productivity and utilization. The following description of an approach for system evaluation is consistent with SER/DM guidelines. AFR can expand the types of indicators and guidelines specified by SER/DM to satisfy any AFR-wide monitoring requirements developed by the Bureau.

(1) Major Activity

To perform the evaluation, the methodology originally used to justify the system should be repeated. This involves ongoing collection of equipment utilization and work load information.

The information from the weekly logs of each workstation are the foundation of this evaluation. When the logs are submitted to the assistant system administrator each week, he or she calculates the original pages per day, the revised pages per day, and the hours of use per day averages for the total equipment configuration. This is done by:

- . Adding the total number of original pages, revised pages, and hours used for each workstation
- . Combining the workstation totals
- . Divide each total by the number of days in the week to get the daily system averages of original pages, revised pages, and hours used
- . Divide these averages by the number of workstations to get the daily workstation averages of hours used, original pages and revised pages.

A monthly report summarizing these weekly figures should be sent to SER/DM.

During the evaluation, the hours used, original pages, and revised pages per day averages are compared to the following criteria to determine if the system is meeting the projected productivity:

- . 5 hours per day of utilization
- . 17 original pages per day
- . 44 revised pages per day.

The work load information in SER/DM's Requirements Study is compared to the current totals of original and revised pages produced on the system. Questionnaires or interviews could be used to indicate achieved improvements, for example:

- . Reduced typing time
- . Increased support time to do work delegated from the professional staff
- . Increased satisfaction with the level of secretarial support provided.

This information from the evaluation can be used to point to areas to investigate for system refinements if expected productivity has not been satisfactorily met or confirm that actual productivity improvements have been achieved and provide a basis for system expansion if needed.

The timing associated with performing the evaluation is an important factor contributing to valid results. If the evaluation is performed too soon after implementation, meaningful results are not achieved because of inadequate break-in time. Although the evaluation could take place six months after implementation, Booz, Allen recommends that AFR wait one year to allow the work environment conditions to stabilize.

## (2) Lead Responsibility

The system evaluation task is an ongoing activity performed by all users and operators:

- . System administrator specifies specific procedural policy in coordination with SER/DM
- . Ongoing data collection of actual productivity is done by the lead and other operators

- . Users assist with observations and recommendations for improvement.

SER/DM has the lead responsibility to ensure that system evaluation guidelines are current and met by AFR.

\* \* \* \* \*

The AFR Bureau will face several challenges as a result of the planned two phased implementation of an OIS 140 advanced office automation system, including:

- . Repetition of many tasks
- . High level of system management staff time
- . Competition for access to first wave of equipment
- . Longer transition time to realize implications and plan needed system refinements.

Because of AFR's implementation process, it is important that AFR management realize that the implementation process begins as soon as the design study is accepted and a system administrator appointed. It does not begin when the equipment arrives. A tremendous amount of work can be done, and in fact has to be done, prior to the arrival of the first wave of equipment. Exhibit VI-1 graphically illustrates and this chapter has explained in detail the major activities that must be accomplished to provide a foundation for smooth system operation.

Although the implementation of the second wave of equipment does not require all of the same work that the initial wave does, it presents other challenges that must be met by the system administrator and AFR staff. The system administrator must evaluate, assess and modify where appropriate each of the steps and decisions made during the implementation of the first equipment wave. AFR has the opportunity to incorporate lessons learned from the smaller system's operations into the process of successfully managing the full system.

## VII. PLANNING FOR THE FUTURE

As the AFR Bureau gains word processing experience on the OIS 140 system, AFR can begin to formulate a strategy for expanding the system's capabilities to include needed advanced features and functions. The Booz, Allen study team has repeatedly observed that AFR staff are eager to take full advantage of the capabilities of the OIS 140 as well as possible linkages to the Agency's data processing systems.

The sections which follow present conclusions and recommendations for planning near- to long-term OIS 140 system enhancements including:

- . Usage of advanced OIS 140 features
- . Acquisition of Optical Character Recognition (OCR) capability
- . Establishment of telecommunications linkages.

These recommendations provide AFR a starting point for developing an advanced office automation strategy.

