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U.S. Department
of Transportation
**Federal Aviation
Administration**

Office of Aviation Medicine (AAM) Information System Strategy

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February 1991

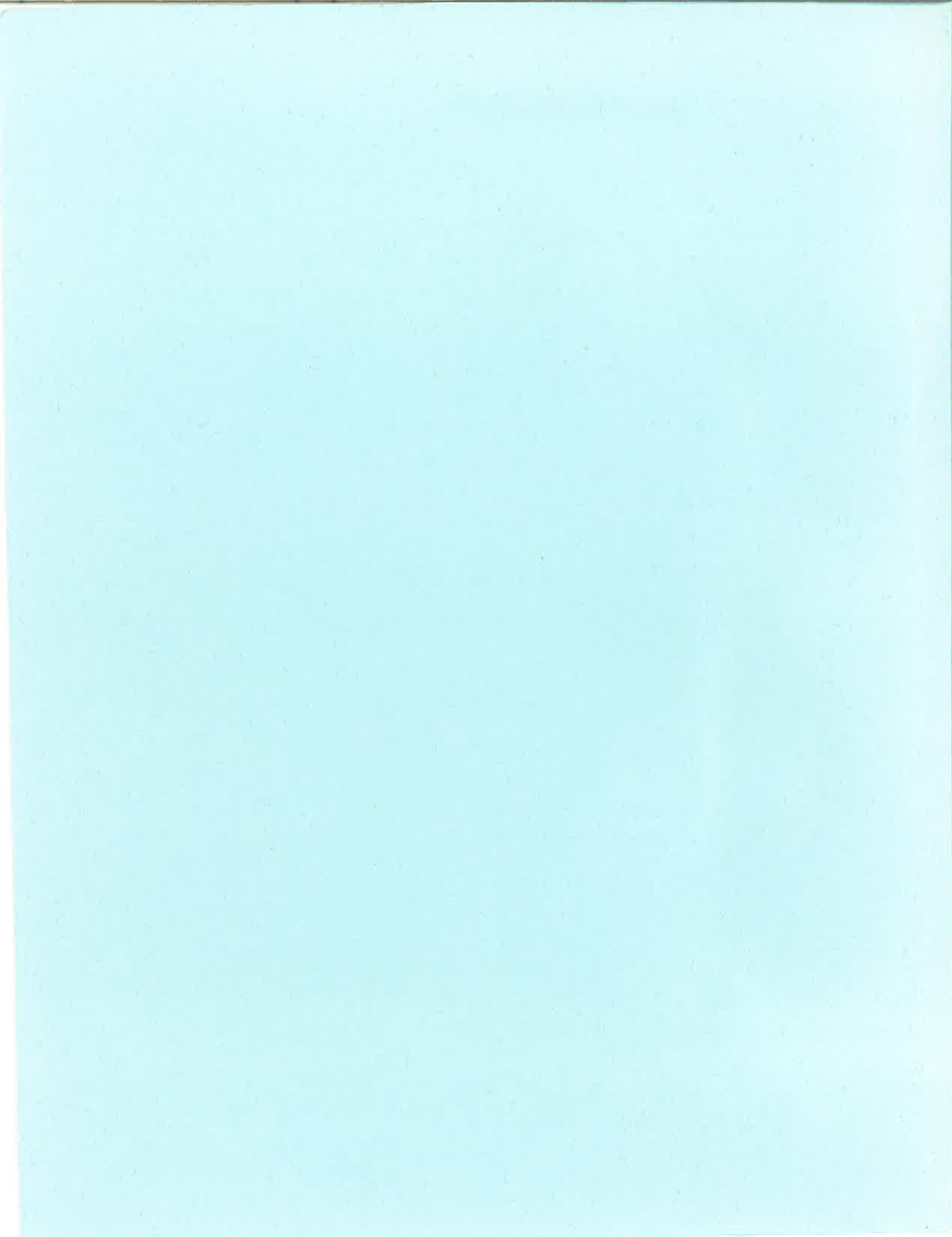
A large graphic consisting of several concentric circles. The word "ASAS" is written in a bold, black, sans-serif font across the center of the circles.

ASAS

Sponsored by
U.S. Department of Transportation
Federal Aviation Administration
Office of Program and Resource
Management
Washington, DC 20591

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U.S. Department
of Transportation
**Federal Aviation
Administration**

Memorandum

Subject: INFORMATION: Office of Aviation Medicine
(AAM) Information Resources Management
IRM) Plan

Date: FEB 11 1991

From: Acting Federal Air Surgeon, AAM-1

Reply to
Attn. of: Adams:366-1048

To Distribution

Attached for your use and reference is a copy of the Fiscal Year 1991 AAM IRM Strategic Plan.

All of you played a role in the development of this plan. We worked hard through our participative management working groups to develop this plan, and I think we have been successful in delivering a good product. Our implementation of the plan will also require commitment from all of you. As resources permit, we will undertake the project opportunities identified in this plan this year and over the next several years.

Many of you will be called upon to work on these projects, and some of you have already been asked to serve as project advocates. The project advocates are the key to successful implementation of the plan. I am confident that you will do your best to launch and complete these projects.

This plan is the first in what I want to be a series of strategic plans for all of our critical functions/programs. This plan, and all AAM plans, must be living documents and should be revised on a yearly basis to account for progress, problems, and new requirements.

Thank you for your efforts!


Jon L. Jordan, M.D.
Attachment

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Office of Aviation Medicine
Information System Strategy
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Office of Aviation Medicine
Information System Strategy
Executive Summary

In order to gain maximum benefit from information technology, the Office of Aviation Medicine (AAM) has developed an Information System (I/S) strategy. The AAM I/S strategy was developed as a collaborative process between the senior staff of AAM, the Safety Information and Technology Division (APR-300) and the Volpe National Transportation Systems Center (VNTSC). The I/S strategy is based on AAM's business goals and objectives. It was developed through a series of activities that are summarized in Figure ES-1.

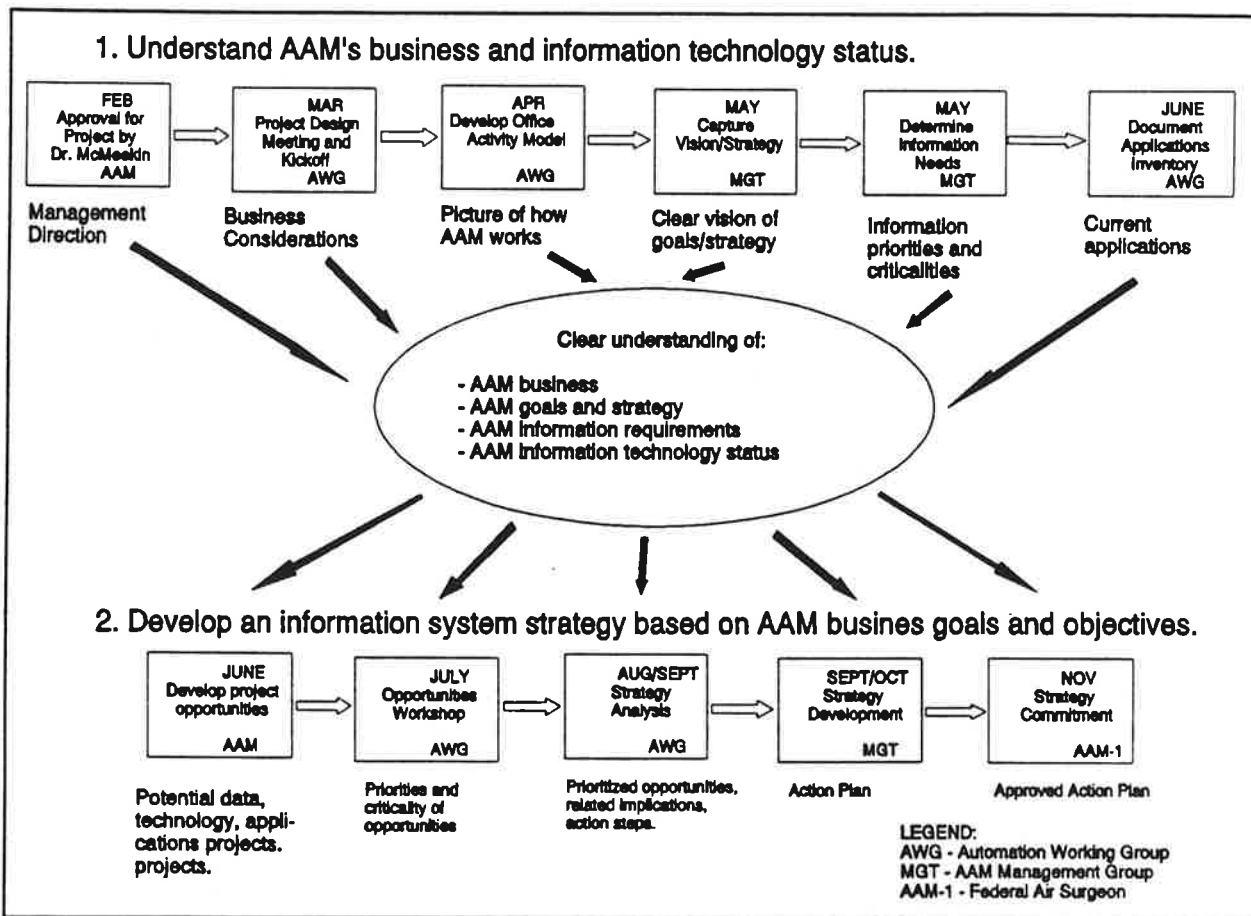


Figure ES-1: Office of Aviation Medicine Information System Strategy Process

The activities concentrated on working with AAM senior, regional, and divisional management to develop several major products:

- An office activity model that describes AAM's organizational structure, major programs, and responsibilities, and the external and internal factors that help determine AAM priorities.
- AAM's organizational strategy, also part of the office activity model, describes AAM's long-term goals or vision, using high performance indicators or descriptions of how the Office will be operating when the goal is reached, and the actions the Office is taking to achieve the vision.
- AAM's information system architecture describes AAM's current applications, data, technology, and organization as well as the information system project opportunities or concepts of how information technology will support the Office of Aviation Medicine.
- AAM's information system strategy describes an approach for developing the project opportunities based on management priorities and AAM resource constraints. The action plan describes the responsibilities of the organizations and individuals involved in implementing the strategy, and the AAM resources required to develop the projects.

AAM is a functionally and geographically diverse organization whose effectiveness depends on gathering, processing, analyzing, and communicating high quality data. AAM recognizes that it must improve and expand its information management capabilities to continue to improve its ability to provide high-quality aviation medical services and products. The Office also recognizes that information system project opportunities must support efforts to achieve Office goals and take into consideration environmental factors that help determine Office priorities.

Office information needs were thus analyzed both with respect to the context within which the Office operates and the Office vision, to arrive at a list of potential information system projects. The vision statements are presented in Figure ES-2; the process by which aviation medical information was analyzed is displayed in Figure ES-3.

Vision Statements

All program areas are integrated.

National Airspace System is drug and alcohol free.

AAM provides same day, correct certification including deferrals, denials and special issuances.

Human/medical factors in accident causation are eliminated.

An effective bio-environmental medicine program is in place.

AAM is a world leader in civil aviation medicine that sets universally-applied standards and works with other agencies to accomplish its mission.

The worth of the individual in AAM is recognized.

Figure ES-2: AAM Vision

The project opportunities were then assessed by the Regional Flight Surgeons and the Division Managers with respect to their criticality in helping AAM achieve its vision. The evaluation results, displayed in Figures ES-4 through ES-6, strongly influenced the information system strategy.

The information system strategy recommends developing the information system projects in four phases over a five year period. The first phase develops projects that support vital certification and industry drug programs. The second phase contains projects that are critical for integrating AAM programs. The third phase develops projects that are critical for improving employee health and facilitating resource management. The final phase develops projects that provide additional support for all AAM functions. The four-step approach is presented in Figure ES-7.

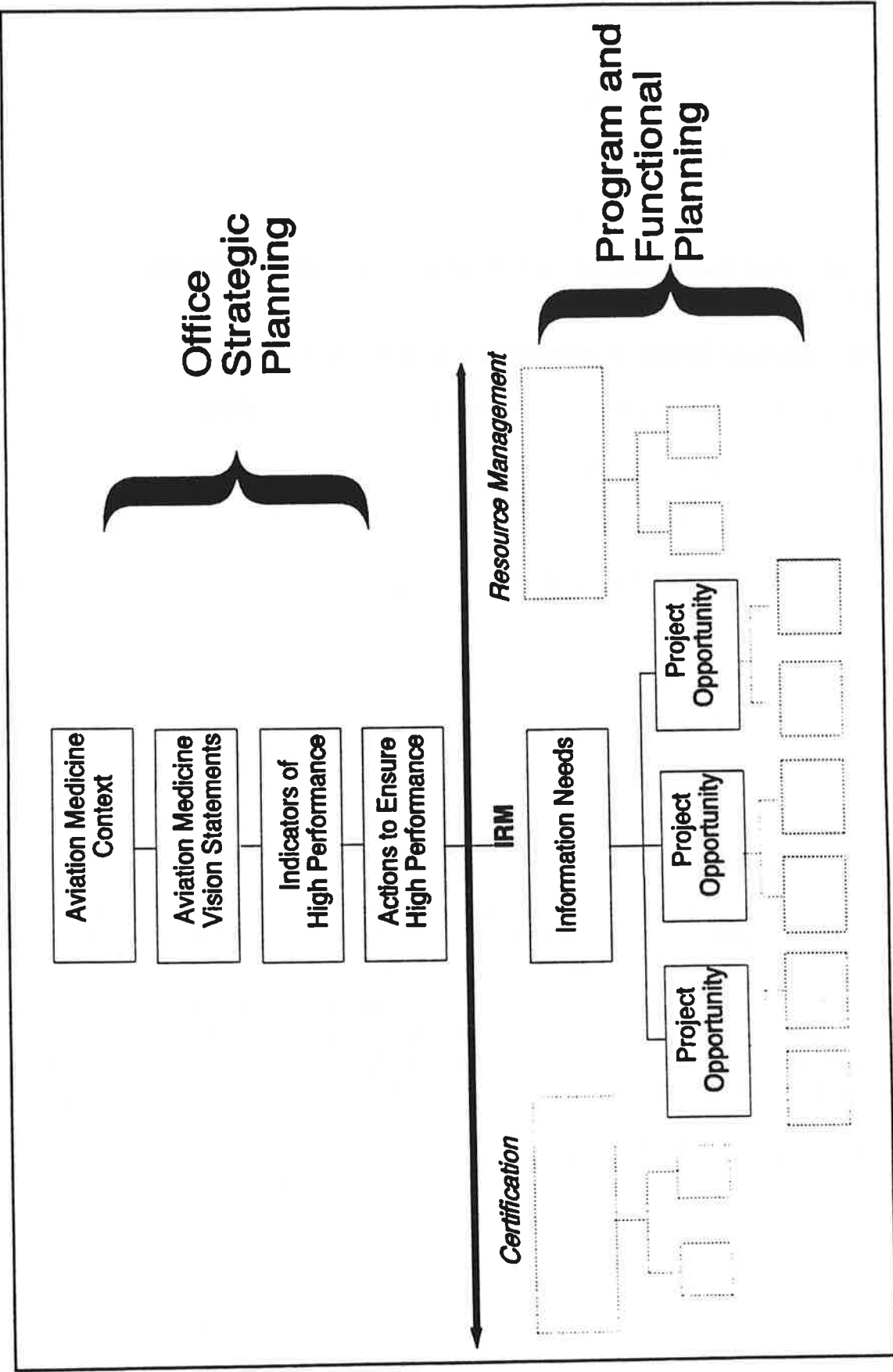


Figure ES-3: Analysis Process

Project Opportunities: Critical To Both Groups *

<p>Aeromedical Certification Process Analysis</p> <p>Analyzes all factors affecting the certification process. Provides improved ability to make consistent, correct certification decisions in a timely manner.</p>
<p>Covered Position Decision Support</p> <p>Enables consistent medical qualification decisions with respect to employees in or applying for covered positions. Project will evaluate the Health Information System (HIS).</p>
<p>Resource Management</p> <p>Improves ability to estimate resource requirements, prepare budgets, and monitor actual resources. Projects the impact of alternative budgets on operations.</p>
<p>Occupational Health</p> <p>Enables AAM to provide FAA employees with a safe and healthy work environment and to protect and improve the health of the individual.</p>
<p>Aviation Drug Abatement Program Support</p> <p>Supports AAM's responsibility to ensure that aviation industry employers are testing employees in accordance with the regulations.</p>
<p>AAM Communication</p> <p>Establishes a standard, Office-wide, electronic medium for Intra-office communication.</p>
<p>Research Project Tracking</p> <p>Improves AAM's ability to manage and report on the research project process. Provides research-activity information required to estimate and justify resources.</p>

* Regional Flight Surgeons and Policy Committee

Figure ES-4: Management Evaluation

Project Opportunities: Critical To One Group

<p>Policy and Directives</p> <p>Provides, as part of the system, safety and efficiency review (SSER) initiative, access to the background of regulatory information required to support medical decisions.</p>
<p>AME Management</p> <p>Provides Information to enable AAM to support management decisions, locate AMEs appropriately, determine training needs and evaluate AME performance.</p>
<p>AAM Data Architecture</p> <p>Data structure and standards that will enable the future development of applications to support an integrated AAM.</p>
<p>Program Evaluation</p> <p>Enables AAM to more effectively measure program activity, prepare, distribute and follow up on recommendations.</p>
<p>Training Management</p> <p>Looks at internal training needs, determines common training needs and looks at state-of-the-art methods for delivering the training.</p>

Figure ES-5: Management Evaluation

Project Opportunities: Helpful To Vision

Technology Survey

Presents an overview of new technology that has recently been released or is about to become available from which AAM may benefit.

ASAS Awareness and Access

Compares the information contained in each subsystem to AAM's information system requirements and provides access to the relevant subsystems.

Other Data Base Awareness and Access

Provides AAM with access to non-AXR data.

Employee Substance Abuse Program Support

Tracks and reports on the progress of employees in treatment programs.

Marketing Support

Improves AAM's ability to continue providing the right services and to encourage use of those services.

Decision Support

Provides Regional Flight Surgeons and Division Managers with summary information, exception reporting, and data analysis in a format suitable for planning and management activities.

