

FAIME

A DEVELOPMENT PROGRAM FOR A FOREIGN AFFAIRS INFORMATION MANAGEMENT SYSTEM (FAIMS)

REPORT 551-2



dta

PREPARED FOR:

EXECUTIVE OFFICE OF THE PRESIDENT
BUREAU OF THE BUDGET
WASHINGTON, D. C.



My Strub

Foreign Affairs Manual Circular

JOINT STATE, USIA, AID, ACDA CIRCULAR

SUBJECT: Project for the Improvement of Foreign Affairs Information Management

No. 267

December 31, 1964

1. Background

- a. Ever-increasing expansion in the scope and complexity of the foreign relations of the United States has created unprecedented problems of generation, transmission, processing and use of information required for decision-making and program operation. In addition to difficulties that have been encountered within each of the foreign affairs agencies, new problems and opportunities have arisen in the processing and exchange of information among them.
- b. In the past each agency has sought individually to find solutions through improving aspects of its own communications and documents handling processes. However, a comprehensive, joint approach is required if substantial systems improvements are to be realized. Therefore, the Department of State, the Agency for International Development (AID), the United States Information Agency (USIA), and the Arms Control and Disarmament Agency (ACDA), with the assistance of the Bureau of the Budget, have agreed to a joint initial effort to delineate inadequacies and to formulate and carry out a program for the development of modern compatible systems.

2. Responsibilities and Procedures

- a. Responsibility for this program has been assigned within the participating agencies as follows:

Department of State: Deputy Assistant Secretary for Management

AID: Deputy Assistant Administrator for Administration

USIA: Assistant Director for Administration

ACDA: Executive Director

These officials are providing the staffing and support for a joint study.

- b. Areas of concern to the Joint Project Staff include: Definition of information requirements; present document flow and processing within and among agencies; "need to know" in existing distribution patterns; duplication of documents and files; mechanisms for retrieving stored information; possible needs for joint storage of certain information in a data base to facilitate interchange of information; extent of reliance on memory supported by "personal" files; and time required for reading and acting on incoming and outgoing communications.
- c. The first stage of the project will require about six months. It will constitute a survey to: (1) identify and determine volume, timeliness, and other significant characteristics of information needs of both decision-making and operating elements; (2) inventory and analyze present information processes; (3) prepare a preliminary outline of a long-range system (or systems) to best meet both inter and intra-agency needs; and (4) identify and specify a program for development of the system.
- d. A related concurrent task will address itself to the development of an improved information system for AID's technical assistance programs; the estimated duration of this task is ten months.
- e. The second major stage will include the detailed design of a comprehensive system and its major components, taking advantage of the latest knowledge and equipment in the field of information handling, and installation of interim improvements identified in the exploratory survey. This will be followed by the long-range, step-by-step development of the over-all system or systems for generation, distribution, storage and other processing of foreign affairs information.
- f. To ensure that the needs of posts in the field are adequately considered, project personnel will visit a small number of representative posts having significant, State, AID and USIA activities. Post selected will be notified as soon as possible.

- 3 -

- g. The success of this project depends in large part on the cooperation and participation of senior officers in all of the agencies. It is essential that the Joint Project Staff obtain, in the short time available, a full understanding of information requirements and information management problems of each agency. Conferences and individual interviews with officers and operating personnel will be arranged by the project staff. Any questions or suggestions regarding this effort should be addressed to the appropriate staff members listed below (Room 2242, New State, Extension 8741).

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FOREIGN AFFAIRS INFORMATION MANAGEMENT EFFORT
(FAIME)

A DEVELOPMENT PROGRAM FOR A
FOREIGN AFFAIRS INFORMATION MANAGEMENT SYSTEM
(FAIMS)

Report 551-2

7 June 1965

Prepared for

Executive Office of the President
Bureau of the Budget
Washington, D. C.

Prepared by

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Washington, D. C. 20007

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ABSTRACT

This document presents the results of a five-month study and analysis effort by Dunlap and Associates, Inc., in connection with the Foreign Affairs Information Management Effort (FAIME). An earlier report, "Evaluation of Present Information Handling Practices," described the evaluative findings and conclusions concerning present practices within the Department of State, Agency for International Development, U. S. Information Agency and the Arms Control and Disarmament Agency as required by Phases I and II of that effort. The present report presents recommendations for a plan and program to overcome the deficiencies discovered and reported in the evaluation. This plan and program describe 1) a broad design and operational concept for a foreign affairs information management system, 2) recommendations for methods to be used in determining in detail the operational requirements for that system, 3) a plan for the system's incremental development, and 4) a plan and program for the implementation of some important interim improvements for each of the agencies which can be instituted prior to actual implementation of the recommended system.

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1. INTRODUCTION AND SUMMARY

1.1 Introduction

1.1.1 Purpose

This final report has been prepared and is submitted as required under Contract EB-93, Article 1, Section 3, and documents the conclusions reached during Phase A of that contract. It is based upon the formal evaluation report "Evaluation of Present Information Handling Practices," (Report 551-1, 10 May 1965). That report reflects the major substantive operations of the four agencies and their associated needs for information management. The present report contains an initial definition of the efforts involved in moving from present information handling practices to a long-range foreign affairs information management system. Both interim and long-range development plans are focused on the requirements posed by the operational capabilities that must be maintained in the Department of State, the Agency for International Development, the United States Information Agency, and the Arms Control and Disarmament Agency - individually and as a part of the overall community of foreign affairs agencies.

1.1.2 Scope

This report contains recommendations for the development of a foreign affairs information management system including:

- 1) a broad operational concept for the system;
- 2) recommendations for determining in detail the operational requirements of the system;
- 3) a plan for its incremental development; and,
- 4) a plan and program for the implementation of certain important interim improvements for each of the agencies which can be instituted prior to active implementation of the recommended system.

The report is organized into four principal sections of which this Introduction and Summary is the first:

Section 2 contains the Foreign Affairs Information Management System (FAIMS) concept. It describes the elements of the FAIMS concept under the following headings:

- o Operational capabilities - the ways in which an information system will support agency functions.
- o Information system capabilities - the technical processes by which information is collected, manipulated and produced for the user.
- o Operational system concepts - the configuration of human and technical resources together with their controlling programs and management.

Section 3 describes in some detail the requirements for system development, a plan for acquiring the more detailed information needed to draw up definitive system specifications, and a program for FAIMS implementation.

Section 4 contains a set of recommended interim improvements in information handling and management that can be implemented without delay.

The overall effort under the contract also includes, as Phase B, the development of a design for, and testing of, a Technical Assistance Program information handling system for AID. Phase B is currently in progress and will be reported on separately.

1.1.3 Acknowledgements

It is important to acknowledge the sustained effort and the significant assistance provided by the personnel assigned to the FAIME study by each of the four foreign affairs agencies. The names and organizational affiliations of all these personnel are listed below since an attempt to provide special acknowledgement for any individuals would be doing a disservice to the others.

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Mr. Willard Fazar
Mr. Bernard Urban

In addition to the above FAIME staff members, many other Agency personnel contributed their time and efforts to the results reported here by finding time in their very busy schedules for interviews, by assisting in the collection of information and in validating the results.

1.1.4 Responsibility for Report Contents

Our efforts have been materially assisted by the agency personnel through granting interviews, participation in the program and review of the recommended plan and improvements. At the same time we wish to assert that the entire contents of this report are the sole responsibility of the Dunlap and Associates, Inc. staff involved in the FAIME project. That staff included the following:

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1.2 Summary

1.2.1 General

This report presents recommendations based on the findings and conclusions reached in what was essentially a five-month study of the information handling practices of the Department of State, the Agency for International Development, the United States Information Agency, and the Arms Control and Disarmament Agency. The scope of operations of these agencies and associated information handling activities is of a complexity which defies thorough comprehension and analysis in such a short period of time. The purpose of Stage I of the Foreign Affairs Information Management Effort (FAIME) was, therefore, limited to a broad determination of the common and unique agency information requirements, the methods and techniques presently employed to meet those requirements, and a concept for the general configuration of a modernized information management system which would more effectively support the operations of these agencies.

1.2.2 Previous Study Efforts

In any discussion of the FAIME project, it should certainly be pointed out that information and the problems associated with its management have received increasing attention from all the foreign affairs agencies as shown by the number of previous studies (194) and present ongoing improvement studies and programs (260) which were reviewed during the project effort.

Despite these efforts, however, information management problems continue to exist. The reasons generally cited for this situation include the following:

- 1) Past efforts have had too narrow a focus, tending to concentrate on the problems of only one (or at most a few) organizational unit within a single foreign affairs agency.
- 2) These efforts have used a piecemeal approach, usually concentrating on a single aspect, e.g., reporting or communications, of the total information management problem.
- 3) Another factor, a corollary of the narrow focus, is that there has been a lack of top-level backing or interest in these studies.
- 4) Finally, there has been inadequate follow-through on many of these studies as represented by the fact that in many instances no final decision had been made as to implementation of study recommendations. In most cases, these studies have not brought about the results originally anticipated.

1.2.3 FAIME Approach

The overall study of foreign affairs information as it is generated, processed and assimilated in four agencies required a new approach - an approach emphasizing substance and function, not confined by the compartmentalized limits of a single agency or organization. The FAIME project was established along these lines and the results obtained are believed to have justified the approach, which can be summarized as follows:

- o An integrated total-system approach, encompassing four major foreign affairs agencies and dealing with all aspects of information handling - inter- and intra-agency, in the Washington headquarters of the agencies and in their foreign service posts, and from initial generation to final storage.
- o An operations analysis, examining the substantive operations of each agency to determine the sources of information, the means by which information is communicated, the ways it is stored and manipulated, and the form in which it is finally presented to and assimilated by the user.
- o A system requirements study, analyzing the most productive methods for carrying out normal information management system functions such as acquisition, processing, retrieving and presentation to system users.
- o An organization, created to deal with this multi-dimensional approach composed of a study team of foreign affairs specialists from the four agencies together with Contractor system design specialists to ensure the consideration of practical problems and practical design solutions.
- o A planned and organized follow-through capability, represented by the FAIME Office and the Inter-Agency Working Group.
- o An Inter-Agency Committee of Principals, to provide the authority and impetus necessary to ultimate success.

1.2.4 Information Management Problems Identified

Two major problems were found to underlie most of the more detailed problems identified during this study:

- o There is an absence of centralized and authoritative control over the improvement, development and application of information handling facilities and procedures.
- o Present information handling practices suffer from an absence of modern facilities and associated, systematic procedures for the collection and tailoring of information to the operational needs of agency users.

These two major problems have led to (1) an overabundance of paper which the user must sift through to glean the information which he requires; (2) some limitations on the availability of relevant information to those who need it; and (3) cumbersome and inadequate methods and procedures for managing information and conveying it to the appropriate users.

1.2.4.1 : Problems Relating to the Availability of Information

More specifically, the following inter-agency problems related to the availability of required information were identified:

- o Foreign Policy Planning
Information necessary for long and short range foreign affairs planning is widely dispersed among many agencies and offices. Inadequate capabilities exist for its rapid collection, review and processing in support of policy formulation and related operations.
- o Foreign Policy Guidance
The current methods of correlating incoming information about day-to-day external events necessary to develop appropriate response guidance requires a very heavy expenditure of effort in all agencies. Yet the daily guidance is not always clearly related to basic policies; it lacks the unique "slant" appropriate to the different agencies.
- o Crisis Management
There is a need for a stronger capability to focus the talents of the individual agencies and the information (both historical and current) available to them on the requirements for meeting crisis situations and developing optimal responses.

In addition, the following Intra-Agency problems in the availability of information were identified.

- o Institutional Memory
There is a lack of ability to reconstruct histories of domestic and foreign events, including their backgrounds and the response made to them, from which the agencies could develop guidance for responding to similar events in the future.

- o Agency Planning and Programming

Present methods for bringing all available relevant information to bear on the development of agency plans and programs are inadequate. Consequently, the burden of detailed programming must be overcome anew with each planning and programming cycle.

- o Program Monitoring and Control

Once a program is implemented, agency management is not able adequately to determine its status in relation to the plan on a continuous basis. This precludes rapid detection of flaws in the original program and immediate correction or modification of either the plan or the program.

- o Program Evaluation

When a program is completed, an effectiveness analysis should be a routine step in evaluating the plan and its ultimate realization. Presently such evaluation capability is limited in depth because the necessary data are not always collected or made available.

- o Management Reports

The existing management reports do not provide management with an adequate source of information essential to planning, budgeting and program justification. This situation is in part due to the inadequacies of program monitoring, control and management information mentioned above.

1.2.4.2 Problems Relating to the Handling of Information

In addition to problems in the availability of information, the following specific problems in the present methods of handling information were identified:

- o Collection and Reports Control

There is no adequate attempt to exercise systematic control over the information being produced by the foreign information reporting programs - with partial exceptions in economic reporting (CERP) and some administrative programs. This condition leads to redundancy, excessive

volume, unnecessary reporting, and consequent dissatisfaction with the present reporting process both in the field and in Washington.

o Internal and External Communications

Communications facilities between the foreign affairs agencies and between dispersed agency units are less than satisfactory and lack modern aids for effective-inter-communications. Facilities for external communication, primarily to Africa and some of the constituent posts, are similarly not adequate.

o Subject Classification System

The retrieval of information from one agency by another agency is hampered by the lack of a standard subject classification system by which information is categorized as to subject and country or area, and is thus identifiable and accessible. This situation must be resolved prior to the final design and implementation of a foreign affairs information system.

o Storage Methods and Facilities

Present facilities for long-term storage of information are adequate and expensive, and do not facilitate rapid retrieval upon request. This condition has led to a multiplicity of private and unit storage facilities with duplicate files and increased storage costs.

o Dissemination Control

Very broadly defined information requirements are coupled with an inadequate capability for selective dissemination based on functional requirements. This results in a heavy volume of paper work for all substantive and many administrative officers.

o Processing for Use by Operational Users

Only the most rudimentary capability exists for controlling the flow of information through processing methods such as indexing, abstracting, summarizing or otherwise correlating information to minimize dissemination volume and tailor it to the specific requirements of the user.

1.2.5 FAIMS Requirements and System Design Concepts

Resolution of the information handling problems identified and removal of their causes are thus the tasks to be faced in the development of a comprehensive Foreign Affairs Information Management System. Briefly stated, the objective of the FAIMS is to support operations by assuring that the information required by a user is available in a useful form at the time it is needed.

1.2.5.1 FAIMS Requirements

A set of system requirements essential to meeting the objective have been developed as a preliminary to system design. These are:

- o Modernize the processing of the information so that it will be delivered to the user at his request, in a form appropriate to his need (rather than in the form in which it happens to exist).
- o Permit the management of all relevant information by implementing controls over the generation, transmission, storage, etc., of information to meet current and anticipated operational needs.
- o Support operations unique to an agency in ways most appropriate to that agency, and support common operations in ways acceptable to all.
- o Maintain security of information with proper safeguards for defense security classifications and for privileged and private communications.
- o Produce an economical system which the foreign affairs agencies can afford to acquire and to operate.

1.2.5.2 FAIMS Design Concepts

In developing a conceptual design of a system to satisfy these requirements, several design concepts have been followed. These concepts are based on the FAIME analysis of the foreign affairs community and the general state-of-the-art information systems design. The basic design concepts are:

- o Flexibility

Agency demands and interests are subject to constant change; thus the system must retain an adaptive flexibility to meet those changes. This applies to all aspects of the FAIMS configuration, operation of its capabilities, equipment design, programs, procedures and the design and operation of its control (management) mechanisms.

- o Management Control

Information management is an integral part of agency management and operations. Therefore, the design, implementation, operation and control of the system must be constantly under the scrutiny and control of top management in each agency.

- o Centralized Facilities

The broad base of common information handling requirements suggests advantages to be gained through centralized facilities. Two benefits which can be achieved include greatly increased power and speed and a considerable decrease in total cost.

- o Direct User Operation

Policy-making and operational personnel must be able to utilize the system without an intermediary except for highly complex problems which will require technical assistance from system operational specialists.

- o Incremental Implementation - This approach consists of implementing self-contained steps of a total system over a period of time. Progress keeps pace with the careful, detailed definition of each successive step and with the availability of resources for implementation.

- o State-of-the-Art-System

Available and proven techniques and equipment are clearly appropriate to FAIMS implementation. This approach eliminates most basic research costs and allows the major investment to be placed in system development and modern equipment. Through the incremental implementation approach, however, new techniques can be adopted as they become available, assuring a constantly up-to-date system.

- o Compatibility With Other Systems

Compatibility with the systems of other agencies such as DOD and CIA is desirable to facilitate the exchange of information, the possible joint use of certain facilities, and the coordinated handling of joint problems.

1.2.6 System Configuration and Functions

The FAIMS concept envisages a complex system composed of many subsystems, elements, equipment, and software components, facilities and personnel. They may be grouped into three general classes or aspects of the total system:

- o The equipment, facilities and personnel which provide and support the functions and capabilities of the system.
- o The functions or elements of the system such as storage, processing, or communications, which are the building blocks of the operational capabilities of the system.
- o The operational capabilities - each one a unique combination of system elements which handles specific information in a way tailored to provide support to a particular substantive or administration operation.

The overall system configuration (see Figure 2-5), is arranged so that portions of the system are located at and can be used by personnel at all locations occupied by the agencies. Major equipment is centralized to the maximum extent consistent with the provision for immediate access and operational control.

The functions of the system and their interrelation are shown in Figure 2-3. These functions operate to:

- o Facilitate the flow of information from source to user.
- o Disseminate information on the basis of current user interests.
- o Provide indexes, abstracts and texts as requested.
- o Store the various forms of information.

- o Process information and data.
- o Provide methods for communications between system and users.
- o Provide mechanisms for controlling these processes.

1.2.7 System Capabilities in Support of Agency Operations

A set of FAIMS operational capabilities are recommended for the support of common and unique agency functions. The relationship between the system capabilities and agency functions is shown in Figure 2-2.

The major operational capabilities recommended are:

- o Common Capabilities
 - Crisis Management
 - Country Background Information
 - Operational Guidance Information
 - Foreign Affairs Planning
 - Management Summary
 - Administrative (in some areas)
- o STATE Capabilities
 - Country Geo-political Situation Monitoring
 - Response Alternative Determination
 - Policy Formulation Assistance
 - Policy Guidance Dissemination
 - Cultural Program Support
 - Passport Support
 - Visa Processing Support
- o AID Capabilities
 - Country Assistance Program Update
 - Country Program Development Support
 - Resources Status Monitoring
 - Program Implementation Monitoring and Evaluation
 - Program Support Monitoring and Evaluation
- o USIA Capabilities
 - Foreign Audiences and Attitudes Data Base
 - Agency Planning and Policy Formulation Support
 - Project Planning and Policy Formulation Support
 - Media Production Storage and Retrieval
 - Program Execution Support
 - Program Evaluation Support

o ACDA Capabilities

Resource Monitoring and Evaluation
 Program Results Evaluation
 Arms Control and Disarmament Status Monitoring
 Data Collection and Analysis
 AC&D Concepts Evaluation
 Foreign Affairs Monitoring
 Negotiation Support

These recommended operational capabilities are those which the system should ultimately support and provide.

1.2.8 Implementation Plan and Program

The recommended FAIMS implementation program consists of three distinct phases: (1) Immediate interim improvements, not necessarily part of the FAIMS; (2) FAIMS first system increment design efforts; and (3) Subsequent increment capability design efforts. The program has been developed in a logical sequence intended to establish a fully operational systems complex, in increments, over a five-year period from 1966 to 1970. Each increment, while it forms a segment of the overall FAIMS concept, will be self-contained in the sense that its capabilities are to be fully operational and not contingent upon subsequent stages of the program. By overlapping the installation of one increment with the specification stage of the following increment, the entire systems complex can retain the necessary unity of design which characterizes the FAIMS concept. Overall cost estimates for this program are shown below.

	Fiscal Year Costs					Totals
	(in millions)					
	1966	1967	1968	1969	1970	
Equipment & Facilities	0	3.0	1.0	0.5	0.5	5.0
Analysis & System Design	1.0	1.5	1.5	1.0	1.0	5.0
Capability Programming	0	1.0	2.0	1.0	1.0	6.0
	1.0	5.5	4.5	2.5	2.5	16.0

The estimates of contractor manpower necessary for system design integration, for detailed design and specifications of system equipment, and for the design of system operational capabilities to be activated in the first increment are shown in Table 1-1.

1.2.8.1 Interim Improvements

The interim improvements recommended for immediate implementation meet one or more of the following criteria:

- o Must be simple and easy to introduce and yet should clearly promise savings in time or cost in handling information.
- o Must be required for the improvement of information handling regardless of the ultimate FAIMS concept.
- o Is required as a preparatory step to the development of the ultimate FAIMS.

The following major interim improvements are recommended:¹

- o Inter-Agency Improvement
 - o Development of a uniform storage and retrieval system including:
 - o Subject and area classification and indexing scheme
 - o Miniaturized (photographic) storage system
 - o Equipment, methods and procedures associated with these
- o STATE Improvements
 - o Updating of the Organization Manual
 - o Daily annotated message index for Regional Bureaus
 - o Experiment in improvement of political reporting
- o AID Improvements
 - o Documenting of the annual CAP/LAS review
 - o Inventory of existing automated data bases applicable to AID operations
 - o Revision and updating of AID manual orders

¹Additional interim improvements are described in Section 4.

Table 1-1. Estimated Contractor Manpower Requirements for Stage II

Effort	Described in Section	No. of Personnel Required	No. of Months	Total Man-Months
1. <u>Interim Improvement Consulting Services</u>	3. 3. 1. 1	~3	various	32
2. <u>System Design Integration</u>	3. 3. 1. 2			
Operational Concept		2	12	24
Equipment		2	12	24
Facility*		2	6	12
Program Design		2	6	12
Personnel Selection and Training		2	6	12
3. <u>First Increment Design</u>				
a. <u>Interagency Capabilities</u>	3. 3. 1. 3			
Reports Control		1-1/2	12	18
Dissemination		1-1/2	12	18
b. <u>Agency Capabilities</u>				
State				
Passport Processing		1	12	12
Incoming Message Indexing		1	12	12
Visa Processing		1	12	12
AID				
Country Assistance Update		1	12	12
Program Monitoring and Evaluation		2	12	24
USIA				
Definition of Foreign Attitudes and Audiences		1	12	12
Agency Program Evaluation		1	12	12
ACDA				
Evaluation of Program Results		1	12	12
c. <u>Interface Requirements</u>	3. 3. 1. 4	1	3	3
d. <u>Second Increment Planning</u>	3. 3. 1. 5	3	12	36
e. <u>Management and Liaison</u>	3. 3. 1. 6	3	12	36
Total Professional Personnel		<u>~27</u>	12	<u>325</u>
f. <u>Technical Assistance and Secretarial</u>		3	12	36

*Requires the subcontracting services of an architectural engineering firm.

- o USIA Improvements
 - o Program material indexing and retrieval
 - o Program effectiveness evaluation improvement
 - o Policy guidance dissemination improvement
- o ACDA Improvements
 - o Information management team implementation
 - o Dissemination profile techniques development
 - o Reference information acquisition program
 - o Office of record for substantive information

1.2.8.2 FAIMS First Increment Design

Two separate but related activities are required during Stage II in addition to installation of interim improvements: (1) the information system design must be further detailed to a degree which will permit initial equipment procurement and related actions, and (2) the detailed design of first increment operational capabilities must be worked out. System design efforts will include the following five major activities:

- o Further detailing of the FAIMS operational concept
- o Development of detailed equipment functional specifications
- o Specification of FAIMS facility design
- o Initial development of FAIMS program system design
- o Preliminary development of personnel and training requirements

Detailed design of first increment operational capabilities will constitute a second set of major efforts during Stage II. The first increment capabilities were chosen to meet the following criteria:

- o Must represent a significant improvement over present practices
- o Must be capable of detailed design in 12 months and of installation in the succeeding 12 months

- o Must reflect both inter-agency and agency information handling requirements
- o Must be implementable with existing personnel and equipment with minimal augmentation (e. g., rental of additional equipment)

The following operational capabilities are recommended for implementation in the first increment:

- o Inter-Agency Capabilities
 - o Improved reports control procedures
 - o Improved dissemination control procedures
- o STATE Capabilities
 - o Passport request processing
 - o Improved policy guidance dissemination methods
 - o Improved visa processing (field posts)
- o AID Capabilities
 - o Country assistance program updating procedures
 - o Improved program monitoring and evaluation
- o USIA Capabilities
 - o Definition of foreign audience and attitudes data base requirements
 - o Agency overall program evaluation
- o ACDA Capabilities
 - o Evaluation of program results

Implementation of these will provide a significant increase in information handling capability and at the same time will provide some needed design guidance (report and dissemination control procedures, etc.) for future system increments.