### 1. MANAGEMENT INFORMATION AND PROGRAM MONITORING TOOLS CAN BE DEVELOPED ON THE WANG OIS 140 WITHOUT DATA PROCESSING INTERVENTION

List processing, an advanced OIS capability, can provide AFR management some ability to set up files to track and monitor internal administrative tasks, such as:

- . Travel budgets
- . Personnel career or foreign service tracking
- . Staffing training plans.

This advanced feature is specially designed by Wang to help users create and maintain data files and selectively retrieve data from these files without the complexity of traditional business programming.

List processing combined with standard Wang word processing capabilities provides AFR users a powerful automation tool. These capabilities used jointly give AFR users the ability to create report listings, repetitive memoranda, and high volume correspondence.

In addition to supporting administrative tasks, list processing can support some program management activities as:

- . Inventory of active projects
- . Status of AFR research budget
- . Tracking of PIO/T and Congressional Notification status.

These automated files can provide senior AFR management with increased flexibility and data access for management reporting and control.

## 2. OPTICAL CHARACTER RECOGNITION (OCR) CAN BE AN INTERIM STEP TOWARDS ELECTRONIC SUBMISSION OF FIELD MISSION DOCUMENTS

As a potential Agency prototype for OCR operation and utilization, AFR's advanced office automation system can become capable of electronically reading mission documents, prepared on OCR-font capable typewriters. OCR usage should be considered an interim AFR document preparation solution while field missions are planning and acquiring office automation equipment which will permit diskette exchange.

Wang offers an OCR option which uses the following hardware and software:

- . An OCR scanner to read text which is purchased separately from an OCR equipment vendor
- . A Model OCR-1 interface--a "black box" translator used to convert the OCR-generated electronic characters into Wang-compatible characters
- . One or more optimal modems to transmit information either over phone lines or directly into the OIS 140 system
- . An available port on the OIS 140 master console in the central processing unit (CPU)
- . OCR software is included in the Wang telecommunication software package.

Additionally, use of an OCR requires specific document preparation procedures enabling the OCR scanner to read documents with ease and accuracy. Depending upon the equipment vendor, they can include the following requirements:

- . OCR font usage
- . Minimum of one-half inch margins on all sides of the paper
- . Non-rag bond paper
- . Typewriter impression 3 or thickness A
- . Single-use carbon ribbon
- . Double space format recommended
- . No strikeovers
- . No correctional fluid
- . No special typing training.

The OCR can also serve as another form of electronic input into the OIS 140 system by AID/W offices. To achieve greater use of AFR workstations, users can create lengthy documents on electric typewriters with an OCR font and without special training or rekeying. These documents can then be electronically read onto the OIS 140 system disk by an OCR scanner for subsequent reviews and revisions. This input method frees workstations for other uses such as heavy revision typing, additional user training, and other Wang functional usage.

3. THE ESTABLISHMENT OF LINKAGES TO OTHER SYSTEMS AND THE MAINFRAME COMPUTER IS CONTINGENT UPON AGENCY POLICY

AFR has significant and generally positive experience in the use and operation of data processing appreciations, as in the ABS, CP, and OYB systems. The Booz, Allen team has repeatedly observed that the AFR staff are eager to take full advantage of the existing data processing capabilities represented by the Agency's mainframe computer. Three potential opportunities for OIS 140 linkages exist in the AFR Bureau:

- . Linkages to other AID/W word processing systems to supplement current manual document and information transmission
- . Linkages of the OIS 140 to the Agency's mainframe computer for data entry, manipulation, storage and retrieval

- . Linkages to other federal and commercial data bases.

While the establishment of these linkages is technically feasible, the type and extent of these linkages are contingent upon Agency policy. SER/DM has initiated investigation of several issues which will shape the Agency's policy in this area, including:

- . Software requirements
- . Telecommunications and network objectives and specifications
- . Relative costs of linkage design and implementation
- . Data privacy and security of other federal and commercial data bases
- . Benefits to be realized.

AFR can undertake the following tasks to position itself for anticipated future telecommunications linkages:

- . Become proficient in Wang OIS 140 word processing operations
- . Define specific objectives and uses of telecommunications linkages.

Working closely with SER/DM, AFR can effectively plan and define its telecommunications data needs and requirements for incorporation into the agency-wide telecommunications policy issue.