Figure ES-6: Management Evaluation

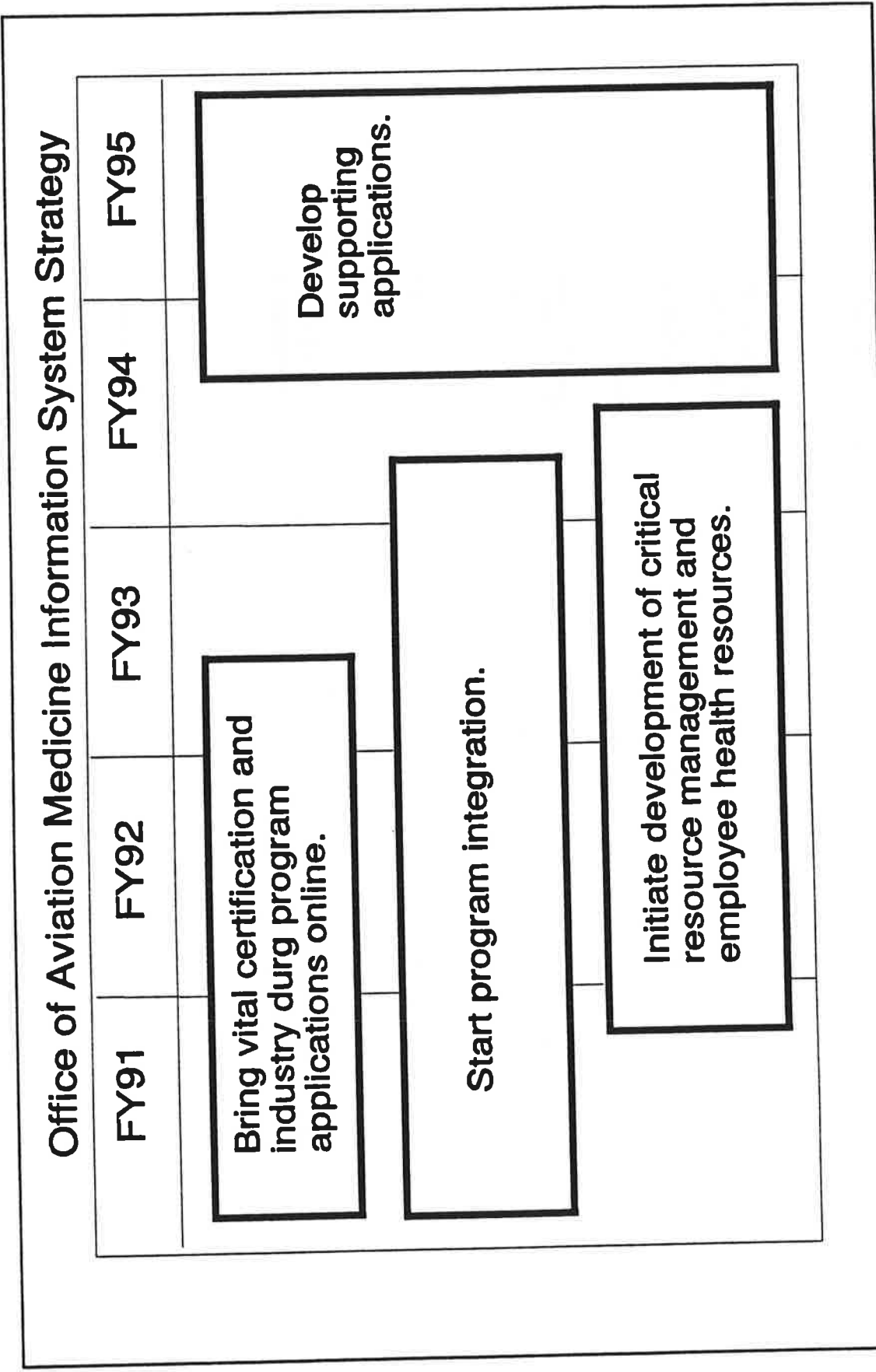


Figure ES-7: AAM Information System Strategy

Implementation of the strategy requires participation from many groups. Figure ES-8 summarizes the roles and responsibilities of participating individuals and organizations. Resource requirements from AAM personnel who are expected to contribute to the project development efforts were then estimated along with development, operation and maintenance costs. Figures ES-9 and ES-10 display estimated AAM resource requirements.

AAM Strategy Implementation Roles and Relationships

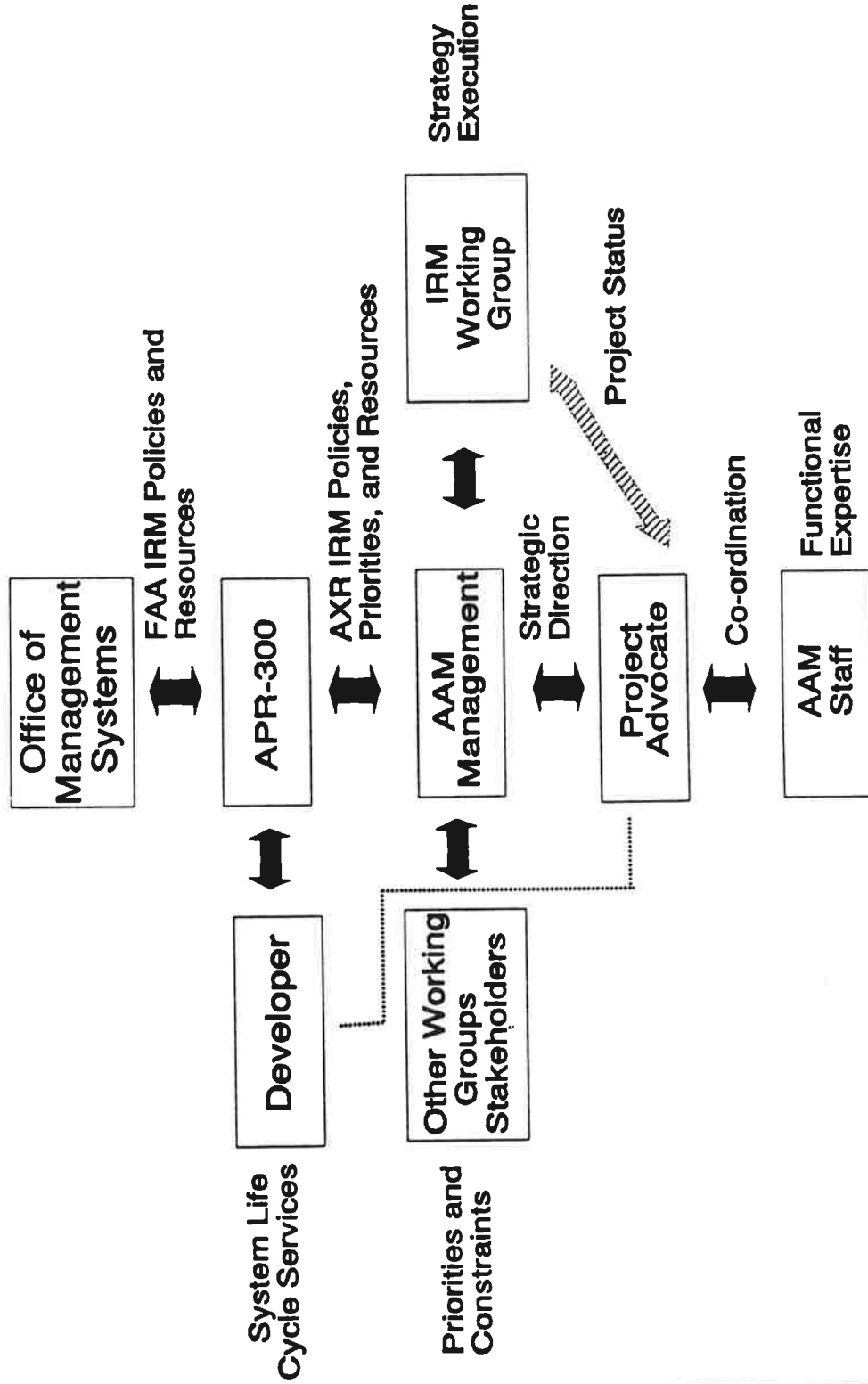


Figure ES-8: Implementation Responsibilities

Project	Project Advocate		AAM Staff		Working Groups	
	Name	Hr/Wk	How	Many	Name	Hr/Mth
Aeromedical Certification System (8500 Automation)	AAM-300	16		1		8
Aeromedical Certification Process Analysis	AAM-300	16		8	P&O/RFS	4/group
Medical Component of CAIS Upgrade	AAM-300	4		1		4
Drug Plan Tracking System	AAM-220	2		0		0
Drug Abatement Program: Compliance & Enforcement	AAM-220	16		1		4
Drug Abatement Program: Management Information System	AAM-220	16		1		4
Data Architecture	AAM-110	8		16	P&O/RFS	2/group
AAM Communications	AAM-110	8		0		0
Policy & Directives (System, Safety & Efficiency Review)	AAM-200	4		1		2
Technology Survey	AAM-110/APR-320	4		0		0
ASAS Awareness and Access	AAM-110/APR-320	4		0		0
Other Data Base Awareness and Access	AAM-110	4		0		0
Resource Management	AAM-120	8		11	P&O/RFS	2/group
Research Project Tracking	AAM-3	4		4		5 hours each
Covered Position Decision Support	RFS	16		9		4
Occupational Health	AAM-700	8		6		2
Program Evaluation	AAM-120	4		11	P&O/RFS	2/group
Decision Support	FAS-SA	8		16	P&O/RFS	2/group
Training Management	AAM-120	4		16		4 hours each
Marketing Support	FAS-SA	8		10	P&O/RFS	2/group
Employee Substance Abuse Program Support	AAM-201	8		9	RFS	4
AME Management	AAM-400	8		10	RFS	4
AAM Information System Strategy	AWG	32			P&O/RFS	4/group

Legend: RFS - Regional Flight Surgeons AWG - Automation Working Group
P&O - Policy and Operations FAS-SA - Special Assistant to the Federal Air Surgeon

Figure ES-9: Estimated AAM Resource Requirements

Project	FY91 (000)	FY92 (000)	FY93 (000)	FY94 (000)	FY95 (000)	Total Development Costs by Project
Aeromedical Certification System (8500 Automation)	757					757
Aeromedical Certification Process Analysis	130	370	300			800
Medical Component of CAIS Upgrade	①					
Drug Plan Tracking System	②					63
Drug Abatement Program: Compliance & Enforcement	63					646
Drug Abatement Program: Management Information System	317	329				100
Data Architecture	100					30
AAM Communications	30					
Policy & Directives (System, Safety & Efficiency Review)	③					
Technology Survey/ASAS Awareness & Access	④					
AAM Information System Strategy	16	16	16	16	16	80
Other Data Base Awareness and Access	15	25				40
Resource Management	130	80	120			330
Research Project Tracking	40	150	50			240
Covered Position Decision Support	60	290	300			650
Occupational Health		40	150			190
Program Evaluation		20	10			30
Decision Support	40	110	75			225
Training Management			100			100
Marketing Support			50	100	50	200
Employee Substance Abuse Program Support			40	100	50	190
AME Management	35	50				85
Total Development Cost by Year	1733	1480	1211	216	116	4756

① Part of CAIS - Medical Component - 125
 ② No new development on this project.
 ③ AAM labor only unless SSER Initiative does not meet AAM requirements.
 ④ APR-300/AAM labor only

Figure ES-10: Estimated Development Costs

I. Introduction

Office of Aviation Medicine Information System Strategy

1.0 Document Overview

This document defines the Information System (I/S) strategy for the Office of Aviation Medicine (AAM). Part I (**Introduction**) describes the business change background that drives the need for the I/S strategy both within the Regulatory Standards and Compliance (AXR) complex and the Office of Aviation Medicine. The Introduction therefore sets the context for the information system strategy. Part II (**Office Activity Model**) describes the AAM organization. The Office mission, organizational structure and programs are summarized to provide a clear picture of how AAM operates today. The Office Activity Model also describes the Office's future direction, or vision, and the actions the Office is taking to achieve the vision. The information system strategy was developed to help AAM move from its current state towards the vision. Part III (**AAM Information System Architecture**) identifies AAM's current information technology resources: applications, technology, data, and organization. The Architecture also presents the information system applications, technology, and data project opportunities that will support the Office's efforts to achieve its vision. The office activity information was analyzed in light of the Office's vision in order to arrive at the project opportunities. Part III also describes the I/S strategy's implication for the information resource management organization. Part IV (**Information System Strategy**) describes the approach that was used to ensure that the project opportunities supported the vision, the results of AAM management's evaluation of the project opportunities, and the synthesis of this information into AAM's information technology objective or the information technology vision. Part IV also describes the information system strategy action plan. The action plan describes the IRM Working Group recommendation as to how to implement the project opportunities in order to address both AAM's immediate priorities and long-term goals.

2.0 Objectives

2.1 Background - Changes within AXR

Over the last several years there have been numerous organizational and information technology changes within the FAA in general and within the Regulatory Standards and Compliance (AXR) complex in particular that impact the Office of Aviation Medicine. In the organizational area, AXR became a part of the straightlined FAA in 1988. Within AXR, major organizations such as the Aircraft Certification Service, the Flight Standards Service, the Federal Air Surgeon, the Office of Civil Aviation Security, and the Aviation Standards National Field Office became part of the new

"straightlined" FAA and were given greater authority and responsibility for field operations. The Regional Medical Divisions are now administratively part of the Office of Aviation Medicine with the Regional Flight Surgeons reporting directly to the Deputy Federal Air Surgeon. The Civil Aeromedical Institute (CAMI) was also affected by "straightlining." The Occupational Health Division (AAM-700) and all Certification (AAM-300) responsibilities were relocated to CAMI in Oklahoma City.

New organizational entities, the Office of Rulemaking and the Office of Accident Investigation were created within AXR. The Office of Program and Resource Management, Safety Information and Technology Division (APR-300) was given authority over all AXR Information Resource Management responsibilities.

In the information technology area, the existing Aviation Safety Analysis Systems (ASAS) subsystems are being upgraded to reflect the new PC-based technology and national data bases are being created to support Flight Standards and Aircraft Certification Services. APR-300 has been developing a prototype integrated system and standardized data to initiate discussion of a national data base.

The FAA OATS contract and the FTS2000 and ADTN contracts have been awarded. The hardware and software listed in the OATS contract will be the new FAA microcomputer standard. The migration to the OATS standard is expected to occur over the next three years. The first phase of the transition is to migrate the Burroughs sites to the new platform. FTS2000 and ADTN will provide the data communications services used to link ASAS hardware. The Computer Resource Nucleus Program (CORN) is about to be awarded. CORN will provide the general purpose resources and the mainframe host that will support AXR's automation program.

2.2 AXR I/S Strategy Objectives

Based on these business and technology changes, there exists a need to update the AXR Information Systems Strategy. The AXR Information Systems Strategy is defined as:

A consensus-based view of how information systems should support the business of AXR.

The development of an AXR Information Systems Strategy will:

- Document the current applications inventory for each organization according to current functions and information requirements;

- Formulate and document potential application opportunities which support each OPI business strategy and the AXR business strategy;
- Define a set of principles for prioritizing all applications;
- Identify the applications and application opportunities critical to the success of the business strategy;
- Develop a process which insures commitment to the applications and action plan; and
- Evaluate I/S needs across offices, justify budget and allocate resources.

2.3 I/S Strategy for the Office of Aviation Medicine

AAM activities are carried out by a functionally and geographically diverse organization. AAM Headquarters Divisions are located in Washington D.C., the Civil Aeromedical Institute (CAMI) is located in Oklahoma City, and the Regional Flight Surgeons are located in the nine FAA Regional Offices throughout the country. Many programs require coordination between multiple Divisions within AAM, the FAA's nine Regional Offices, and other organizations both within and outside AXR. AAM's effectiveness depends on gathering, processing, and analyzing high quality data and communicating the resulting information to the appropriate recipient on a timely basis. Integrating and sharing information both within Aviation Medicine and with other AXR Offices from various program areas will thus improve all aspects of aviation safety.

AAM recognizes that it must improve and expand its information management capabilities to continue to improve its ability to provide high-quality aviation medical services and products. This activity is most effective if it is done within the context of an overall plan that supports the business of both AAM and AXR. Hence the Office of Aviation Medicine created the IRM Working Group (IRM-WG) in order to ensure the development of an information system plan to meet both AAM's and AXR's business needs.

2.4 Process

The process by which the I/S strategy is developed and maintained is paramount. The process used to develop this document is described more completely in a companion document AAM I/S Strategy Project Plan, however several key points need to be reiterated here:

- The process used to create the I/S strategy is driven by the business strategy as articulated by senior AAM management.

- Workshops were used to provide a forum for group brainstorming and consensus building.
- Individual interviews were used to determine additional details related to the use of information in the business.
- The APR-300 I/S team developed the new application opportunity concepts; however the priorities and the analysis of the concepts were assigned and completed by AAM management.
- Adoption of this document merely records the commitment of AAM to use information systems to improve their business. An ongoing process will ensure execution of the strategy defined here.

II. Office Activity Model

3.0 Office of Aviation Medicine Roles and Responsibilities

3.1 Mission

The mission of the Office of Aviation Medicine is:

Safety in aviation through medical knowledge.

3.2 Functions

The Office of Aviation Medicine (AAM) is a geographically and functionally diverse organization that provides a wide range of aviation medical services to the FAA and the national and international aviation industry.

The major functions of the Office of Aviation Medicine are:

- Defining airman medical standards and certifying that airmen and other persons are medically qualified based on those standards,
- Performing aviation medical and human factors research,
- Administering occupational health programs,
- Determining the role of aeromedical factors in civil aircraft accident investigations,
- Operating substance abuse programs,
- Providing aeromedical education,
- Promoting agency health activities,
- Developing and administering medical regulations and policies, and
- Providing consultation on civil aeromedical matters.

3.3 Organization

The Office of Aviation Medicine (AAM) is structured organizationally into three areas: aeromedical policy, operations, and research. Aeromedical policy is formulated by the Federal Air Surgeon (FAS) based on input from AAM Divisions and the Regional Flight Surgeons. The Deputy Federal Air Surgeon oversees the two Headquarter Divisions, located in Washington D.C., and the Regional Medical Divisions, located in the nine FAA Regional Offices. The Plans, Evaluation, and Management Support Division is responsible for providing operational support for AAM programs; the Medical Specialties Division for medical-related regulations and rulemaking. The Regional Medical Divisions regionally administer all national programs.

The Civil Aeromedical Institute (CAMI), located in Oklahoma City, oversees the Human Resources and Aeromedical Research Divisions. The Research Divisions are responsible for designing and carrying out research projects in their respective disciplines. CAMI also oversees the Aeromedical Certification, Aeromedical Education, and

Occupational Health Divisions. These Divisions are responsible for defining standards and operational procedures and processes for their respective programs.