1.2.8.3 Subsequent Increment Design

While the detailed design of the system and of the first increment capabilities is being pursued, initial design work on second increment

operational capabilities should be instituted. It is too early to anticipate with certainty what these capabilities will be, but they should include many more of those listed in Section 1.2.7.1.

The efforts summarized above should constitute the Stage II FAIME program. It should be pointed out that unless a concerted effort such as that recommended here is carried out, the information handling capabilities of the foreign affairs agencies deteriorate further with respect to the problems identified. Delayed efforts will, it is believed, only increase the requirement for "crash" programs to temporarily overcome these problems. Following through on a program similar to that outlined in this report can put the foreign affairs agencies in the forefront of efforts to manage information.

2. FAIMS CONCEPT

2.1 Introduction

One objective of the FAIME study has been to conceive and describe a Foreign Affairs Information Management system which will meet the system requirements identified in the report on present practices (551-1). This section of the report describes the system concept as it has been developed to this point in time. It should be noted that the value of such a concept lies in its utilization as a goal for system development - a concept that will be revised continually during the development of the system and will never be achieved in the precise form it takes at any given point in time. Since it is recommended that the FAIMS be developed incrementally, the concept also includes some description of the system at various stages during its development. The system development concept described in the following pages should provide a significant, although partial, increase in required capability within two years from the start of implementation. It should continue being developed at a fairly rapid pace for at least three subsequent years so as to provide a relatively complete system within five or six years, presuming necessary staff and funds are made available according to schedule. Although continued growth and modification is very desirable, the level of development effort is anticipated to be sharply reduced at the end of this period.

2.1.1 System Objective and Design Constraints

The objective of the proposed FAIMS is to support the operations of the foreign affairs agencies by assuring that information required in the conduct of their operations is available in a useful format at the time it is needed. The introduction of a formal system transfers the technical processes of information handling from the foreign affairs specialists to a

staff of information specialists especially trained to support agency operations. FAIMS will thus be designed to ease the burden of information handling tasks and will permit the agencies to devote more of their personnel, time, funds, and other resources to substantive and operational tasks.

Ultimately, the FAIMS should provide for management of all relevant information handled by the agencies in support of their various operations. The degree of control or structuring to be provided will vary for different types of information; for example, reporting of project fiscal information will be highly controlled while voluntary political reporting will be loosely controlled. In addition, the system will provide for management of information: (a) at all the various locations and levels of the participating agencies including offices, bureaus and field activities, and (b) in the interchange between the agencies and other elements of the government which have interests in foreign affairs information.

The design of the system should not force substantive organizational changes within or among the agencies; although it should accommodate itself to such changes as they occur. In this connection, it is particularly important to recognize the role of field posts vis-a-vis the Washington headquarters of the agencies by implementing certain information handling capabilities appropriate to the posts at the posts.

The substantive differences between the foreign affairs agencies and other governmental agencies must be recognized and legitimate requirements for interface with such agencies (and compatibility with their information systems) are pertinent considerations. However, the design of the FAIMS should not be forced to conform to the mold of systems designed for the special needs of other agencies.

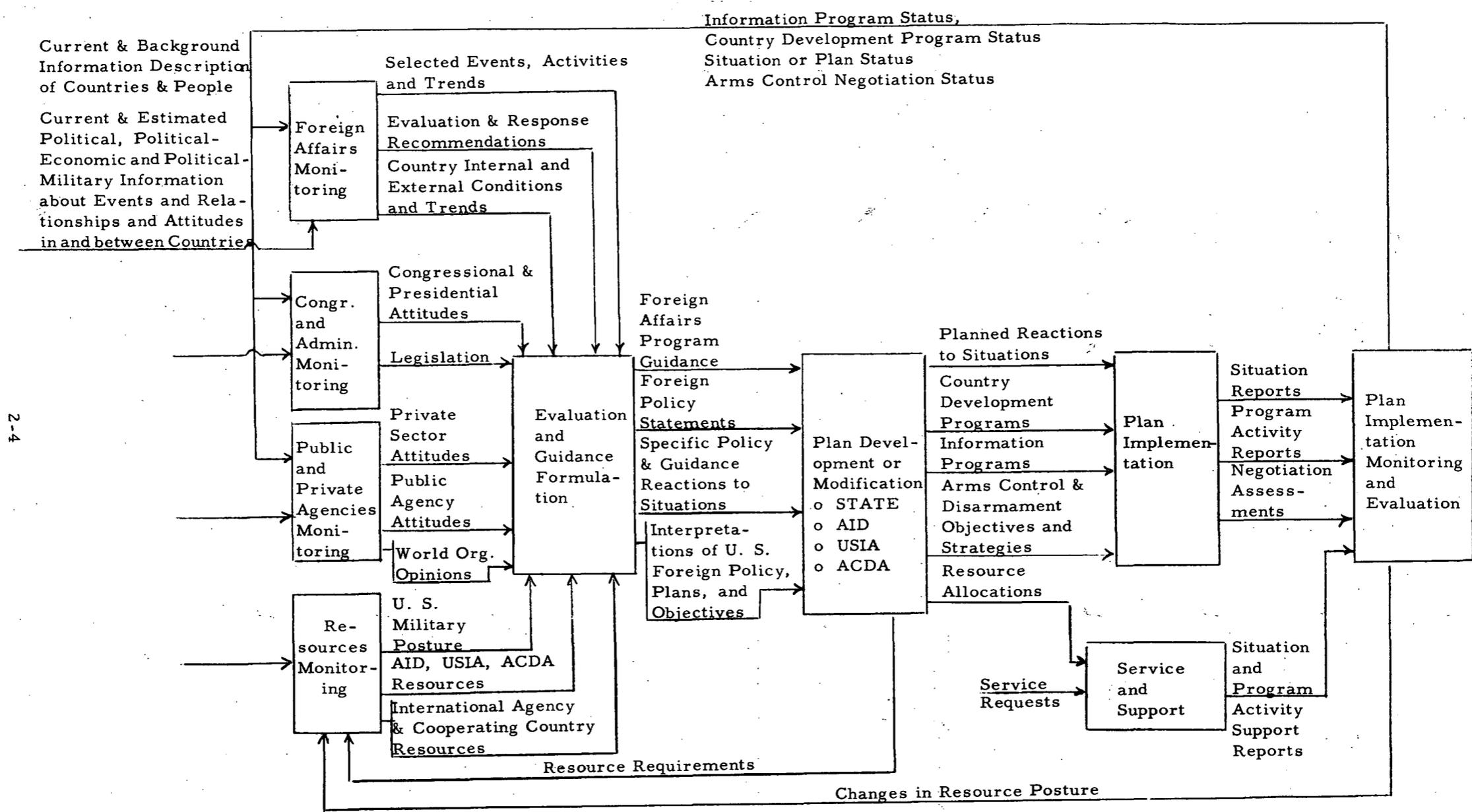
The present state of information handling in the agencies and the capabilities of their personnel must be recognized. Similarly, the need for technical capabilities and knowledge involved in information handling must be assessed realistically.

Restraints imposed by the requirements for security control as defined in relevant regulations and other sources must be considered carefully in designing equipment, procedures, etc. The special requirements for communication security and protection of sensitive sources impose additional constraints on system design.

Finally, the likely availability of funds must be recognized. This is not so much a constraint on detailed design as it is on the phasing of system implementation and the extent of research and development to be suggested.

2.1.2 System Operational Requirements

As stated above, the objective of the system is to support the operations of the foreign affairs agencies by collecting, controlling, and disseminating the information required by these operations. The substantive operations of the agencies and the associated information requirements were described in the FAIME Evaluation Report and are summarized in Figure 2-1. Each agency individually carries out some version of each of the operations identified in the boxes of Figure 2-1. In addition, the agencies collectively participate in some of the operations under leadership of the Department of State. The agencies individually and collectively carry on certain administrative and service operations. Finally, in times of crisis, the collective agencies accelerate the performance of these functions, acting more rapidly and with less reference to background material, concentrating on execution rather than planning, etc. Ultimately, the FAIMS should support each of these operations by communicating, processing, storing, retrieving, etc., the information required. The specific combination of information inputs, manipulations, retrieval methods, and outputs necessary to the support of a specific operation or decision-making situation is defined as an operational capability. Section 2.2 describes the operational



2-4

Figure 2-1. Summary of Foreign Affairs Agencies Operations and Supporting Information

capabilities desirable for the FAIMS as nearly as they can be foreseen at the present time.¹ The design of the total set of operational capabilities in turn will determine the requirements for information system functions such as communication, processing, storage, retrieval, etc. Section 2.3 describes the combination of information system functions that will comprise the information management system.

Section 2.4 recommends how the operational capabilities and information system functions should be achieved in terms of equipment, programs, procedures, facilities, etc. The proposed method of operation of the system and its configuration also are described in Section 2.4.

2.2 Operational Capabilities

This section provides a preliminary description of the operational capabilities required to support the operations of the foreign affairs agencies. Just as there are common operations and individual agency operations, there will be common operational capabilities and unique agency operational capabilities. The design and implementation of common capabilities will be the responsibility of the FAIMS management office while the design of the unique agency capabilities will be the responsibility of the appropriate agency management office, working within the general constraints of overall system design provided by the inter-agency coordination board. (See 3-4.)

The operational capabilities are discussed in terms of the agency and inter-agency operations depicted in Figure 2-1. It should be noted that because of this generalized structure, the operational capabilities recommended for support of the agencies appear to be quite similar. The information processed by these capabilities will, however, create considerable differences in their detailed design. For example, the information required for program planning

¹And insofar as FAIMS supports the operation of the four agencies studied.

in AID is very different from that required for program planning in State's Bureau of Cultural & Educational Affairs and from that required to support inter-agency program planning. However, techniques for information processing developed for one agency may often be applicable to the other agencies as well.

The incremental approach to system development recommended for FAIMS permits some operational capabilities and system functions to be developed fairly rapidly while others are deferred till later phases of the program. Figure 2-2 summarizes the relationships between agency operations and the common and agency operational capabilities supporting them and shows how the proposed first increment capabilities and interim improvements (Section 4) relate to these.

Section 2.2.1 briefly discusses the common or inter-agency capabilities; Section 2.2.2 discusses, in turn, the projected operational capabilities for each agency.¹ These capability descriptions are intended as planning guides; further analysis required during Stage II to provide detailed design will undoubtedly suggest modifications and augmentation.

2.2.1 Common Capabilities

2.2.1.1 Crisis Management Capability

Most crises affect more than one agency. Effective handling of crisis situations requires integrated and coordinated planning under severe time constraints. Coordination usually suffers since meetings, private discussions and serial telephone calls take time and time is at a premium in such situations. In general, when manual information systems are utilized,

¹The operational capabilities discussed in Sections 2.2.1 and 2.2.2 include those suggested for the first increment as well as some which will be implemented in later increments.

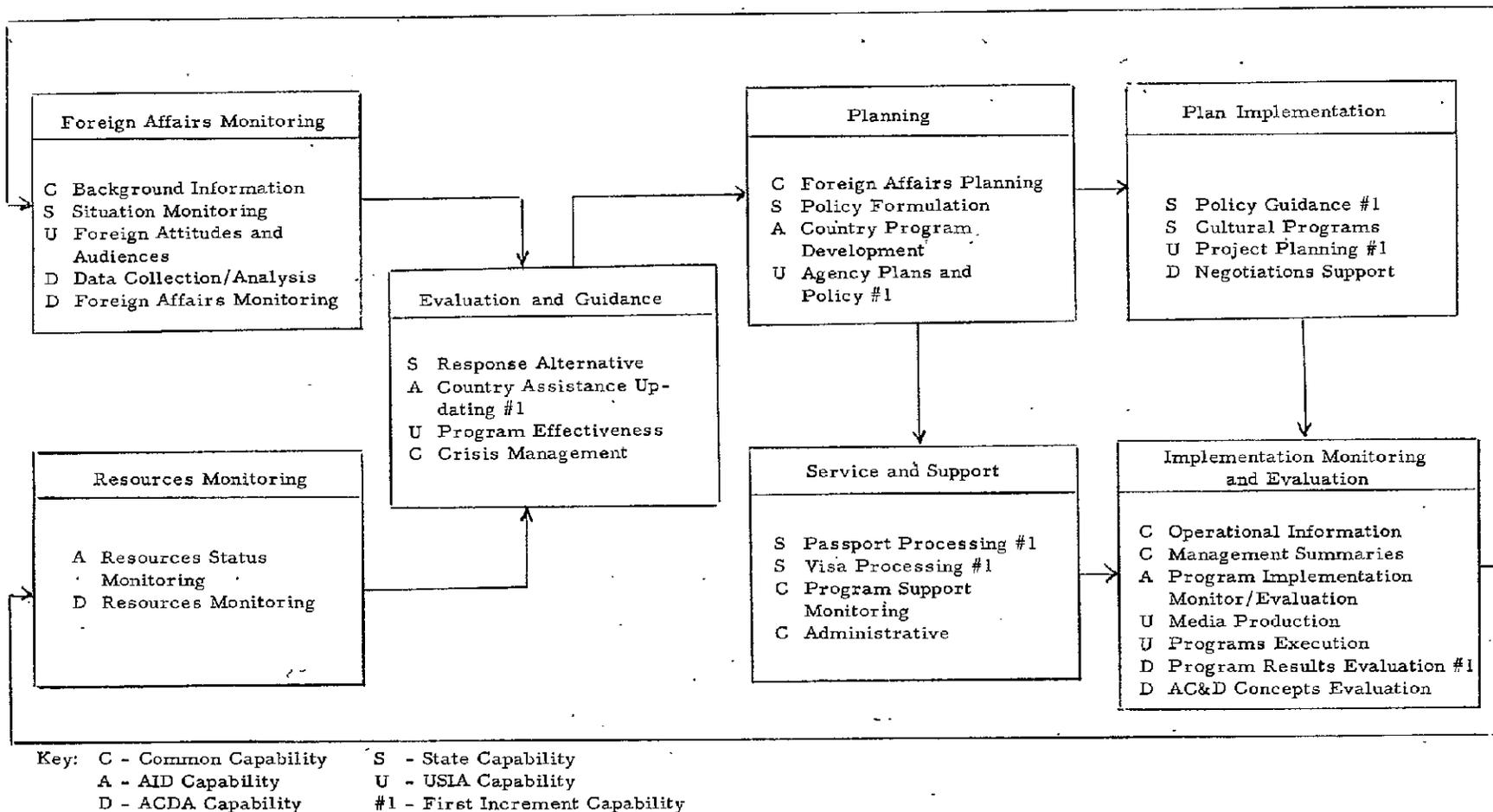


Figure 2-2. Relationship between Agency Functions and FAIMS Operational Capabilities

lack of time severely limits the number of factors which can be considered and the degree of coordination which can be achieved among widely dispersed individuals. This occurs at the very time when coordination and careful consideration of all the implications are of most importance. An objective of FAIMS is to improve and expand capabilities which facilitate crisis management operations, probably utilizing the State Operations Center as focal point of operations. This may be achieved initially by providing improved secure voice and teletype communications to locations where such communications are inadequate and by providing improved techniques for (1) indexing, analyzing, summarizing, and retrieving information available in all the foreign affairs agencies, (2) correlating the flow of information contained in incoming reports, and (3) relating the developing events to background information, contingency plans, etc. In the future, the capability could be expanded to include some new concepts such as semi-automatic monitoring of indicators that signal the origin and development of potential crisis situations and the consequent initiation of early attention and action. A further extension to include officials of other interested agencies would increase the value of this central facility.

2.2.1.2 Background Information Capability

Many operations of the foreign affairs agencies are organized by, and require basic background information on, individual foreign countries. Much background information is specialized, such as USIA's requirement to consider the number of radios in a given country. However, analysis indicates that there are common information needs such as political composition, economic status, and potentials for hostile activities. These needs, if carefully defined, could be satisfied in common. A capability for controlling the reporting, analysis and storage of a specified set of political, economic, sociological, and military facts and statistics and for providing for its retrieval by specific subject and country is required.

2.2.1.3 Operational Information Capability

The FAIME evaluation effort identified several weaknesses in the ability of personnel of the foreign affairs agencies to obtain access to the operational information of their own and of other agencies. For example, although all agencies require knowledge of foreign policy as a basis for their operations, there is no single source where all the details of official U. S. Foreign Policy are constantly available in an up-to-date form. Another example of operational information of joint interest is the status of each agency's programs in each country. While each agency naturally concentrates on its own programs, there is a degree of mutual impact which should be recognized and which may effect the programs of more than one agency. Operations evaluation depends on the completeness of records and the capability to detect latent strengths or weaknesses demonstrated by day-to-day achievements. Thus, another FAIMS objective is to develop capabilities providing ready access to operational information which is of joint interest.

The records created by operations in action should be collected and made available upon request in order that potential cross-agency effects and the progress or lack of progress of each agency program can be evaluated. (See also 2.2.1.5.)

2.2.1.4 Foreign Affairs Planning Capability

Foreign affairs planning also requires an integrated view of the capabilities and potential role of each of the members of the Foreign Affairs community. Fiscal and operations planning have special information requirements that can be satisfied only by direct access to details on such assets as funds and costs, technical skills, scientific resources, etc., and their application to foreign opportunities. Thus, an objective of FAIMS is to support the foreign affairs community jointly and collectively in the task of foreign affairs planning. This will require a capability to assemble and structure information

about the available resources and potential roles of each agency in the community and their participation in unique and concerted programs.

2.2.1.5 Management Summary Capability

The effective conduct of U. S. foreign policy requires an integrated view of the mutually supporting implements of diplomacy, foreign assistance, the influencing of foreign attitudes, and military power. The FAIME evaluation analysis indicated that due to the diversity and extensive nature of U. S. activities, an overview of the status of U. S. programs in a given country or area currently is obtainable only by a difficult, time-consuming, and expensive process. Thus, top officials of each agency, who must consider the activities of their agency in the overall context of foreign affairs are deprived, for the most part, of the advantages of a readily attainable joint agency summary of country status, planned programs, and program progress. Therefore, an objective of FAIMS is to provide a capability for the consolidation of information into an overview of U. S. diplomatic objectives, current status, and future plans and the relationship between these and the situation or status of particular countries:

2.2.1.6 Administrative Capabilities

Common but not altogether similar administrative services have produced a set of related capabilities already functioning among the agencies. The more successful the four agencies become in devising common administrative regulations and procedures, the more nearly they can approach a common capability for the formalized processing of administrative programs. By reconciling variations that have been established by custom and providing for exceptions only as required by unique operating situations or by statute, a more economical, consolidated, multi-purpose set of capabilities can be developed when more powerful ADP equipment is available. Reliability and

timeliness are the principal requirements for accounting, personnel status reports, services and supply capabilities.

Although such operations are subject to constraints of frequent and firmly fixed deadlines, they are convenient projects for off-hours running by ADP systems. This is a particular advantage for a central facility with greater capacity and speed than would be available to smaller agency installations.

The reporting capability similarly can be expanded to provide concentrated summaries of financial, personnel, and other resource status and allocation to critical and routine agency activities.

2.2.2 Individual Agency Operational Capabilities

2.2.2.1 Department of State

The following operational capabilities are suggested as those ultimately required to support the operations of the Department. Again, the capabilities are keyed to the general operational functions defined in the FAIME Evaluation Report.

a. Situation Monitoring and Evaluation Capability

This capability will be designed to organize information on developing events including trends, attitudes, etc., within countries and the relationships between countries in ways which will facilitate evaluation in terms of possible responses which the U. S. might make. The capability should consist of several elements:

- o Political, political-economic, and political-military reporting
- o Cataloging, summarizing, evaluating, and other processing of information
- o Production of various evaluation items such as studies, position papers, research memoranda, intelligence estimates, briefings, etc.

While it is not suggested that automatic processes replace the existing manual procedures, various techniques have been, and can be, used to assist people in the performance of such activities. The proposed interim improvement programs for reports control and subject classification are first steps toward the support required.

b. Response Alternative Determination Capability

This capability will assist in the determination of available response alternative by providing information on the availability of resources (both U. S. and friendly country) which might be utilized in meeting undesirable developing situations. It will also provide for comparing the range of possible responses with the characteristics of the situation. Probable elements include:

- o Resources data retrieval and analysis
- o Response parameter identification
- o Situation parameter identification
- o Situation/Response comparison and evaluation

In general, a fairly sophisticated capability is required, except for the resource retrieval element, and the capability probably will be completely developed only near the end of the program.

c. Policy Formulation Capability

This capability will assist in the formulation of plans and policy statements by providing rapid access to background information, previously formulated plans and policy statements on the same or related topics, relevant intelligence estimates, etc. It will also provide assistance in continuously reviewing plans and policy statements to assure current validity in the face of current events and aid in updating when required. It should be emphasized that, although assistance can be provided, planning and policy formulation will remain as manual operations.

d. Policy Guidance Capability

This capability will provide statements of policy tailored to the needs of several types of users:

- o Public affairs (press releases both domestic and foreign)
- o Foreign affairs community action officers
- o Other governmental agencies
- o Foreign service posts
- o Selected foreign governments

This capability is suggested for implementation in the first phase of FAIMS development and should provide means for rapidly reviewing the background material and policy statements, assisting in the generation of guidance information as appropriate, for assembling this guidance information into packages tailored for specific uses and users and for delivering these packages to the users as rapidly as possible.

e. Cultural Programs Support Capability

This capability will facilitate the conduct of cultural programs by providing means for storing and manipulating information required to plan, develop, implement and evaluate these programs. The information could include such categories as planned programs, recommended and available candidates, availability of funds and other resources, etc.

f. Passport Capability

This capability will permit the processing of passports more rapidly and efficiently than is now possible. An initial version of this capability is suggested for implementation in the first increment of FAIMS development. This initial version of the capability will consist primarily of an ability to check applicants' names against a list of ineligible names together with the capability to update the list of ineligible names. Later more advanced versions of the capability could incorporate the other aspects of

passport processing. The possibility of automatic or semi-automatic operation of the 10 domestic centers should be investigated for possible implementation at an appropriate time in the future. Presently ongoing efforts of the Passport Office and the ADP Division aimed at developing machine support will need to be coordinated with the proposed FAIMS capability.

g. Visa Processing Capability

This capability will permit the rapid and efficient processing of visa applications. An initial version of this capability is suggested for implementation in the first increment of FAIMS development and will consist of providing automated assistance at selected field locations (at the U. S. Embassy in countries with large visa operations, or at regional centers for areas with less activity). The initial capability will provide for the maintenance of consolidated biographical data files and the ability to check visa applications against this file. Further developments could include quota administration and control, immigrant visa processing, and reports generation.

2.2.2.2 AID Operational Capabilities

Information required for planning, evaluation, and control of AID operations currently is generated by the country programming process, fiscal status reports, physical progress reports, and a variety of specialized evaluation and audit reports. No effective methods exist, however, for easily correlating implementation reports and country status information with country assistance objectives. Such correlation is fundamental to meaningful assessment of existing assistance program status and the development of appropriate objectives, remedial strategies, and assistance plans. Several specific operational capabilities are required to support this basic need for integrated monitoring, evaluation, and control of assistance programs.

a. Country Assistance Program Update Capability

The Country Assistance Program Update capability recommended for implementation in the first increment of FAIMS will provide an automated capability for using exception reporting, continuously updating statistical and narrative information required to define:

1) Framework for AID Strategy: Information required includes knowledge of current U. S. objectives and policies; appraisal of the economic, political, and social trends in the country; appraisal of the country's efforts toward self-help and social progress, and of the country's development program and policies and analysis of foreign resource needs.

2) U. S. Assistance Strategy: Information required includes selection of U. S. assistance goals; alternative aid levels; collateral U. S. actions and effect on the U. S. economy; self-help requirements; other assistance donors; and a summary of strategy.

3) U. S. Assistance Program: Information required includes the summary and goal plan.

These country statistical and narrative data will be processed to provide: (1) periodic country assistance program reports, (2) response to selected information retrieval requests pertaining to conditions within a cooperating country, assistance strategies, or programmed and proposed assistance projects, and (3) information on country assistance programs to be used for Congressional and other high level presentations.

b. Country Program Development Capability

This capability will provide for the processing of country program information to permit categorization by goal plan, activity targets and types of assistance. Financial, personnel and materiel resources required by individual proposed and ongoing projects will be itemized and summarized to project total assistance program resource requirements. Alternative country program proposals could be developed and evaluated by modifying projects to be included in the assistance program.