APPENDIX A  
OIS SYSTEM DEFINITIONS

## OIS SYSTEM DEFINITIONS

Archival Workstation	A workstation equipped with an attachment to create a diskettes for off-line storage of documents processed on the OIS and for re-entry of information stored on diskettes into the OIS system disk for further processing.
Configuration	The sum of the various components that make up a word processing system. Most systems include a keyboard, a CPU, a form of magnetic storage (such as diskettes), a printer and a video display device.
CPU	Central Processing Unit -- the power base for the entire OIS configuration -- the CPU serves as the processing source for all equipment (peripherals) attached to it. A total of 32 pieces of equipment may be connected to the CPU.
Disk	A high-capacity magnetic storage medium.
Diskette	A magnetic coated disk, similar to a record, on which information is stored off-line.
Document ID	The identifier consisting of four digits and an alphabetic character, assigned by the system to a document when it is created. It must be used to access the document for any subsequent system operation (edit, print, archive, etc.).
Document Merge	Provides an operator with the ability to merge two separate documents into a new third document with its own unique document ID number.

Daisy Printer

An electronic impact printer which produces high quality documents on any type of paper at an average rate of 40 characters per second (CPS). It utilizes interchangeable printwheels to produce a variety of type styles and sizes.

Floppy Diskette

See Diskette.

Font

The device which actually contains the characters, e.g., the IBM golf ball element and the daisy wheel.

Glossaries

Special instructions prepared by an operator which contain frequently used commands, phrases, paragraphs or formats for routine document preparation. By giving the system a glossary command, these stored instructions can be attached to a document currently created or edited with minimal keystrokes.

Libraries

Documents are catalogued into specific storage areas on the system disk called libraries. When using a document on the system, it must first be retrieved from the library to which it was assigned from on-line storage. After use, the system automatically returns the document to the library unless it is otherwise instructed by the operator, (e.g., to delete the document).

List Processing

An advanced word processing feature which permits the user to create files of similar information for data manipulation and management, e.g., administrative recordkeeping, individual staff schedules, supplies and personnel records. The stored information can be printed in user specified options, e.g., sorted in ascending or descending order, alphabetically or numerically.

Math Package

The math package of OIS calculator allows the operator to perform the basic arithmetic functions of add, subtract, multiply, divide, computer powers and roots of numbers. The system as it computes displays each subtotal on the workstation screen. All computations performed on the calculator can be printed out in hard copy or stored for later reference.

Modem

A device used to link two components by telephone line interconnection.

OCR

Optical Character Recognition -- a method of converting typewritten material into an acceptable computer input medium. Data is typed on a selectable typeface typewriter, converted by OCR, and entered directly into the OIS system for later editing or printout.

OIS 140

Office Information System 140 (Model I) -- is an advanced shared-logic word processing system consisting of a CPU and a variety of workstations, printers and other attachments. It allows for the creation, editing and transmission of a document as well as a host of other document specific functions, e.g., paragraph numbering math support and pagination.

Password

A unique word or string of characters that a word processing operator must supply to meet security requirements before gaining access to a document.

Peripherals

Devices, such as printers and workstations, which are interconnected to the CPU.

Shared Access	The feature which permits use of a document created at various locations on the OIS.
Shared-Logic Word Processing System	A multiple workstation system where each workstation shares the word processing capabilities, storage and peripherals of a CPU.
Stand-alone Workstation	A single-station word processor which does not share the processing power of a CPU.
Twin-Sheet Feeder	An optional attachment to the daisy printer, which is mounted on the printer's top and automatically inserts sheets of paper into the printer and receives the finished copy in a special hopper. The twin-sheet feeder allows for the feeding of letterheads and second sheets automatically.
Workstation	A component of the system consisting of a CRT (Cathode-Ray-Tube) and keyboard at which an operator keys in and edits a document. The workstation works in conjunction with the CPU and printer.

## BIBLIOGRAPHY

The following publications are available from Wang Laboratories and describe in detail the various functions and characteristics of Wang office automation equipment. All questions regarding specific definitions, functions, ect. should be addressed to SER/DM and/or the Wang Laboratories' Service Representative.