The AAM reporting structure and key responsibilities of each Division are shown in the Office of Aviation Medicine (AAM) Functional Organization Chart (Figure 3-1). Each Division is discussed separately below:

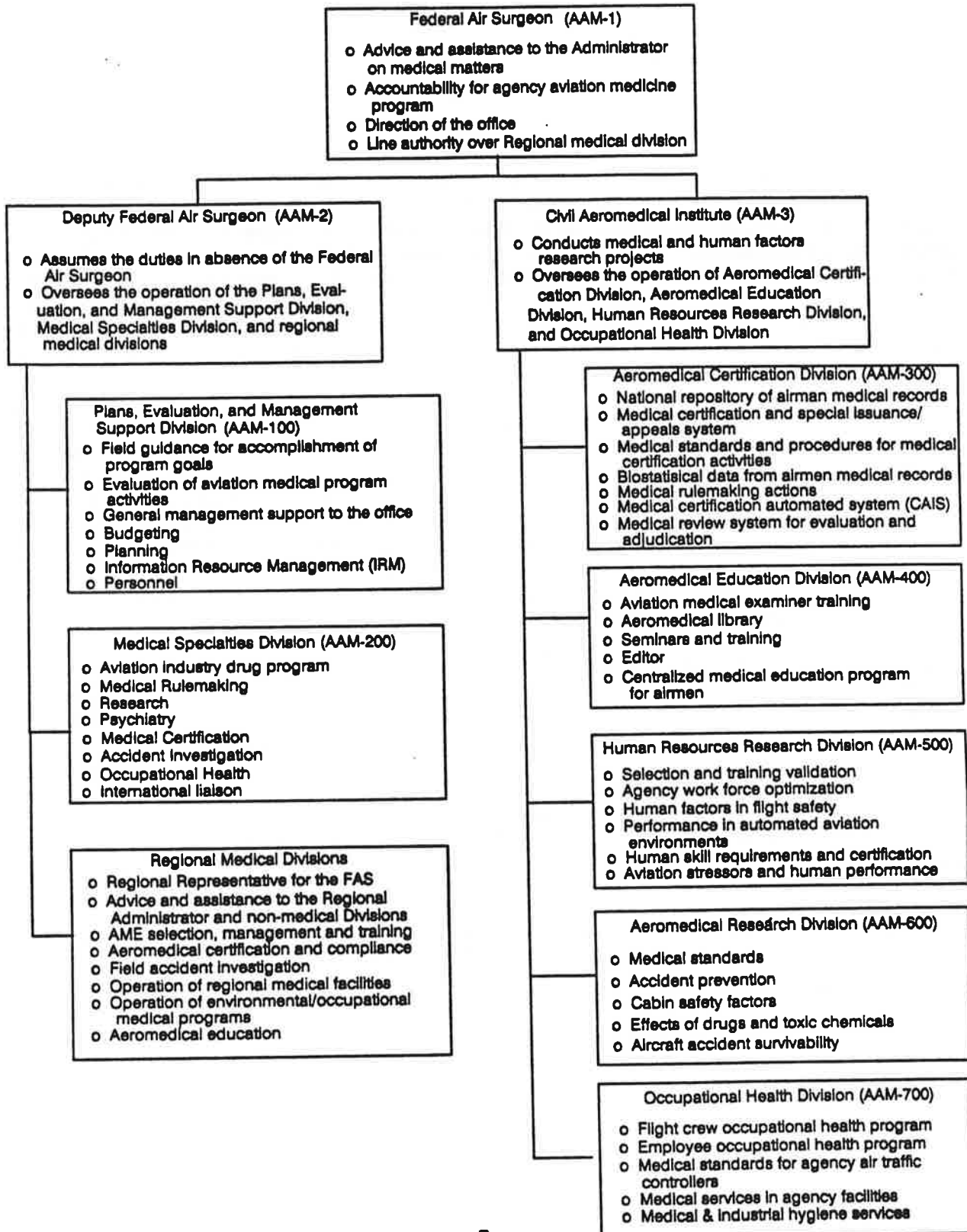
The Plans, Evaluation, and Management Support Division (AAM-100) develops policies and procedures and operates administrative and management systems to support the effective and efficient accomplishment of AAM goals and objectives. AAM-100 develops budgetary, financial management, personnel, information resource management, planning, and administrative systems and policies, and provides administrative guidance in these areas to help field offices and the Civil Aeromedical Institute (CAMI) effectively operate. AAM-100 evaluates programs to identify operational deficiencies and recommend corrective action.

The Medical Specialties Division (AAM-200) develops and implements policies relating to FAA health awareness activities, including agency medical programs, a medical treatment facility, and the medical and pre-employment examination aspect of the agency's drug abatement and substance abuse programs. AAM-200 coordinates the FAA's development, tracking, monitoring, and enforcement of the industry's drug testing plans and results. The Division is responsible for the development and promulgation of regulations pertaining to medical standards and other medically-related issues. AAM-200 serves as a focal point for all international aviation medicine activities and coordinates national medical accident investigation activities. AAM-200 acts as the Federal Air Surgeon's staff element for oversight of the aeromedical certification system.

The Aeromedical Certification Division (AAM-300) administers the national program for airman medical certification and manages a repository of airman medical records and a system for processing medical applications. This Division develops, recommends, administers, and evaluates standards and procedures for all FAA medical certification activities and provides professional and technical guidance regarding such activities. The Division also administers and manages the special issuances and appeals system. Bio-statistical data is developed from airman medical records processed and maintained on the medical certification automated processing system. The Aeromedical Certification Statistical Handbook is published annually.

The Aeromedical Education Division (AAM-400) provides aviation medical education programs to FAA personnel, Aviation Medical Examiners (AMEs), and the aviation public. Education programs

**Figure 3-1
AAM Functional Organizational Chart**



include seminars and training programs in aviation physiology and global survival for FAA pilots, inspectors, and medical personnel. AAM-400 disseminates medical education information through booklets, films, and lectures to the FAA and the aviation public. The Division provides editorial expertise in support of aviation medicine, maintains the aeromedical library, and serves as a centralized resource for aeromedical and scientific data and consultation for all of the aviation community.

The Human Resources Research Division (AAM-500) conducts an integrated program of field and laboratory research in behavioral, personnel, organization, and human factors aspects of aviation work environments. Research includes, but is not limited to, agency work force optimization, reliability analysis of human performance, the effect of advanced automation systems on performance, and the sensorimotor, psychomotor, and psychophysiological aspects of the effect of workload and work proficiency on safety in aviation.

The Aeromedical Research Division (AAM-600) conducts research on the physiological effects of the civil aviation environment, flight procedures, and equipment, and the effects of drugs and toxic chemicals on the human body. AAM-600 also looks for potential safety and efficiency improvements in on-board equipment and procedures. AAM-600 investigates aircraft accidents for biomedical and clinical causes, including disease and chemical abuse, and serves as the central repository for data on the medical and human engineering design aspects of accidents.

The Occupational Health Division (AAM-700) is responsible for agency occupational health activities related to the commercial aviation industry and for the occupational health program for agency employees pursuant to PL 91-596, the Occupational Safety and Health Act, and the Occupational Health Program for agency employees pursuant to Executive Order 12196, Occupational Safety and Health Programs for Federal Employees, OMB Circular A-72, PL79-658, 5 USC 790-1, and FPM Supplement 792-1, Occupational Health Services for Federal Civilian Employees. AAM-700 develops minimum medical standards for agency air traffic control specialists and manages the Air Traffic Control Specialist Health Program, including the Air Traffic Controller Health Information System. AAM-700 also works with the Medical Specialties Division on projects involving clinical factors in aviation safety.

As head of the **Regional Medical Divisions**, the **Regional Flight Surgeons** represent the Federal Air Surgeon in the operation and management of all national programs within their areas of jurisdiction and are an integral part of the program planning process. They provide medical advice and assistance to the Regional Administrator and the nonmedical, regional divisions. The Regional Medical Divisions conduct aeromedical certification and compliance, manage the Airman Medical Examiner (AME) program,

the Employee Health Program including the Air Traffic Controllers Health Program and the Environmental (Occupational) Medicine Programs. Regional Medical Divisions investigate the human factors aspect of aircraft accidents, conduct educational programs for airmen, AMEs, and FAA employees. They provide Medical Review Officer and rehabilitation guidance to the FAA Substance Abuse Program, and support to the Aviation Industry Drug Abatement Program.

3.4 Programs

AAM activities are carried out through eight major programs. Policy-making, administration, and execution of each program requires coordination between multiple AAM Divisions and other organizations within AXR and the FAA. The information derived from these programs is communicated to the aviation community world-wide. An overview of each program is presented below.

Certification

Through the Certification program, AAM ensures that medical certificates are only issued to medically qualified airmen. After medical qualifications of airmen have been determined based on available information, appropriate action is initiated and controversial cases regarding issuance or denial of certification are analyzed. Aviation Medical Examiners (AMEs) examine airmen, applying appropriate medical standards and issuing certificates to those airmen meeting those standards. Through the Comprehensive Airman Information System (CAIS), AAM-300 monitors AME performance and provides feedback and data to the Aeromedical Education Division. All medical applications (issued, denied, deferred) and ancillary data are forwarded from the AME to AAM-300 at CAMI for processing, evaluation, and adjudication. When a denial is not resolved by CAMI, or some other difficulty or dispute cannot be resolved, the case is referred to the Region for resolution.

Aviation Medical Examiner

Through the Aviation Medical Examiner Program, AAM ensures that an appropriate number of qualified physicians are selected, designated and trained to conduct FAA medical examinations of civil airmen throughout the United States and abroad. The Regional Medical Divisions select and designate civilian AMEs within their respective regions. Military and international AMEs are selected and designated by AAM-400 and AAM-300. The physicians attend an initial training workshop and seminar provided by AAM-400 and, after designation, attend periodic workshops and seminars. AME performance is monitored by AAM-300 and the Regions which provide feedback and statistical data to AAM-400. AAM-400 ensures that AME performance is acceptable. AAM-400 has overall administrative and policy-making responsibility for the AME program.

Occupational Health

AAM-700 is responsible for overall policy-making and administration of the Occupational Health Program. This program provides FAA employee health services and performs industrial hygiene inspections. Services are provided to regional FAA employees through clinics operated at the Regional Office level and to the Washington Headquarters staff through a clinic operated by AAM-200 in Washington D.C. Industrial hygiene specialists are responsible for ensuring that the FAA meets OSHA and EPA guidelines.

A major component of the Occupational Health Program is the Air Traffic Controllers Specialist (ATCS) Health Program. The ATCS Health Program ensures that air traffic controllers maintain prescribed medical standards by periodic examination at FAA medical facilities or by specifically designated AMEs. Regional FAA physicians review all physical examinations and qualify air traffic controllers. Physicals that require special attention are sent to the Regional Flight Surgeon who determines whether a special consideration or a denial is issued. Medical standards for aviation personnel, including air traffic controllers, are developed by AAM-200 and AAM-300. The ATCS Health Program is managed by the Regional Divisions. AAM-300 develops medical standards for certain non-FAA Air Traffic Controller personnel.

Substance Abuse

The FAA is dedicated to an alcohol and substance-abuse free aviation environment. It provides, through its Regions, pre-employment drug testing, Medical Review Officer support, and rehabilitation guidance to the DOT Substance Abuse Program. AAM-200's Drug Abatement Branch (DAB) is the Office of Primary Interest (OPI) for the Aviation (industry) Drug Abatement Program (ADAP). Pre-employment drug testing of prospective FAA personnel is conducted at the time of medical examination by FAA medical facilities of designated AMEs. Random drug testing of safety, security, sensitive (SSS) personnel is performed through a DOT contractor. Those who test positive are evaluated by FAA flight surgeon Medical Review Officers. If the test is confirmed they receive Employee Assistance Program (EAP) evaluation and counselling and are offered the opportunity to obtain rehabilitation, at their own expense. The Regional Division and EAP monitor rehabilitation and the Regional Flight Surgeon determine suitability to return to previous SSS duties. AAM-200 plans, directs, and manages the aviation industry's conduct of the ADAP. Industry personnel who require FAA certification are reported to the Federal Air Surgeon (FAS) for suitability determinations. Regional personnel provide educational and procedural guidance. The DAB has the responsibility for ensuring that aviation industrial entities are in compliance with the DOT's drug testing legislation.

Aeromedical Education

Through the Aeromedical Education Program, AAM ensures that AMEs have the proper training and information to effectively examine and medically certify airmen. AAM-400 develops AME training seminars and workshops. AAM-300 and the Regional Medical Divisions work with AAM-400 to conduct and deliver these training seminars and workshops. This program also ensures that FAA aviation personnel have the aeromedical information that they require to perform their duties. AAM-400 delivers this information through seminars, training programs, films, lectures, and booklets.

Accident Investigation

Through the Accident Investigation Program, AAM ensures that human factor evaluations in accident investigations are performed when and where they are required. AAM-220 is responsible for policy-making and administration of the Accident Investigation Program. Regional Divisions provide and coordinate the medical aspects of field accident investigation. Medical guidance and assistance in all aspects of accident investigation is provided to the Office of Accident Investigation (AAI) and the National Transportation Safety Board (NTSB). AAM-600 studies survivability factors relating to aircraft accidents and correlates the medical data accumulated through field and toxicological investigation. AAM-500 personnel participate in accident investigations when human performance is a focal element of the investigation.

Research

The Research Program supports the responsibilities of the Federal Air Surgeon with respect to defining aeromedical certification standards, providing occupational health and safety programs, investigating the medical aspects of accidents and analyzing the results, and providing aeromedical education. Research is also responsive to needs identified by other organizational elements within the FAA. The areas in which research is conducted vary depending on the FAA Safety Agenda and the Federal Air Surgeon requirements. AAM-500 and AAM-600 conduct the field and laboratory research. Research activities involve AAM personnel, FAA personnel, and other aviation industry personnel. Research results impact aviation medical policies, medical standards for certification, and the Aviation Medical programs. Aeromedical consultation to FAA Airworthiness and Flight Standards staff is also directly based on research findings. The protection of the aircraft cabin occupant is enhanced as the National Transportation Safety Board (NTSB) and industry groups use AAM research data to improve flight equipment and procedures. Human factor research impacts ATC selection, screening, and training programs, the Supervisory Identification and Development Program, and other areas concerning pilot and controller performance in their

respective work environments. CAMI is responsible for overall administration of research activities. AAM-240 provides administrative and technical guidance for research activities.

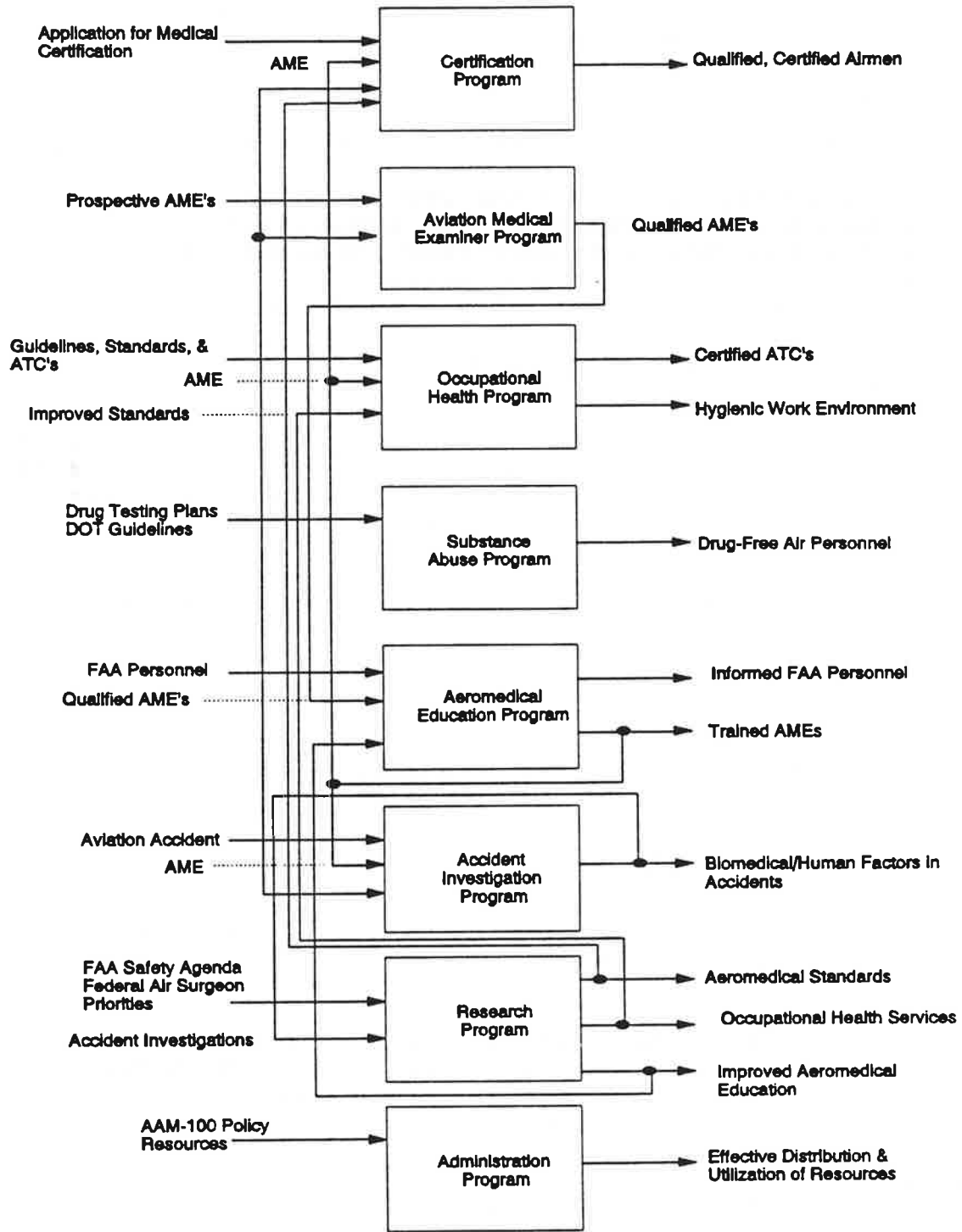
Administration

Through the Administration Program, AAM ensures that its resources are distributed and utilized effectively. AAM-100 has overall responsibility for formulating resource requirements and effectively allocating resources. AAM-100 develops policies and procedures for evaluating the effectiveness of AAM programs and provides advice and guidance to the Federal Air Surgeon, Regional Flight Surgeons, and field offices. AAM-100 establishes policies and manages AAM automation and information resources. Regional Offices are responsible for managing the programs and resources within their jurisdiction and for providing appropriate budgetary, staffing, planning, workload, automation, and financial information to AAM-100.