The capability will provide an index of program history abstracts and retrieval identification numbers to permit access to selected program history case files. Results, methods, significant problems encountered and other project history information could be retrieved and utilized in detailed project planning.

c. Resources Status Monitoring Capability

The Resources Status Monitoring capability will provide for the maintenance of the current status of resources available for application to country assistance programs, and detection of resource levels and consumption rates which deviate from planned figures.

Status of resources procurement, expenditures, periodic accountings, and inventories will be maintained for:

- o Foreign Assistance Act Appropriations (by category)
- o Surplus commodities currently available (from USDA)
- o Local currency (both U. S. accrued and U. S. controlled)
- o Excess U. S. Government Property (under direct and advanced acquisition)
- o World organization programmed investments and support by cooperating country (EXIM Bank, U. S., WHO)

A personnel skills inventory will also be maintained. Education, occupational code experience, and other related skill data will be stored for U. S. direct hires, participating agency personnel, and foreign nationals employed by AID missions overseas.

Status information on selected resource categories or items conforming to specified descriptive terms will be capable of being retrieved. Resource information also will be processed to produce periodic status reports by category.

Resource levels, procurement and expenditure trends will be compared with appropriate criteria to detect deviations from a planned

What about outside talent - contractors, universities, etc.

resource posture and undesirable trends such as generating local currencies at a rate exceeding expenditure rates.

Does this fit in with "Indicators of physical progress?"

d. Program Implementation Monitoring/Evaluation Capability

This capability is suggested for implementation in the first increment of FAIMS development. It will provide access to information required for monitoring and evaluating individual assistance projects and total country program status. The capability will permit continuous updating of financial and physical progress data and correlation of current status and trends with established benchmarks. Deviations from planned progress, financial or material expenditures will be detected and reported according to established guidelines. Assistance data will be compiled to present overall country program status and trend summaries. Information will be itemized by project and summarized by goal plans, target activities and types of assistance.

Selected information and evaluations will be transferred to a project history file upon project completion or at the end of each operating year. These data will be used by the Country Assistance Program Evaluation capability to assist in forward planning and proposed assistance project evaluation.

Materiel resources expended during project implementation will be accounted for continuously. These resource expenditures will be compared to programmed resource obligations to provide a current materiel accounting. Program financial expenditures will be compiled to provide information input to the Controller for financial management, and to operating organizations for program management. Summary data on assigned program personnel will be maintained for both program and administrative purposes.

In order to implement this capability fully, the reporting system must be revised and extended to include the required information on a current basis for each program activity.

e. Program Support Monitoring/Evaluation Capability

This capability will provide for continually updating and for retrieving assistance program support status information. The program support data base will include current status on:

- o Personnel procurement training and support
- o Contract negotiations
- o Commodities procurement, shipping, and delivery information

Access will be provided to information required for monitoring the progress of support required by individual assistance projects. The capability will update and correlate program support progress continuously with benchmarks related to projects being supported. Deviations from planned program support progress should be detected and reported by exception according to established information dissemination interest profiles.

2.2.2.3 USIA Operational Capabilities

Six operational capabilities are suggested to support unique USIA requirements. The capabilities are based on the generalized USIA operation model and are designed to support programs across-the-board.

a. Foreign Audiences and Attitude Identification Capability

The purpose of this capability is to organize and structure data on foreign audiences and their attitudes into a usable format for storage and dissemination as guidance to action officials in all of the major substantive functional areas of the agency. The capability requires inputs in the form of knowledge of (1) the identification of various influential groups in each foreign country in terms such as physical location, power position, leadership and opinion-molding status, and levels of aspiration of each group, (2) the degree of influence of these groups on the political climate and

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affairs of the country, and (3) the accessibility of each of these groups and their attitudes influenced by the various USIA media, both in terms of their exposure to such media and their personal susceptibility to change on particular issues. Given an identification and definition of agency audiences, information on the specific attitudes of each of these groups will be made available on request.

An initial version of this capability is suggested for development in the first increment of FAIME. Development of such a capability will require: (1) coordination of all available agency inputs covering foreign audiences and attitudes, (2) development of an indexing and storage system for this information, (3) a method for determining the need for additional information where existing information is inadequate, and (4) development of a format for guidance information tailored to user requirements. This capability would provide a major improvement in the agency's ability to: (1) advise on the potential implication of foreign policy on foreign attitudes, and (2) design and develop products with increased potential for changing attitudes.

b. Agency Planning and Policy Formulation Capability

The purpose of this capability is to assist USIA management in defining policy guidance in terms of:

- (1) Formal overall agency policies which will improve USIA's effectiveness. Examples might include: balancing the news to preserve credibility, and aiming messages at hostile groups rather than "friends."
- (2) Rapid transmission of information policy guidance.
- (3) Relating agency programs and media priorities to foreign audiences and attitudes, and
- (4) Allocating and managing resources to most effectively implement policy.

c. Project Planning and Information Policy Formulation Capability

The purpose of this capability is to provide better guidance to agency personnel engaged in formulating specific projects and programs for achieving agency objectives in relation to foreign audiences. An initial version of the capability is suggested for implementation in the first increment of FAIME development. This capability should provide for: (1) collection of available foreign policy statements which have not been superseded; (2) screening, abstracting, amplifying, and providing USIA officials interpretations of these statements in terms of their relationship to agency products; (3) development of storage and retrieval methods; (4) increased coordination with State Department for interpretation prior to release; and (5) development of procedures for relating specific content of specific media, programs, projects, areas, and themes. Long-range development of the capability will require, in addition, duplication of files for access by remote units including the field.

d. Media Production Capability

The purpose of this capability is to provide a central repository and rapid retrieval mechanism for program material which has potential usefulness in the development of new media products. The capability should also provide an inventory of media products under development and of projected projects. This will permit cross-media coordination and cooperation in approach and in use of resource material. The ability to recall past program material will provide savings in production costs of new material and allow for examination of the way specific media subjects were handled in the past.

This capability will require detailed design of (1) techniques for reviewing program material and criteria for selecting material for retention and retirement; (2) classification, storage, and retrieval techniques; (3) procedures for collecting material from diverse sources; and (4) development of standard input formats. Initial development of this capability should be primarily manual although in the long-term considerable automation will be possible.

e. Programs Execution Support Capability

The purpose of this capability is to provide better organized information to the field for its use in day-to-day operations, required reporting, and obtaining support from the agency. Development of such a capability will require: (1) development of more discriminating distribution lists based on target audience data, attitude data, and detailed biographical data; (2) development of post interest profiles which will reflect, in addition to interests, the magnitude of the program and the post capability for receiving, screening, filing, storing, and utilizing materials; (3) development of a classification system built around individual country programs which will facilitate formulation of Country Plans, budget request, and other recurring report requirements.

f. Evaluation Capability

This capability will be designed to provide the agency with an improved means for detecting changes in attitudes which result from (1) specific media products, and (2) overall country programs.

Development of such a capability will require: (1) collecting relevant data already available in the agency and correlating, analyzing, processing, and summarizing this data to provide an assessment of present practices and how they can be improved; (2) development of techniques for determining the requirements for and the collection of data not now available but important to valid program evaluation; and (3) development of the requirements for classifying, storing, retrieving and evaluating attitude data, audience profile data and situation background data which is necessary for accurate evaluation of agency programs.

2.2.2.4 ACDA Operational Capabilities

Within the FAIMS concept, provision is made for specific agency operational capabilities. The form and content are defined by agency requirements while the general or basic system design provides the facilities for making these capabilities possible. In some agency sub-systems, the information itself is not unique, but the purpose for which it is to be used is specific to a single agency. The capabilities required to support ACDA functions range over a number of different topical fields, each having a particular agency function to serve. The capabilities proposed in this section are keyed to the ACDA operations and their information requirements.

a. Resource Monitoring Capability

This capability should assist Agency personnel in assessing resources in order to weigh what is available against the forthcoming program demands. Information input examples are: (1) Agency resources such as personnel complement, skills inventory; funds obligated and funds available; status of existing contracts and projects; (2) national resources such as the U. S. military and political position in the international environment; state-of-the-art comparisons in weapons, delivery vehicles, and detection; research facilities for potential contract projects; military and economic resources of other nations. The information already exists, but it is not assembled into the kind of package that assists planning officers in forming their estimates of the resources available.

b. Program Results Evaluation Capability

Evaluation of achievements is an essential aspect of planning; it is especially important to ACDA because such a substantial portion of its resources are allocated to research and to other governmental projects relating to AG&D coordinated by ACDA as a statutory requirement. Evaluation of previous and current negotiations also is required to assess the degree to which ACDA was successful in influencing and controlling the

language and intent of international agreement.

An initial version of this capability is suggested for inclusion in the first increment of FAIMS implementation. Input to this capability would be the actual record of progress, whether in research, simulated verification experiments, or international negotiation. Evaluation requires a set of criteria against which assessment is made. For example, one set of such criteria can be developed with the aid of mathematical or logical models to assist the Agency in measuring technical and political progress. Also implied is a capability to retrieve information by topic for comparisons of previous and present levels of accomplishment.

c. AC&D Status Monitoring

In close cooperation with DOD, AEC, and U.S. Intelligence Board agencies, ACDA is kept current on U. S. and foreign military assets as well as the research and development progress in weapons technology, uses of atomic energy, and scientific advances having military potential. This capability is based on a continual acquisition of finished studies and reports from the agencies concerned and the analysis of that material by Agency officers.

d. Data Collection and Analysis Capability

In the highly complex field of AC&D, technological achievement - or its absence - imposes stringent limitations on freedom of action in negotiation. To support this vital area of knowledge, the Agency requires an organized data bank of selected scientific information collected because of its AC&D implications and processed for ready access. The principal users are in the ST Bureau, collecting this information from government or industrial sources in such fields as physic-chemistry, seismology, and meteorology. This capability should be designed to support research and 'spot information' requirements.

e. AC&D Concepts Evaluation Capability

A capability to accumulate and process the large masses of data and to carry on complex computation is required to support evaluation of the effects of AC&D concept on military capability.

f. Foreign Affairs Monitoring Capability

This capability is required continuously to inform the Agency staff of current foreign political, military, economic, and scientific developments which can modify the international environment or the impact of AC&D measures. Information resources are primarily the daily flow of foreign affairs reporting and direct contact with other government agencies.

g. Negotiation Support Capability

Negotiation activities require a capability for quick exchange of inquiry and response between the negotiating team and Agency Headquarters in Washington. Subjects concerned require ready access to information stored in the Agency regarding political, legal, technological, military, and economic matters.

2.3 Information Management System Capabilities

The previous section pointed out that the FAIMS should support the operations of the foreign affairs agencies by providing operational capabilities; it also discussed the operational capabilities required. Operational capabilities are provided through application of a set of information management system capabilities. The information management system capabilities are independent of the operational capabilities and may be used separately when appropriate. This section briefly describes the requirements for information management system capabilities and their operation.

Figure 2-3 shows how operation and information management system capabilities are related to each other. This diagram can represent an overall system or any subsystem within a complex. An operational capability of the

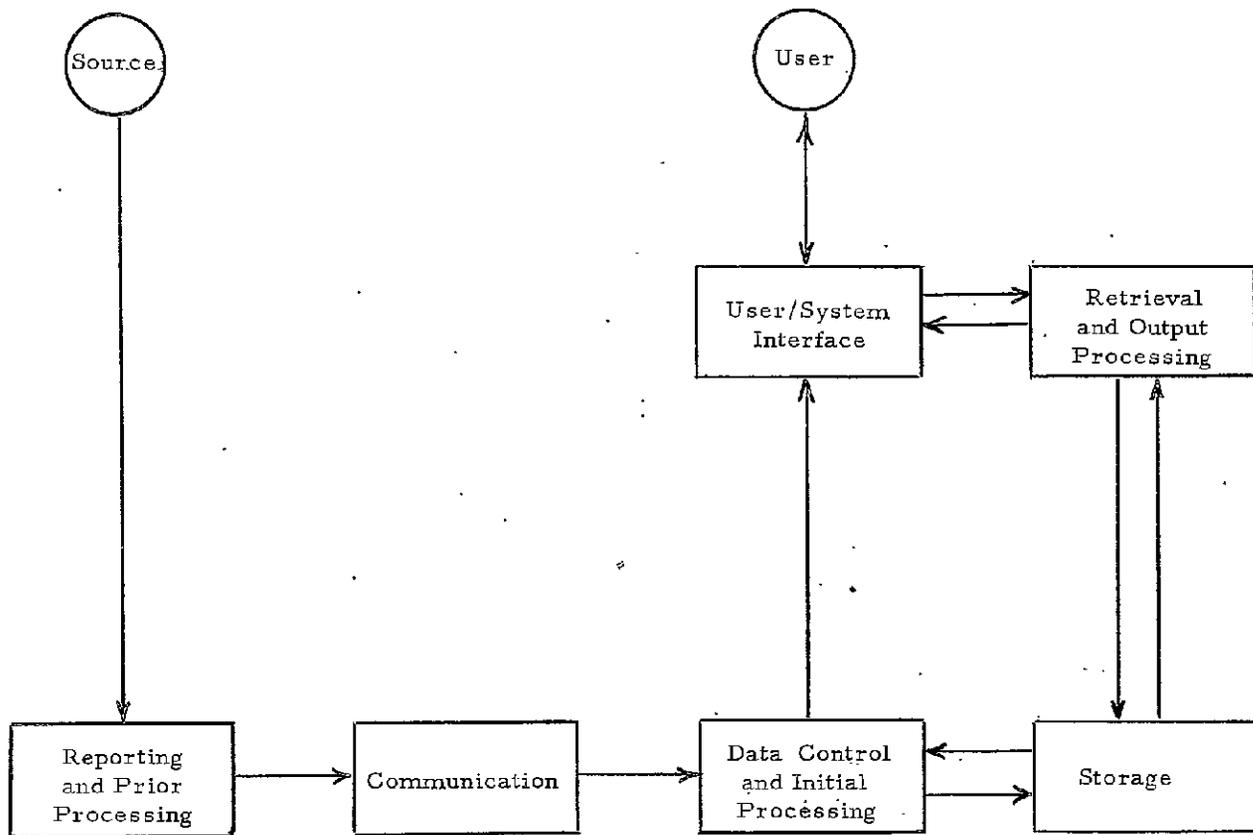


Figure 2-3. Relationship between FAIM System Capabilities

system may require operation of any or all elements of the information system capabilities. For example, one operational capability might require retrieving, processing, and presenting specific data stored in a data base; another might require collection, prior-processing, communication, screening, and distribution. Still other sets of requirements might be envisaged; the point is that the information system capabilities are building blocks through which operational capabilities are developed.

The projected FAIMS capabilities will:

- o Facilitate the flow of information from source to user - primarily in terms of messages, although the system also will be able to handle documents, oral communications, and digital data flows as appropriate.
- o Distribute and disseminate messages, documents, etc., and abstracts, summaries, and lists of these items to selected end users based on analysis of content or on special category indicators, together with appropriate end user interest profiles.
- o Make indices and abstracts and similar small blocks of information immediately available in response to retrieval requests, and provide copies of messages and longer documents within a reasonable short time.
- o Store, in various forms, the indices, abstracts, messages, documents, data, etc., by methods appropriate to the urgency, frequency, format, etc., of their intended future use.
- o Process selected information and data in support of the various operational capabilities provided by the system.
- o Provide methods for the user to communicate his desires to the system and for the system to present its responses to the user.
- o Provide mechanisms for controlling the processes listed above so as to insure that the day-to-day operation of the system is carried out economically, efficiently, rapidly, and in response to the current requirements of the users.

Figure 2-4 illustrates the relationship of the operational capabilities to the information management system capabilities in the form of a basic system model. The information system capabilities are described in the sections which follow.

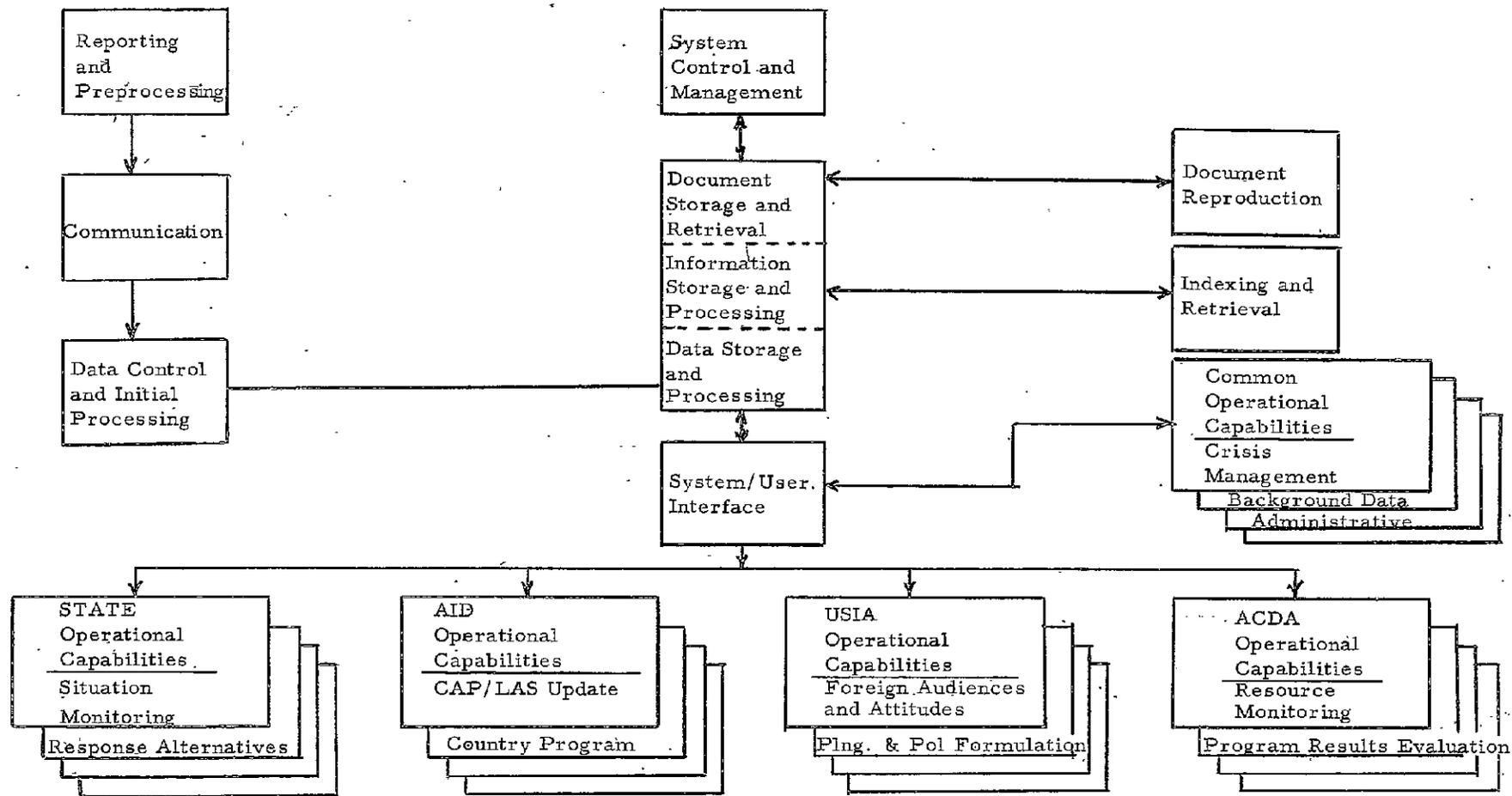


Figure 2-4. FAIMS Basic System Model

2.3.1 Reporting and Pre-Processing Capability

This capability includes activities such as:

- (a) Collecting foreign affairs information;
- (b) Reporting by telegram, airgram, cable, telephone, official-informal letters, joint WEEKAS and other types of communication;
- (c) Gathering input from other sources including both government and commercial organizations.

A large, and in many respects very efficient reporting capability exists already within the foreign affairs community. Reshaping of this capability to correct the present imbalance between collection and utilization of information is a critical necessity in the development of an effective information management system. The symptoms of imbalance are observable in the excessive volume of paper, data gaps in some areas, and duplication in others.

Reporting and pre-processing will continue to be largely manual functions performed primarily by personnel assigned to the foreign service posts. In addition, a significant quantity of collection and reporting is provided by other governmental agencies and private sources (this is particularly true of domestic information). The main change foreseen is in the provision of effective collection and dissemination controls and of feedback mechanisms.

An expanded acquisition capability includes the development of certain formal interfaces for information input from other systems. Principal sources are:

- (a) Intelligence data
- (b) Processed economic and social data from the Departments of Commerce, Labor, HEW
- (c) Statistics from international organizations such as the UN and its associate agencies
- (d) Open literature as a substitute for collection when information is publicly available
- (e) Technical and scientific data from DOD, AEC, and non-government research

Prior-processing consists of a number of possible operations which may be performed on information collected prior to its transmission in the form of a report. The specific operations may vary to a considerable extent with the type of information being reported, its intended use, etc. For example, for political reporting, prior-processing might consist of consolidating several reports on the same subject, preparing an evaluation section for the consolidated report, assigning a suggested subject classification code and action addressee, preparing an abstract, and formatting the report for telegraphic transmission (including, possibly, the production of paper tape for digital ADP system use). On the other hand, the prior-processing of a report of funds expended on an AID program might consist of extracting those figures reflecting a change in status since the previous report and preparing a set of punched cards reflecting these figures for delivery by pouch to the data processing center. Again, it is envisaged that, in field locations, many of these operations will be performed manually although equipment for producing the required formats would be required.

The use of small-scale computers at certain regional centers is also a part of the overall system concept and this could reduce the quantity of data transmitted in original format. Regional computers, for instance, could be used to process selected data to produce consolidated regional reports on administrative and program matters and to provide a service in support of operations at appropriate posts in the region. In Washington, considerably more automation will ultimately be required to support operational capabilities which result in the production of pre-processed information destined for the field.

2.3.2 Communication Capability

Communications capabilities are essential in carrying the flow of information between the multiple domestic and overseas locations of the

foreign affairs agencies. The following specific functions must be provided:

- (a) Up to 90% of all official communications ultimately should be carried by secure on-line telegraph channels, utilizing relay stations at regional centers (similar to the existing arrangement in Europe).
- (b) The system also should provide for on-call secure voice communication between Washington and the U.S. Embassy in each country. Voice communications should include adequate capabilities for recording and conferencing and should be developed in close cooperation with the Department of Defense.
- (c) The trunk channels between Washington and regional centers should provide broad-based digital data links to facilitate the exchange of data.
- (d) There will be a continuing requirement for the physical transportation of documents and other materials of various types; facilities for the processing of such items must be provided at the various locations.

Completely consolidated foreign affairs communications centers should be instituted at each location. This specifically includes Washington where a single center for the handling of all transmission, receipt and related activities for all agencies is well under way in the form of the Automatic Terminal System (ATS) development program. As far as can be determined at this time, the ATS is compatible with the system concept developed herein. A corresponding centralization of non-electrical communications facilities should be undertaken in coordination with ATS development.

Special facilities for crisis management communications are appropriate for the Operations Center where large displays, teleconference and closed circuit TV could be used to inform and coordinate the efforts of all foreign affairs agencies in responding to crisis situations.