- . Wang Office Information System 140 Data Sheet  
700-484-OC 11-80-10M
- . Wang List Processing Application Sheet  
700-6107B 6-81-10M
- . Wang Advanced Functions Application Sheet  
700-6557 6-81-10M
- . Wang Document Summary Collection Application Sheet  
700-6118A 11-80-15M
- . Wang Operator Guide  
Version QH October 1980

APPENDIX B  
SYSTEM MANAGEMENT STAFF RESPONSIBILITIES

## SYSTEM ADMINISTRATOR

The principal responsibilities of the system administrator are to:

- . Identify, develop and distribute operational procedures under the technical guidance of SER/DM
- . Revise (as necessary) the operational procedures
- . Define and revise (as necessary) the system back-up policy
- . Develop training strategy
- . Monitor and assess training
- . Determine and revise assignment of libraries
- . Review glossaries for consistency with AID regulations
- . Establish passwords
- . Receive SER/DM bulletins
- . Send copies of PPC-developed glossaries to SER/DM
- . Participate in a group composed of office automation users, sponsored by SER/DM, to identify operational problems and solutions
- . Distribute technical and procedural information throughout PPC
- . Maintain knowledge of system operations and document applications
- . Serve as the primary in-house expert on the use of the system
- . Provide guidance to other PPC staff members on technical and procedural issues
- . Place call to Wang for technical support if necessary
- . Maintain inventory of installed equipment

- . Critique new features and equipment as they become available
- . Serve as advisor on equipment configuration modifications
- . Help justify equipment changes
- . Maintain equipment utilization statistics as required by SER/DM (e.g., operation logs that identify amount of time equipment is in use and the amount of output produced)
- . Participate with SER/DM in operational reviews and post-implementation evaluations, as appropriate
- . Advise PPC senior management of the status of office automation operations and the need for any corrective action.

## ASSISTANT SYSTEM ADMINISTRATOR

The assistant system administrator serves as a back-up to the system administrator with emphasis on the following responsibilities:

- . Maintain knowledge of system operations and document applications
- . Serve as an in-house expert on the equipment operations of the system
- . Provide guidance to equipment operators on technical and procedural issues.

In addition, the principal responsibilities of the assistant system administrator are to:

- . Schedule training and provide staff orientation
- . Create and update the library assignments on the volumes of the disk
- . Monitor the space utilization of the disks
- . Notify operators to remove documents if space utilization is too high
- . Bring system up and take it down daily
- . Serve as advisor when equipment malfunctions
- . Place service calls as necessary
- . Maintain records of equipment problems, amount of downtime, responsiveness of service calls, and Wang service receipts
- . Maintain equipment utilization statistics as required by SER/DM
- . Maintain adequate levels of expendable supplies
- . Order supplies as necessary
- . Determine workstations not "in use" on request.

## LEAD OPERATOR

In each office-level organizational unit, one person should be designated the lead operator. The objectives of this role are:

- . Serve as the local expert on office-specific system applications and procedures
- . Provide a central point of coordination within each office.

The person also works closely with the system administrator and the assistant system administration.

The principal responsibilities of the lead operator are to:

- . Provide system orientation to office staff
- . Recommend revisions to existing operational procedures to the assistant system administrator
- . Check supply levels at work area
- . Notify the assistant system administrator of supplies needed
- . Determine equipment malfunctions
- . Contact assistant system administrator to secure service
- . Maintain knowledge of document applications and system operations
- . Test new equipment
- . Monitor the recording of system utilization statistics for the workstation
- . Submit utilization statistics required by SER/DM to the assistant system administrator.

APPENDIX C  
PROCEDURES

## PROCEDURES

The following sections provide definition and some discussion of major operating procedures which need to be developed for the Wang OIS 140. This information may be used as the foundation for development of an OIS policy and procedure manual.

### (1) Location of Equipment

This is a listing of each location, the equipment installed, and the system (port) number for each workstation and printer. The numbers for the printers are especially important because an operator can use them to direct to printing a document at another location if desired.

### (2) Scheduled Hours of Operation

The assistant system administrator routinely brings the system up and takes it down at specific times each day. The hours the system is available for use should be specified.

### (3) Names and Overview of System Management and Operations Staff

This is a listing of staff in key OIS roles and an overview of the responsibilities of each role:

- . System administrator
- . Assistant system administrator
- . Lead operators
- . Other trained operators

This information establishes whom to contact for specific questions, comments, or tasks.