Figure 3-2 is a flow diagram that summarizes program input, processing, and output. The diagram shows how the programs work together to provide a high level of service to AAM customers and thereby improve aviation safety. AAM customers primarily include air traffic controllers and other FAA employees, airmen and aviation medical examiners.

Workload statistics presented in Appendix A provide insight into AAM staffing, program activity, and expected levels of available operational and research resources.

**Figure 3-2
Major AAM Program Interrelationships**



4.0 Office of Aviation Medicine (AAM) Context

This section identifies the known issues which will have a major impact on AAM operations over the next five years. The text below discusses the implications of these forces on AAM.

4.1 External Forces on AAM

AAM's priorities are influenced by several major external forces:

- FAA safety agenda for the 1990's,
- Department of Transportation legislation,
- Expected changes to certification standards,
- Public concerns over air safety,
- Prosecutions for fraudulent certifications,
- Aviation industry trends,
- OSHA/EPA legislation, and
- FAA Captial Improvement Plan.

The FAA Safety Agenda is a major factor in determining the focus of AAM's programs. The Agenda is the FAA's determination of the issues that constitute truly national, top-level aviation safety priorities. Among the safety issues that impact AAM priorities are:

- Upgrading the operation and efficiency of the air traffic control system,
- Upgrading initial and recurrent training for all aviation professionals,
- Applying human factors research to identify needed improvements in the system,
- Improving the quality of aviation safety data in support of safety research, and
- Improving cabin safety to reduce injuries and increase post-crash survivability.

The major impact of these safety issues is in the area of aviation medical research. Many of AAM's current research projects are designed to address these and similar issues. The findings will continue to impact FAA policy and regulatory actions.

The Department of Transportation (DOT) issued legislation requiring mandatory drug-testing in the workplace. The Procedures for Transportation Workplace Drug Testing Programs adapted the Department of Health and Human Services guidelines to the circumstances of the drug testing programs in the industries

regulated by the DOT. The Anti-Drug Program for Personnel Engaged in Specified Aviation Activities sets forth regulations to require specified operators and control facilities to have an anti-drug program for employees who perform sensitive, safety- or security-related functions. Aviation medicine has full responsibility for ensuring that this legislation is carried out.

A major rulemaking effort has been underway to revise medical standards and to bring them up-to-date with advances in medical knowledge and technology. The American Medical Association (AMA) issued a report (Source: Review of Part 67 of the Federal Air Regulations and the Medical Certification of Civilian Airmen, Volumes I & II, submitted to the FAA under contract #DTFA01-83-C-20066 by the American Medical Association) that contained numerous recommendations for changes to the standards. The final rule is expected to be issued in 1991. Changes to medical standards will have a major impact on AAM's programs.

Public concern over aviation safety has placed increased pressure on the FAA and the Regulatory Standards and Compliance Organization to look for new ways to improve aviation safety. This puts increased pressure on all Aviation Medical programs to look for ways to improve their effectiveness.

In an effort to ensure that only qualified airmen are certificated, the Inspector General has placed increased emphasis on the need to prosecute individuals responsible for fraudulent certifications. This increased emphasis on prosecution implies that tighter controls over the medical examiners who certify airmen are required.

Aviation industry trends that impact aviation medical programs are:

- A shifting of airline operations to hub-and-spoke operations, resulting in tighter schedules for turnaround and maintenance,
- An increase in the number of flights, particularly at peak travel times, due to consumer demand for frequent and convenient flights, and
- Changing aviation technology that has had an impact on the design and production of new aircraft.

Tighter turnaround schedules put increased pressure on aviation industry personnel, increasing the stress in their work environment. An increase in the number of flights puts additional stress on air traffic controllers. These factors increase the importance of aviation medical research on the effect of stress and the work environment on performance. Changing aviation technology impacts research that examines the effect of aircraft

design on airmen and passengers. Research findings ultimately impact AAM, AXR, and FAA policies, guidelines, and procedures.

OSHA and EPA guidelines that are designed to ensure a safe and healthy work environment impact the industrial hygiene activities within the Occupational Health Programs. The importance of complying with legislation and the impact of noncompliance has increased substantially in recent years.

4.2 External Forces on AAM Information Systems

AAM is an acknowledged authority in aviation medicine. The organization is therefore in a position to share its knowledge with aviation industry personnel worldwide. AAM may therefore need to consider allowing selective outside access to certain data and may correspondingly need access into other aviation-related data bases maintained by external organizations.

4.3 Internal Forces on AAM

AAM has undergone several internal changes that affect how the organization conducts its business. Several Divisions have undergone simultaneous physical and administrative changes. The Aeromedical Research Divisions, Occupational Health, and Certification Divisions have been administratively relocated under CAMI and physically relocated to Oklahoma City. Many of the administrative and planning functions have been assigned to the Plans, Evaluation, and Management Support Division and the Medical Specialties Division. These organizational changes have increased the necessity for defining an AAM-wide information system strategy to ensure that new business and information system requirements are addressed in an integrated fashion.

The FAA and AXR along with other government agencies are in the difficult position of having to allocate limited resources. The implications of limited resources for AAM is that the organization must be able to effectively demonstrate its information system requirements and how meeting those requirements is critical to AAM's success at accomplishing its mission.

4.4 Internal Forces on AAM Information Systems

The awarding of the OATS, FTS2000, and ADTN contracts provides hardware, off-the-shelf software, and communication services for all AXR information systems. Procurement of information system technology is expected to be achieved through the OATS contract. The awarding of CORN will define the mainframe host. AAM's hardware and software requirements should be in accordance with AXR standards.

The current AXR Information Systems strategy emphasizes national systems hosted on the IBM 3090 which communicate with PCs using

LANs. The strategy emphasizes data input at the source and shared across organizations. AAM's current operational subsystems are standalone applications. This implies:

Potential changes in internal systems to connect to other AXR subsystems

Additional training and learning to access ASAS subsystems through standard ASAS interfaces

Use of and reliance on the Health Information System (HIS) appears to be inconsistent throughout the organization. The reliability of HIS data and increasing its credibility are key issues that need to be resolved.

5.0 AAM Organization Strategy

5.1 AAM Values

AAM's information system strategy must be in alignment with Office values, or the beliefs that guide the definition and execution of program functions. As part of a group workshop, AAM management developed statements describing AAM's fundamental values. The value statements are listed below:

- Aviation safety must not be compromised;
- Research is integral to maintaining aviation safety;
- We manage change rather than change manages us;
- Change should involve advance information, preparation/training and feedback;
- We listen to our customers;
- We seek the greatest benefit for the greatest number of people;
- Human values must be maintained;
- We must not violate the integrity and safety of people, environment, and organization;
- Apparatus must not stand between the doctor and the patient; and
- System/tools enable creativity.

AAM's long-term goals and the actions the Office takes to achieve those goals must support these values. The values also impact the information technology principles or the criteria that AAM uses to select and prioritize information system projects and technologies.

5.2 AAM Vision

A critical part of the information system strategy development process was defining AAM's long-term goals or the Office vision. As part of a group workshop, AAM management (Senior Management, Division Managers and Regional Flight Surgeons) developed several

vision statements that specify the Office's long-term goals. The vision statements were reviewed and refined at subsequent workshops.

Individual interviews with AAM management and the results of the group workshops provided the IRM Working Group (IRM-WG) with a picture of how AAM would be operating when the vision is achieved. The IRM-WG worked with AAM management to develop a list of statements for each vision that describe how AAM would be performing when the vision becomes a reality. These statements are labeled high performance indicators and are a basis for developing measures for assessing progress towards reaching the vision. AAM management also defined action areas or statements defining what AAM is doing now or is planning to do to attain the high levels of performance. It is important to note that further analysis of this information may indicate that changes in areas other than information technology may be required for AAM to achieve its goals. The vision statements, high performance indicators, and action areas are presented in Figures 5-1 through 5-7.

AAM's vision statements are in alignment with the Office values. Both the vision statements and the values focus on the need to improve employee health and safety, recognize the worth of the individual, improve aviation safety through research, and base decisions on high-quality information. All I/S projects proposed by the information system strategy will be in alignment with these values and will support AAM management's strategy for achieving their vision.

Figure 5-1

Vision Statement: All Program Areas are Integrated

High Performance Indicators:

- AAM works as a team to solve problems, make decisions, and operate the business of aviation medicine.
- AAM makes strategic decisions that are based on a readily accessible and continually updated common source of information. Decisions are communicated throughout AAM.
- Information is viewed as an office resource, is continually updated, and is readily available to anyone who needs it.
- Policy guidance set by the Federal Air Surgeon is communicated to and understood by everyone in the organization.
- Headquarters, CAMI, and the regions have a mutual understanding of and support each others' responsibilities, constraints and priorities.
- Everyone in AAM knows how the overall goals/vision fit into day-to-day work.
- Information from sources outside of AAM is available to all when needed.
- Administrative and programmatic areas are integrated as appropriate (budget, procurement, personnel, travel, performance).

Actions Areas:

- Use working groups to facilitate the group decision-making process.
- Provide all AAM personnel with an electronic communication capability and the training and motivation to use it regularly.
- Maintain current policies, guidelines, regulations, and relevant information on-line.
- Ensure that AAM program responsibilities are clearly defined and communicated to all areas. Program information that is generated in each area is made available to other parts of the organization.
- Provide feedback to individuals or groups on how information is used.
- Define the common source of information for strategic decisions.
- Develop performance standards that acknowledge and reward participation in integrative program activities.

Figure 5-2

Vision Statement: National Airspace System is Drug and Alcohol Free

High Performance Indicators:

- Individuals in covered positions have consistently negative substance abuse test results.
- FAA-employee test results are consistently negative.
- FAA and industry supervisors have been trained to be able to identify individuals functioning at an impaired level.
- Pre-employment screening detects signs of substance abusers.
- Effective substance abuse prevention and education programs are in place.
- Effective, accessible, rehabilitation programs exist.

Actions Areas:

- Implement research efforts to determine the impact of drugs and alcohol on performance.
- Evaluate the effectiveness of supervisor training programs to identify impaired performance. Add drug/alcohol education courses to current curriculum.
- Evaluate and facilitate the development of rehabilitation training programs that are appropriate for the aviation industry.
- Develop effective substance abuse prevention education programs.
- Develop and evaluate testing technology to ensure that drug testing programs are effective.
- Recognize drug users whose rehabilitation is not complete and therefore cannot safely return to performing aviation-safety-related functions.

Figure 5-3

Vision Statement: AAM Provides Same Day, Correct Certification Including Deferrals, Denials and Special Issuances

High Performance Indicators:

- High-quality, well-trained aviation medical examiners perform the right tests, ask the right questions, and make the correct certification decisions.
- AAM makes consistent, high-quality certification, medication and strategic decisions that are available to all.
- The current need to reverse an AME's decision does not exist.
- All certification reviewers have access to complete, accurate and timely applicant and regulatory information.
- Certification standards, policy and procedures are constantly being improved in accordance with current medical knowledge; changes are communicated as they happen to the aviation community.
- AAM can track the rationale for past and current certification policy and procedures.
- AAM continually validates/evaluates the effects of certification decisions.

Actions Areas:

- Refine the work flow to eliminate stumbling blocks and glitches.
- Focus research efforts on identifying performance decrements associated with medical conditions and treatments.
- Design AME training programs that will enable AMEs to make the correct certification decision and to communicate their findings in the appropriate level of detail.
- Use automation throughout the certification process to speed the receipt of medical information, provide real-time access to all relevant documents, and assist in decision-making.
- Develop a model for making certification decisions and refine the model over time.

Figure 5-4

Vision Statement: Human/Medical Factors in Accident Causation are Eliminated

High Performance Indicators:

- AAM correctly identifies the causal role of biomedical and human factors in accidents.
- AAM has identified causes and developed actions to reduce fatalities in accidents.
- AAM is able to apply counter-balancing measures such as selection, training, and education programs that address the causes.
- Accident information from outside of AAM is available to all when it is needed.
- Feedback on accident causes and actions to reduce fatalities is provided to AMEs and to Flight Standard Service.

Actions Areas:

- Develop more effective techniques and procedures for identifying the role of human factors in accidents.
- Develop an accident investigation program that enables information discovered/collected by multiple sources to be pooled and analyzed to determine the human/medical factor role in accidents. Integrate the program with other AXR/NTSB accident-investigation programs.

Figure 5-5

Vision Statement: An Effective Bio-environmental Medicine Program is in Place

High Performance Indicators:

- Work-place hazards are identified and measures are taken to correct them.
- Excessive sick leave and invalid, spurious OWCP claims are eliminated.
- Employee health profiles are recorded and continually updated. Preventive medical programs are based on an analysis of this data.
- Work-place practices and environmental attributes that contribute to an unhealthy work force are eliminated.
- Occupational health services are available to all FAA employees.
- The FAA is in compliance with all regulatory agency requirements that affect health and safety in the work-place.

Actions Areas:

- Set up a standardized assessment process that every employee must go through. The assessments would provide a baseline of employee health information from which health maintenance and training programs are developed.
- Maintain and systematically review employee health history over time. Correlate changes in health with known environmental hazards and job factors.
- Define employee selection criteria for high-pressure, safety-related positions.
- Provide clinic support to FAA employees so that they have direct access to services. Provide FAA physicians with direct access to employees.
- Make programs to insure the safety of the work-place a high priority. Collect and analyze work-place information to identify hazards. Educate FAA employees on how to work in those areas.
- Integrate the Environmental Health and the Safety and Health Programs under the same authority.

Figure 5-6

Vision Statement: The Office of Aviation Medicine is a World Leader in Civil Aviation Medicine that Sets Universally Applied Standards and Works with Other Agencies to Accomplish its Mission

High Performance Indicators:

- Research efforts are coordinated with those of other areas of the government and with external agencies.
- AAM receives favorable national and international recognition.
- AAM receives requests from international groups for national aeromedical standards.
- AAM leads international groups in collaborative efforts on aviation medical issues.

Actions Areas:

- Develop a successful strategy to promote the functions that AAM performs and the results that AAM achieves.
- Structure international symposia and meetings.
- Establish and maintain the highest standards of quality in services and products.

Figure 5-7

Vision Statement: The Worth of the Individual in AAM is Recognized

High Performance Indicators:

- Work opportunities and creativity are not limited by lack of resources.
- Qualified people are hired and paid what they deserve. People are provided with the appropriate training to stay abreast in their field.
- Managers are using innovative and creative management techniques.
- Individuals have time to stay current in their field and to develop expertise in new technology.

Actions Areas:

- Classify positions nationally by categories other than medical/technical and put a good career ladder in place for all classifications.
- Develop a training program that will keep all individuals who need continuing education at state-of-the-art levels.
- Establish a reward program for working groups.
- Develop effective resource acquisition programs to enhance individual work opportunities and creativity.

5.3 Factors Affecting Vision Attainment

AAM management also defined two sets of factors that affect the Office's ability to achieve its vision. One group of factors lists positive elements within the external environment and within the Office of Aviation Medicine that enhance AAM's ability to achieve its goals. The second group of factors are issues that must be addressed in order for AAM to achieve its vision. Both sets of factors are listed below:

Factors that are helping AAM to achieve its vision:

- IRM planning underway
- Variety of skills within AAM
- Actions required by law
- Public demands for results
- Strong AAM management commitment
- Flexibility to make choices
- Teamwork
- Fear of liability
- Congress, public, FAA administration interest in drug issue
- Track record
- Peace dividend which may provide more resources
- Availability of technology
- Public recognition of health issues such as alcohol
- Individual commitment
- Total Quality Management program

Factors that are keeping AAM from achieving its vision:

- Problems not sufficiently defined
- Limited resources
- Senior FAA management awareness
- Restrictions on animal and human research
- Technology gap (availability)
- Employee/union opposition to drug testing
- Resistance to change
- Costs
- Complex certification cases are difficult to expedite
- Airmen's misconceptions about the role of aviation medicine
- Early diagnosis is difficult
- All programs must compete for the same dollars
- Technology learning curve
- The future is not predictable

The action areas outlined in Figures 5-1 through 5-7 focus on strengthening the factors that are helping AAM to achieve its vision and reducing the impact of factors that are keeping AAM from achieving its vision. For example, one of the action areas for the "all program areas are integrated" vision statement is to use working groups to develop an organization-wide decision-making

process. Working groups promote teamwork, one of the factors that is helping AAM to achieve its vision.

III. AAM Information System Architecture

6.0 AAM Information Technology Principles

One of the major outcomes of the information system strategy is a series of information system projects that support the actions that AAM is taking to achieve the Office vision. The IRM Working Group looked at AAM's current information systems architecture and the Office's organizational strategy to determine where information system technology can help AAM to achieve its vision. The IRM Working Group identified application, technology and data projects as well as other information-system-related opportunities that support AAM's efforts to achieve the vision. The project opportunities and the implementation strategy must be consistent with FAA, AXR and AAM information technology principles or with the basic beliefs by which information systems are managed and used in the organization. Information technology principles reflect the concerns of senior management and are used to help the Office select from among information technology alternatives.

6.1 FAA Information Technology Principles and Implications for AAM

(Source: FAA Information Resources Management Plan: Volume 1: Strategic Overview FY88-92 chapter 2.)

Information will be stored and accessed from a single, consolidated system as seen by the users.

Implications for AAM:

- ASAS is viewed as a single system. Consolidation is logical if not physical. AAM "applications" will evolve to become part of the ASAS and will look like standard ASAS systems.
- AAM systems should conform to ASAS software, data, and documentation standards.
- AAM "applications" should use data from other systems.
- AAM should reduce data base redundancy.
- AAM will use AXR data element standards.
- Airmen medical data, employee health data, work place safety data, substance abuse program data, etc. will become part of the AXR corporate data base.

Data will be generated and validated¹ at the level where it is collected or generated.

Implications for AAM:

- Airman medical application data will be entered by the AMEs.

¹ Validation ensures that values entered into the system are edited and accurate.

- Work place profile data will be entered by industrial hygienists.
- Employee health data will be entered by FAA physicians or AMEs.
- The technology should support on-site entry of data.

Transfer of all data will be accomplished electronically.

Implications for AAM:

- AAM needs to learn how to retrieve data from other ASAS systems.
- AAM needs to be able to send and receive files, status reports, policy updates, and other types of memorandum electronically.

6.2 AXR Information Technology Principles

Applications which result in national aggregations of data are preferred over those that support local offices only.

Implications for AAM:

- Review of requirements for "applications" must take into account all potential users.
- New "applications" should provide benefits to a wider audience than AAM.

6.3 AAM Information Technology Principles

Information technology must not replace the doctor/patient relationship.