2.3.3 Data Control and Initial Processing Capability

This capability is the focal point of information management, for the generation of reports and for their delivery to the user. Overcoming the present lack of control is the subject of a proposed interim improvement,

to be implemented by a pilot project in State Department; which could be expanded into a component of the future inter-agency system. With machine support for maintaining the relationship between reporting and requirements, the data control capability would include the following elements:

- o Reports requirements control
- o Report evaluation and control
- o Distribution screening and control
- o Initial processing and dissemination control

a. Reports Requirements Control

This element provides for consolidating and verifying requests for reporting, checking the request against a file of outstanding requirements, searching the appropriate FAIMS storages to assure that the requested information does not already exist in the system; checking with other systems (e. g., DIA or CIA); and, when no duplication or prior collection is identified, authorizing transmittal of the requirement to the appropriate sources.

b. Report Evaluation and Control

This element provides for such activities as: (1) correlating incoming reports with requirements, (2) requesting evaluation of reported information by the user and, if appropriate, (3) transmitting evaluation results to the report source.

c. Distribution Screening and Control

This element provides for the examination of messages, documents, or other items of information received to determine the action and, where appropriate, the information addressees for distribution control purposes. Where addressees were suggested at the source, this may be a simple relaying operation; in other cases, the subject classification or other special indicator, together with up-to-date, definitive interest profiles, will indicate the proper distribution pattern. In Washington and the regional centers, these operations can be automated for the most part, although they will probably

remain manual at other locations. Some items will not be amenable to such automatic discrimination and will require a manual intervention capability for analysis and assignment of appropriate distribution; such would be the case if no subject classification or other special indicator were included or if there was no predetermination of the appropriate distribution.

d. Initial Processing and Dissemination Control

In addition to being distributed, most incoming items must be processed in other ways. Some of the operations included in this element are: reviewing, classifying, indexing, formatting, disseminating full texts, abstracts and accession lists based on profiles of interests, etc. Since considerable judgment is required to carry out many of these operations, this can be only a semi-automated function. Where possible, dissemination of the appropriate version (full text, abstract, or accession notice) should be automatic; in other cases, it may be almost completely manual. Abstracting, classifying, indexing, etc. are likely to remain largely manual operations during the time period under consideration although research progress toward automation of such operations should be followed closely and incorporated when it becomes practical.

Two essential features of this element are:

- (1) A subject classification system specifically tailored to the needs of information users; and
- (2) The maintenance of current profiles of interest for all users.

The development of subject classification system requirements is the object of a proposed interim improvement program, as is the initial development of profiles of interest (although for only one of the agencies). Preliminary findings indicate that a hybrid classification scheme may be required to meet the simultaneous requirements of the very heterogeneous user groups for hierarchical classification and extremely broad topical areas.

2.3.4 Storage

Storage is required to allow information to be stored and subsequently disseminated to users whose needs cannot be anticipated at the time of initial arrival of the information in the system, to facilitate subsequent reference and to permit data processing. Each of these requirements is satisfied best by a different combination of storage techniques and methods; in addition, some specialized requirements also must be satisfied. For example, the special protection required for medical and other personnel records and for sensitive intelligence information require special capabilities. Storage facilities to support these requirements include:

- o Hard copy files or files of original documents, periodicals, messages, etc. the use of hard copy storage is expected to decrease as other storage techniques become increasingly available, although there always will be some requirements (statutory, bulk, infrequent use, etc.) for this type of storage.
- o Microimage files of the content of all types of official and quasi-official documents. Such files have two primary advantages over hard copy files: (a) they permit enormous economies in space required to store information and (b) they are amenable to the employment of mechanized handling equipment and techniques which in turn make possible a significant increase in the availability of the information contained in the files. At the same time, use of the appropriate techniques can eliminate the necessity for the requestor to employ film readers, to return copies or originals to the file after use, etc. A well designed microimage file system can be more efficient in many information storage applications than a more automated system. This is especially true for research-oriented users such as State/INR, USIA/IRS, and ACDA.
- o Off-line, serially structured, machinable record storage for information and data which can be structured for such storage. Such storage systems are generally sequential in nature; this characteristic restricts the use of this technique to files of information which are not required continually and which generally are processed completely in one or two passes through the file. Many administrative data files, for example, lend themselves to this technique.

- o On-line random access storage is required for information and data which has a high frequency access or change, is needed very rapidly, or must be processed or accessed nonsequentially. This type of storage is non-existent at present in the foreign affairs agencies but will become very important with the development of the FAIMS. Among other categories of information, the index (or indices) to operational information and reports files should be maintained in this type of storage.

Control of the storage of information is essential to keep the volume of information stored in step with user requirements. Documents, information, and data proposed for storage must be reviewed carefully in order that the type of storage is consistent with the expected quantity, format, usage, useful life, etc., of the information. Just as it is important to control the storage of information, its retirement from the system must be controlled. Frequently, information should be converted to other less costly types of storage as it becomes older. This is particularly important when it is primarily of historical interest or is transferred to archival storage. The active life of information varies considerably according to the type of information and its usage; much raw data is of very little interest once it has been incorporated in some more finished product, while certain documents are in nearly constant use over many years.

2.3.5 Output Processing and Retrieval

This capability is intimately related with nearly all the operational capabilities described in Section 2.2. It serves to translate the information and data stored or arriving in the system into the outputs required for user consumption. In addition, output processing and retrieval capabilities can be useful immediately in supporting the information requirements of many people. Many variations of this capability are required, some of the most obvious are discussed below:

a. Document Retrieval

Document retrieval is generally most productive for the preparation of research papers, project development research, publications writing, or script preparation, country background studies, etc. Such projects are characterized by analysis and interpretation of information reported in some depth in official and open literature. This capability involves computerized indexing and inquiry capability, and retrieval and reproduction functions. Development of this capability is essential to the FAIMS support of a large number of officers in all the agencies.

b. Information Retrieval and Processing

Information retrieval is more difficult to implement than document retrieval, but is correspondingly more useful in many situations. Automated information retrieval and processing can facilitate such operations as condensing narrative text to salient information statements, preparation of abstracts, summaries, indices and bibliographies, management summaries, etc. This capability of the system relieves users of the task of extracting specific information from general sources. Development of information retrieval and processing capabilities will take considerable time and effort but should be among the most useful to the system users.

c. Data Processing

Automatic data processing will be advantageous to administrative capabilities and to many of those operational capabilities which support the unique programs of the foreign affairs agencies. Data processing is required to convert masses of raw (principally statistical) data into structured, significant information from which inferences may be derived and upon which conclusions may be based. It should be noted that under the proposed system concept, design, implementation and control of most data processing capabilities remain with the using agency personnel, although the actual computer capacity may be centrally located.

2.3.6 Operational User/System Interface

Since the primary objective of the system is to support the officers charged with conducting the substantive activities of the agencies, user/system interface is one of the most important system capabilities. This capability must structure equipment and procedures in such a way as to permit the user to obtain the information he needs easily, rapidly, and in the most appropriate format. Although some specialized training obviously is required, the capability must be implemented so that it is used easily by substantive personnel. Displays and other output media must be easy to interpret, while keyboards and other input methods must be as simple to operate as possible. Both input and output, to the maximum possible extent, must be conducted in a language which is "natural" to the user.

2.3.7 FAIMS/Other Agency Systems Interface

Although insufficient information was obtainable during the FAIME evaluation study for thorough definition of this system capability, it is clear that the FAIMS must provide interfaces with many other information systems. Shared use of data and information files, communications and other capabilities can decrease the cost of individual systems development and simultaneously improve the usefulness and effectiveness of all participating systems. Of particular interest here is the system development effort of the intelligence community and the requirements of other agencies with significant foreign affairs information needs.

2.4 Operational System Concept

In conceptualizing the design of a system which will meet the objectives and constraints and provide the operational and system capabilities discussed in previous sections, several points of design philosophy have been developed as overall guides; these are set forth briefly below:

- o Flexibility - Extreme flexibility of design is required because of the constantly changing problems and interests of the agencies and of periodic changes in organization and personalities within them. Such flexibility implies a "public utility" type of system wherein the service provided is a function of the demands placed on the system. This flexibility is required in all aspects of the system; its overall configuration, the operation of its capabilities, the design of its equipment, its programs and procedures and certainly in the design and operation of its control mechanisms. Such flexibility, while initially expensive, in the long run will minimize, if not eliminate, the costs of repeated redesign and modification which are characteristic of less flexible systems.
- o Management Control - Information management is an integral part of overall agency management and operations. Since this is so, the design, implementation, and operation of the system must be firmly managed by top management personnel of each of the agencies. Since these managers have neither the time nor the technical expertise required completely to carry out the design and operation, etc. of the system, they should be assisted by an overall FAIMS technical support and management office and staff, responsible to an Inter-agency Coordinating Board. This approach will keep the system responsive to the current actual needs of each of the agencies, and at the same time assure the integration and compatibility of design features.
- o Centralization/Decentralization - The system configuration required is a hybrid - neither completely centralized nor completely decentralized. The design of commonly required information system functions and operational capabilities should be controlled centrally in order to assure design integration and to capitalize on the economies possible through consolidation, while system functions and operational capabilities required for a unique agency operation may be decentralized to facilitate immediacy of operational control and support. Such a system configuration will permit the autonomous, unique capabilities to operate independently within the bounds of overall system capacity and necessary design control.
- o System/User Interface - The design and implementation of the system must permit policy making and operational personnel with minimum training to utilize the system directly in performing relatively straightforward tasks. The system also must provide specialists to assist these personnel when they are attempting to resolve more complex problems. The routine

"base load" work of the system should be processed relatively automatically. The system should be operated and maintained by systems specialists who are made aware of operational problems through close liaison with operational personnel.

- o Incremental Implementation - Incremental implementation consists of implementing portions of the system in relatively small steps over a period of time. Such an approach eliminates the necessity to allocate large quantities of funds and personnel to objectives which cannot be defined in detail far in advance. Instead, progress is made in step with the careful, detailed definition of the next step and with the availability of resources for implementation. Finally, the incremental approach permits continual evaluation of the progress made at any point in time in order to modify future developments or final objectives as required.
- o State-of-the-art System - Analysis indicates that the FAIMS should, at each step in the implementation of the system, utilize equipment, techniques, etc., that are available and proven. This approach to system implementation largely eliminates research and development costs inherent in implementing systems requiring new development. On the other hand, adoption of the most modern techniques, equipment, etc., is essential if the foreign affairs agencies are to cope with their constantly increasing problems, to plan ahead rather than merely respond to current crises, and most efficiently to utilize their highly qualified personnel in substantive work rather than in mechanical processing of paper. It is believed that the requirements of the foreign affairs agencies can be met by a uniquely tailored application of the equipment, techniques, and methods currently available or which will become available at appropriate times in the future.
- o Compatibility with Other Systems - In the development and implementation of the system, the already-existing capabilities, facilities, etc., of the agencies must be utilized to the maximum extent consistent with logical design of the system. Compatibility with the systems of other agencies, such as Department of Defense and CIA, is very desirable in order to facilitate the exchange of information between systems, the possible joint use of certain infrequently utilized facilities, and the coordinated handling of joint problems.

The FAIMS concept envisages a complex system composed of many sub-systems, elements, equipment and software components, facilities, and personnel. Figure 2-5 illustrates a simplified overall system configuration.

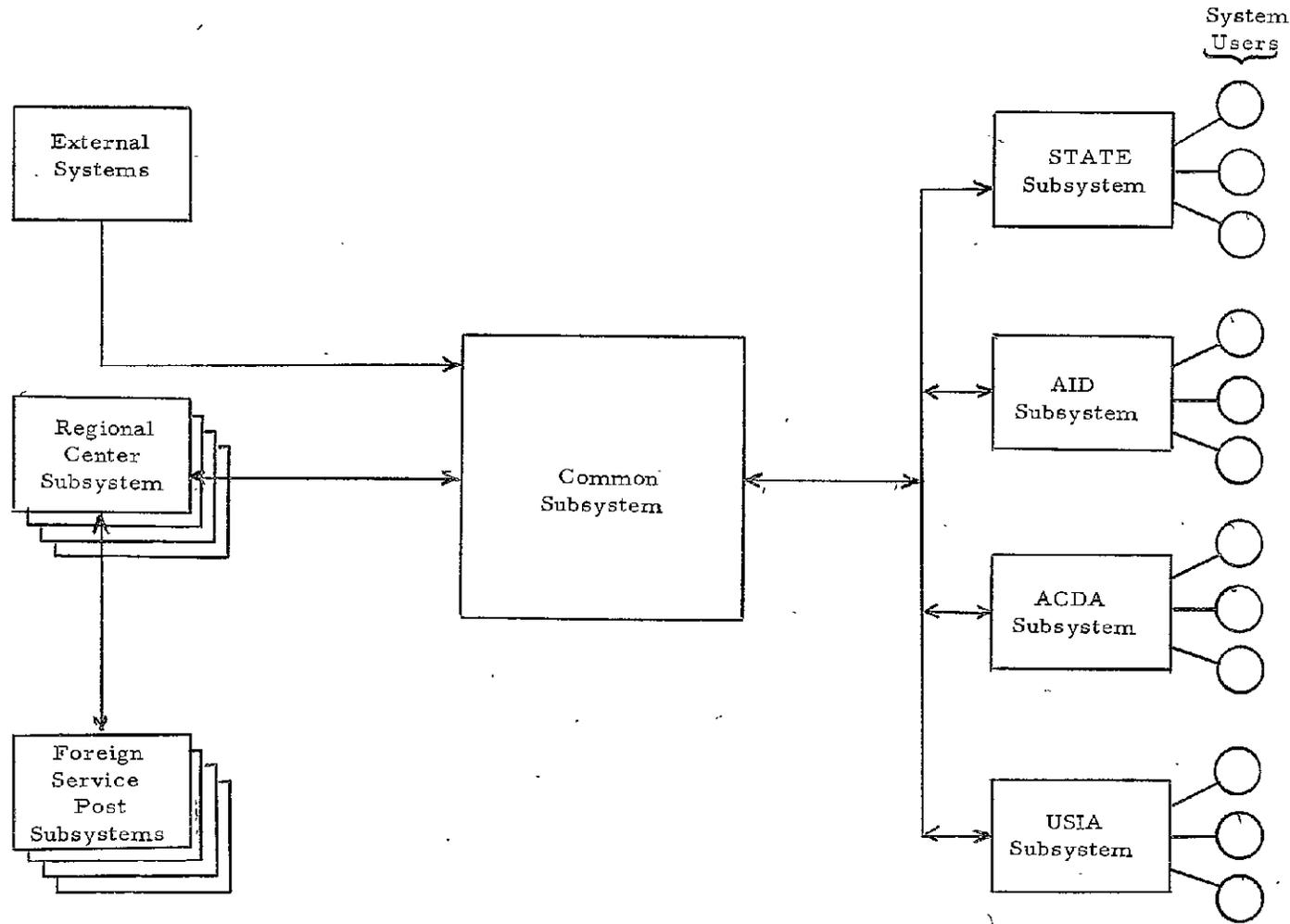


Figure 2-5. FAIMS Overall System Configuration

Portions of the system are located at, and can be used by, all locations occupied by the agencies and their personnel although major equipment, facilities, and capabilities are centralized to the maximum extent consistent with rapid access and dispersed operational control. The sections which follow discuss concepts for equipment, software, facilities, and system management and operation.

2.4.1 FAIMS Equipment Configuration

In analyzing the equipment requirements, two basic configurations were considered: (1) several relatively independent, but cooperating systems; and (2) a centralized system with remote facilities to meet the needs of the various users. The criteria considered in selecting and recommending a configuration were (1) cost, (2) operational efficiency, (3) available capacity, and (4) organizational requirements.

The consideration of organizational requirements leads to a suggested system of loosely cooperative but basically independent systems, one for each of the agencies. The other three criteria all lead to recommendation of a single integrated system. The cost of a single integrated system will be approximately one-half the cost of four independent systems. At the same time, such a system will provide a more powerful, more efficient operating capability than any of the agencies could justify independently. A properly-designed real-time system including time-sharing of facilities and parallel processing will provide all the support required by each of the foreign affairs agencies.¹

¹And will be capable of providing foreign affairs information to other governmental agencies with minimal additional equipment.

The recommended equipment configuration is illustrated in Figure 2-6.

This system has the following characteristics:

- o Very extensive files of several types (document, micro-image, off-line and on-line random access) to meet a variety of requirements.
- o Very rapid response time - maximum anticipated delay in gaining access to the system being by a single user would be only a few seconds, the response from the system would be available in seconds for crisis operations or in a few hours for routine retrieval of bulk hard copy information.
- o Multiple simultaneous and remote inquiry operations - many users simultaneously serviced by means of time-sharing and parallel operations.
- o Automatic and semi-automatic distribution and dissemination based on continual analysis of subject material and user profiles which may be easily and rapidly modified.
- o Document control and reproduction for those requirements that can be met best by such a capability.
- o Powerful data and information processing capabilities required to support agency and inter-agency operational capabilities.
- o Variety of input and output techniques, media, and formats to meet wide range of agency and inter-agency requirements.
- o Modular design to permit relatively unlimited expansion in step with incremental system implementation.

2.4.2 FAIMS Program System Concept

For the multi-user, real-time system envisioned, a complex, sophisticated program system is required; the executive, control, operational, and support programs will be designed collectively to support the required functions of the system complex. A general concept of the FAIMS program system is illustrated in Figure 2-7. Briefly, the executive control program will recognize requests for service, analyze the requirements of the

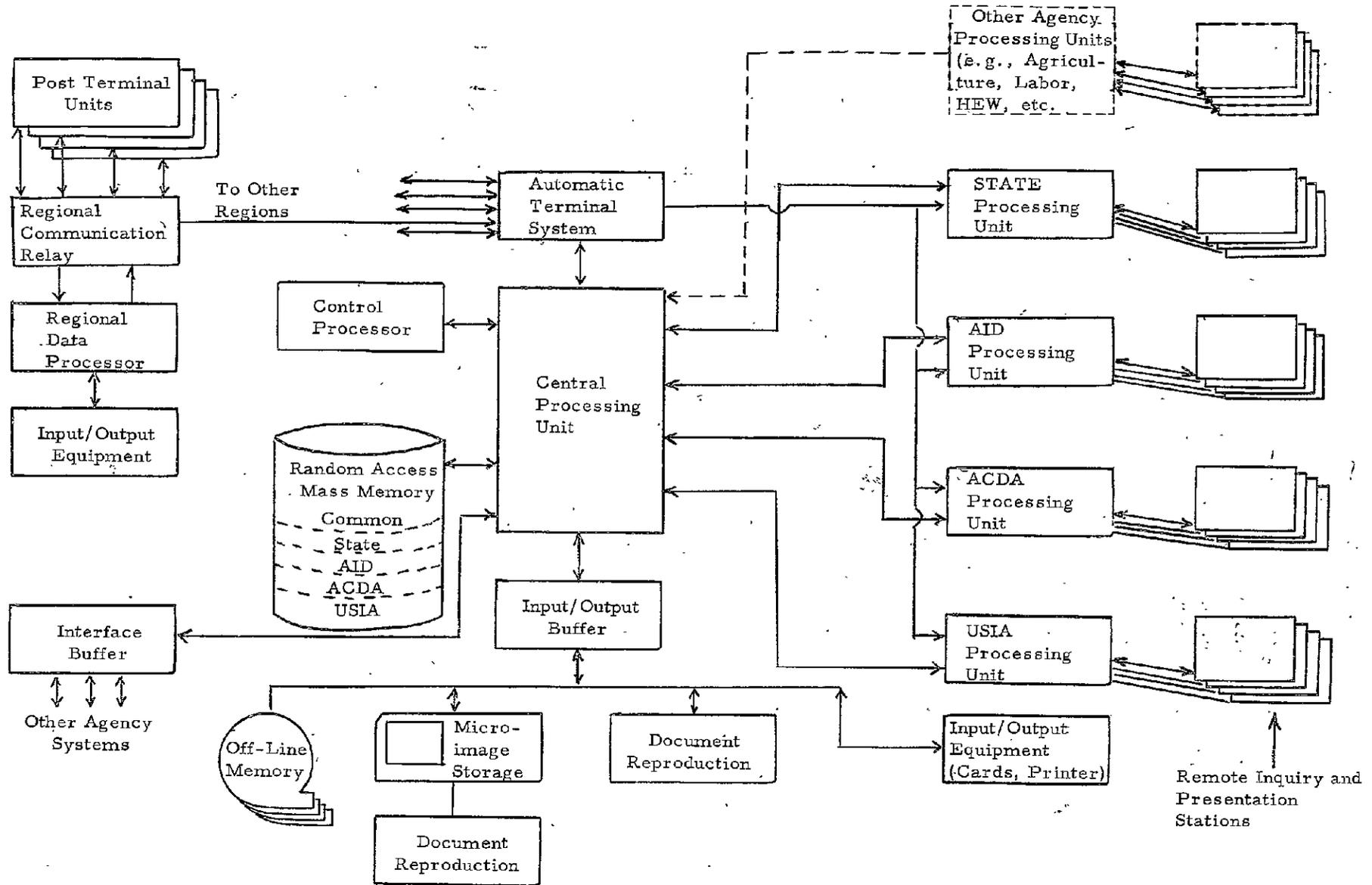
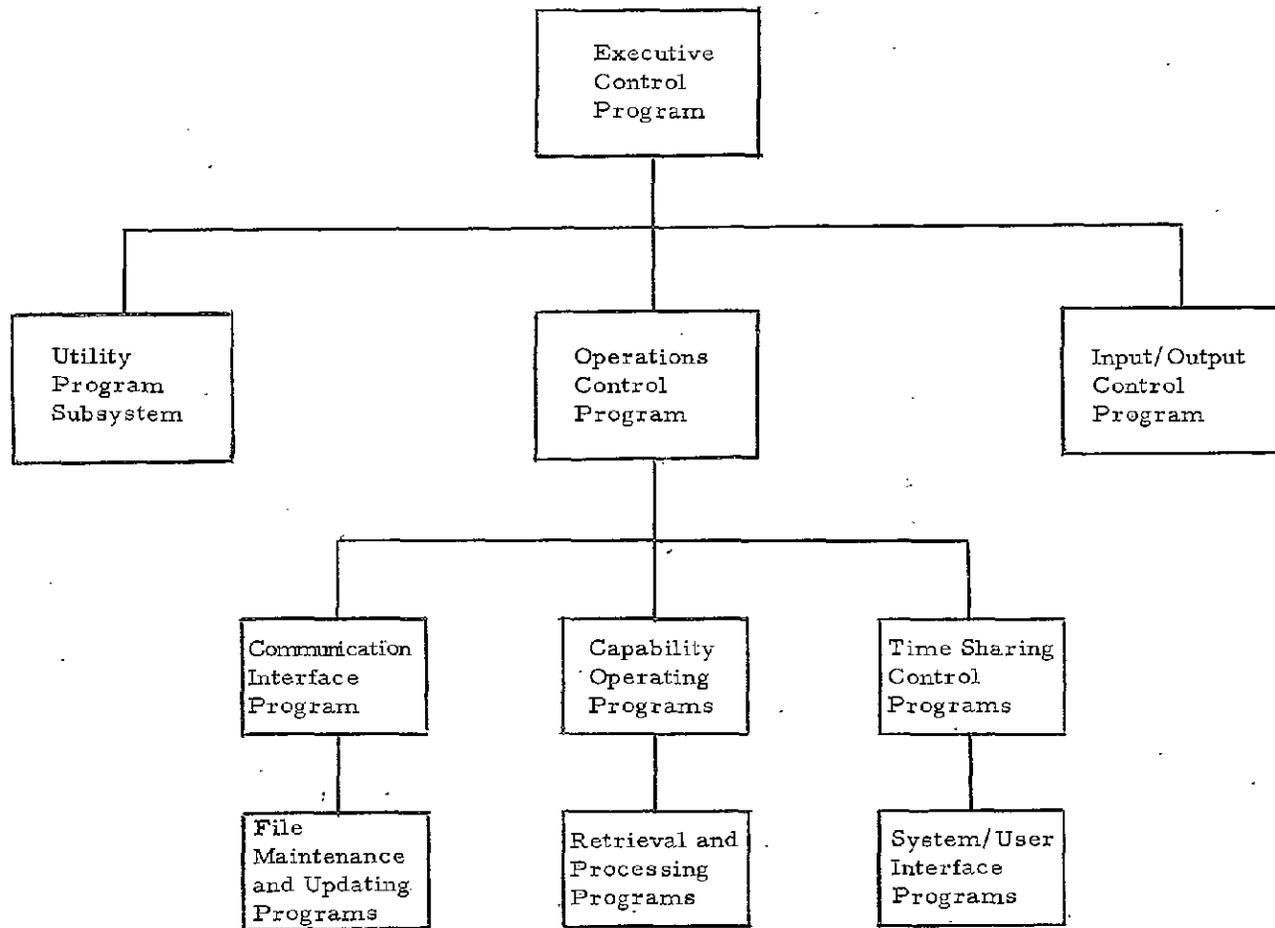


Figure 2-6. FIMS Equipment Configuration



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Figure 2-7. FAIMS Program System Concept

requested service, allocate the equipment and program capabilities required to complete the requested action, and exercise real-time control of the system components so as to optimize the service provided.

The three time-sharing control programs provide the main interface between the system users and the rest of the system. The operational capability programs utilize the system capability programs in specific patterns to analyze the outputs requested. The system capability programs carry out their functions in order to satisfy the current requirements imposed on them.