### (4) Overview of Equipment Capabilities

This is a listing of the key features and functions the equipment provides to help the staff understand what can be done. Examples of key capabilities include:

- . Largely on-line disk storage
- . Ability to create a back-up (duplicate) copy of a document on diskette

- . Expandable off-line storage
- . Powerful editing
- . Easy recall of stored repetitive text, formats, and instructions through glossaries
- . Protection of documents from unauthorized access via assignment of passwords
- . Shared access to designated documents
- . Mathematic functions
- . Hard copy printing
- . Automatic paper feeding
- . Creation, maintenance, and output of simple files
- . Ability to sort (reorder) information alphabetically and numerically in ascending and descending order.

(5) Use of Document ID Numbers

The document ID number is the way the system easily retrieves a particular document. Therefore, it is important that the author and operators keep track of these numbers. To facilitate this tracking, the following steps should be taken:

- . Develop a "Document Identification" form to transmit the ID number.
- . Instruct the operators to attach the completed form to the document when it is typed and returned to the author.
- . Instruct the author to return this form with the document when revisions are submitted.

Adherence to this procedure eliminates wasting operator time searching for the correct document.

(6) Content of Available Glossaries

Glossaries are created on the equipment to instantly retrieve commonly used words, phrases, and/or instructions. A list of glossaries available and a brief description of each should be provided. This list serves as a basis for processing work and a stimulus for identifying new glossary applications. Any

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suggestions for new glossaries should be discussed with an operator so that development can take place.

(7) Standard Revision Marks

A list of standard revision marks helps create consistency throughout the Bureau and facilitates ease in understanding what revisions are desired. A sample list is provided in Exhibit C-1, following this page.

(8) Establishment of Document Priorities

The workstations in AFR will be shared by several operators. Occasions will arise when there is a conflict. When this occurs, there are two available choices:

- . Attempt to use another office's equipment
- . Make a document priority decision.

If the first choice is selected, the office's lead operator should call the assistant system administrator who can use the system control functions to quickly determine if any workstations are currently idle or turned off. The operator can then contact the lead operators for these workstations to determine the length of time the workstation may be available and make arrangements for use.

If an operator does not want to go to another location or another location's equipment is not available, a work priority decision must be made by the lead operator, in consultation with the office director or his/her designee if needed.

(9) Library Availability

Each office and division within an office is assigned a specific library for the on-line creation and storage of documents. Other libraries should not be used without system administrator approval.

(10) Library Maintenance

Libraries are designed to keep active documents on-line and accessible. Each operator should either delete or file to diskette any document that is not active.

(11) Guidance For Filing Documents To Diskette

When a document is filed to diskette, it no longer exists in the library. However, it can be retrieved at any time. Any document that has not been

EXHIBIT C-1  
STANDARD REVISION MARKS

<u>SYMBOL</u>	<u>DEFINITION</u>
↵ or ✕ or 7	delete; take <del>it</del> out
○	close up; print as o <sup>o</sup> ne word
⊖	delete and close up
^ or > or <	caret; insert <u>here</u> something
#	insert a space
eg #	space evenly <sup>#</sup> where <sup>^</sup> indicated
stet	let marked <del>text</del> stand as set
⋈	transpose, change <u>order</u> the
/	used to separate two or more marks and often as a concluding stroke at the end of an insertion
⌊	<u>set</u> farther to the left
⌋	<u>set</u> farther to the right
≡	straighten <u>alignment</u>
	straighten or align
⊗	imperfect or broken character
□	indent or insert em quad space
¶	begin a new paragraph
Ⓟ	spell out -- 5 lbs. as five pounds
cap	set in <u>capitals</u> (CAPITALS)
sm cap or S.C.	set in small capitals (SMALL CAPITALS)
lc	set in <u>lowercase</u> (lowercase)

CH

EXHIBIT C-1 (Continued)

STANDARD REVISION MARKS

<u>SYMBOL</u>	<u>DEFINITION</u>
<i>ital</i>	set in <u>italic</u>
<b>bf</b>	set in <u>boldface</u>
—	hyphen
∨	superscript or superior (as in $\pi^{\vee} r^2$ )
^	subscript or inferior (as in H <sub>2</sub> O <sup>^</sup> )
∧ or ∨ ∨ or ^	centered (∧ for a centered dot in comma)
∧	apostrophe
⊙	period
; or ;/	semicolon
: or ⊙	colon
“”	quotation marks
(/)	parentheses
□/□	brackets
ok/?	query to author: has this been set as intended?
□	move up or move down
no ¶	no paragraph
□ □	centered matter
cap + lc	capitalize first; lower case remainder

~~MISSILES AND SPACE~~

accessed or printed in the past two weeks should be filed to diskette.