Implications for AAM:

- Information systems that are designed for use by examining physicians must not be intimidating to patients.
- A high level of security is required to ensure the confidentiality of patient information.

Information technology must elicit commitment, not impose controls or secure compliance.

Implication for AAM:

- Information systems must support and improve individual decision making. Computer-generated decisions must always be able to be overridden by individual judgement and experience.

AAM prefers applications and technologies that support cross-functional information needs.

Implication for AAM:

- Information technology must support AAM's long-term goal of providing AAM staff with the information both from within and outside AAM that they need to make high quality operational and strategic decisions.

The remainder of Part III presents the Office's current applications, technology, data, and organization followed by the project opportunities identified for each area. The analysis process that was used to identify project opportunities is then discussed. The process demonstrates how the project opportunities support AAM's business strategy.

7.0 Current Information Technology Status

This section summarizes AAM's current applications, technology, data, and I/S organization. Understanding AAM's current information technology status was a critical part of the information system strategy process. Information system project recommendations took both the current state and future direction into consideration.

7.1 Current Applications

A summary of the applications currently in use throughout AAM is presented in Appendix B. The functions the application performs, who uses the application, and the source of the application's information are presented.

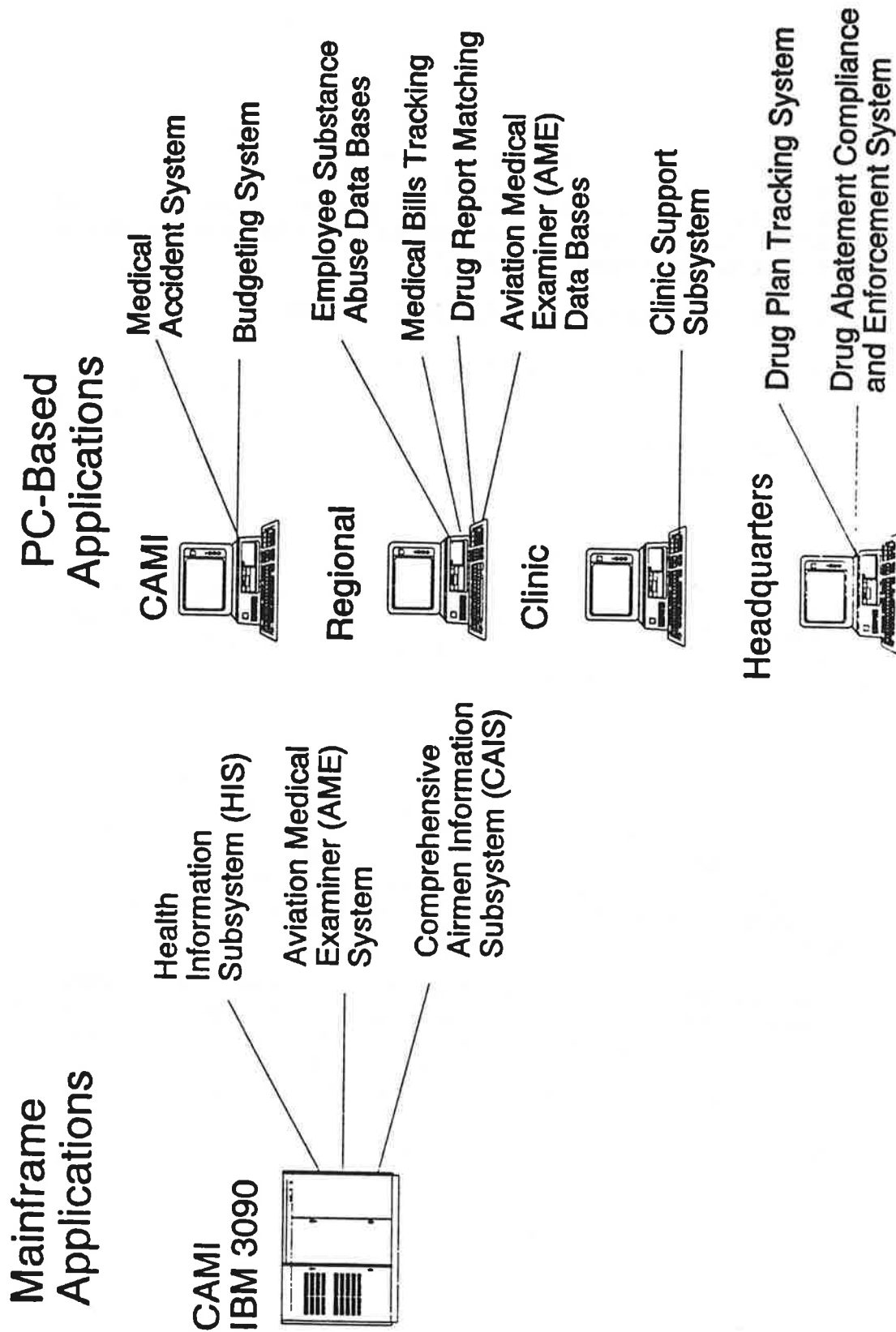
7.2 Current Technology

AAM's operational applications currently reside on multiple platforms. The Health Information Subsystem (HIS) and the Comprehensive Airman Information Subsystem (CAIS) reside on the IBM 3090 located in Oklahoma City. Data is entered into the HIS through IBM PCs located in the Regional Medical Divisions. The Clinic Support Subsystem which also contains airmen health data is a standalone PC based application.

The Medical Bills Tracking System, the Employee Substance Abuse Data Bases, and the Drug Report Matching System are standalone, PC-based applications used by individual Regional Medical Divisions. The Budgeting System used at CAMI and the Medical Accident System, also at CAMI, are standalone, PC-based systems.

The AME system used by the Education Division is located on the IBM 3090 in Oklahoma City. AME data is also maintained on standalone PCs in the Regional Medical Divisions. Figure 7-1 graphically displays the platforms on which the applications reside.

**Figure 7-1
Current Technology**



The current architecture therefore results in multiple sources of the same data, difficulty in data integration, and a lack of consistency in how information is collected, processed and communicated.

AAM's telecommunication architecture includes limited networking capabilities and a variety of electronic mail systems. The lack of a standard electronic mail system and an Office-wide network increases the difficulty of intra-office communication.

7.3 Current Data

Group workshops and individual interviews with AAM management yielded a preliminary inventory of the type of information that AAM needs to both operate effectively now and to support the Office's vision. These information needs are summarized below. The complete inventory of information needs is in Appendix C.

AAM Information Categories

- AMEs
- AAM policy and decisions
- Medical reference - non-AAM (drugs, practices)
- Airman medical
- Air Traffic Controller medical
- Nonregulated FAA employee medical
- Substance abuse testing program
- AAM resources (\$, teams, facilities)
- AAM personnel
- FAA policy
- Accident data
- Information technology inventory
(technology, data, applications, organization)
- FAA facilities
- AAM programs and training
- AAM research projects
- AAM research findings
- AAM workload indicators

As the list of AAM information categories indicates, AAM has begun to define the data that the Office needs to realize its vision. The data that AAM currently collects, however, is not always easily accessible or shared between organizational areas. The available data is not always perceived as comprehensive, relevant, reliable or accurate. Multiple sources of the same data makes data integrity an issue as well.

7.4 Current I/S Organization

AAM-100 is the focal point for integrated AAM information technology activities. AAM Senior Management provides business

strategy guidance to AAM-100. Senior Management identifies the criticality of current and potential applications and ensures that information system development efforts are aligned with AAM's business direction and priorities. At the present time, AAM divisions also initiate, design and develop standalone information systems for use within the Division.

AAM has recently designated an IRM Working Group (IRM-WG) with representatives from all AAM divisions and APR-300 to determine office information needs and to communicate those needs to AAM Division Managers and the Regional Flight Surgeons. Currently VNTSC and its contractor, SRC have been assisting the IRM-WG in the development of an I/S strategy.

8.0 Planned Information System Project Opportunities

One of the outcomes of the AAM Information System Strategy is a series of project opportunities that both address AAM's current priorities and support AAM management's efforts to achieve the Office vision. The project opportunities, discussed below, will provide AAM with improved applications, technology, and data. The impact of the information system strategy on AAM's I/S organization is also discussed.

8.1 Application Opportunities

AAM application opportunities are briefly described below. Project summaries, modeled after the AXR Encyclopedia project summaries, provide a complete description of the background, functions, and benefits provided by the application, technology and data opportunities described in this and subsequent sections. Project summaries are in Appendix D.

8.1.1 Aeromedical Certification Process Analysis (ACPA)

The ACPA will look for ways to improve the certification process and provide individuals who review certification cases with an improved ability to make consistent, correct aeromedical certification decisions. The ACPA project will provide authorized individuals with access to the decisions that have been made in other cases and the circumstances surrounding the decisions. Certification reviewers will also benefit from advice or "expert" judgements on unfamiliar cases and from predictions on the impact of their decisions.

8.1.2 Covered Position Decision Support Subsystem (CPDSS)

The CPDSS will enable AAM to make consistent, informed decisions with respect to individuals applying for or currently in safety-related positions. Regional Flight Surgeons (RFS) and FAA physicians determine whether individuals applying for, or currently in, FAA safety-related positions are medically qualified

to safely function in those positions. The Covered Position Decision Support Subsystem supports decision making with respect to these individuals by providing access to Air Traffic Control Specialist (ATCS) and other individuals' medical data and to qualification decisions that have been made under similar circumstances.

8.1.3 Resource Management Subsystem (RMS)

The RMS will enable the Office of Aviation Medicine (AAM) management to more accurately estimate resource requirements, to support the estimates, and to be able to monitor the actual usage of resources against the estimates. The RMS will enable individuals to prepare budgets for the fiscal and calendar years and to project the impact of alternative budgets on operations.

8.1.4 Occupational Health Subsystem (OHS)

The OHS will enable AAM to ensure that FAA employees work in safe and healthy environments. The OHS will support AAM's effort to identify and eliminate work place hazards and to comply more fully with Occupational Health and Safety Administration (OSHA) and Environmental Protection Agency (EPA) regulations. The subsystem will also enable AAM to identify recurring employee health problems, thereby enabling AAM to develop appropriate health improvement activities.

8.1.5 Aviation Drug Abatement Program Support (ADAPS)

The ADAPS will support AAM's responsibility to ensure that the covered aviation industry entities comply with the aviation industry drug testing program. The ADAPS will collect, store, analyze and report on the results of the substance abuse testing program as well as enable AAM to identify entities which did not comply with the regulations.

8.1.6 Research Project Tracking Subsystem (RPTS)

The RPTS will enable AAM to more effectively manage and report on the research project process. The RPTS will improve AAM's ability to prepare research proposals, project schedules, and project status and cost reports.

8.1.7 Policy and Directives Subsystem (PDS)

The PDS will facilitate consistent high quality decision making by providing online access to all current FAA and AAM policy and regulatory material. The PDS will enable AAM decision makers to easily locate relevant medical rules and guidelines and ensure that all Office employees are referencing current and correct regulations. This project will be implemented as part of the System, Safety, and Efficiency Review (SSER) initiative.

8.1.8 AME Management Subsystem (AMES)

The AMES will improve AAM's ability to manage the Aviation Medical Examiner (AME) program by ensuring that all parties involved in the program have access to current and complete AME information. The AMES will enable AAM to more effectively measure AME performance, evaluate the impact of AME training, and facilitate AME selection.

8.1.9 Program Evaluation Subsystem (PES)

The PES will enable AAM to improve its delivery of aviation medical services by evaluating the effectiveness of program activities. In conjunction with the Resource Management Subsystem, the PES will look at the cost and impact of program activities and provide a method of communicating ways that have been found to improve program effectiveness.

8.1.10 Marketing Support Subsystem (MSS)

The MSS will enable AAM to more effectively promote aviation medical services and programs by recording current promotional activities and looking at their impact; tracking and reviewing the response to current speaking and consultation engagements; and by maintaining an inventory of promotional literature that is available for distribution. The MSS will also record requests for information and customer feedback to determine how to better meet the needs of the aviation community.

8.1.11 Decision Support Subsystem (DSS)

The DSS will support strategic planning and decision making by providing summary-level operational information, trend analysis, and program-effectiveness measures. The DSS will also improve AAM management's ability to manage pro-actively by pointing out areas of potential problems or conflicts.

8.1.12 Employee Substance Abuse Program Subsystem (ESAPS)

The ESAPS will improve AAM's ability to track the rehabilitation progress of employees with substance-abuse problems and to develop prevention programs by recording the available rehabilitation programs, the success rates of employees in individual programs, and the rehabilitation progress of individual employees.

8.2 Summary of Technology Opportunities

The FAA has initiated four procurement vehicles which provide the FAA with a standard set of computers and related services. The OATS contract will provide PCs and PC software, CORN will provide mainframe computer services, while FTS2000 and ADTN will be used for telecommunications. AAM's technology architecture will be

based on FAA-standard computers, thus ensuring compatibility between AAM applications and AXR and other FAA development efforts.

The technology-oriented project opportunities discussed below describe an approach for learning about state-of-the-art technology and its potential applications, and an approach for meeting AAM's telecommunication needs.

8.2.1 Technology Survey

The Technology Survey will enable AAM to apply relevant new computer and I/S-related technologies to aviation medical activities by using existing APR expertise to bring state-of-the-art activities and their potential applications to AAM's attention.

8.2.2 AAM Communication Project

The AAM Communication project will enable AAM to link all its employees in a single network and to provide them with a single, AAM-endorsed electronic mail system. This project will determine AAM's telecommunication requirements and communicate the information to APR to ensure that an appropriate combination of telecommunications equipment is selected.

8.3 Data Architecture

The IRM Working Group recognized that AAM needs an office-wide data architecture that supports the cross-functional application opportunities described in Section 8.1. The AAM Data Architecture project discussed below meets the need for an integrated base of office-wide data.

AAM Data Architecture

The AAM Data Architecture provides AAM with control over and access to its data. The project creates a single source that describes the data items that exist within the Office, where they currently reside, and the logical relationship between elements. It enables AAM to identify data elements that currently exist in multiple locations and to create a single source that assures data integrity and reliability.

The AAM Data Architecture provides an Office-wide view of the data used by the Office of Aviation Medicine. It brings together the different views of the data and provides a foundation from which data bases can be designed for future applications.

8.4 Organization

The ways in which the AAM I/S strategy will impact how AAM

develops information systems are outlined below:

- With the exception of research data bases designed to support specific research projects, all application development activities will be based on the projects outlined in the AAM I/S strategy.
- The I/S strategy will be monitored, coordinated, and implemented on an ongoing basis. The I/S strategy will be updated on an annual basis to reflect new developments or changes to AAM priorities. Modifications to the I/S strategy must be approved by AAM management.
- It is expected that AAM will use additional contractors in the system development activities outlined in the I/S strategy. While the contracting mechanism has not been worked out, APR-300 will be the FAA source for contracting, either through VNTSC or another source. Once contracting is completed, VNTSC and/or contractors will work collaboratively with AAM and APR-300.

8.5 Other Opportunities

In addition to the application, technology, and data project opportunities, several other opportunities arose that will further AAM's ability to achieve its vision. These opportunities are presented below.

8.5.1 Training Management Project

The Training Management project will enable AAM to improve its in-house expertise by determining training requirements within the Office of Aviation Medicine and then looking for cost-effective methods for providing the training.

8.5.2 ASAS Awareness and Access Project

The ASAS Awareness and Access project will enable the Office of Aviation Medicine to take advantage of aviation safety data stored in ASAS subsystems. This project will review the aviation safety data stored in ASAS subsystems, determine the data to which AAM requires access, and provide AAM employees with access to the information.

8.5.3 Other Data Base Awareness and Access Project

The Other Data Base Awareness and Access project will enable AAM to take advantage of information that is stored in non-AXR data bases. This project will determine the data sources to which AAM divisions require access and look for cost-effective ways of providing AAM with the information.

9.0 Project Opportunity Analysis

9.1 Information System Strategy Development Process

Part of the process of developing the information system strategy was to ensure that the project opportunities supported AAM's strategic plans. Hence the IRM Working Group analyzed the relationship between the strategic planning components: vision statements, high performance indicators, and action areas. The analysis mapped the actions directly to the high performance indicators. The high performance indicators that were not supported by the current actions or strategy were therefore emphasized so that AAM would be able to define the supporting actions.

Program and functional planning elements were then taken into consideration. While this process concentrated on IRM planning, other examples of AAM functions are provided to emphasize that IRM is only one component of the Office planning effort. The actions were analyzed with respect to the information categories previously defined. The actions that could not be supported by information were then highlighted. While business change is a component of all action areas, the actions that were not supported by information can only be accomplished through business change. The project opportunities were then mapped to the information that they provide or the actions they support. In this way the link between the project opportunities and the Office vision is clearly defined. The framework for this analysis is presented in Figure 9-1 and the results of the analysis are in Figures 9-2 through 9-8.

9.2 Vision/Project Opportunity Matrix

The analysis process described above ensured that the project opportunities supported AAM's organizational strategy. The analysis does not, however, show the level of support for each vision statement. Thus, the matrix in Figure 9-9 was developed to show the criticality of each project for achieving the vision. The project opportunities that are critical to achieving a vision statement have a black circle in the appropriate cell. The project opportunities that are helpful to achieving a vision statement have an open circle in the appropriate cell.