2.4.3 FAIMS Facilities

For a number of reasons, it will be desirable to consolidate system equipment, operating personnel, etc., at each geographical location into a common facility (this does not include the remote inquiry and presentation units located in each functional office through which the users gain access to the system operational capabilities). In Washington it is suggested that the central facility be located as near as possible to the communications center and the operations center. The regional centers should be located approximately in the center of each region; probably in one of the larger embassies. In the remainder of the posts, the existing communications facility also should accommodate the local subsystem.

2.4.4 System Management and Operational Personnel

The concept of system management and operating personnel is discussed in Section 3 in context with the implementation plan.

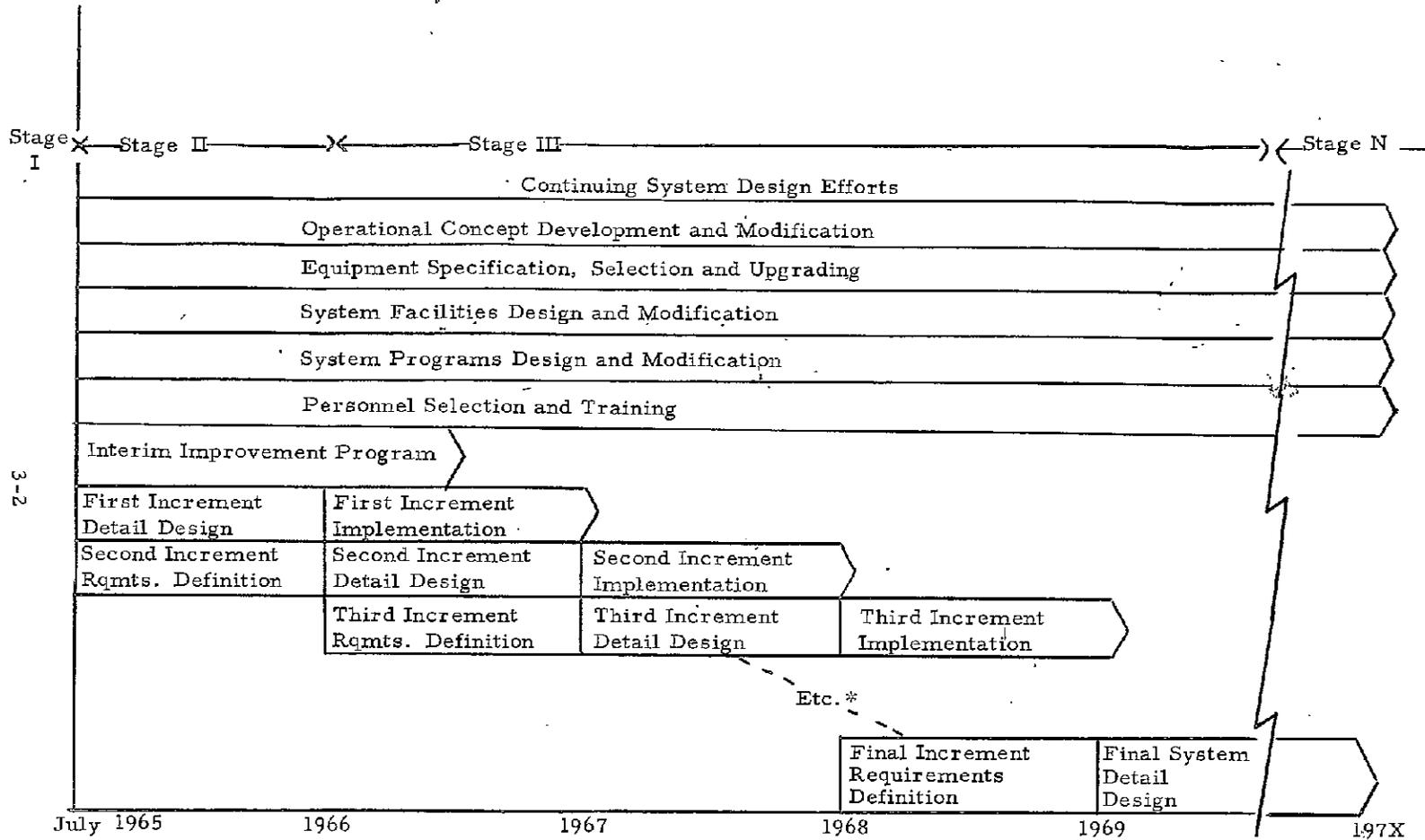
3. PROPOSED IMPLEMENTATION PLAN AND PROGRAM

3.1 Introduction

This Section provides the recommended plan and program for implementing the overall FAIM System. It discusses the efforts which must be accomplished in progressing from the information handling practices studies, observed and evaluated in the Stage I FAIME effort and reported in the Evaluation Report¹, to the final system described in Section 2. The need for an incremental approach toward implementation of the final system has been expressed. One consequence of an incremental approach is that a rigid development program, which might impose undesirable restrictions on later design stages, is unnecessary. The implementation plan then is based on the present concept for the final FAIME system design and defines those actions which should constitute the initial step toward realization of that conceptual system. At the same time the plan provides for continuing efforts toward refining the final information management system operational and design concept and for developing a definition of the next succeeding increment. These efforts constitute our recommendations for Stage II of the overall FAIME Project. See Figure 3-1 for relationships of FAIME efforts as anticipated.

It should be emphasized that although contractor assistance is expected to be required during the entire system development phase, the agency and inter-agency management groups proposed in Section 3.4 should begin a buildup of in-house technical and operational capability which can assume the conduct of system operation, maintenance, training and modernization by at least 1971.

¹Evaluation of Present Information Handling Practices (Report 551-1) Dunlap and Associates, Inc., Washington, D. C., 10 May 1965



*Note: The Schedule is for Illustrative purposes only - duration of work on given increments may be greater or less than one year. The number of increments cannot be specified at this time, but will probably exceed three.

Figure 3-1. Proposed FAIMS Development Program

This Section is organized around three major implementation requirements:

- 1) A plan for the detailed definition of FAIMS requirements for all increments
- 2) The definition and phasing of FAIMS increments and the schedule for Stage II
- 3) Recommendations concerning FAIMS program management

3.2 Development of Detailed FAIMS Requirements

3.2.1 General

During Stage I of FAIME, system analysis methods were used in studying agency operations and in determining associated information requirements. These methods, for the most part, were appropriate, and within the constraints of the time and personnel available, produced results satisfactory for the development of a broad system design concept. This is not to say that some deficiencies and difficulties were not encountered which, if corrected, would produce better methods for conducting similar future efforts. Most of these deficiencies were, however, a matter of scope and degree of detail rather than of the methods themselves.

However, the efforts which are proposed for the continuation of the FAIME are, with few exceptions, of a sufficiently different nature to make the adoption of different methods advisable. In Stage I we were faced with the requirement for a rapid determination of broad information requirements of the foreign affairs agencies sufficient for deriving a valid conceptual system design for information management in support of agency and inter-agency functions. In Stage II and subsequent stages, the concern will be with the detailed design of the information management system and detailing of the operational capabilities through which the system assists the actual performance of those functions.

3.2.2 Development of Detailed Information Requirements

Determination of information requirements associated with agency operations sufficient for the conceptual design of an information management system is possible through the methods used during Stage I of the FAIME effort. These methods involved the following steps:

- 1) Determine the mission of the organization(s) to be serviced by information management system.
- 2) Determine the major functions - operational, substantive and administrative - which are essential to mission performance.
- 3) Determine the activities or operations associated with the performance of each function.
- 4) Identify the major decision/action requirements of each activity and the information categories necessary for personnel to have available for making the decision or taking the most appropriate action. The sum of all the information thus identified constitutes the categories which must be handled by the system.
- 5) Review of the form and content, the average quantity, the frequency of receipt, the available transmission methods, security or other instructive classifications and the sources and users provide an ability to define the identifying and descriptive characteristics of each information category of importance to system design.

It is more important for conceptual system design purposes to be sure that all categories are identified than it is to detail the contents of the individual categories. This is true because the versatility of present data processing equipment allows for great variety in the make-up of the data being processed. The important control point in each category is the generic level that provides for the remaining degrees of specificity that may be encountered individually in both input and output requirements. Only when specific data is to be handled in a specific way to produce specific outputs is it necessary to describe the characteristics of the information in a very detailed way.

The determination of detailed information requirements as necessary for the design of the operational capabilities recommended and described in Section 2.2 can, however, only be accomplished through face-to-face involvement of the system design analysts with the persons or groups performing the activities which the operational capability is to support. The activities to be supported need to be observed, the information being delivered to the performer(s) as well as the way(s) in which the performer(s) manipulate or otherwise structure it, and the precise use that is made of it must be determined. There must be provisions for interviews where the analyst can probe in considerable depth the reasons for decisions, actions and for information manipulation. The output required is a thorough understanding of the activities being studied and the detailed description of the system information inputs, manipulation, retrieval and output formats which will be most effective in the support of personnel performing those activities. The analyst thus equipped, and with an understanding of the relationship between the activities studied and other activities being supported by the system, is in a position to define the most effective means of system support possible and to incorporate this into a specification for a system operational capability. The capability, either manual or automated, may then be implemented within the system either as manual procedures or computer programs.

3.2.3 Operational Capability Design

Operational capability specifications are detailed descriptions of the way in which the information management system will operate to provide information outputs to assist agency personnel in the performance of assigned functions and activities. They must describe the specific information inputs required for the capability, the way in which the information is stored, manipulated, retrieved and formatted by the system, and the manner of presentation of outputs so as to be of maximum benefit to personnel whose jobs require them. In the case of automated capabilities, the specifications form the basis

for computer programming; in the case of manual capabilities, they form the basis for procedural directives. Development of operational specifications should begin with the first increment of detailed design effort and continue throughout the development and implementation of the final system.

In determining the detailed design of operational capabilities for FAIMS, contractor analysts will be assigned to study in depth the functions and activities which are candidates for system support in each increment as described in 3.2.2 above. They will be required to study these through observation of as many performers as is possible in order to eliminate the effects of personal bias and other idiosyncrasies. Results of such study can provide the basis for the development of operational capability specifications for the system support to be provided personnel involved in performing the agency and inter-agency functions. These capabilities should be added to and/or refined throughout the system design effort--and in fact, throughout the operational life of the system as changing requirements and/or information make such changes advisable.

3.2.4 Information Management System Functional Capabilities

An information management system consists of the facilities, equipment programs, personnel and procedures essential to the effective management of information required by an organization in performing its operational functions (See Section 2.3). Ultimately it should provide all of the functions depicted in Figure 3-2. The detailed design of the functions required by FAIMS is one objective of the program described herein. As in the case of operational specifications, information system capabilities require development and refinement throughout the life of the system.

Information management system design depends on the requirements of the operational capabilities to be implemented. However, some of the operational capabilities to be implemented within FAIMS will not be determined until very late in the development cycle. Consequently, it also is

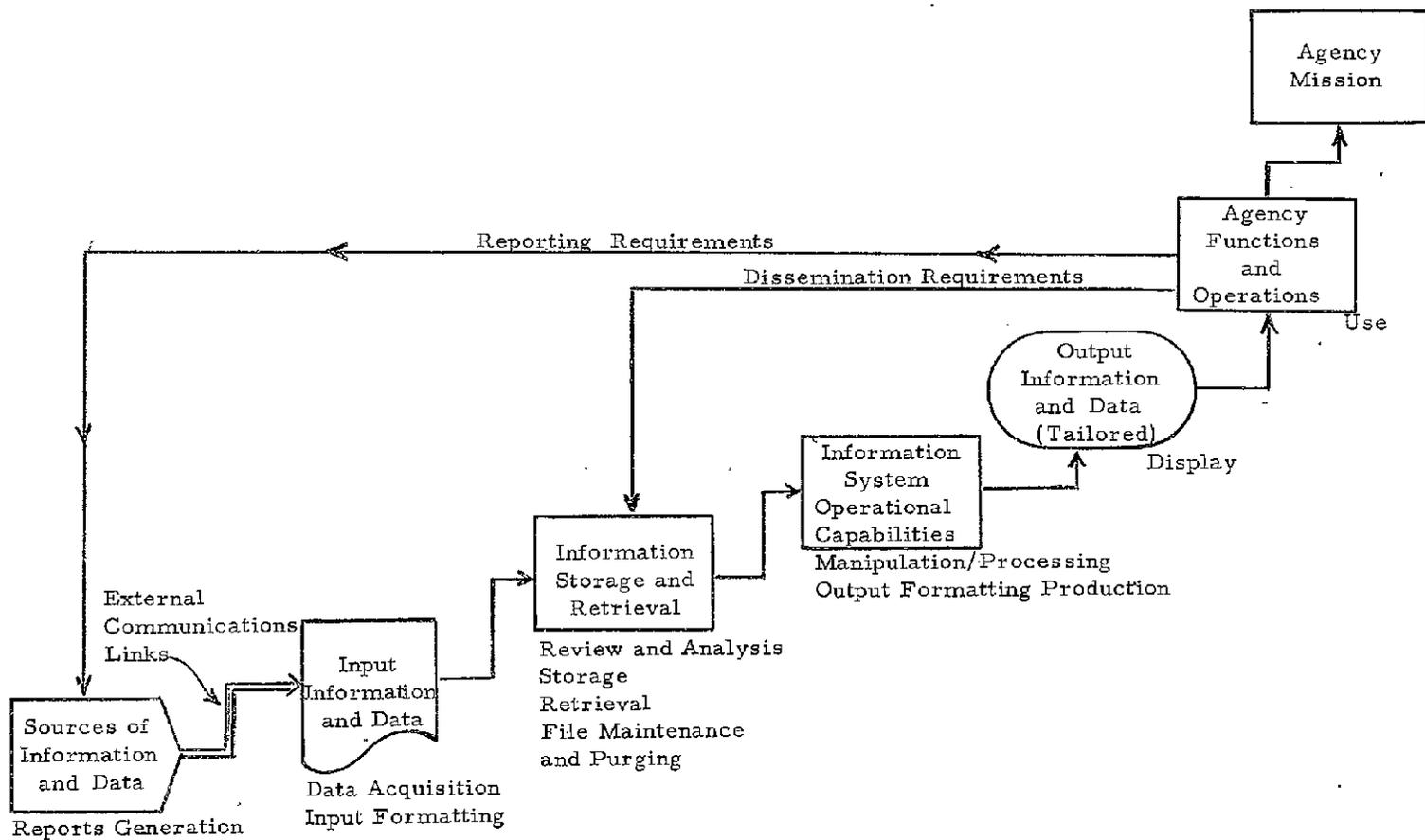


Figure 3-2. Generalized Information Management System Functional Flow

necessary to design the information management system capabilities in an incremental way. Thus the first increment primarily envisions the development of better manual procedures and support for operational capabilities which may be implemented on computing facilities already available among the project agencies.¹ In addition, however, some experimental capabilities are recommended which require only procedural implementation but which will define further final system requirements. The second increment probably will require additional computing and other mechanized capabilities, although this is not completely certain at this time. The final system will involve a rather extensive mechanized facility.

Many of the functions shown in Figure 3-2 can be provided either manually or automatically and the decision as to which should be provided rests on the system response time required, the amount of information which must be handled, the frequency with which the required operations must be performed, the nature of the information, etc. Obviously many advantages can accrue from upgrading present manual practices and from implementing other capabilities not now available for information management (e. g., micro-image document storage and retrieval). Through experience gained in the development of manual capabilities (indexing, abstracting, development of useful summarizing capabilities, provision of better storage facilities, institution of reports control procedures, development of better dissemination procedures based on interest profiles, etc.) the requirements of automated facilities for FAIMS will become increasingly specific.

Therefore, it is proposed first to implement increased information management principally through the institution of manual capabilities and procedures. During the development and implementation of these manual

¹ These may need to be augmented through the rental of additional computer capacity.

capabilities and procedures, the potential worth and detailed requirements for several automated capabilities should be determined. In the second system increment these detailed requirements for automated capabilities should be satisfied to the extent deemed desirable while requirements for new capabilities should be detailed, and so forth. In this way too early implementation of automated capabilities can be avoided which, as has been the case in many information system development programs, ultimately turn out to require extensive redesign to be truly useful.

3.2.5 System Mechanization Requirements

A mechanized system is a composite of software and hardware. The software consists of all the computer programs and operating procedures which are required for the hardware to meet the system requirements. The hardware consists of the central processor unit (CPU), the external storage (tape, disk, drum), input devices (card, paper tape, teletype), and output devices (printer, teletype, display consoles), and communications facilities. In what follows the overall systems will be discussed under the headings: data processing system, communications, and information presentation.

3.2.5.1 Data Processing System

The FAIMS has a need, including, but not limited to, the following capabilities:

- o Large file(s)
- o Rapid response time
- o Simultaneous inquiries
- o Multiple users
- o Data Processing
- o Automatic distribution and dissemination
- o Document storage, retrieval, reproduction

During Stage II, these capabilities should be evaluated to determine the magnitude of the following parameters, which, in turn, should be used to determine the optimum configuration of hardware and software required to satisfy the objectives of the FAIME system.

- o The number, type and size, of files
- o The average number and size of records per file
- o The average number and size of fields per record
- o The number of simultaneous inquiries expected to be levied against the system
- o The number of remote units required
- o The number of interrupt priorities needed
- o The formats and volume of input and output data
- o The nature of input and output devices

Knowledge of central processor and peripheral storage requirements, together with the concept of system operations and the general characteristics of the information, provide the inputs necessary to the formulation of an initial concept for program system design. Of concern here will be the system executive and control programs; system support programs, such as file maintenance; information retrieval and interpretive output programs; and utility programs, such as sort, file dump and input/output control programs. For the multi-program, multi-user, real-time system envisioned, the executive, control, and support programs are most critical since they are the ones that most directly affect system efficiency and costs. For example, the file maintenance and information retrieval programs and resulting file structures have a direct influence not only on the access time characteristics of the system, but also on the storage requirements of the data processing equipment. Similarly the design of the system executive and control programs have a direct influence on the ability of the system to provide real-time interrupt, multi-processing, and other advanced

features. The requirements for program languages such as COBOL, FORTRAN, etc. should also be determined.

The results of these determinations should be included in a functional specification of the data processing requirements of the FAIMS.

3.2.5.2 Communications

A modern communications system is an essential part of the FAIMS, providing links between Washington and the many field activities of the foreign affairs agencies. Operational requirements for communications should be defined in terms such as source and recipient, format, content, security, quantity, transfer characteristics, etc., while functional requirements can be defined in such terms as circuit quality, capacity, and availability, transfer points and interface with other systems, security, etc.

The function of communication is an exception to the general FAIMS development program since a fairly complete, modern capability presently exists, particularly in view of the planned implementation of the Automatic Terminal System. Present knowledge indicates that the bulk of additions and changes to the communication system may be in the facilities at posts and in some long lines facilities.

The communications requirements should be specified in such terms as:

- o Terminal stations and networks
- o Types of service and traffic
- o Traffic volume and distribution
- o Circuit and traffic switching
- o Termination and testing
- o Security requirements
- o Date of required implementation

3.2.5.3 Information Presentation

In information management systems, the transfer of information to decision makers is a critical function since this is the basic reason for the existence of the system. The entire spectrum of methods affecting this transfer of information is encompassed in the term "presentation" as used herein. A large variety of devices and methods of presentation are available ranging from signal lights or markers, manual plotting boards and printed matter, to CRT displays, closed circuit television and multi-color three dimensional plotters. Each technique has unique advantages and disadvantages when compared with others for a given system or operational application.

The critical test is whether the information presented can easily be understood by and is of direct use to the decision maker. For example, it is not enough that the numerical data in a status display can be read; the fact that a desired overall status has or has not been achieved must be readily apparent and, in addition, it is normally desirable to determine the significance of any deviations. Requirements will be in such terms as information content and amount, operational use, frequency of change or update, requirements for operator modification, etc. These should be converted into functional requirements such as:

- o Format - tabular, graphic, textual, pictorial.
- o Data content and coding - alphanumeric characters, vectors, map data, color requirements, etc.
- o Viewing conditions - individual or group viewing environment, constant or intermittent viewing, etc.
- o Storage and updating - frequency of update, transitory or record type data, hard copy and multiple copy requirements.
- o Data source and format - computer output, direct data from original source, digital or analog.
- o Special requirements - dynamic display, auxiliary operator input, simultaneous viewing, non-visual presentations.

The results of this analysis should be a list of the functional requirements for information presentation equipment and facilities and their locations as appropriate.

3.2.6 Personnel and Training

Two types of personnel will be directly involved with the system: operating personnel and the system management staff who assure the readiness and operability of the system, and the users who call upon the capabilities of the system in the performance of their agency duties. A confident working relationship between these two groups is an essential factor in the ultimate success of any system, regardless of its magnitude or capabilities.

The selection and training of the operating and system management staff forms a significant part of the preparation stage for each FAIMS increment. The numbers and types will vary with the capabilities and design of each increment, but there are several classes of personnel whose skills will be needed throughout. The concepts of inter-agency and agency FAIMS management offices and staff are discussed in Section 3.4. Also required are:

- System planning and design specialists

- Programmers

- Equipment operators

- File and library maintenance personnel

- Document and information analysts

- Retrieval specialists

The relative balance between requirements for technical operations and the control of information will vary with the stages of FAIMS development. As more advanced capabilities are developed for automatic indexing, extracting,

source data processing and direct message input, the balance in required skills will show a decrease in manpower required for information analysis and a corresponding increase in production, programming and equipment maintenance personnel.

Experienced technicians and professional staff, further developed with on-the-job training in the specific requirements of FAIMS should be assigned wherever possible as a means of limiting the preliminary training periods. Later, as active capabilities are in operation, staff assignments can be modified by lateral transfer of analysts who appear to be potential system specialists. In any case, however, a continuing effort will be required to determine and to specify personnel requirements and the associated training requirements.

In addition to the selection and training of system operating personnel, there will be a need to develop and conduct an indoctrination and training program for certain of the system user personnel. The precise number and identity of these system users will depend on the final design and operational concept. In any case, these will need to be determined for each system increment implemented.

3.2.6.1 System Facilities

A program for the implementation of FAIMS requires the specification in detail of the physical facilities required to house the system and its personnel. It is expected that approximately twelve months will be required to complete a system facilities specification task. Completion of this task will require the services of experienced computer system personnel¹ (probably contractor) to accomplish the following steps:

¹Including advisory and engineering services by an architectural and engineering firm.

- o In the early position of Stage II, develop a general statement of system facility requirements, including a preliminary system and a site preparation and equipment installation plan and schedule. The plan will support site preparation actions and facilitate management control of progress toward system installation.
- o Provide technical assistance to the FAIMS management office in the selection of an appropriate site and development of layouts. Assistance should include obtaining approval by equipment manufacturers of the proposed site and its layout.
- o Develop detailed specification for the required physical modifications to the site, including details of all required construction, special flooring, air conditioning, and power and cabling. Provisions for meeting security requirements will also be considered. The specifications will provide the basis for GSA contractor provision of the facilities.
- o Supervise the installation of main and peripheral equipment and supplies, including card punch, magnetic tapes, storage facilities and files, communications equipment, etc.
- o Monitor all contractor's efforts to assure satisfactory completion of the required facility construction and installation.
- o Supervise power and cable testing and equipment delivery and testing.

3.3 Implementation Efforts and Schedule

The phasing and schedule for succeeding Stages of the FAIME and the FAIMS development program is presented in this Section. The general relationships between the various system development increments and required on-going design efforts are shown in Figure 3-1. The major activities required, their phasing, and a proposed schedule are presented.

3.3.1 Activities Required

The progress of the FAIME development program starts logically with the installation of recommended interim improvements. Starting from a new base of present practices as modified by those improvements the intensive phase of system design integration will include implementing the first FAIMS increment and simultaneously proceed with detailed definition of the second increment, and so forth.

3.3.1.1 Interim Improvement Program

Projects recommended for agency implementation under the interim improvement program (see Section 4) should make use of the services of contractor personnel in consulting on the detailed design of the improvement project, and for assistance in conducting analysis of the results of trial implementation. These programs and the recommended contractor assistance (in total man-months) consist of the following:

- o Inter-Agency Improvements
 - Document Storage and Retrieval - 12 m/m
- o State Department Improvements
 - Production of a Daily Annotated Message Index - 2 m/m
 - Improvement of Political Reporting - 3 m/m
- o AID Improvements
 - Documenting the Annual CAP/LAS Review Results - 1 m/m
 - Automated Data Base Inventory - 1 m/m
 - Technical Assistance Program Design - 14 m/m¹
- o USIA Improvements
 - Program Material Retrieval Capability - 3 m/m
 - Improvement of Program Effectiveness Evaluation - 3 m/m

¹This effort is already under contract and is being performed as Section B of the FAIME Stage I program.