When a new document is created, a "Document Summary" screen appears. Operators should always complete the following entries:

- . Document Name
- . Operator
- . Author.

Every two weeks, the lead operators should request that each designated operator print a list of documents processed on his or her workstations. The date the document was created, last revised, or last printed will appear on the list. Check with the author to determine if any documents not accessed in the last two weeks can be deleted. If deletion is not approved, file the document to diskette to make space available in the library.

The assistant system administrator monitors the status of on-line storage weekly. If the percentage of disk utilization is high, lead operators are asked to file documents to diskette. In this case, the office director's, or his/her designee's, discretion must be used to determine which documents should be removed from the libraries and stored on diskette.

#### (12) Back-up Policy

All documents are created and stored automatically in a library on the system disk. However, some important documents should be copied (back-up) onto diskette. When documents are copied, they exist in two places, on the disk and on the diskette. If the system should go down, the diskette could be taken to another system or standalone unit to process the document.

The following criteria should be used to determine whether a document should be backed-up:

- . Document length over ten pages
- . Document being prepared to go outside AFR
- . Request for back-up from author.

If a back-up copy of a document exists, each time the document is revised the new version should replace the old version on the same diskette.

(13) Care of Diskettes

Diskettes have valuable data recorded on them. The following tips help avoid damaging them:

- . Do not expose to sunlight or heat.
- . Store in their jackets or envelopes.
- . Do not touch the exposed areas.
- . Keep magnets far away.

Other tips are available from Wang.

(14) Glossary Origination

Operators create new glossaries as suggestions are made or needs are addressed. When this occurs, the description of the glossary content and use should be sent immediately to the system administrator, who is responsible for the distribution of technical information throughout the Bureau. The information about the new glossaries is then circulated so that all operators can benefit. A copy is also sent to SER/DM for possible circulation throughout AID.

(15) Circulation of System Update Information

Periodically, Wang provides system update information. In addition, technical (e.g., new glossary) and procedural updates are generated within ARF. The system administrator is responsible for distributing this information. Any shortcuts or useful information discovered should be given to the system administrator for distribution.

(16) Circulation of SER/DM System Bulletins

SER/DM issues periodic bulletins to offices with Wang equipment to convey useful information. The system administrator circulates this information within AFR if it directly applies to the document preparation functions being performed.

(17) Supply Acquisition

The maintenance of adequate supply levels for AFR is the responsibility of the assistant system administrator. Requests for supplies should go to the office's lead operator who forwards the request to the assistant.

(18) Technical Support Acquisition

The system administrator and assistant system administrator are the in-house experts on the use of the equipment. Requests for technical support should go to them. If they are unable to provide assistance, the Wang customer support person is called and if necessary, an appointment for technical assistance is scheduled.

(19) Maintenance Support Acquisition

The assistant system administrator is the in-house advisor when equipment malfunctions. Requests for maintenance support should go to this person. If a malfunction is determined, the Wang customer service representative is called in to make the repair.

(20) Scheduling Follow-on Training

All operators are initially trained on the basic word processing and glossary functions. Depending on need, selected operators also receive advanced function training. Operators should periodically check the equipment capabilities list to determine if they could benefit from the use of any advanced functions. If so, consult the assistant system administrator to schedule the desired training.

Since Wang periodically upgrades its software, AFR may add new equipment and the system administrator may recommend additional training for operators to AFR management.

(21) Recording Equipment Utilization Statistics

A log should be designed to accumulate utilization figures. Utilization figures are kept for all word processing units, including any equipment AFR maintains in addition to the OIS workstations. This log can also serve as a means of reserving equipment. The lead operator monitors the log to make sure all equipment use is recorded. The entries in the log should follow SER/DM guidelines which include:

- . Name of person typing
- . Office of person typing
- . Amount of time workstation used
- . Number of original or revision pages produced.