Figure 9-1
Planning Process

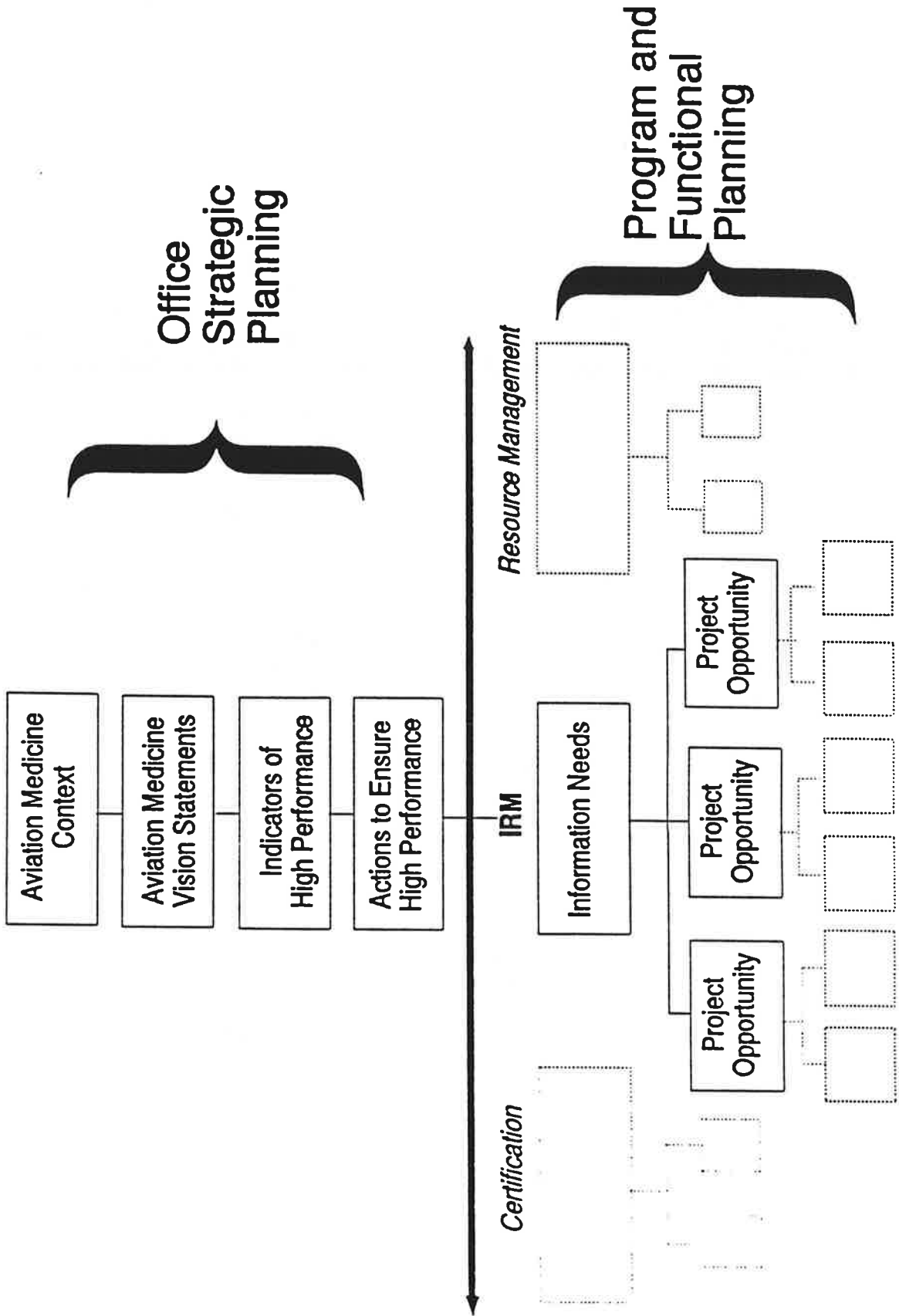


Figure 9-2
I/S STRATEGY ANALYSIS FRAMEWORK

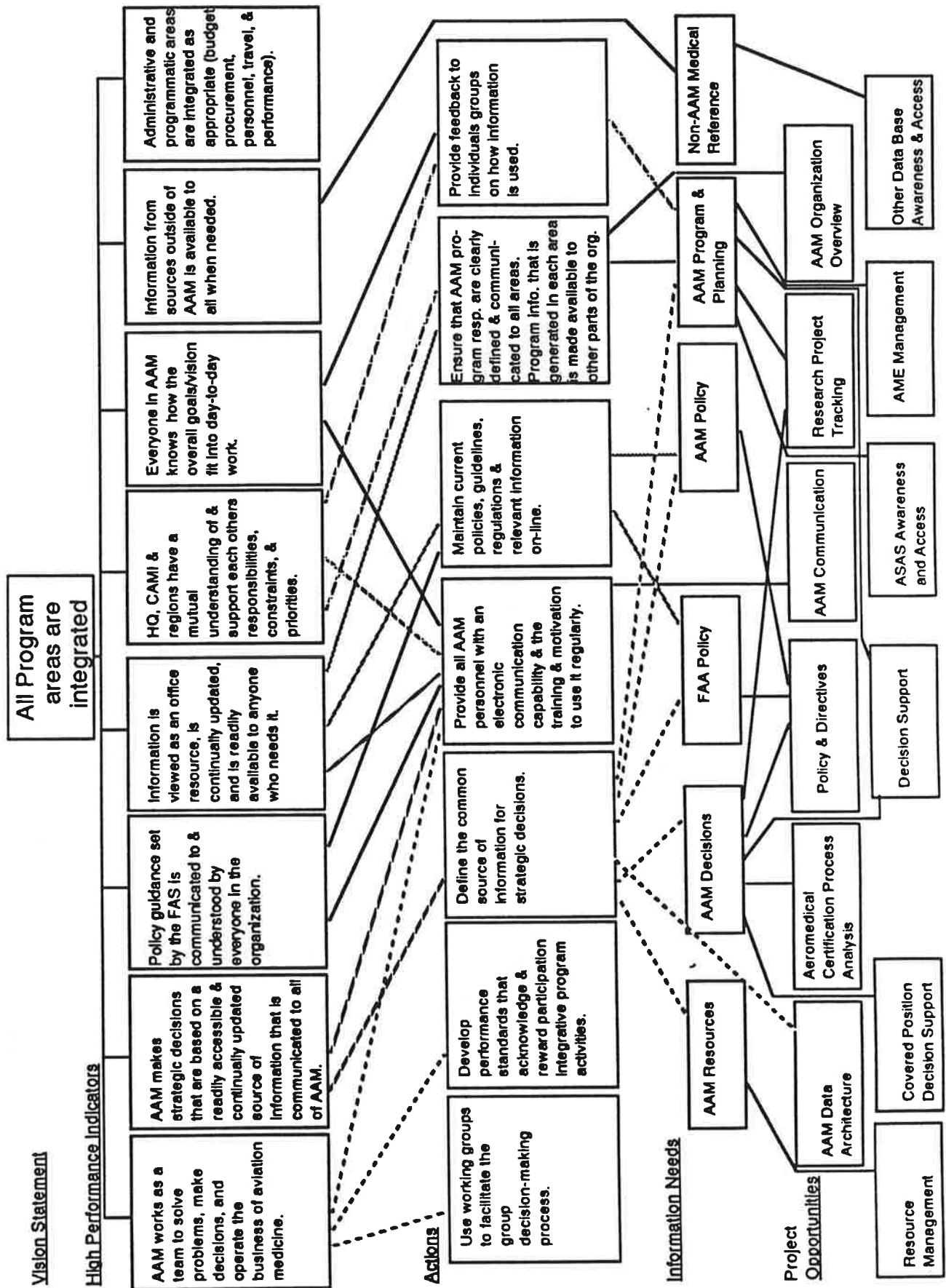


Figure 9-3
I/S STRATEGY ANALYSIS FRAMEWORK

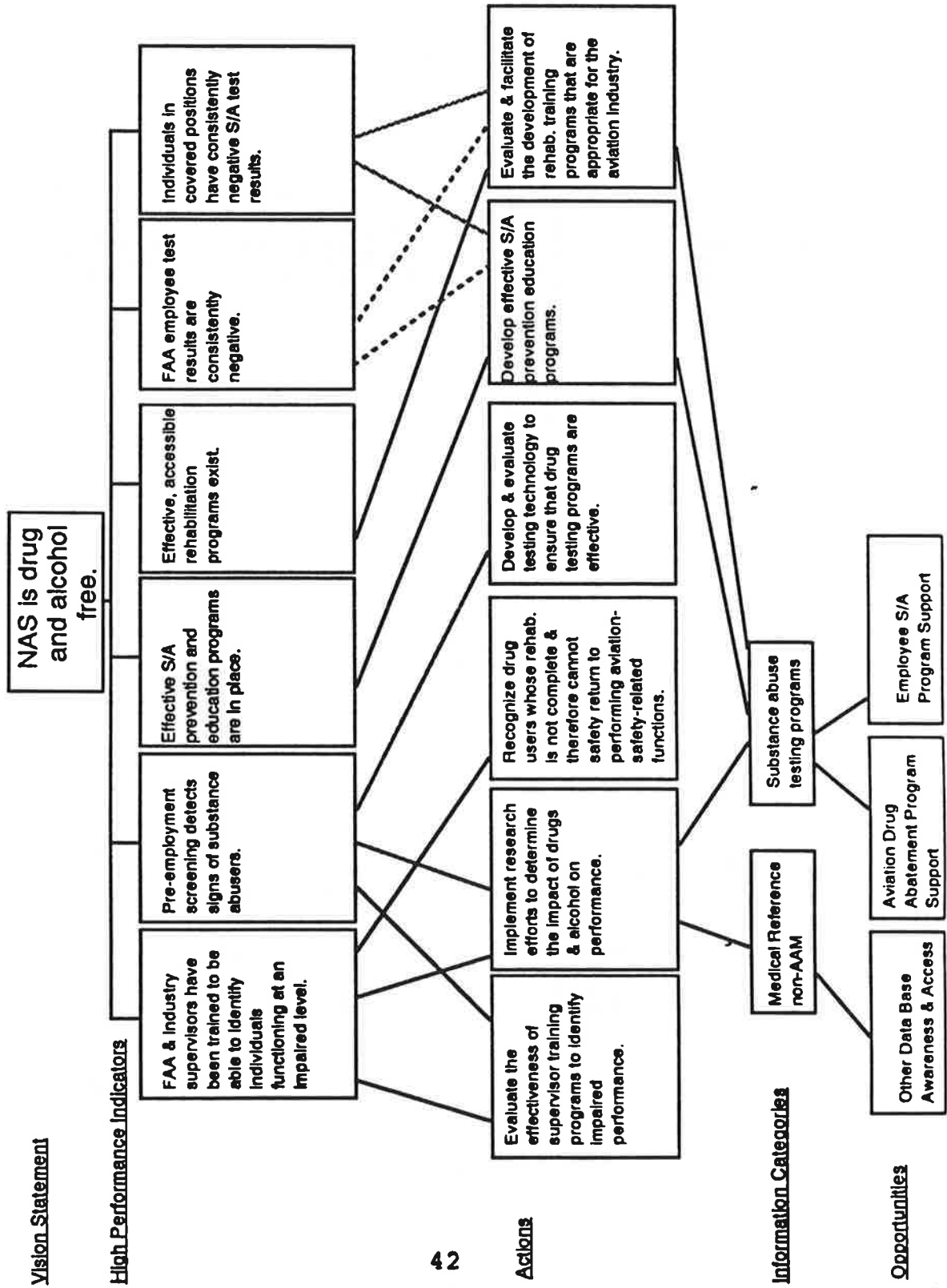


Figure 9-4
I/S STRATEGY ANALYSIS FRAMEWORK

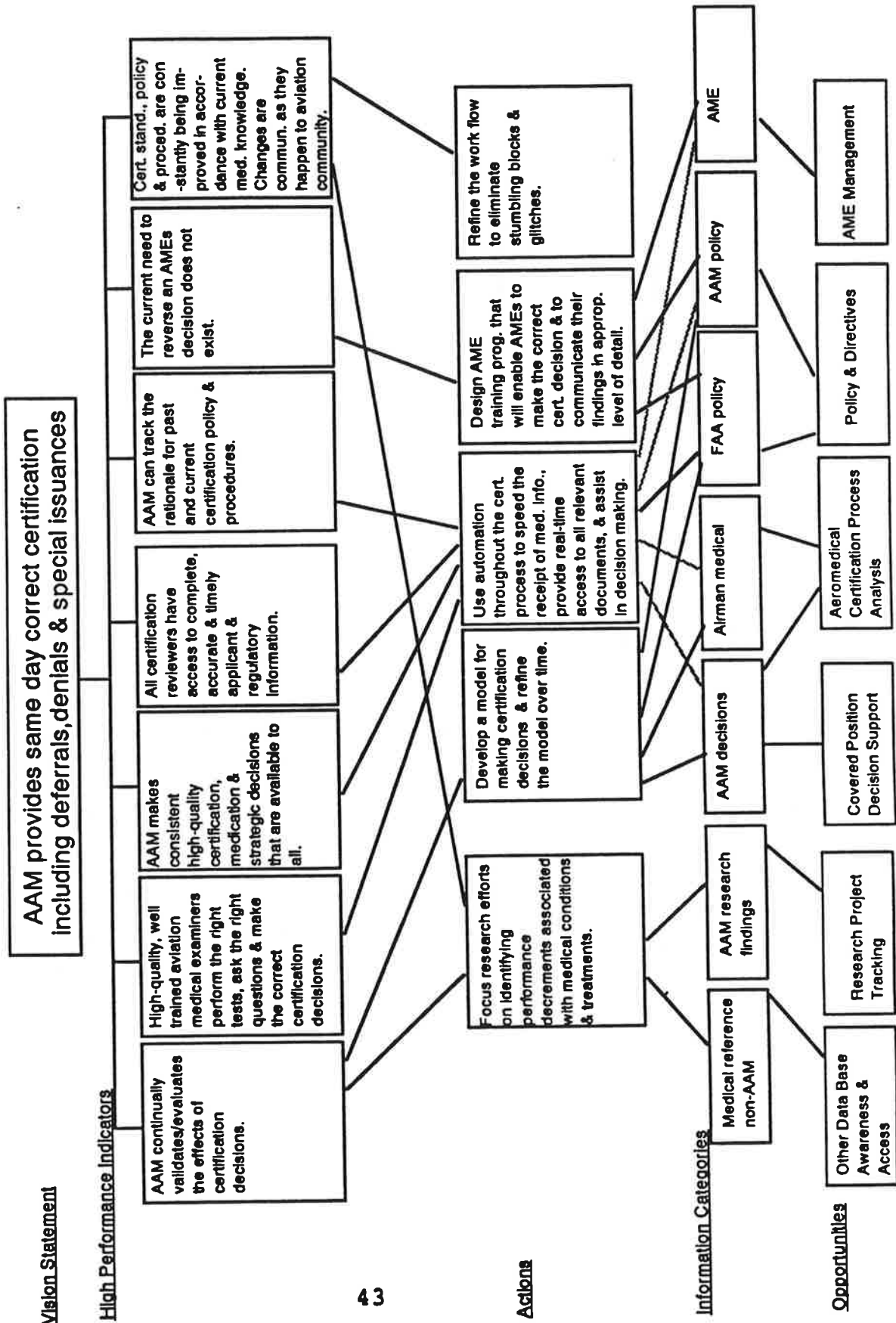


Figure 9-5
I/S STRATEGY ANALYSIS FRAMEWORK

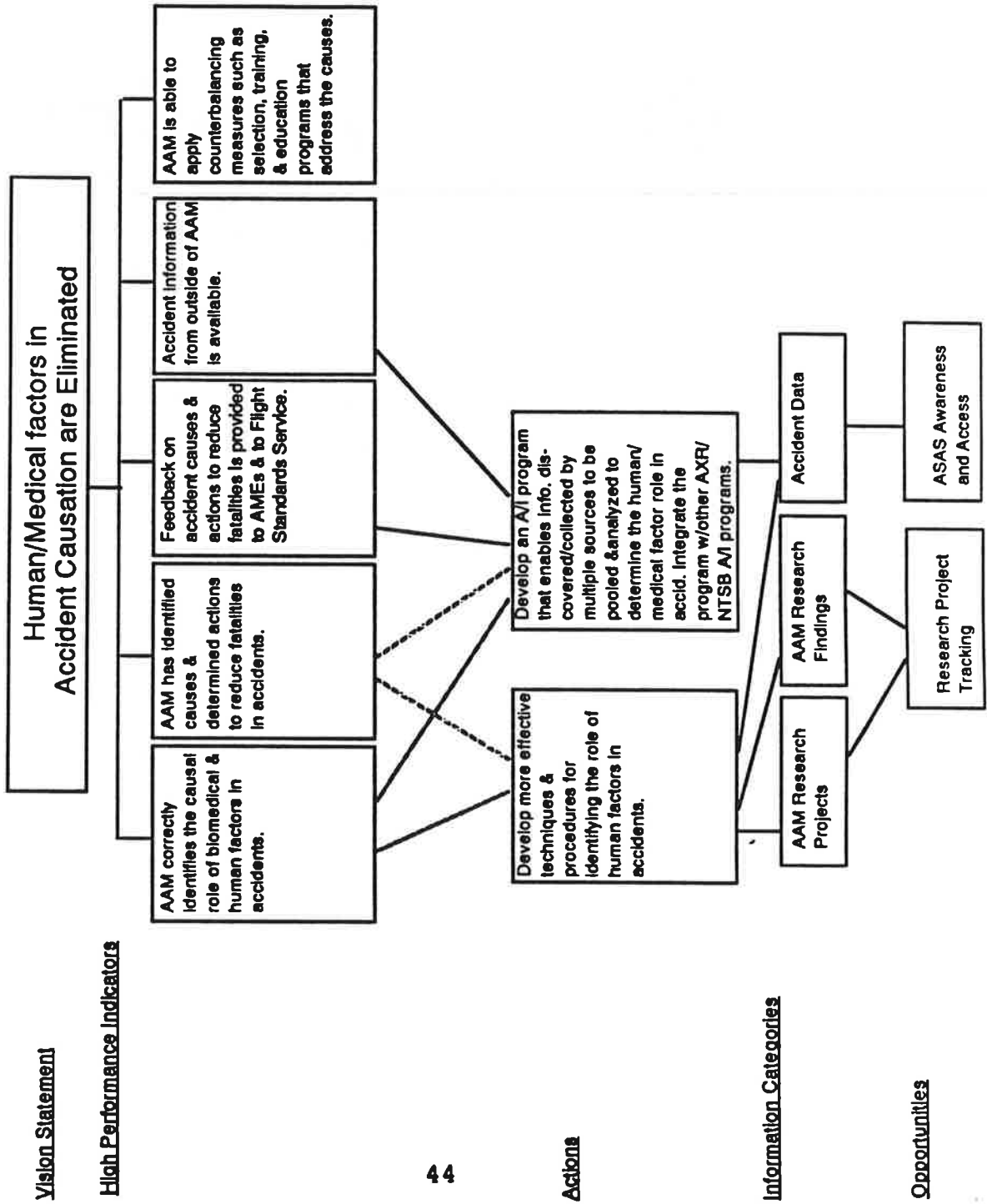
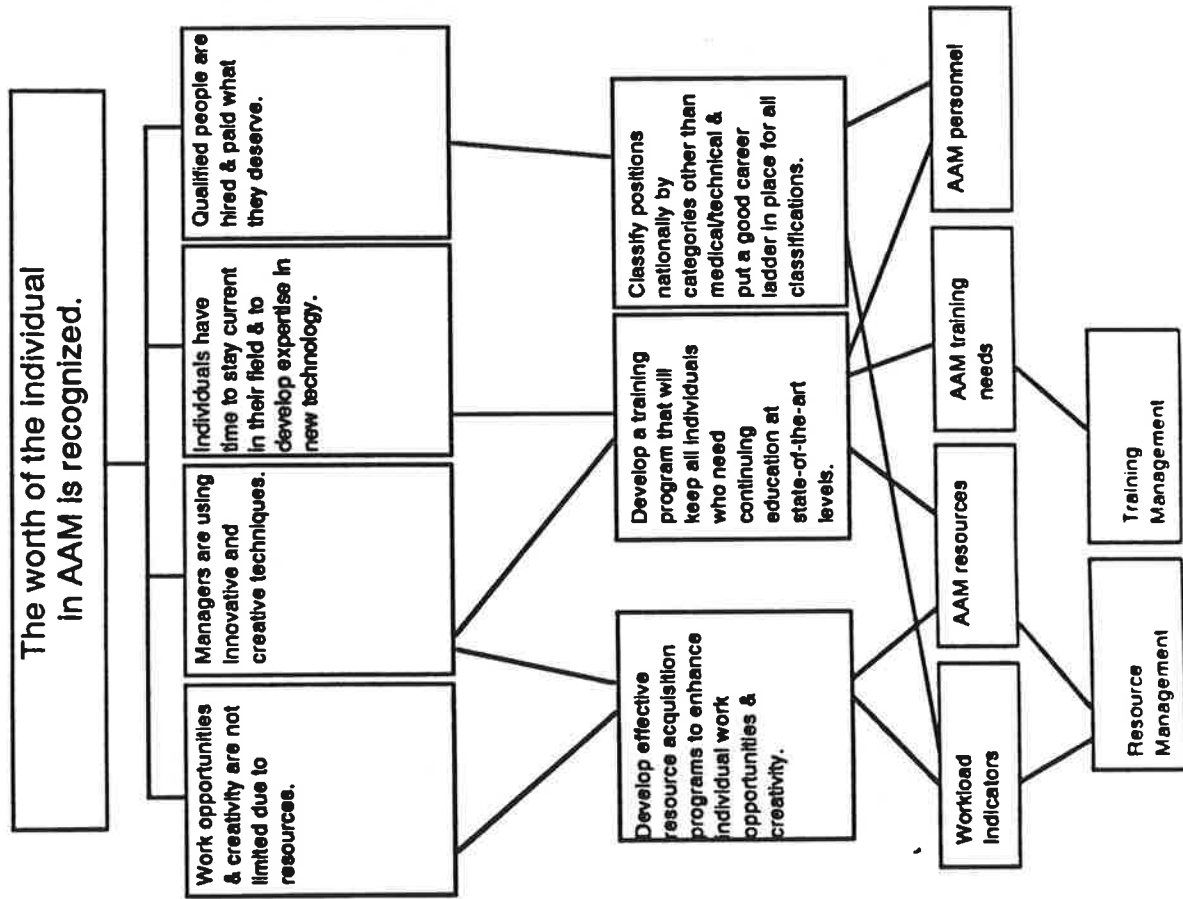