- o ACDA Improvements
 - Dissemination Profile Techniques - 6 m/m
 - Information Management Team - 1 m/m

The total contractor requirements estimated for the interim improvements programs is on the order of 32 man-months, exclusive of the effort already contracted for Section B.

3.3.1.2 Continuing System Design Integration

These efforts are required throughout the development of the system. In general, the greater portion of time, effort and therefore money will be necessary on these efforts during Stage II; subsequent efforts will be principally concerned with updating or modifying designs and providing the associated documentation. These efforts are composed of the following and will require the manpower shown:

- o Operational Concept Development and Modification - 24 man months - This effort is that part of the analysis of system requirements concerned with continued advanced planning for future system capability increments. It results in a definition of the objectives of each increment to be implemented, the essential means for its implementation, its interrelationship with existing and planned future system increments and other essential aspects of the increments developed, and its integration into the system.
- o Equipment Specification, Selection and Upgrading - 24 man months - This effort will develop system requirements for hardware, specify its functional and design requirements, and indicate essential characteristics of the intended operational environment sufficient for the solicitation of bids from suppliers. The bids will be evaluated with assistance from the integration contractor and a selection made by the government. During the life of the system new requirements for system equipment modification and upgrading will develop. These will need to be evaluated, their characteristics specified and equipment purchased as deemed appropriate.

- o System Facilities Design and Modification - 12 man months
Facilities necessary for the installation, operation and maintenance of the FAIMS will need to be determined and specified sufficiently to allow their procurement or provision. Modifications will be required from time to time during the operational life of the system.
- o System Programs Design and Modifications - 12 man months
Initial design concepts for the FAIMS utility and executive programming systems will need to be determined, as will the general design parameters of the agency and inter-agency operational capability programs. This effort will assure the efficiency and integration of all system programs.
- o Personnel Selection and Training - 12 man months
This effort will provide selection criteria for system operating personnel. It will also design and conduct training courses for both agency and inter-agency operating personnel and provide system indoctrination to agency system users. Each increment of the system will require similar efforts.

As stated earlier these efforts will receive the greatest emphasis during Stage II but will require continued efforts throughout the system development program. It is estimated that seven (7) man-years of contractor effort will be required for System Design during Stage II, distributed as shown in Table 3-1.

3.3.1.3 Detailed Design of the First System Increment

The approach to the detailed design of each planned system increment is described in Section 3.2. As stated therein, the operational and system capabilities envisioned entail principally manual capabilities. Some automated capabilities can be implemented on present agency processing equipment, augmented as found to be necessary with additional rental equipment modules. It is believed that agency personnel can provide programming for any automated capabilities, and no contractor programming effort will be required.

Table 3-1. Estimated Contractor Manpower Requirements for Stage II

<u>Effort</u>	<u>Described in Section</u>	<u>No. of Personnel Required</u>	<u>No. of Months</u>	<u>Total Man-Months</u>
1. <u>Interim Improvement Consulting Services</u>	3. 3. 1. 1	~3	various	32
2. <u>System Design Integration</u>	3. 3. 1. 2			
Operational Concept		2	12	24
Equipment		2	12	24
Facility*		2	6	12
Program Design		2	6	12
Personnel Selection and Training		2	6	12
3. <u>First Increment Design</u>				
a. <u>Interagency Capabilities</u>	3. 3. 1. 3			
Reports Control		1-1/2	12	18
Dissemination		1-1/2	12	18
b. <u>Agency Capabilities</u>				
State				
Passport Processing		1	12	12
Incoming Message Indexing		1	12	12
Visa Processing		1	12	12
AID				
Country Assistance Update		1	12	12
Program Monitoring and Evaluation		2	12	24
USIA				
Definition of Foreign Attitudes and Audiences		1	12	12
Agency Program Evaluation		1	12	12
ACDA				
Evaluation of Program Results		1	12	12
c. <u>Interface Requirements</u>	3. 3. 1. 4	1	3	3
d. <u>Second Increment Planning</u>	3. 3. 1. 5	3	12	36
e. <u>Management and Liaison</u>	3. 3. 1. 6	3	12	36
Total Professional Personnel		~27	12	325
f. <u>Technical Assistance and Secretarial</u>		3	12	36

*Requires the subcontracting services of an architectural engineering firm.

The operational capabilities proposed for implementation in the first increment of FAIMS and an estimate of the man months of contractor manpower required to develop the detailed design for each are listed below:

- o Inter-agency Capabilities (see Section 2.3)
 - Reports Control Procedures - 18 m/m
 - Dissemination Control Procedures - 18 m/m
- o Individual Agency Capabilities (see Section 2.2.2)
 - State Department Capabilities
 - . Passport Request Processing Requirements - 12 m/m
 - . Policy Guidance Dissemination Requirements - 12 m/m
 - . Requirements for Visa Processing (field posts) - 12 m/m
 - AID Capabilities
 - . Country Assistance Update - 12 m/m
 - . Program Monitoring and Evaluation - 24 m/m
 - USIA Capabilities
 - . Definition of Data Base Requirements for Foreign Audiences and Foreign Attitudes - 12 m/m
 - ACDA Capability
 - . Evaluation of Program Results - 12 m/m

The estimated total efforts of contractor manpower required for this detailed design is 144 man-months.

It is estimated that completion of these capability design efforts, together with the results of the interim improvements program will have provided the agencies an increase in highly significant information management capabilities. (See Figure 2-2, for capability interrelationships.) At the same time, these capability design efforts, coupled with the system design efforts described in Section 3.3.1 will constitute a significant step forward in total system design

and provide the agencies with greatly increased operational capabilities. At the same time the possibility of greatly decreased paperwork will be at hand with the institution of both reporting and dissemination control procedures.

3.3.1.4 Additional Interface Determination

The interface requirements of the White House, DOD and CIA were to have been detailed in Stage I of the FAIME. However, time and difficulties in making necessary arrangements precluded definitive results and this effort will have to be continued during Stage II. Since ground work was laid during Stage I, efforts required during Stage II should be minimal and are estimated at 3 man-months.

3.3.1.5 Definition of Second FAIMS Increment Capabilities

The second FAIMS increment capabilities will be oriented toward full implementation within the system of the results of the interim improvement program investigative work, and toward increasing the automation of the manual information handling procedures developed or refined as a result of the first increment. Additional areas of agency and inter-agency functions will be brought under system operational capability support. All of these efforts will be aimed at continued progress toward final system design as that design is successively more firmly defined through the general System Design Integration effort described in Section 3.3.1.2 above.

In addition, the second increment of FAIMS should be capable of offering foreign affairs information management and support capability to increasing numbers of agencies whose duties require access to foreign affairs information. The requirements of such agencies as the Peace Corps, Commerce, Labor, HEW as well as the White House, DOD and CIA (see above) certainly should be included within the overall system design.

It is estimated that a total of 36 man-months of contractor effort will be required in specifying the design requirements of the second increment.

3.3.1.6 Contractor Project Management and Support

In order to proceed efficiently as proposed and to provide the necessary liaison with all appropriate agencies, it is estimated that a project manager and two assistants will be required. In addition, technical support and secretarial services will require three support personnel. This totals an additional 36 man-months of professional manpower and 36 man-months of support for the recommended Stage II effort.

3.3.2 Estimated System Development Costs

It is believed desirable to provide a gross estimate of costs for the system recommended and described in this Report. Overall, this estimate should be accurate to within 10%. The estimate is based on a knowledge of development costs of other similar systems, the technological considerations involved and appreciation of the magnitude of the efforts proposed.

- o We estimate that the cost of system design, analysis, system integration efforts (configuration control, compatibility analysis, etc.) and overall computer programming system design (not capability programming) should be in the neighborhood of one to one and a half million dollars per fiscal year over the five-year period beginning in fiscal 1966. This figure does not reflect the cost of agency personnel assigned to FAIME.
- o We estimate that equipment and facilities (less long distance communications and any special security facilities) required to implement the conceptual system described herein will cost approximately five million dollars (\$5,000,000). In all probability the majority of this equipment should be purchased during fiscal year 1967.
- o We estimate that the actual capability programming required for both the inter-agency and agency capability programs should cost between five and six million dollars over the five years.

Added together, the estimated system development costs per fiscal year is as follows:

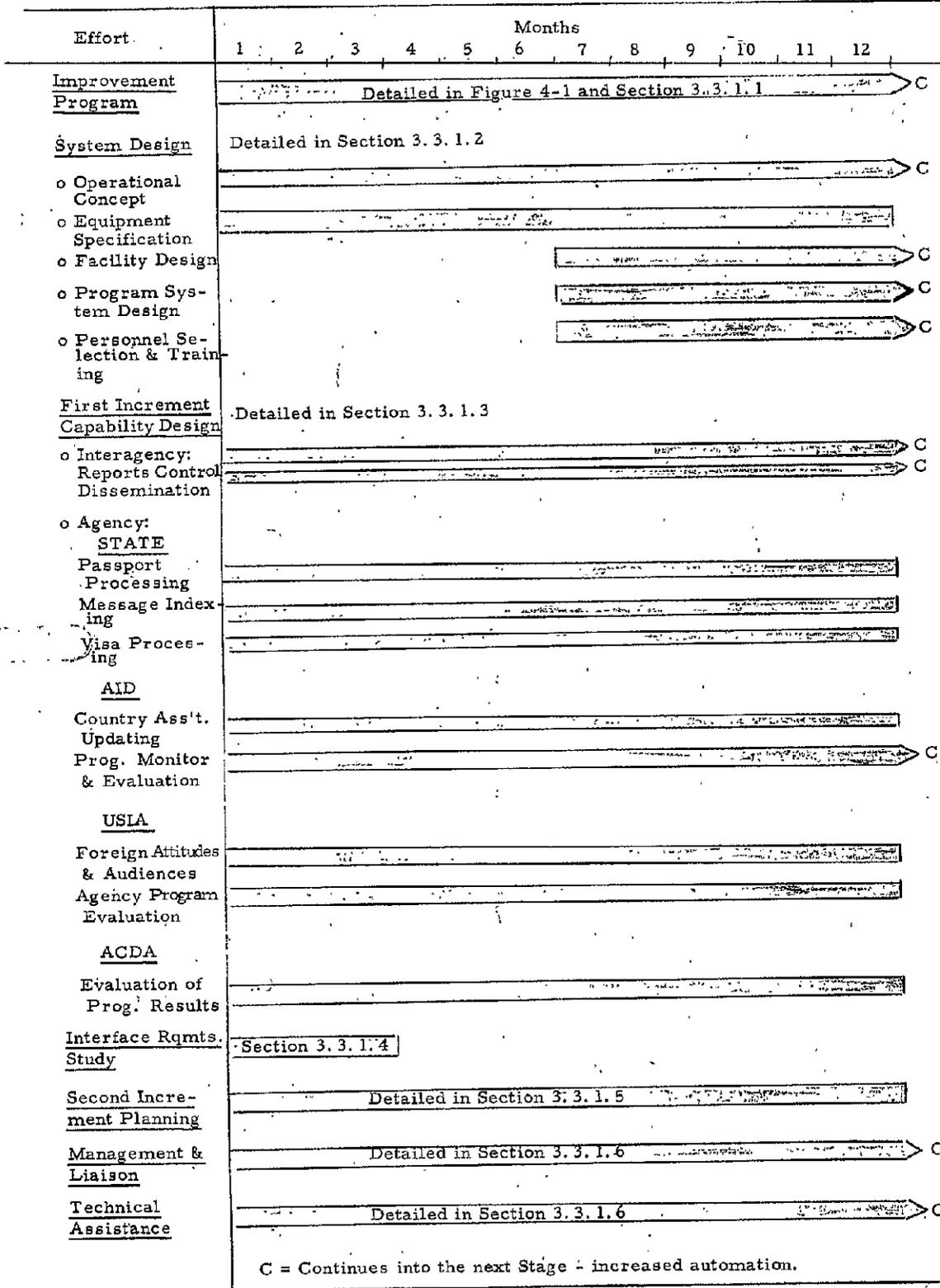
	Fiscal Year Costs (in millions)					Totals
	1966	1967	1968	1969	1970	
Equipment & Facilities	0	3.0	1.0	0.5	0.5	5.0
Analysis & System Design	1.0	1.5	1.5	1.0	1.0	5.0
Capability Programming	0	1.0	2.0	2.0	1.0	6.0
Totals	1.0	5.5	4.5	3.5	2.5	16.0

3.3.3 Recommended Schedule for Stage II

For purposes of this report, Stage II is assumed to be a 12-month period starting on or about 1 July 1965. As indicated in the preceding Section, there are six major efforts which should be pursued during Stage II. These are:

- o Interim Improvement Program
- o Continuing Information Management System Design Efforts
- o First Increment Operational Capabilities
- o Additional Interface Study
- o Second Increment Capability Planning
- o Management, Liaison and Technical Assistance

Since the effort is at the threshold of system development, it is essential that a beginning be made on all of these efforts and that they be pursued at a level of activity sufficient to produce, at or about 1970, a fully operational Foreign Affairs Information Management System as described in Section 2. The schedule proposed for Stage II as shown in Figure 3-3, and described throughout Section 3 will attain this objective. The tentative relationship between Stage II and succeeding stages is indicated in Figure 3-1.



C = Continues into the next Stage - increased automation.

Figure 3-3. Recommended Stage II Schedule.

It should be emphasized that the activities scheduled and the manpower requirements (Table 3-1) are those which seem at the present time to offer the most appropriate, significant and feasible approach. Obviously continued review of the overall program and of results being attained in each individual portion may indicate changes, additions, or deletions (or advisable suspensions) from the program or schedule presented. Where this happens, immediate recommendations should be made to the contract monitor for such action.

3.4 Implementation Management and Contractual Considerations

In pursuing the remainder of the FAIME program, the management and contractual procedures used should be modified in order more closely to reflect the requirements of a system development program. Recommendations in this regard are presented in this section.

3.4.1 FAIMS Agency Management Offices.

In the interests of assuring continuing, coordinated and integrated FAIMS development, each Agency should initiate a FAIMS management office as organized along the following lines (See Figure 3-4).

1) Provide a Director who is broadly based in operation of the agency and is placed high enough in the Agency to resolve information handling and related organizational differences at all levels. In addition, the director of each FAIMS management office should be the Agency representative on the FAIMS Inter-agency Board (a proposed successor to the present FAIME Working Group).

2) Provide assistance by technically qualified systems specialists responsible for:

- a) Maintaining an up-to-date Agency capability and program system concept.
- b) Controlling proposed Agency system improvement programs and evaluating results in terms of the system concept.

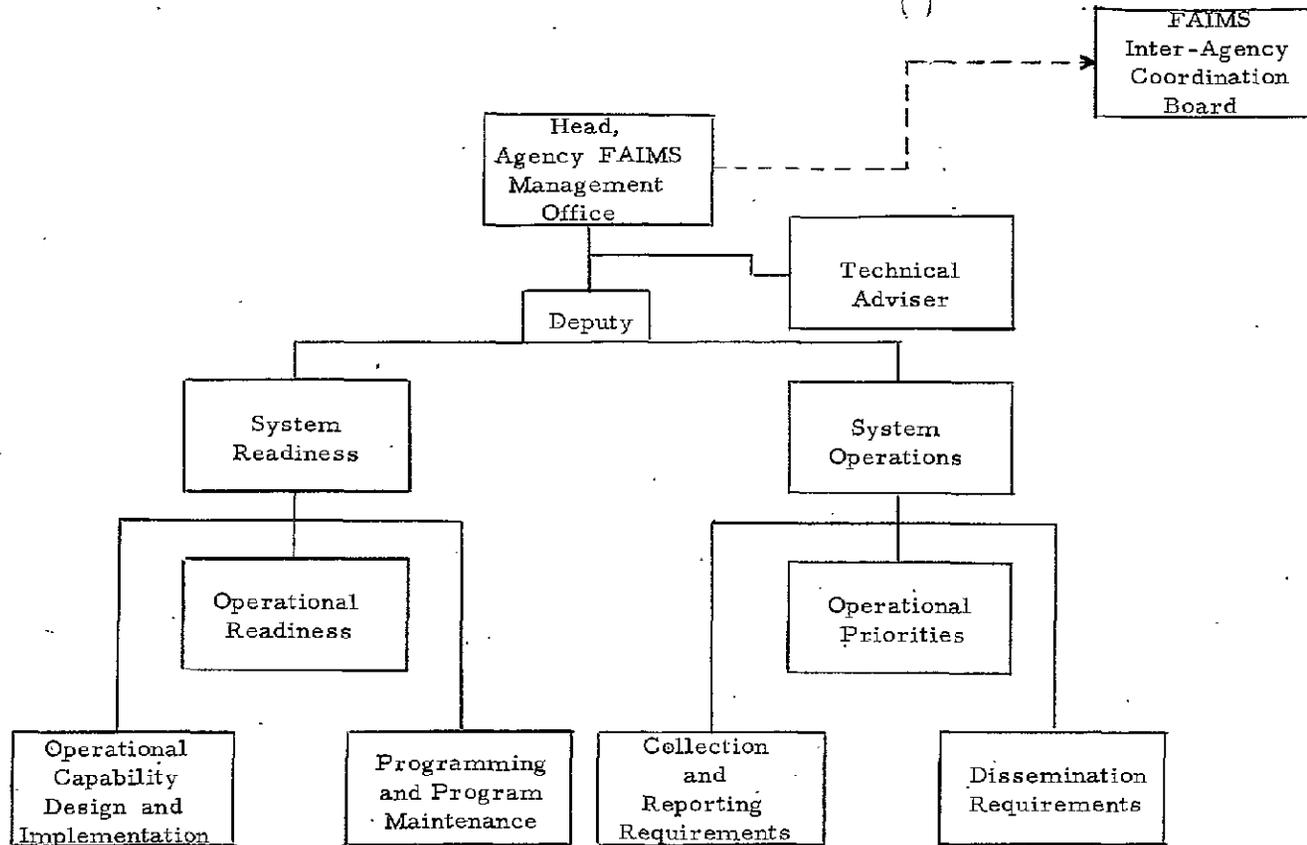


Figure 3-4. Recommended Organization of the Foreign Affairs Information Management System (FAIMS) Office



- c) Managing implementation of the Agency portion of the FAIMS.
- d) Arbitrating conflicting demands for service within the Agency.
- e) Providing qualified technical assistance to other Agency organizations desiring to conduct system improvement or capability design studies.
- f) Through the FAIMS Inter-agency Board, providing Agency responsibility for coordinating their respective Agency requirements with those of other Agencies within the overall inter-agency FAIMS design effort.

3.4.2 FAIMS Inter-Agency Management Office

As pointed out in the Evaluation Report, a FAIMS Inter-agency Management Office is required to provide coordinated system development and operation. It is recommended that the present FAIME office be given overall responsibility for coordinating the development, integration, installation and operational implementation of the FAIM System. In the designation of this Office and its responsibilities, authority and resources, the following criteria should be applied:

- 1) The Office must strive to reflect the valid requirements of all government agencies for a fully responsive system for the collection, storage, retrieval and dissemination of foreign affairs information. It must not be biased in favor of any one agency or group of agencies. This can be accomplished best, perhaps by creating an Inter-agency FAIMS Coordinating Board composed of the Director of the FAIMS Management Office of each Agency¹ as proposed in 3.4.1, together with the Head of the Inter-agency Office.

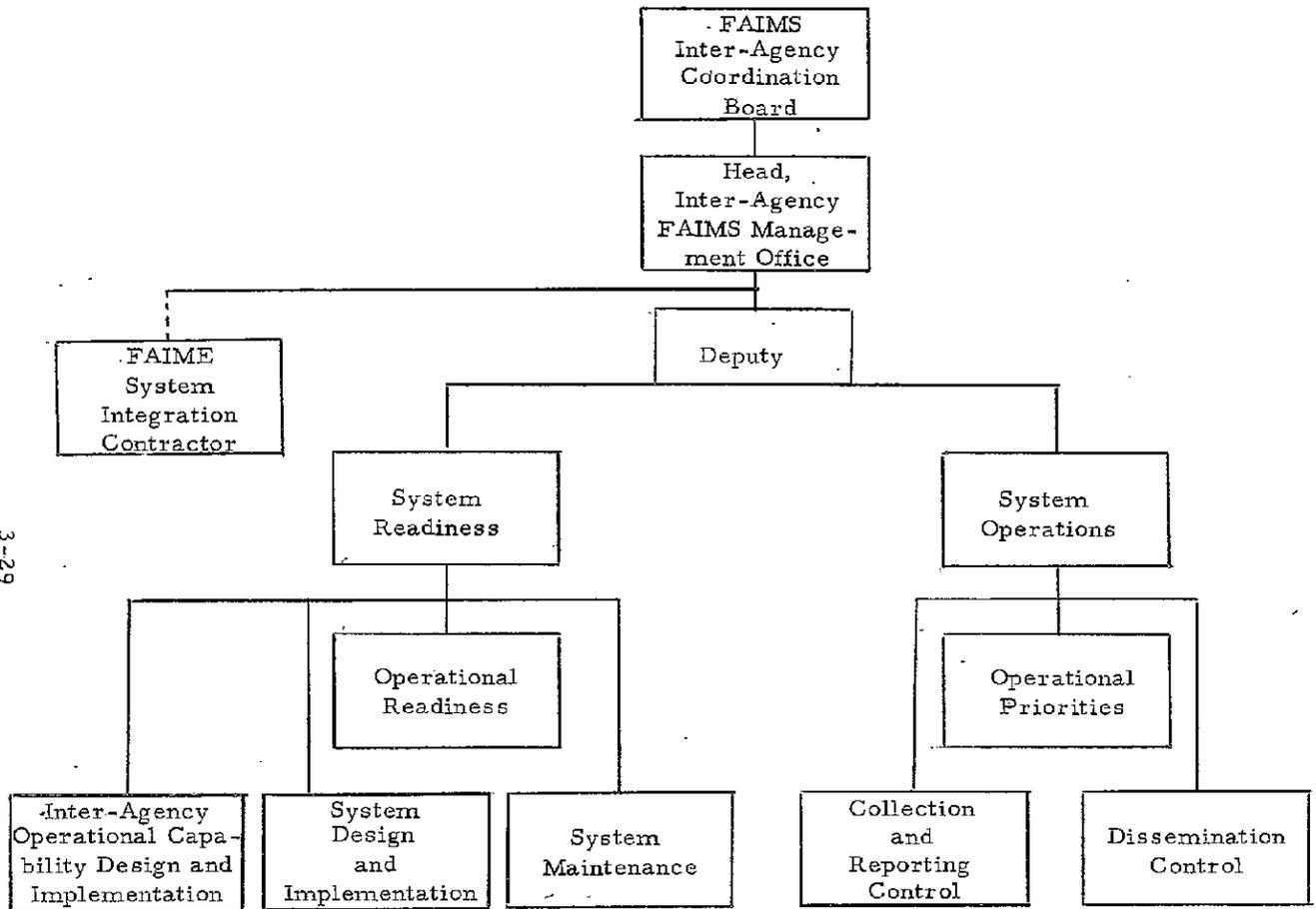
¹ It should be noted that agencies other than the four currently represented in the FAIME Working Group may need to be represented on the board as legitimate foreign affairs information users.

2) It must have the high level stature, responsibility and authority commensurate with 1) above. The existing FAIME Working Group should continue to provide for inter-agency coordination and system design decisions as appropriate until the recommended management offices are implemented.

3) The system as implemented should be fully responsive to the operational requirements of all aspects of substantive foreign affairs activities. In order to achieve this objective, the appointed head of the Office should be knowledgeable in the operational aspects of foreign affairs, preferably with an extensive background in more than one of the foreign affairs agencies.

4) The Office should be provided with technical personnel fully knowledgeable in the field of scientific information management and all related technologies as appropriate. These technical personnel together with operational (or substantive) personnel selected from each of the major foreign affairs agencies should be organized initially somewhat as shown in Figure 3-5.

Both the Inter-agency Office and the Agency offices should be formed and should start functioning to improve the existing manual information handling practices through implementation of the interim improvement program outlined in Section 4 and should be responsible for coordinating all future Inter-agency improvement programs. They also should assume responsibility for the overall FAIMS development program as recommended herein and should be given authority to conduct in-house and contract applied research as deemed necessary in the expeditious implementation of the system as recommended in this Report.