The lead operators send the previous week's logs for their office's equipment each Monday to the assistant system administrator who maintains utilization statistics for each workstation. These reports are regularly reviewed by the system administrator prior to submission to SER/DM to assess performance, make needed adjustment and identify significant operational problems as early as possible.

APPENDIX D  
OUTLINE OF OIS TRAINING MANUAL

## TRAINING

The OIS training manual for AFR could be divided into three major chapters:

- . General Information
- . Procedures
- . Equipment Operating Instructions.

The sample of the possible content of these chapters is outlined in Exhibit D-7, on the following two pages. Chapter II of this training manual includes the same information as the procedures manual each staff member is given as a system reference guide. In addition, Chapter II contains references to equipment operating instructions when necessary to perform a function. Chapter III, Equipment Operating Instructions, includes references to:

- . Wang OIS Operators Guide (Version 2H, October 1980)
- . Wang supplemental manuals
- . Exercises developed by AFR showing the use of the operating instructions in performing daily functions.

Once the training manual is developed, it becomes the foundation for training both system users and operators. Chapters I and II of the manual contain the information that should be presented during the orientation sessions to all system users to introduce the system. Each staff member should leave the orientation session with a copy of the AFR procedures manual, which specifies the topics also included in Chapters I and II of the training manual. These orientation sessions provide all the necessary information for the system users.

However, those staff members who are either designated operators or plan to use the equipment directly require additional information. These trainees should use the training manual in conjunction with the equipment to develop the desired skills.

As trainees progress through the training manual, they are expected to read Chapters I and II. Although the information in these chapters is the same data that should be presented to the entire AFR staff during orientation sessions and is included in the procedures manual, it is

important to read these chapters to learn the equipment operating instructions necessary to perform specified procedural functions. Chapter III requires them to read the chapters of the Wang manual, perform the exercises included in the chapters, and then perform the supplemental AFR-specific exercises. Proper use of Chapter III requires tailoring to address specific operator needs and the availability of a trainer (e.g., the assistant system administrator or a lead operator) to monitor progress, answer questions, and review concepts.

EXHIBIT D-1

Outline of CIS Training Manual

I. GENERAL INFORMATION

1. Objectives of the system
2. Overview of equipment capabilities
3. Objectives of the training manual

II. PROCEDURES

1. Location of the equipment
2. Scheduled hours of operation
3. Names and responsibilities of equipment trained staff
4. Establishment of document priorities
5. Use of document ID numbers
6. Standard revision marks
7. Glossaries
  - Content of those available
  - Origination
8. Libraries
  - Availability
  - Maintenance
9. Diskettes
  - Back-up policy
  - Guidance for filing documents
  - Care
10. Support Acquisition
  - Supplies
  - Technical
  - Maintenance
11. Circulation of System Information
  - Updates
  - SER/DM bulletins
12. Scheduling on-going training
13. Recording equipment utilization statistics

III. EQUIPMENT OPERATING INSTRUCTIONS

1. Basic Concepts
  - Wang OIS Operator Guide
    - Chapter 1--A Wang Office Information System (OIS)
    - Chapter 2--System Description
    - Chapter 3--Basic Instructions
    - Chapter 4--Word Processing
    - Chapter 5--Creating a Sample Letter
    - Chapter 6--Create, Print, and Edit a Memo

- Chapter 7--Create, Print, and Edit a Letter
  - Chapter 8--Create, Print and Print a Four-Page Brochure
  - . AFR Exercises
2. Printing and Special Operational Feature Concepts
    - . Wang OIS Operator Guide
      - Chapter 9--Printer Layout
      - Chapter 10--Special Print Functions
      - Chapter 16--Special Operational Features
    - . AFR Exercises
  3. Diskette and Indexing Concepts
    - . Wang OIS Operator Guide
      - Chapter 11--Document Filing (Archival)
      - Chapter 12--Document Index
    - . AFR Exercises
  4. Advanced Concepts
    - . Wang OIS Operator Guide
      - Chapter 14--Utilities
      - Chapter 15--Glossary Functions
    - . Supplemental Manuals
      - Glossary
      - Mathematic Support Package
      - System Security
      - List Processing
      - Document Merge
    - . AFR Exercises