Figure 9-6
I/S STRATEGY ANALYSIS FRAMEWORK



Vision Statement

High Performance Indicators

45

Actions

Information Categories

Opportunities

Figure 9-7
I/S STRATEGY ANALYSIS FRAMEWORK

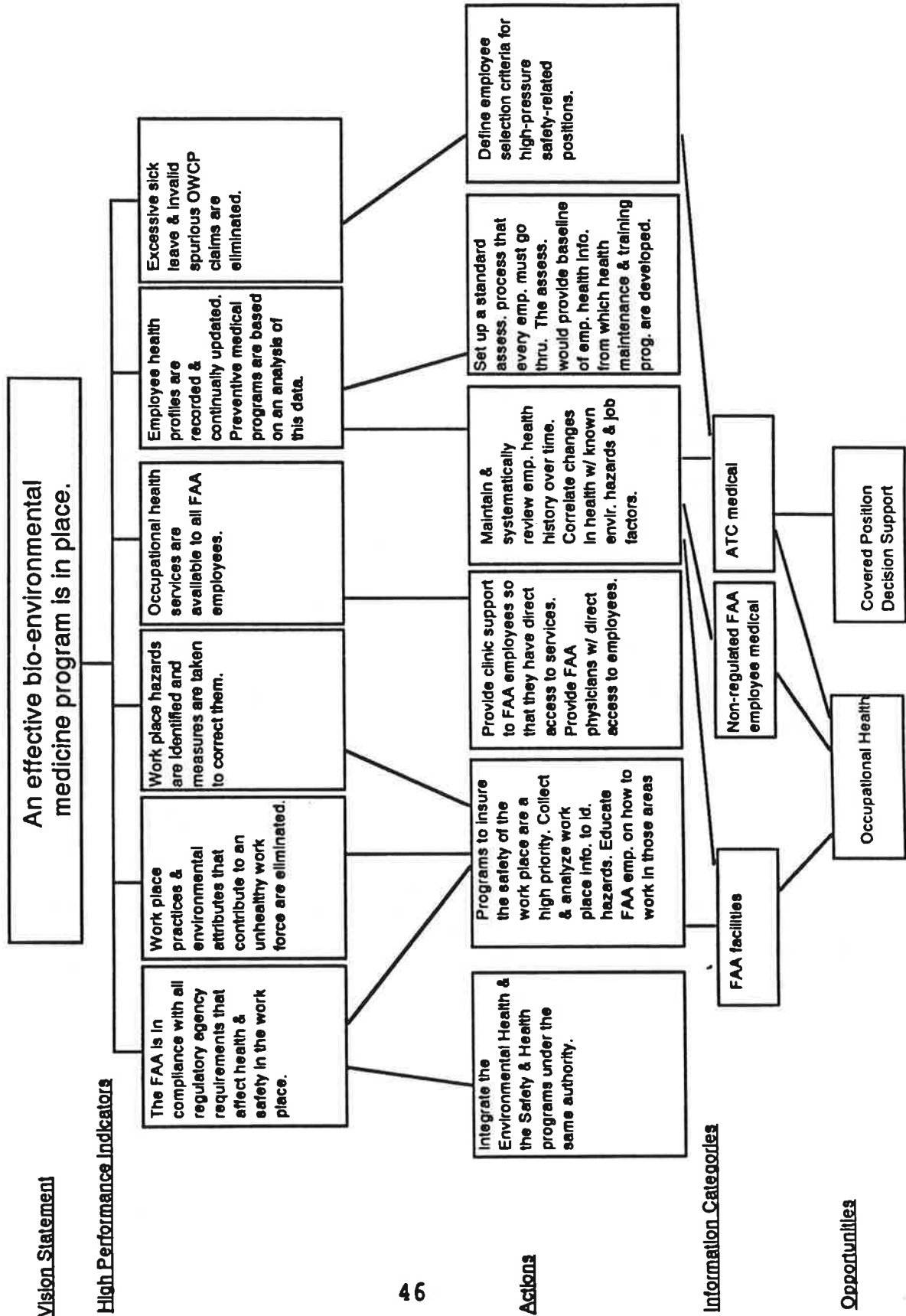


Figure 9-8
I/S STRATEGY ANALYSIS FRAMEWORK

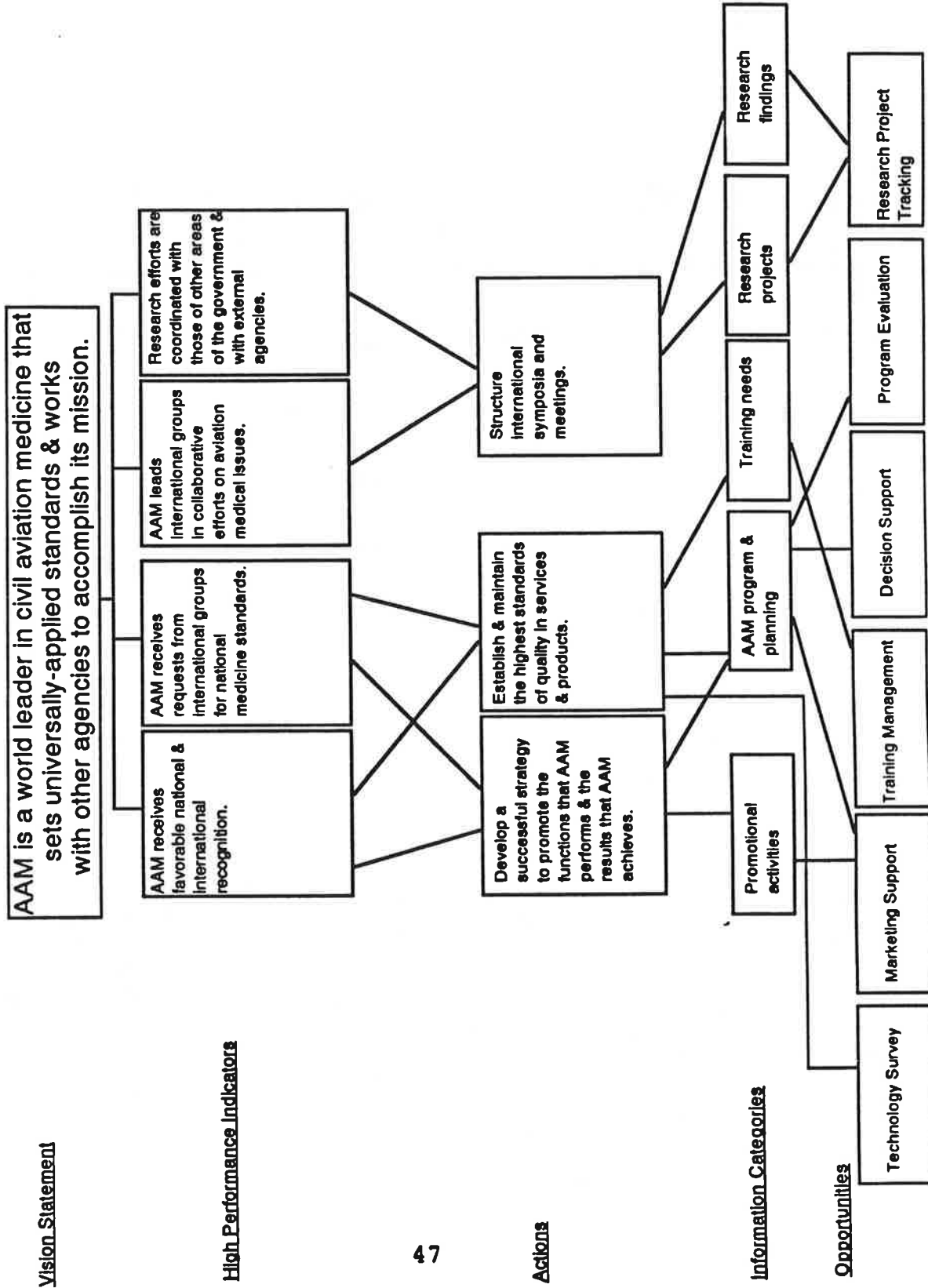


Figure 9-9
Project Criticality to Vision

Project Opportunity	Program Integration	NAS is Drug-free	Same-day Certification	Accident Prevention	Environ-mental Medicine	World-wide Presence	Individual Worth
Aeromedical Certification Process Analysis	●		●	○		○	
Covered Position Decision Support	●		●	○			
Resource Management	●						
Occupational Health					●		●
Aviation Drug Abatement Program Support		●					
AAM Communication	●	○	○	○	○	○	○
Research Project Tracking	○	○	○	●	○	●	○
Policy and Directives	●		●	○		○	
AME Management			●	○		○	
AAM Data Architecture	●	●	●	●	●	●	
Program Evaluation	●						
Training Management	○	○	○	○	○		●
Technology Survey	○	○	○	○	○	○	○
ASAS Awareness and Access	○	○	○	○	○	○	○
Other Data Base Awareness and Access	○			○			
Employee Substance Abuse Program Support		○					
Marketing Support	○					○	
Decision Support	○	○	○	○	○	○	○

IV. Information System Strategy

10.0 Developing the Information System Strategy

This section presents the approach the IRM Working Group took to developing the information technology vision and the action plan to implement the project opportunities.

10.1 Management Evaluation of Project Opportunities

The IRM Working Group presented the project opportunities to the Regional Flight Surgeons and the Division Managers to ensure that the opportunities met their needs. Management provided input into the content of the opportunity descriptions, recommended additional opportunities and evaluated the opportunities relative to their criticality for achieving the vision. The project opportunities that were determined to be critical or helpful by both groups of managers are presented in Figures 10-1 through 10-3. The highest priority projects (Figure 10-1) were voted as critical for achieving the vision by both the Regional Flight Surgeons and the Policy Committee. The projects that were determined to be critical by one of the two groups are in Figure 10-2 and the projects that both groups perceived as helpful towards achieving the vision are in Figure 10-3.

The evaluation results emphasized the functions that require immediate support. The IRM Working Group analyzed the evaluation results along with the information technology principles, Office values, vision, high performance indicators, and action areas to determine what the final information technology architecture should look like. The results of this analysis was an action plan or a series of steps for implementing the project opportunities.

10.2 Developing the Information Technology Vision

The Office of Aviation Medicine management developed several vision statements that describe the Office's long-term goals. In turn, AAM's IRM Working Group has established its vision of the IT environment required to support the Office vision.

The results of AAM management's evaluation of the project opportunities enabled the IRM Working Group to determine the Office functions that management considers the most critical: the certification process, budgeting activities, research project management, employee and work place health, support for the industry drug program, and consistent medical decision-making. AAM's information system architecture must support future responsibilities or organizational structures as well as the current organization. It was thus critical that the IRM Working Group look at these functions independently from the program currently responsible for them. From this perspective, the project opportunities fell naturally into four application areas: certification, resource management, employee health, and industry

**Figure 10-1
Project Opportunities: Critical To Both Groups ***

<p>Aeromedical Certification Process Analysis Analyzes all factors affecting the certification process. Provides improved ability to make consistent, correct certification decisions in a timely manner.</p>
<p>Covered Position Decision Support Enables consistent medical qualification decisions with respect to employees in or applying for covered positions. Project will evaluate the Health Information System (HIS).</p>
<p>Resource Management Improves ability to estimate resource requirements, prepare budgets, and monitor actual resources. Projects the impact of alternative budgets on operations.</p>
<p>Occupational Health Enables AAM to provide FAA employees with a safe and healthy work environment and to protect and improve the health of the individual.</p>
<p>Aviation Drug Abatement Program Support Supports AAM's responsibility to ensure that aviation industry employers are testing employees in accordance with the regulations.</p>
<p>AAM Communication Establishes a standard, Office-wide, electronic medium for intra-office communication.</p>
<p>Research Project Tracking Improves AAM's ability to manage and report on the research project process. Provides research-activity information required to estimate and justify resources.</p>

* Regional Flight Surgeons and Policy Committee

**Figure 10-2
Project Opportunities: Critical To One Group**

<p>Policy and Directives</p> <p>Provides, as part of the system, safety and efficiency review (SSER) initiative, access to the background of regulatory information required to support medical decisions.</p>
<p>AME Management</p> <p>Provides information to enable AAM to support management decisions, locate AMEs appropriately, determine training needs and evaluate AME performance.</p>
<p>AAM Data Architecture</p> <p>Data structure and standards that will enable the future development of applications to support an integrated AAM.</p>
<p>Program Evaluation</p> <p>Enables AAM to more effectively measure program activity, prepare, distribute and follow up on recommendations.</p>
<p>Training Management</p> <p>Looks at internal training needs, determines common training needs and looks at state-of-the-art methods for delivering the training.</p>

**Figure 10-3
Project Opportunities: Helpful To Vision**

<p>Technology Survey</p> <p>Presents an overview of new technology that has recently been released or is about to become available from which AAM may benefit.</p>
<p>ASAS Awareness and Access</p> <p>Compares the information contained in each subsystem to AAM's information system requirements and provides access to the relevant subsystems.</p>
<p>Other Data Base Awareness and Access</p> <p>Provides AAM with access to non-AXR data.</p>
<p>Employee Substance Abuse Program Support</p> <p>Tracks and reports on the progress of employees in treatment programs.</p>
<p>Marketing Support</p> <p>Improves AAM's ability to continue providing the right services and to encourage use of those services.</p>
<p>Decision Support</p> <p>Provides Regional Flight Surgeons and Division Managers with summary information, exception reporting, and data analysis in a format suitable for planning and management activities.</p>

drug program support. The application areas are represented by the large circles in Figure 10-4. The opportunities that belong in each area are represented by the smaller circles within the application area.

The information technology vision focuses on the need for program integration across the Office of Aviation Medicine. Divisions and programs need to share information in order to get their jobs done. It is thus critical for the information technology architecture to support the need to access information throughout the Office of Aviation Medicine, AXR, and outside of the FAA. A program integration function was thus added to the picture. This new function is represented in Figure 10-5 by the middle circle that pulls together the four separate application areas. The program integration function looks to the future when application areas may need to be added to the information technology picture. The highlighted circles in Figure 10-5 represent the critical program integration applications.

The basic structure of AAM's information technology architecture has now been defined. The remaining steps round out the picture by including the high-priority initiatives in which AAM is now participating and, last, the supporting applications that provide a full complement of information system support. Figure 10-6 highlights the critical current initiatives while Figure 10-7 highlights the supporting applications.

The final picture, Figure 10-8, pulls the applications together to provide AAM with a high level of integrated support for AAM functions. This architecture is the information technology vision.

11.0 Action Plan

The action plan describes an approach for developing the project opportunities, the responsibilities of the organizations and individuals involved in the strategy implementation, and the resource requirements to implement the plan.