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Figure 3-5. Recommended Organization of Inter-Agency FAIMS Management Office

4. INTERIM IMPROVEMENTS

4.1 General

This section contains the interim improvement program recommended for implementation either because the advantages of prompt attention can justify an investment of time and effort, or because the particular projects will contribute significantly to the further development of a modern information management system. It presents both inter-agency and intra-agency projects that were identified during the evaluation of current practices as improvements that can be treated individually, although their effects will become prominent in the wider context of overall systems implementation. The improvements outlined in this section are not merely responsive to the criteria for selection but also are particularly aimed at alleviating some of the basic limitations which characterize present information practices in Washington and in the field. They are all compatible with or at least do not detract from, the final system concept as outlined in Section 2. Projects are proposed for pilot implementation in selected agency components as experiments before being generally applied to one agency or in common among the foreign affairs agencies. In these, and in some of the definitive improvements, new techniques and methods may be developed which subsequently can be applied to comparable efforts in the other agencies where there are similar problems. This is particularly true of the reports control effort suggested for State Department; the AID inventory of economic data base resources in government and private organizations; of the augmentation of policy guidance materials in USIA; and of the dissemination profile plan in ACDA. The inter-agency improvements are intended to promote uniformity and to facilitate the exchange of information among all users of foreign affairs information. AID and USIA efforts are particularly recommended for

possible participation in the reports control program experiment in the Department of State, using the same regional organizations in a common project, if appropriate arrangements can be made. In-house time and effort estimates are listed for each project. Contractor assistance requirements were shown previously in Section 3.3.1.

4.2 Inter-Agency Improvements

In addition to specific projects for improvements within each agency, there is one which cuts across organization lines and applies in some degree to the four foreign affairs agencies. Such improvements should be developed by FAIME working with ad hoc specialists from the four agencies as one initial objective of the continuing FAIME program.

4.2.1 Document Storage and Retrieval

4.2.1.1 Description

The common improvements that will contribute materially to the achievement of a capability required in all four agencies are related to developing a uniform method for storing and retrieving documents - an information system function that will retain an important place in both present and future information handling programs. Because of the volume of material that flows among the agencies, it is essential that a single uniform technique be adopted promptly for storing current information and for retrieving it from file. Such a program involves two new concepts:

- 1) Subject and Area index control for foreign affairs information;
- 2) Miniaturized storage for current as well as archival files.

4.2.1.2 Installation of the Improvement

The FAIME Working Group is the appropriate focus for an inter-agency-task which will require the services of various specialists from each agency in addressing the three aspects of a document storage and retrieval program: The indexing scheme; The storage media; A common document numbering system. It is presumed that a Foreign Affairs Subject and Area Code would be used for document indexing in a machine-supported subsystem. However, decisions about its structure and language need to be made in advance in order to specify certain equipment capabilities. The same indexing scheme will be an important tool in the extension of both reporting and dissemination controls. The major tasks to be accomplished are:

- o Preparation of a common subject and area indexing scheme.
- o Selection of an appropriate storage medium.
- o Evaluation and choice of optimum form - unit record or multiple record.
- o Selection of equipment, cameras, laboratory, reproduction.
- o Definition of procedures for routine and exceptional processing.
- o Planning of a common document numbering system containing coded-indicators for source, sequence number and other appropriate factors.

4.2.1.3 Time, Cost and Other Adjustments

- 1) Subject and Area Indexing Scheme
 - a) Evaluation of ISC (USIB Intelligence Subject Code) for application to Foreign Affairs Agencies (2 man months). Assistance of government classification experts recommended.

- b) Extension of ISC to Foreign Affairs Agencies' needs if a) results in approval (6 man months).
 - c) Complete new Subject/Area Indexing Scheme if a) results in rejection of the ISC (24 man months).
- 2) Document Storage Media Analysis (4 man months).
 - 3) Common Document Numbering System (2 man months).

4.3 Department of State Interim Improvements

4.3.1 General

The improvements recommended for the Department of State are:

- o Revision of the Organization Manual.
- o Daily Annotated Message Index for Regional Bureaus.
- o Reports Control Experiment.

Each is a substantial project aimed at removing factors which now impair the effectiveness of the Department's information handling practices: excessive volume of paper, broadcast dissemination, overlapping and imprecise collection requirements and unevaluated reports.

The proposed improvements have certain immediate advantages to be gained from implementation:

- 1) Their impact will be felt in the field as well as in Washington.
- 2) STATE, AID and USIA can benefit equally from participation in the Reports Control Experiment.
- 3) Selected recommendation of the Working Groups 1 and 2 of the Task Force on Control of Written Communications and the "American Legion Report" can be merged with the FAIME project for application where appropriate.

Similarly, many of the problems observed by the FAIME visits to Lima, Mexico City and Monterrey are addressed in the improvements program.

4.3.2 Revision of the Organization Manual of the Department of State

4.3.2.1 Description

A comprehensive, up-to-date and current Organization Manual for the Department is an essential tool of operations as well as information management, first because it defines the functions and responsibilities assigned to various organizational entities as well as key individual positions; and second, because it provides the framework upon which the flow of information is based. The existing manual, promulgated by Secretary Dulles in December 1956, has become progressively outdated since that time despite continuing attempts at its revision and updating. The project is recommended to prepare and issue a new and valid manual and speed up the incorporation of future changes as they occur.

4.3.2.2 Installation of the Improvement

- o Develop a new, current manual as a one-time project, preferably using full-time, rather than intermittent staff effort. The Regulations and Procedures Staff (O/SP) is the logical focus of leadership for the project.
- o Decentralize to the operating bureaus and offices the task of initially updating their respective statements of mission, function and activity, following a guide and format developed for this purpose by O/SP. The present manual, plus past changes circulated by other issuances, would form a working basis for developing new statements.
- o Assign to O/SP the negotiation and editorial work involved in reconciling any jurisdictional matters, language, etc. By the time the Deputy Undersecretary for Administration releases the revised manual, O/SP also should have prepared a viable system for maintaining the handbook on a continuing basis.

- o Select a time-phased schedule which would depend upon the approach, whether by special Task Team or through assignment of institutionalized resources. It would depend also upon a decision as to whether to issue the revised manual piecemeal by completed and cleared sections, or await the completion of the total handbook.

4.3.2.3 Time, Cost and Other Adjustments

All Departmental staff time and other incidental costs could be absorbed by reprogramming this project within current programs and resources. In detailing the project outline, it may be desirable to secure temporary assistance from officers awaiting assignment or otherwise available.

4.3.3 Daily Annotated Message Index (Use of Bureau Policy Reports Officers to Improve Downward Flow of Information)

4.3.3.1 Description

There is a need to develop methods by which Bureau officers could be kept informed of information flowing in and out of the Bureau without each personally having to screen a mass of individual messages. As a pilot test, it is proposed that one of the Regional Bureaus expand its Policy Reports Officer's role beyond screening material for DAYSUM contributions, INFOTELS, etc. He would be assigned the added responsibility to keep officers of the Bureau informed of significant developments in policy and foreign relations by issuing a daily annotated index (or perhaps a summary) of important telegrams, airgrams, memcons, minutes, inter-office memoranda and related policy documents produced and received by the Bureau. This would curtail the widespread distribution of information copies of material referenced in the daily annotated index.

The Reports Officer would maintain a temporary, hard copy file of such items to be available through him or the Message Center for reference by officers who have identified their interest through review of the index.

The value of the proposed project to an integrated future Departmental information processing system lies in probing the applicability, on a Bureau basis, of a periodic summary index of selected communications and other informational material in substitution for unrestricted dissemination of individual information copies.

4.3.3.2 Installation of the Improvement

- o Select a Regional Bureau to undertake the recommended pilot test, preferably one which has an active Policy Reports Officer operation.
- o The Bureau Policy Reports Officer selected, and officers representing O/MP/S, and O/SP as appropriate under the recently-reorganized Office of the Special Assistant for Compliance, should develop a Plan of Action for conducting the test. The FAIME office should also monitor these efforts and offer suggestions as appropriate.
- o The Plan of Action should include careful advance orientation of desk and other information-using officers who normally are recipients of a considerable volume of information copies of communications, but who now will be expected to use the daily annotated index as substitution for actual hard copy.
- o Operational procedure details will depend on some advance simulation of screening the daily flow, annotations appropriate for the daily index, reproduction and distribution of the index, and the temporary file operation and referral mechanism. A few days' simulated operation should make it possible to identify the categories of information material which might be included in the index and, consequently, eliminated from gross circulation.

- o Annotations made to describe subject matter of communications and other material included in the index should be simple and direct. The timely release of the index each day would suggest that a document informal in language and format would suffice for the objectives sought and be capable of being prepared rapidly.
- o An evaluation should be made of the success of the pilot test and its possible wider applicability and use at the end of the test period.

4.3.3.3 Time, Cost and Other Adjustments

The Policy Reports Officer selected to conduct the experiment may require an assistant to perform the additional work proposed. The pilot test should be operated over a period of up to six months. Within this period it should be possible to institutionalize the procedure, have Bureau officers become accustomed to use of the daily index and ready referral access to hard copy when required, and establish a valid basis for making an assessment of the value of this procedure.

No special costs are believed to be involved. Officer and secretarial time, and cost of reproducing the daily index, can be programmed within available resources.

4.3.4 Improvement of Political Reporting

4.3.4.1 Description

Improved control over political reporting has long been the concern of the Department of State as evidenced by continual efforts to have Washington political information requirements more precisely conveyed to and met by posts abroad, and vice versa. The Department, in an Office of Management study of March, 1963, "Toward Improved Political

Reporting" concluded that present guidance from Washington to political reporting officers overseas was inadequate, particularly in that it lacked continuity of attention, a conclusion confirmed by the FAIME analysis.

In moving toward modernization of Foreign Affairs Information Management generally, experience is needed for the purpose of assessing the effectiveness of subsystems designed particularly to improve controls over political reporting. This suggested interim improvement would provide such experimentation, the results of which should prove useful in the eventual integrated system design for the Department and for the other foreign affairs agencies.

This program is based on a concept which includes a positive, organized procedure for applying selective judgment in Washington and at the Foreign Service posts. The posts would contribute by submitting a political reporting program identifying specifically those items on which it proposes to concentrate in the period ahead. The Reports Control Officer in the pilot test Bureau would be expected to assist the posts in defining priorities, changes in emphasis, and in selecting both deletions and additions in guiding the posts away from repetitive responses to requirements and from topics suspended from current interest. Similarly, Officers in Washington would be assisted in defining requirements more precisely as a necessary step in demonstrating the effects of such an experiment on the initiative of reporting officers. Previous resistance to attempts to systematize reporting cannot be overcome without a definitive test of the effects of a positive guidance program.

The proposed approach is that at least one Regional Bureau, on a pilot testing basis, be allocated a full-time senior officer and, possibly with some assistance, be assigned continuing authority and responsibility for:

- 1) Reviewing the guidance provided to the posts by the officers of the bureau to assure that guidance is provided and that it does in fact define substantive requirements as precisely as possible.
- 2) Reviewing and clearing all reporting requirements imposed on the posts by activities outside the regional bureau and, when a requirement appears unwarranted, require justification by the originator.
- 3) Working with the posts, a) prepare a semi-annual assessment of the guidance provided to each post; and b) prepare a political reporting program showing major, minor and priority topics for the coming year.
- 4) Working with the Office Directors and other officers, prepare a quarterly assessment of the adequacy and quality of the political reporting provided by each post. The primary resource for assessment is the recommended Report Evaluation Form proposed as an immediate step in the improvement program (Section 4.7.1.1).

It is conceivable that dramatic success in this interim improvement trial could lead to a breakthrough in providing information precisely of subject matter required, on a timely basis, and free of useless and marginal reporting which results from the lack of continual guidance.

4.3.4.2 Installation of the Improvement

- o At least one Regional Bureau should be selected for the pilot test.
- o The senior Foreign Service Officer(s) assigned should be selected with particular emphasis on a knowledgeable interest in improving the political reporting area.

- o A careful understanding will be required so that the political officer, desk and other officers appreciate the extent to which their guidance to posts will complement that of the Reports Control Officer. This division of responsibilities during the experimental period will require carefully-developed agreements on modus operandi, and cooperation of office heads, desk officers and others.
- o The Bureau(s) and Missions involved should be briefed carefully on the purpose and method of conducting the experiment, particularly on what is expected of them.
- o The improvement should be developed on an incremental basis starting with one or a few missions and desks and being enlarged as found appropriate.

4.3.4.3 Time, Costs and Other Adjustments

A pilot test of the extent contemplated should be scheduled over a period of approximately fifteen months. This would permit scheduling two semi-annual post-by-post assessments of the political reporting guidance provided by the Department, and at least four quarterly assessments of the quality of post political reports received.

A senior Foreign Service Officer will be required for the period to review the political reporting guidance provided posts by the regional Bureau selected for the test, to provide leadership in having Washington and the posts develop the periodic assessments identified above, and to screen reporting requirements imposed on posts by activities outside the Bureau. This officer may require an assistant, and should be able to draw upon resources and advice within the Bureau. This special staff should be available from with present Foreign Service complement available for Washington assignment.

4.4 AID Interim Improvements

4.4.1 General

Four interim improvements are recommended for AID:

- 1) Documenting the Annual Country Assistance Program/ Long-Range Assistance Strategy (CAP/LAS) Review Results;
- 2) An Automated Data Base Inventory;
- 3) AID Manual Order Revision and Updating System; and
- 4) A Single Control Point for AID Improvement Studies.

Already underway as a FAIME project (Section B) is a pilot operation: AID Technical Assistance Information System Development.¹

While these improvements are responsive to unique AID problems, there is a common benefit to be derived from the Data Base Inventory. This project has implications for a number of agencies faced with new opportunities created by the establishment of machine-supported data banks, some with very powerful capabilities or potential.

4.4.2 Documenting the Annual CAP/LAS Review Results

4.4.2.1 Description

The potential qualities of the CAP/LAS as a prime information resource for AID can be developed through a combination of management improvements and information handling techniques. An initial step in such a development program is to reconcile the publication with the review and fiscal steps that now modify subsequent country program actions

¹"AID Technical Assistance Information System Development" forms an integral but distinct phase of the present FAIME project. Its progress and results are to be reported separately.

but are not reflected in the published format. In its present form, the CAP/LAS is misleading except to those few in AID who are responsible for changes after the proposed program has been modified by Regional Review, subsequent budget submission and Congressional appropriation. Once steps are taken to establish continuing validity to the CAP/LAS, its potential as a status file as well as a planning document can be developed as a vital part of a comprehensive information management system for the Agency.

4.4.2.2 Installation of the Improvement

- o Designate the CAP/LAS Review and subsequent modifications in each country program as an integral part of the document.
- o Issue an MO assigning the responsibility for taking official minutes of major points and decisions. Agreed minutes would be issued and circulated as an amendment to the CAP/LAS together with modifications based on fiscal action.
- o Designate an A/MP analyst to prepare the MO after interviews with staff members in each Regional Bureau Office of Development Planning and in the Office of Program Coordination.

4.4.2.3 Time, Cost and Other Adjustments

No permanent assignments other than the designation of responsibility for preparation and publication of CAP/LAS amendments. Estimated time for researching and clearing an MO, ten weeks, part-time effort for one A/MP Analyst.

4.4.3 Automated Data Base Inventory

4.4.3.1 Description

In the process of formulating and carrying out country programs, AID is a substantial producer and consumer of scientific and project experience data. Such material is collected and analyzed to measure the needs, changes, and project opportunities in the economy of program countries. The nature of AID activities affects Agency interest in data resources in two directions:

- 1) Resources may exist in other agencies that can satisfy certain information requirements;
- 2) AID processed information may supply technical data to other agencies.

This suggests the possibility of mutual exchange programs with such organizations as Agriculture, Health Education and Welfare, Commerce, Labor, and selected international organizations. Whereas AID's interest is subject to periodic and sometimes rapid changes in focus, these other organizations maintain a permanent interest in subjects to which AID can contribute. It also suggests that perhaps one repository in U. S. Government is all that is necessary for certain types of data in such fields as agriculture, commerce, health, and education.

A team of AID personnel consisting of one data processing specialist, one development economist (PC) and one technical expert (TCR), a rotating member for each technical area, should be assigned the task of addressing these questions:

- o What data bases are available for AID to call upon?
- o Can AID supply inputs in specified fields to other organizations' data systems and develop a means of retrieval for AID?
- o Are two data bases needed in each technical field or would one suffice in the Agency having continuing interest?

- o Should AID contract for service from these agencies for data retrieval?

4.4.3.2 Installation of the Improvement

A team of three specialists should be authorized to survey existing and planned data processing systems and examine in detail both input and output to determine:

- o Identical data processed in AID and elsewhere
- o Benefits which would accrue from an exchange of data
- o What system outputs can be acquired by AID with or without additional processing
- o What formats or programs are compatible for AID use
- o What AID operation could make use of products furnished by other Government or private systems

4.4.3.3 Time, Cost and Other Adjustments

- o Part-time services of three AID staff members for six months.
- o No equipment purchases required; modifications in capability and programming may prove to be desirable after a survey.

4.4.4 AID Manual Order Revision and Updating System

4.4.4.1 Description

The worldwide nature of AID operations requires a particularly clear and unequivocal set of Manual Orders accessible for quick and reliable reference. These same qualities are currently lacking in existing MOs, a condition aggravated by inadequate cross-references and

the absence of an index. A second object of the project is to update obsolete orders and to create new ones for Agency operations not presently covered in the manual.

The process of upgrading the manual should be a continuing effort, fundamental to the AID information handling program without waiting for future systems development. When a definite imbalance is observed between the manual and actual operations, it is evident that one or both need revision to conform to the preferred procedures. Because obsolescence is a particular hazard for formal manuals, new methods are required for maintaining a current AID Manual and monitoring its application.

The Office of Management Planning (A/MP) has been considering ways to promote consistent adherence to MO procedures. Their program will be an effective counterpart to an accelerated revision and updating program. The two combined will increase uniformity in AID operations and make those operations more comprehensible and easily grasped when responsibilities are assigned or transferred.

4.4.4.2 Installation of the Improvement

- o Constitute a task group of representatives from the regional bureaus and staff offices to work with A/MP.
- o Identify conflicts between present practices and the existing manual orders. Reconcile the two, using the preferred method as the revised order.
- o Prepare adequate cross-reference notes for all related orders.
- o Issue a detailed index to the full set.
- o Formulate a continuing program for maintaining a current manual applicable to all agency operations.

4.4.4.3 Times, Costs and Other Adjustments

A/MP can estimate the time required and the allocation of resources necessary for the task after a planned series of workshops on each manual chapter has been initiated. One member of A/MP may be assigned to the project for consolidating the results of a proposed "Manual Awareness Project" intended to publicize the manual and its provisions. No special costs are involved as the project effort can be absorbed in A/MP and the Regional Bureaus.

4.4.5 Single Control Point for Information on AID Improvement Studies

4.4.5.1 Description

In an organization with such an extensive program of improvement studies (79 studies and projects currently in process), a systematic management control is essential to avoid duplication of effort and the pursuit of incompatible methods for resolving similar problems. Over a period of time, the Office of Management Planning (A/MP) can become a focal point for an advisory service to prevent the proliferation of ad hoc studies that address isolated portions of intricate problems impinging on more than one agency operation or organization. A "register" of studies similar to the one now in A/MP will not confer any particular benefit unless accompanied by A/MP evaluation and guidance to the agency components actually engaged in such projects. Active participation is also necessary, especially in connection with projects involving substantial manpower or funds, as an essential part of the A/MP contribution to monitoring internal improvements.

4.4.5.2 Installation of the Improvement

- o Develop a reporting format to record significant data on each new study and its outcome.

- o Survey technical skills available to A/MP and secure where necessary, the ad hoc services of experts within the agency.
- o Establish liaison with other agency management staffs for exchange of information and study reports.
- o Cooperate with Bureau and Staff Office management staffs in review and evaluation of proposed and completed studies.
- o Establish in the information management system a repository and retrieval designation for all management study reports.

4.4.5.3 Time, Cost and Other Adjustments

This project can be absorbed in the Office of Management Planning (A/MP). A period of ten weeks should be adequate for preparing and clearing a new Manual Order to establish the control point.

4.5 USIA Interim Improvements

4.5.1 General

Three interim improvement projects are recommended for USIA. They are: 1) Program Material Retrieval System, 2) Augmentation of Policy Guidance Materials, and 3) Program Effectiveness Evaluation. The first two are designed to strengthen the use of information that presently exists but, for want of a capability, is not available to those who need it. The third is an effort to improve the ability of the agency to evaluate its operations. While the first two are not difficult to implement, the last will require intensive efforts both in Washington and in the field to overcome the long-standing problem of measuring achievements in cross-cultural communication.

4.5.2 Improvement of Program Effectiveness Evaluation

4.5.2.1 : Description

Interviews have indicated that both Media elements in Washington and Program Officers in the USIS posts are well aware of the lack of information on:

- 1) Relative effectiveness of the various communications techniques and products with the varying audience groups to which they are addressed.
- 2) The tailoring of output to produce meaningful content for audiences with wide disparities in levels of comprehension and interest.
- 3) Better methods for measuring and evaluating the actual impact of specific programs and products on their intended audiences in the field.

A program to find reliable measurement criteria is vital to USIA and directly affects the Agency's capability to function successfully. The intractable nature of the problems suggests the need for intensive scientific study using the services of a staff trained in such appropriate disciplines as anthropology, linguistics, psychology and sociology.

As an initial effort, the Agency profitably can assess its existing resources and their potential but unrealized value. A second stage, which can only be developed after analyzing the results of the initial project will depend on a wider range of evidence which can be accumulated by increasing the reporting of foreign opinion and reaction by USIS officers. Contractor assistance would be a definite advantage in this program, but it should be contracted separately from the other FAIME efforts.

4.5.2.2 Installation of the Improvement

1) Program Content Evaluation

- o Analyze a random selection of current products in terms of a set of criteria which may be defined from in-house and published sources on cross-cultural communication.

2) Impact Evaluation

- o Identify existing sources of evaluative information and the steps necessary to analyze their data content effectively to make it available to the press, broadcast and motion picture services.
- o Review the present reporting program and revise collection criteria.
- o Coordinate the present efforts of the Motion Picture and Press Services to improve field reporting.

4.5.2.3 Time, Cost and Other Adjustments

The value to be derived from an increased ability to assess and evaluate program effectiveness is such that an interim program could be justified at the cost of two Agency officers together with adequate contractor support estimated at three man-months.

4.5.3 Program Material Retrieval

4.5.3.1 Description

One self-contained capability that USIA can establish as an interim improvement is an index, storage, and retrieval capability for broadcast scripts, periodical articles, pamphlets and motion picture contents. A comparison of present USIA techniques with those observed in a FAIME

visit to several commercial services (Columbia Broadcasting, Time-Life, New York Times) and the New York Public Library suggests that information retrieval through an index which might be mechanized subsequently offers a most-immediate source of improvement. Machine support for storage for the full text of program material is not a viable prospect in the immediate future. Retrieval facilities in the organizations visited suggest advantages are available to USIA operations from:

- 1) Maximum reuse of media products or portions of products.
- 2) Quick access to research materials and sources used in previous products where updating or production of new material in the same subject field is needed.
- 3) Improved referral to content and viewpoint of previous Agency output to facilitate credibility for new products on the same and related subjects.
- 4) Reducing duplication of research effort by providing a central file indicating "items in process" when there is to be separate coverage of a topic by more than one Media service of the Agency.

4.5.3.2 Installation of the Improvement

- o Installation of the improvement will require:
Identification of current output contents through summaries provided by each Media organizational unit.
- o Development of an appropriate subject indexing scheme and recording format. An index for this purpose can be operated manually for the immediate future independently of the inter-agency subject index development.
- o Selection of the method to be used for publishing the index to potential users.

4.5.3.3 Time, Cost and Other Adjustments

One systems analyst will be needed for a total of three man-months to provide design guidance and to develop operating procedures. An operating staff consisting of one analyst in the IOP Planning Staff and one clerk in each Media Service will be required to maintain and publish the index to new subjects and products.

4.5.4 Augmentation of Policy Guidance Materials

4.5.4.1 Description

Present daily guidance delivered to writers in IBS and IPS (Broadcast Service and Press Service) indicates the way recent events and problems are to be treated. Usually, however, this guidance is not related to basic foreign or information policy. As a result, the writers preparing material are limited in their ability to "interpret" a given policy position or amplify with background support.

Some basic policy papers have been distributed to media writing personnel, but the only complete file is maintained in the Office of Policy (IOP). Media writers thus are handicapped by their remoteness from IOP, a handicap which is even more emphasized by the need for speed in preparing their daily material. Since such guidance is not adequate, it is recommended that an evaluation of the value of expanded guidance and its effect on media products be made. If there is measurable improvement in media products, a permanent method providing better background guidance should be incorporated in the FAIMS design.

4.5.4.2 Installation of the Improvement

- o Implementation of the improvement may be effected by:
Publication of a list of basic guidance documents now considered as sources of foreign and information operations policy.

- o Evaluate alternative methods for supplying background for daily policy guidance. This function is now performed jointly by IOP Policy Guidance Staff and Media Policy Officers. A possibility is to cite readily available documents which amplify points stated in daily policy guidance.
- o Establish immediately a file at the Broadcasting Service where significant policy directives and background documents are kept for the use of media writers.

4.5.4.3 Time, Cost and Other Adjustments

This project can be absorbed within the workload of IOP Policy Guidance Staff and Media Policy Officers.

4.6 U. S. Arms Control and Disarmament Agency Interim Improvements

4.6.1 General

Four interim improvements recommended for ACDA are aimed at a) removing certain limitations which presently impair the effective use of existing resources; and b) at establishing new techniques which will enable the Agency to take advantage of further advances into technical forms of information handling. The unique circumstances of ACDA as a small Agency with a wide spectrum of technical as well as political interests require particular attention to information management to cope with the problems of bringing material from many disciplines into the specialized focus that the Agency requires. The improvements are:

- 1) Activation of an information management office;
- 2) Development of a dissemination profile and associated procedures;
- 3) Implement an acquisition program for the Reference Information Center (RS/RIC); and

- 4) Establishing RS/RIC as the Office of Record for all information documents.

In developing the dissemination profile and associated procedures, ACDA will provide the initial experience on which designs for the whole foreign affairs community can be based.

4.6.2 Information Management Office

4.6.2.1 Description

The important function of contract and in-house research is dependent on substantive information resources organized for efficient use by ACDA staff and organizations cooperating in AC&D research matters. As research programs are extended, greater demands will be placed on methods for collecting, processing and storing many types of technical and scientific as well as situational data. In order to promote an orderly and integrated complex of information handling techniques, ACDA will benefit from having a focal point in the Agency for examining each problem and its possible solutions. Without such a common point of guidance, ad hoc decisions may be posed for one problem without adequate consideration for similar needs in other Agency functions, or the solution of related problems can be made still more difficult.

By forming such a unit now, the Agency may avoid many of the intricate and pervasive difficulties that tend to encumber larger organizations. Special knowledge and skills are needed, but for the most part, these can be acquired through Government-sponsored programs. One direct benefit will be an Agency capability to analyze its own information handling requirements and to evaluate the technical aspects of proposed solutions.

4.6.2.2 Installation of the Improvements

- o Establish a working group composed of representatives of all Agency functions, with an information management specialist to act as chairman. The total group would be responsible for making recommendations for changes in procedure and for providing advice on internal and external projects concerned with information handling. Recommendations would be accepted and implemented through normal administrative channels.
- o The chairman of this group would provide liaison with other agencies and assist in determining the propriety and feasibility of system capabilities in relation to ACDA's interests.
- o The chairman would also identify the outputs of other agencies' systems which could be used by ACDA and negotiate format and processing agreements which would promote the use of these resources by ACDA.

4.6.2.3 Time, Cost and Other Adjustments

- o Secure authorization from the Director and select and designate the chairman and members of the working group.
- o Prepare a training schedule for familiarization in technical processes such as indexing, abstracting, film techniques and equipment, ADP equipment capabilities, and data processing methods.
- o Implement the working group concept.

4.6.3 Dissemination Profile Technique

4.6.3.1 Description

Dissemination profiles are needed so that document analysts can rapidly match specific incoming information with expressed user requirements. This has been such a problem that few organizations have been

able to advance beyond the level of broadcast distribution. As general information management concepts are implemented in the Agency, systematic dissemination can be achieved through identification of definitive user information requirements. Since successively more detailed requirements will have to be developed for information management system design, these may be adapted readily and applied to the more precise dissemination of agency information. This will assure potential users of information that they will be notified of its existence and that it will be provided them upon request.

Ideally each officer should receive all material necessary to perform his duties efficiently but without the burden of having to sort that material from the mass of marginal and unrelated inputs. Initially, the Agency may rely solely on manual techniques but the basic dissemination plan should be capable of adaptation to ADP equipment for speeding and upgrading the level of service. While machine support may be in the future, a manual program is still essential for assuring the availability of research information to all Agency personnel requiring it.

4.6.3.2 Installation of the Improvement

Installation of this improvement will require:

- o A survey of existing profile techniques in use both in government and industry and selection of an appropriate method.
- o A document content analysis to provide:
 - o A system vocabulary (terms and phrases) from current document files. This profile vocabulary should be edited to conform to an inter-agency indexing scheme wherever possible.
 - o An edited vocabulary compared with user terminology, with differences reconciled in a dictionary of equivalents.

- o A procedure for updating and controlling the vocabulary.
- o A user profile development which provides definitive user information requirements in the form of a topical interest profile for each Agency officer.
- o A definition of dissemination analyst tasks in matching descriptions from incoming material against user specifications of interest (profiles).
- o The establishment of user control over type and quantity of material through the design of a resource notification program. This program provides for circulation of abstracts for user selection in place of broadcast distribution of all incoming material.
- o The establishment of updating and controlling procedures.

4.6.3.3 Time, Cost and Other Adjustments

- o The program will require development of precise user information requirements and associated profile dissemination procedures.
- o ACDA will need to make a clear distinction between distribution (C&R function) and dissemination (the substantive analysis that precedes distribution) which falls within the RS/RIC operation.
- o The study and preparation phase for this improvement may require 12 months of time to fully detail an implementation program.
- o Complete implementation would depend on daily volume of material received for staff allocation. Present volume suggests that two or three document analysts will be required.

4.6.4. Operational Test and Evaluation

4.6.4 Acquisition Program for Reference Staff/Reference Information Center (RS/RIC)

4.6.4.1 Description

The technical information contained in official and open literature is a major resource for in-house research. A centralized acquisition procedure is a prerequisite to any other efforts to build a collection for full Agency reference service. Present decentralization results in both duplication and gaps. Purchasing is both complex and expensive. A revised program is highly desirable regardless of future system developments.

4.6.4.2 Installation of the Improvement

- o Assign RS/RIC sole responsibility for collecting and maintaining a central reference facility.
- o Have RS/RIC procure on a continuing basis official and open publications selected for inclusion in the reference facility.
- o Designate a selection panel of ACDA officers who can supplement RS in specific subject fields to screen citation lists and abstract bulletins regularly for titles of interest. Individual requests for new acquisitions to be forwarded to RS/RIC by all ACDA staff personnel.
- o Allocate a fixed sum in the annual budget to the Chief of RS for literature purchases. This sum would be used for purchase orders and a small petty cash fund for direct purchases.

A review of government procurement regulations is necessary to select the most direct and economical literature purchase procedures.

4.6.4.3 Time, Cost and Other Adjustments

- o No reassignment of personnel is needed. Duties can be assigned to present staff.
- o Approval is required for new purchase procedures. A budget allocation which may be for fiscal 1966 is suggested for the Chief of RS to use at his discretion and with full responsibility. The administrative

support agreement with the Department of State should be reviewed to determine whether any changes are desirable in the procedures for obtaining literature for which payment is required. ACDA will also need an agreement with a vendor to obtain such literature on a direct order basis.

- o A small petty cash fund should be established for the Chief of RS for the local purchase of material of current news value in periodicals and similar low-cost items.

4.6.5 RS/Reference Information Center as Office of Record for Reference Documents

4.6.5.1 Description

At the present time there is no single repository for substantive information documents acquired for current relevance or future research operations. Such a determination is essential for Agency information management regardless of future developments. It will eliminate uncertainty about the different support capabilities offered by C&R and RS/RIC and enable researchers to discover promptly that which is available in the Agency files and what must be acquired to satisfy a specific reference document requirement.

4.6.5.2 Installation of the Improvement

- o Define the boundaries of the Agency Records Collection (presently in C&R) and the Reference Document Collection (RS/RIC). These two are respectively the responsibilities of Communications and Records and RS/Reference Information Center. Designate RS/RIC as the collection for substantive documents and C&R for administrative documents.
- o List all types of documents presently routed by C&R.

- o Request Executive Director to require that C&R distribute the first copy of everything defined as a Reference (substantive) Document to RS/RIC. In the case of single copy material, C&R should make a duplicate for other required distribution. C&R would not retain copies of substantive documents.

4.6.5.3 Time, Costs and Other Adjustments

Depending on the amount of material handling work transferred from the responsibility of C&R to the responsibility of RS/RIC, file equipment and personnel may need to be adjusted between the two units.

4.7 Immediate Improvements

4.7.1 General

The interim improvements outlined in Section 4.1-4.6 are primarily systems-oriented projects requiring development effort for implementation. In addition, there are a number of immediate improvements in procedures that offer direct advantages sufficient to justify their adoption without additional preparatory study. In several instances these improvements refer to problems that have been studied more than once before and remedial actions recommended. However, either through lack of compliance or inadequate impetus, the recommended procedures have not been effective or the expected results have not been achieved. In such instances, improvement objectives need to be reinstated and reemphasized. While the following items are listed under the agency where the problems were observed specifically, it is clear that with few exceptions they apply with equal force to the community and should be adopted uniformly in STATE, AID, USIA and ACDA.

4.7.1.1 Department of State and Field Communications Improvements

- o Adopt a modified CIA report evaluation form. This form provides prompt feedback to report writers evaluating the information and its relation to the collection requirement.
- o Distribute to the field only the desired number of copies of recurring reports. Standard distribution patterns do not recognize lesser needs at smaller posts, and add unnecessary volume to pouch mail.
- o Solicit post requirements to determine desired distribution of routine publications and other Washington outputs.
- o Reduce transmission of coded messages to small posts whenever the message may be sent by pouch in uncoded form.

4.7.1.2 U. S. Information Agency

- o Attach copies of referenced messages to telegrams and airgrams at time of distribution.
- o Screen telegrams and airgrams to delete material from general distribution which is clearly not needed by all personnel. An example is the separation of administrative and operational information.
- o Review periodically with the originating agencies requirements for needed copies of classified reports with a view to decreasing distribution of such material.

4.7.1.3 Agency for International Development

- o Instruct airgram originators to indicate the first level filing classification that comes closest to the subject of their communication. This action will remove the need to read the entire message each time it is routed and filed.
- o Conduct an annual review and justification of all recurring reports. The Reports Coordination Committee is an appropriate focus for such an effort.

4.7.1.4 Arms Control and Disarmament Agency

- o Assign a reference or file number to all outgoing correspondence requesting that notification of completion of the specified action be returned citing this file number. Reference numbers can be made up of office symbols followed by consecutive numbering.
- o Return to Communications & Records (C&R) for destruction when no longer required all classified material logged in by C&R and distributed to Bureaus and Offices so that a complete record is kept in one location.
- o To facilitate filing and identification of subject matter, encourage that specific contract or grant numbers be included when any project is cited in a memorandum, notice, or other report.
- o List abbreviated title, issue number and date on each page of serial publications issued and circulated in the foreign affairs community. When single pages are removed for specific files, this record must now be entered manually on every page.

4.8 Interim Improvements Recommended in Previous Studies

4.8.1 General

In Task I of the FAIME Project, 102 previous studies were reviewed and their recommendations were tabulated together with the current status of actions taken in regard to those recommendations. In Task III, 260 ongoing studies and programs were reviewed and analyzed for their possible relationships to FAIME; each of the 169 selected projects was recorded in sequence by expected completion date. These reports indicate projected changes in current practices and they must be taken into account in subsequent FAIME system design. The pending recommendations - neither rejected nor implemented - from the studies reviewed in Task I have been tabulated below with conclusive actions proposed as appropriate to present practices and the FAIME systems concept.

4.8.2 Department of State Previous Studies

1. The Heller Report "Action Report on Management Survey" Vol. II.

Concluded: The purpose and scope of requirements for foreign economic information should be clarified.

FAIME Recommendation: Definitive requirements study is a subsequent FAIME task.

2. Paper Reduction Survey, Bureau of Inter-American Affairs, OM/MS, June 1962.

Concluded: Identification of unwanted messages should be a continuous effort.

FAIME Recommendation: Should be implemented.

3. Toward Improved Political Reporting. Office of Management, March 1963.

Concluded: Political reporting improvements could be achieved with prescribed guides to reporting Officers, revised definitions of scope for reporting; more specific responsibilities assigned to Posts, Geographic Bureaus, Desk Officers, Reporting Officers to be rated for efficiency. Posts should submit a "reporting program" for Department approval.

FAIME Recommendation: Provided for initially in the Interim Improvements (Section 4.3), and more definitively in the FAIME system concept as a function of data control.

4. Cutting Down on Communications. Ambr. McIlvaine, March 17, 1964.

Concluded: Establish distribution categories based on Post characteristics and subject matter. Conduct all-Post review to determine under and over-reporting; increase the use of summaries in Current Foreign Relations, Economic Summary, etc.; reduce frequency of reports such as the WEEKA, Bi-Weekly Situation Report. Improve publications procurement program.

FAIME Recommendation: Should be implemented, and where appropriate, be made a part of the interim improvements program. See Section 4.3.4, Improvement of Political Reporting. See also, Section 4.7.1.1, Immediate Improvements.

5. Control and Distribution in Washington of Written Communication between the Department of State and the Foreign Service. Task Force on Control of Written Communication, Working Group No. 1, June, 1964.

Concluded: A communications Advisory Unit should be established in S/S to coordinate control and distribution of messages in Washington.

FAIME Recommendation: This function should become part of FAIMS Data Control; a temporary ad hoc unit would be unlikely to achieve any measurable improvements.

Concluded: A series of proposed improvements in dissemination techniques to reduce volume of distribution and identify message content by captions. Digests and summaries recommended as substitutes for message distribution.

FAIME Recommendation: Dissemination in the Department of State is a major problem for further FAIME analysis. An interim improvement, Section 4.3.3, Daily Annotated Message Index, is proposed as an experiment in controlling distribution. Advanced techniques for improved dissemination are part of a later increment of FAIME.

6. Communications between the Department and Posts Abroad. Task Force on Control of Written Communications, Working Group No. 2. July, 1964.

Concluded: Steps should be taken to reduce the volume of telegrams; captions to be assigned by the originator; Post reporting programs should be defined in an effort to equate reporting with information requirements. Post requirements for distribution should be reviewed.

FAIME Recommendation: This report should be implemented as appropriate in the Interim Improvement proposed in Section 4.3.4, Improvement of Political Reporting, and in the Immediate Improvements proposed in Section 4.7.1.1.

7. "American Legion Report," Department of State, American Legion Liaison Committee, September 22, 1964.

Concluded: Restates essentially the conclusions of Items 4, 5 and 6 above.

FAIME Recommendations: Implementation of steps proposed in Items 4, 5 and 6 will include the significant recommendations of this report.

4.8.3 : AID Previous Studies

1. Memorandum from Senator Humphrey, Chairman, Subcommittee on Reorganization and International Organizations. - Re: Coordination in International Technical Assistance - "Progress Report" on Subcommittee Study, April 1962.

Concluded:

- a) Should be a multiplicity of data and information "pools" available through the many agency and other sources.
- b) Coordination should be expanded within and between governmental, intergovernmental and non-governmental organizations.
- c) The many external sources of overseas assistance should redouble efforts to strengthen their communication and cooperation.
- d) The U. S. Government should put its own "information house" in order, establishing within State Department and AID a modern system of information storage and retrieval.
- e) In this narrow field of international information gathering, we should not wait for the adoption of a system of information systems but proceed without delay to prevent continuation of wasteful practices.
(Ettinger Consultant)

FAIME Recommendation:

- Provided for in FAIME in Phase I, Interim Improvement.
- Provided for in FAIME system concept and Interim Improvement - Data Base Inventory.
- Not directly relevant to FAIME.
- Provided for in FAIME system concept.
- FAIME encompasses system of systems concept preceded by necessary interim improvements (Section 4).

2. Systems Analysis (apparently draft of a research program)
October 1, 1963.

Concluded:

- a) Theoretical analysis of certain features of economic behavior on high-speed computers should be anticipated.
- b) Relative effectiveness of alternative strategies under different AID policies and objectives should be determined.
- c) Investigation proposed. . . to analyze AID reporting system, storing, retrieving data, dissemination to user.

FAIME Recommendation:

- Research action required outside FAIME, operational capability would be an AID program within FAIMS.
- Partially provided for in FAIME systems concept within the Country Program Development capability.
- Provided for in FAIME systems concept and State-AID interim improvement of Reports Control.

3. Review of Economic and Social Data Needs for Agency Programming and Implications for FY 1966 CAPs - March 1964.

Concluded:

- a) Identify precisely what data are needed in what countries, described in terms of a unified, expanded data framework which would be comparable for all countries.
- b) Evaluate carefully additional costs which would accompany these needs, and get decision on AID's willingness to assume these additional costs.
- c) Data and documentation should be divorced from CAP programming cycle and greater attention given to analysis and interpretation of data as part of the programming process.

FAIME Recommendation:

- Requires research action outside FAIME. Results, however, will be pertinent to FAIME data base design.
- Requires action outside FAIME.
- Provided for in FAIME system concept within the Country Program Update capability.

Concluded:

d) Greater reliance on post AID professional personnel for maintenance of data, and greater analytical effort in Washington to use and interpret.

e) Several changes relating to FY 1966 programming, notably, inclusion of C tables where in fact relevant to US aid programming, in the analytical portion of the CAP, and submission of abbreviated data for all countries for use in FY 1966 Congressional Presentation.

f) Additional detailed technical points with regard to use of base years, exchange rates, etc.

FAIME Recommendation:

Provided for in FAIME system concept.

Provided for in FAIME system concept. Data base developed for all AID capabilities will provide data for Congressional Presentations.

Not directly related to FAIME.

4. Office of Personnel Administration Survey - Report #3, June 1964

Concluded:

a) Establish a Personnel Program Information and Reports Management Control System in order to efficiently manage the information contained in the system to control and evaluate its reports.

b) Adopt a new Personnel Program Performance Reporting System for the Director, A/PA and his managers in order to improve their control over personnel program.

c) Install an Improved Automated Workforce Inventory Control and Reporting System in order to manage the Agency's workforce more efficiently and economically.

FAIME Recommendation:

Partially implemented in February, 1965. Should be continued in coordination with FAIME.

Same as above.

Same as above. FAIME system concept includes a Skills Inventory program.

5. Report on Management Survey of the Message Centers in the Bureau of Inter-American Affairs, Department of State (ARA) and the Bureau of Latin America, AID (LA) December 1964.

Concluded:

FAIME Recommendation:

- a) That a copy requirement of six, exclusive of action document be established in ARA-LA along with a uniform distribution pattern to reduce copies and volume of waste (see text for proposal made). Distribution patterns to be developed in subsequent phases of FAIME.
- b) Manpower decrease by one-half in message center. Requires action outside FAIME.

6. Development of Expanded Economic Data Systems, Progress Reports, June 16, 1964 and December 15, 1964.

Concluded:

FAIME Recommendation:

- a) Continue to encourage the development of an expanded economic data system. Requires action outside FAIME. Any results will be relevant to FAIME system data base design.
- b) Make the tables and manual for such a system widely available throughout the Agency and urge its adoption. Same as above.
- c) Note carefully additional costs, if any. Requires action outside FAIME.
- d) Continue to promote international cooperation and division of labor, make a greater effort to furnish our statistical reports to academic and official users outside U. S. Government and to incorporate data from additional sources into our statistical system. Particularly see Interim Improvement on Data Base Inventory, Section 4.4.3, p. 4-13.

4.8.4 United States Information Agency Previous Studies

Development of a USIS Country Program Profile: A Study for a Planning Dossier Based on the Agency's Work in Iran. Grabbe, 1959 (Confidential)

Concluded: Program needed for a continuing audience identification and effort assessment dossier at USIS posts.

FAIME Recommended: Intensive effort included as an Interim Improvement in Section 4.

4.8.5 Arms Control and Disarmament Agency Previous Studies

The Design of an Information System for the United States Arms Control and Disarmament Agency. McGraw Hill Co., July 1964.

FAIME Recommendation: All accepted recommendations have been implemented or incorporated in FAIME.

4.9 Implementation of Improvements

Figure 4-1 shows the recommended schedule for implementing the interim improvements discussed in Section 4.2 through 4.6.

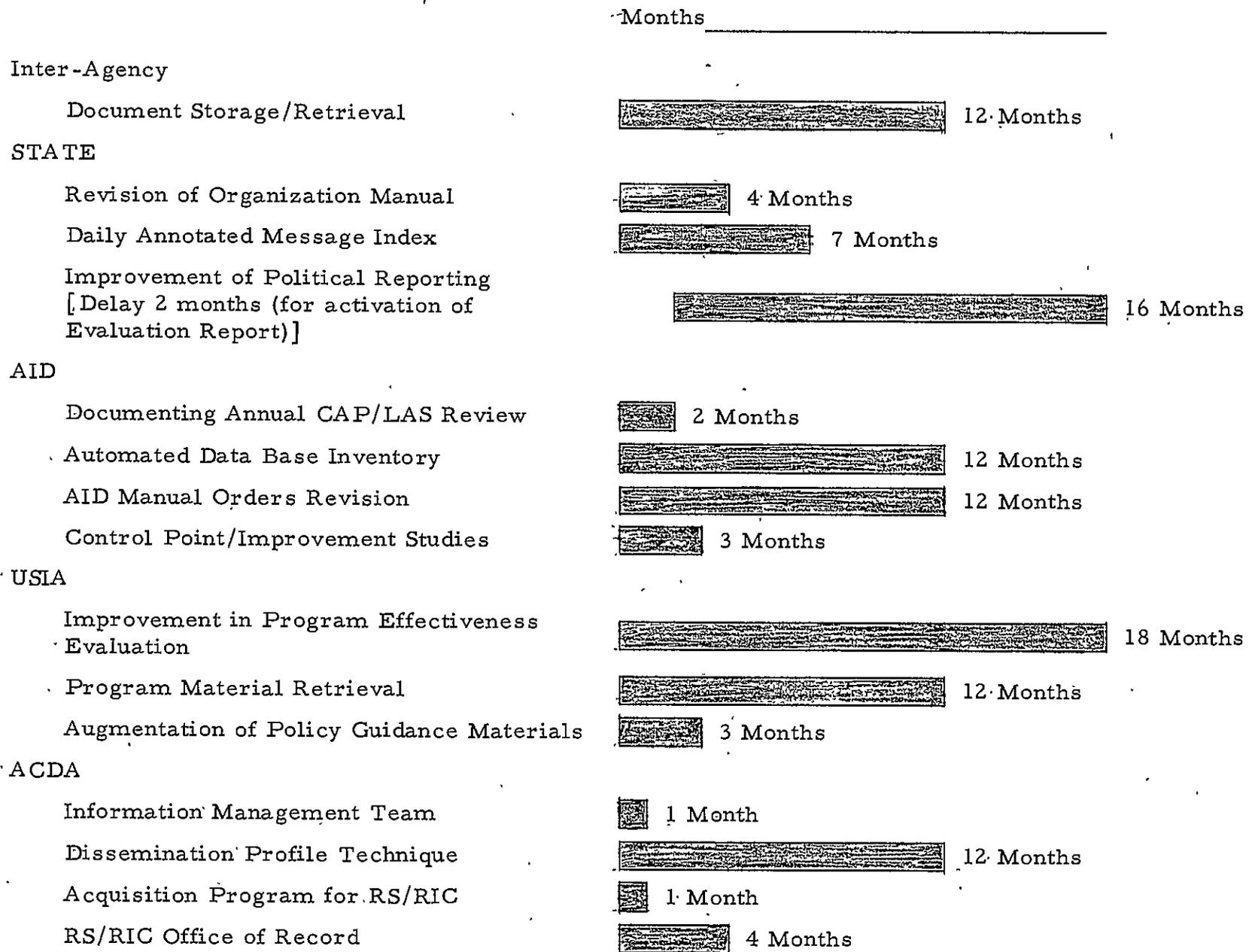


Figure 4-1. Interim Improvements Schedule

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