11.1 Strategy Steps

The information system strategy recommends implementing the project opportunities over a five-year period. The information system strategy implementation takes into consideration the need for short-term as well as long-term projects, the degree of visibility of Office programs, and the need for information integration. The four steps displayed in Figure 11-1 indicate the contents of each step and the approximate length of time needed to complete the step. The first step focuses on project opportunities and current efforts in the certification and industry drug program areas. These high visibility areas must have immediate information system support in order to accomplish

Figure 10-4
AAM Information Technology Vision
Support for Critical Application Areas

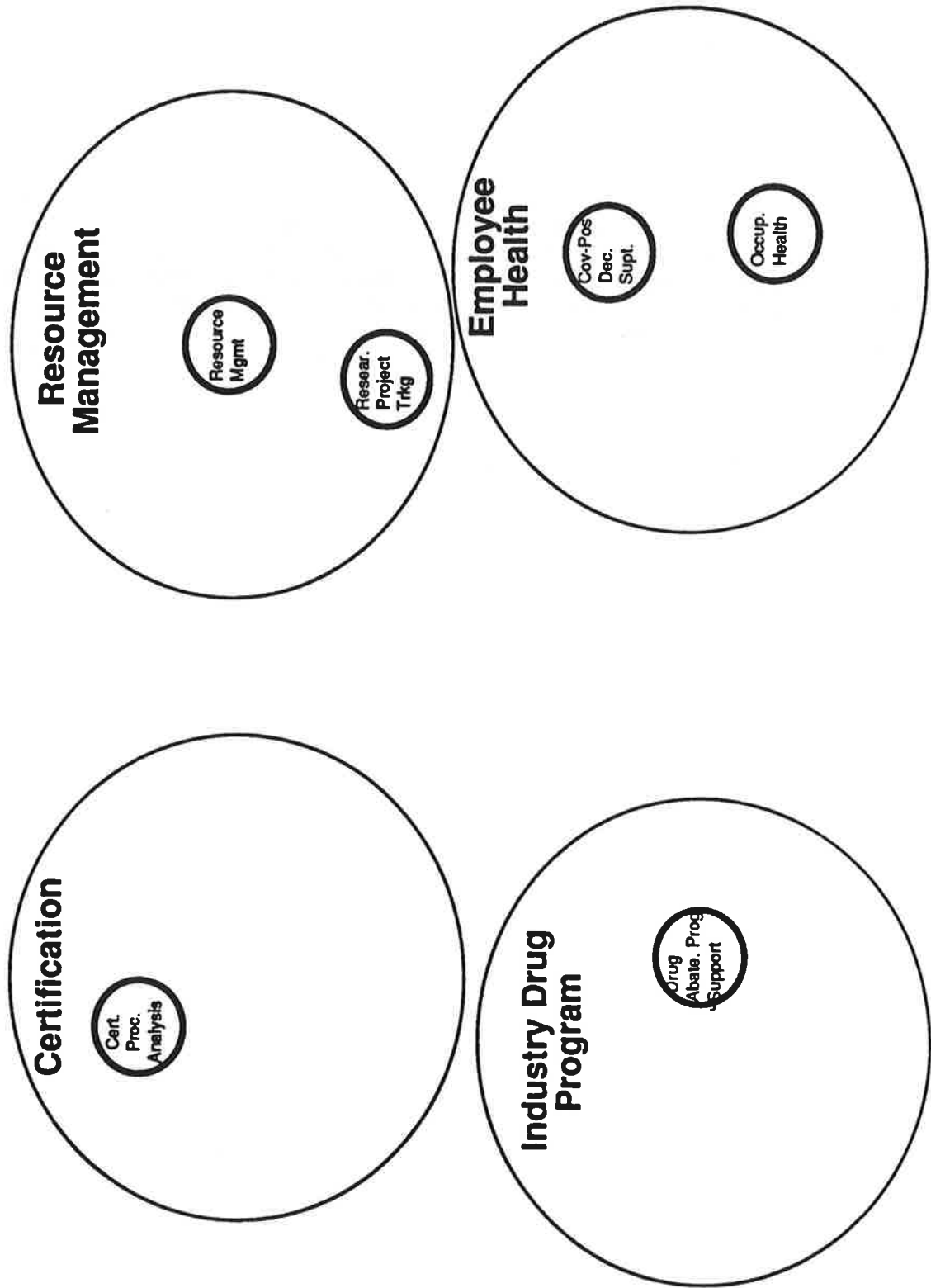


Figure 10-5
 AAM Information Technology Vision
 Program Integration

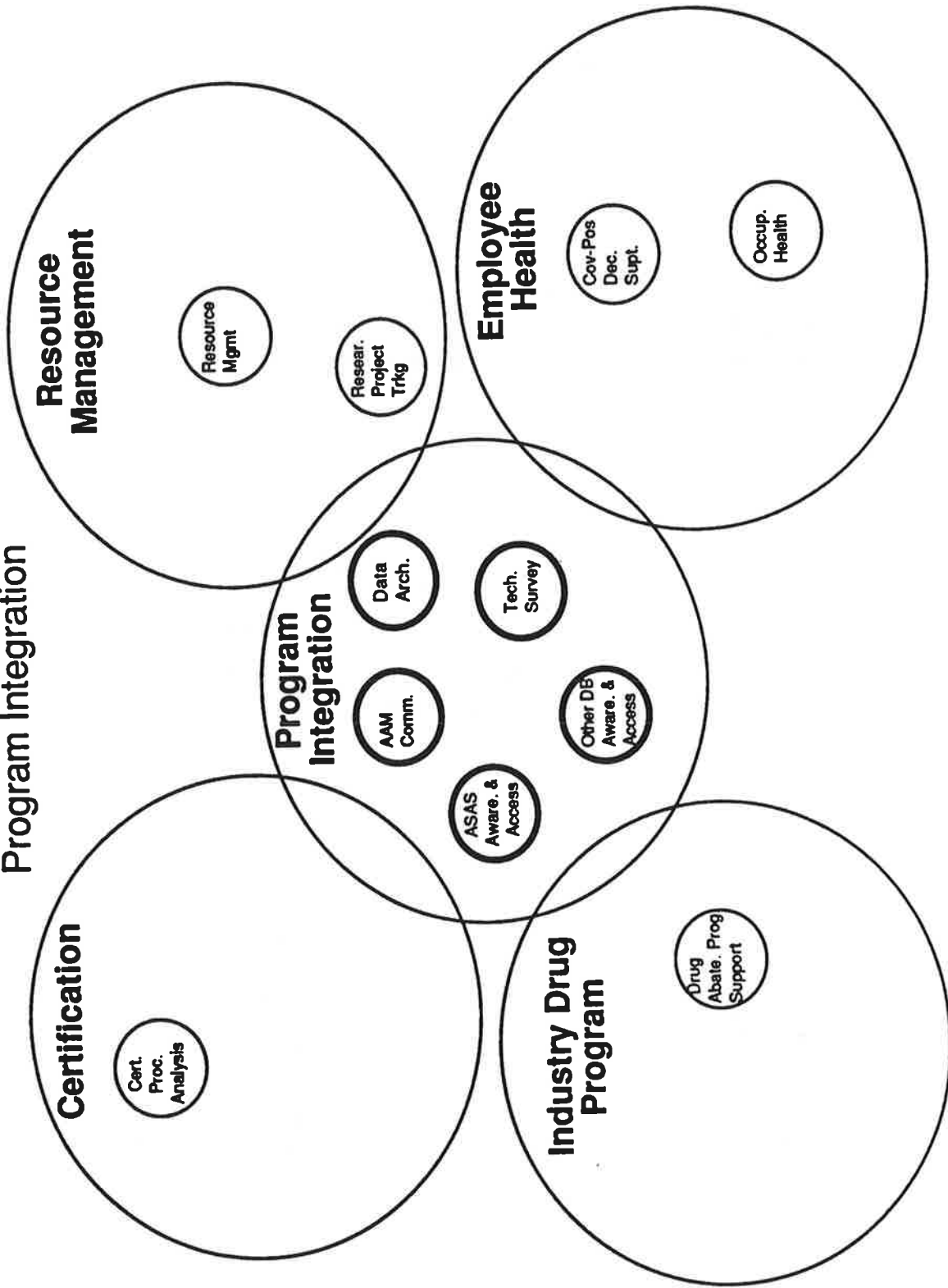


Figure 10-6
 AAM Information Technology Vision
 Critical Current Initiatives

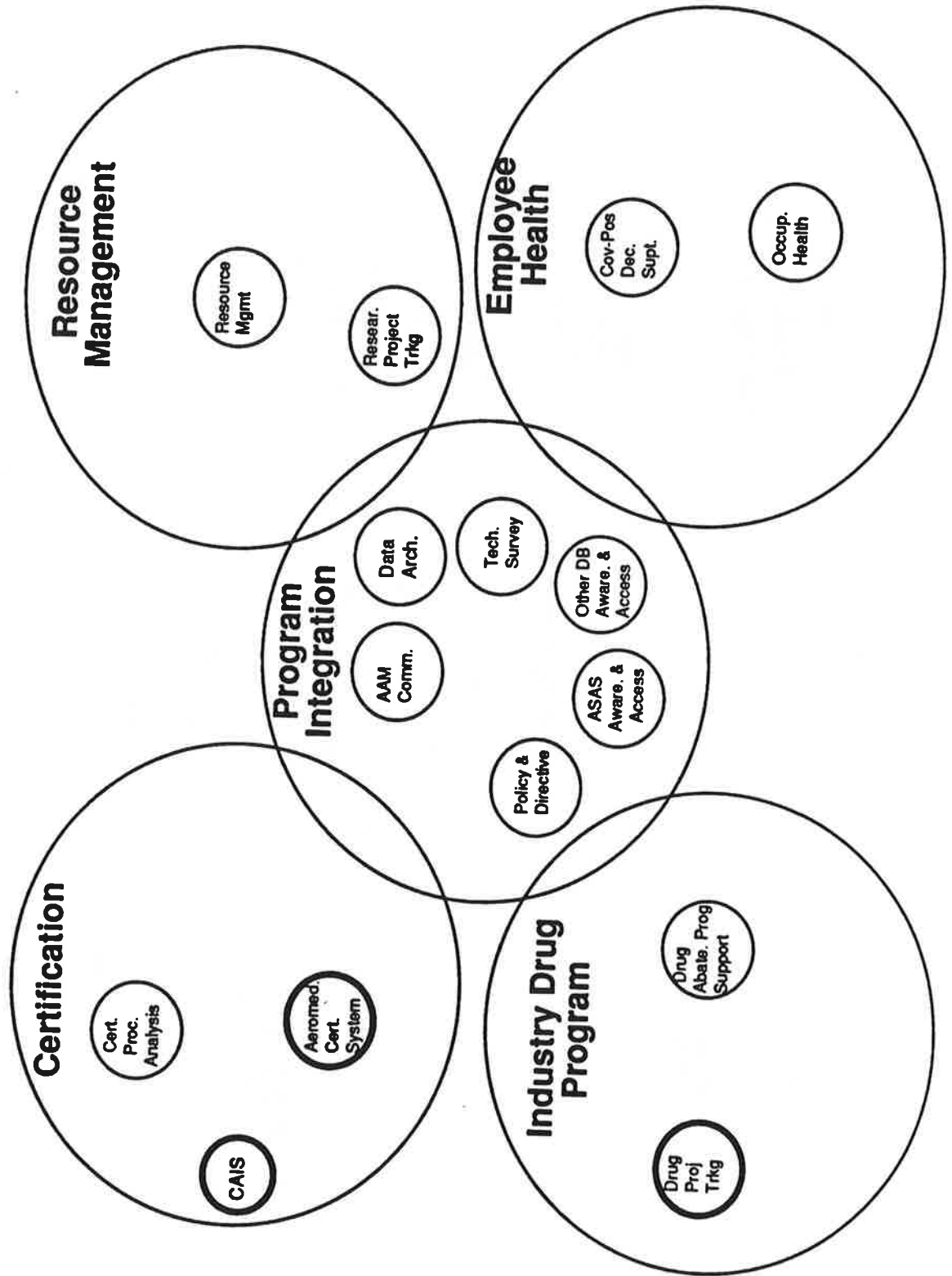


Figure 10-7
 AAM Information Technology Vision
 Supporting Applications

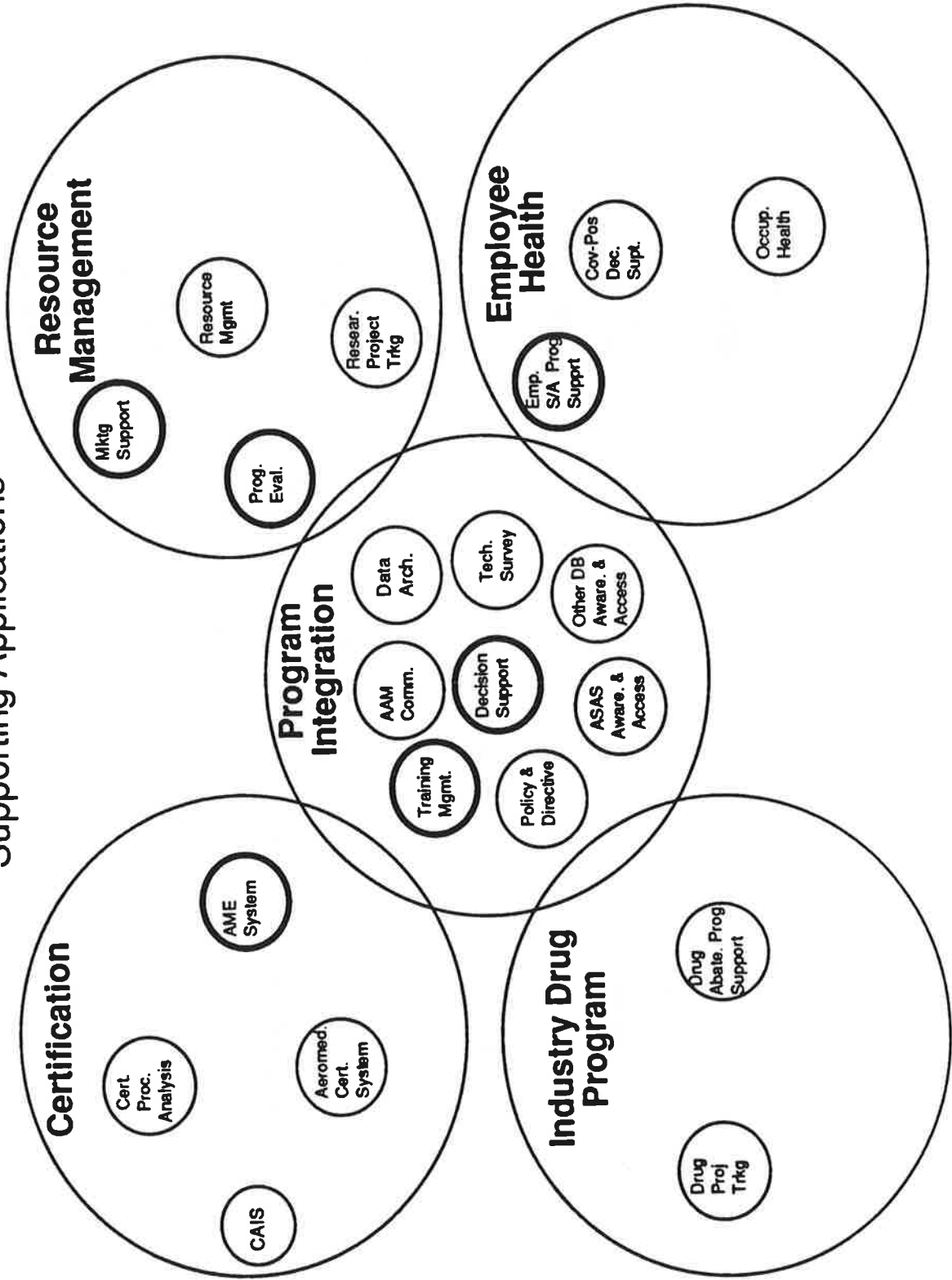
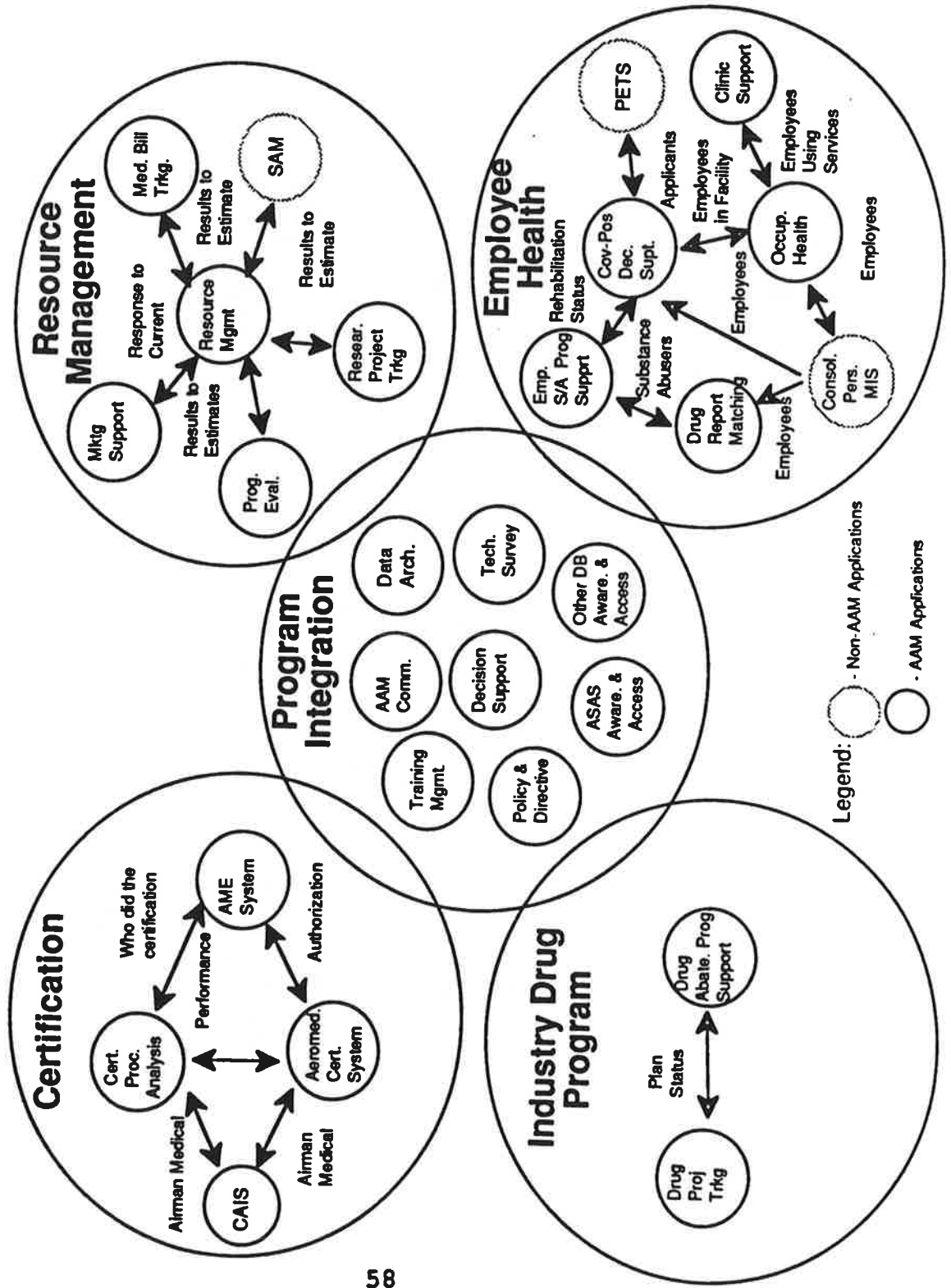
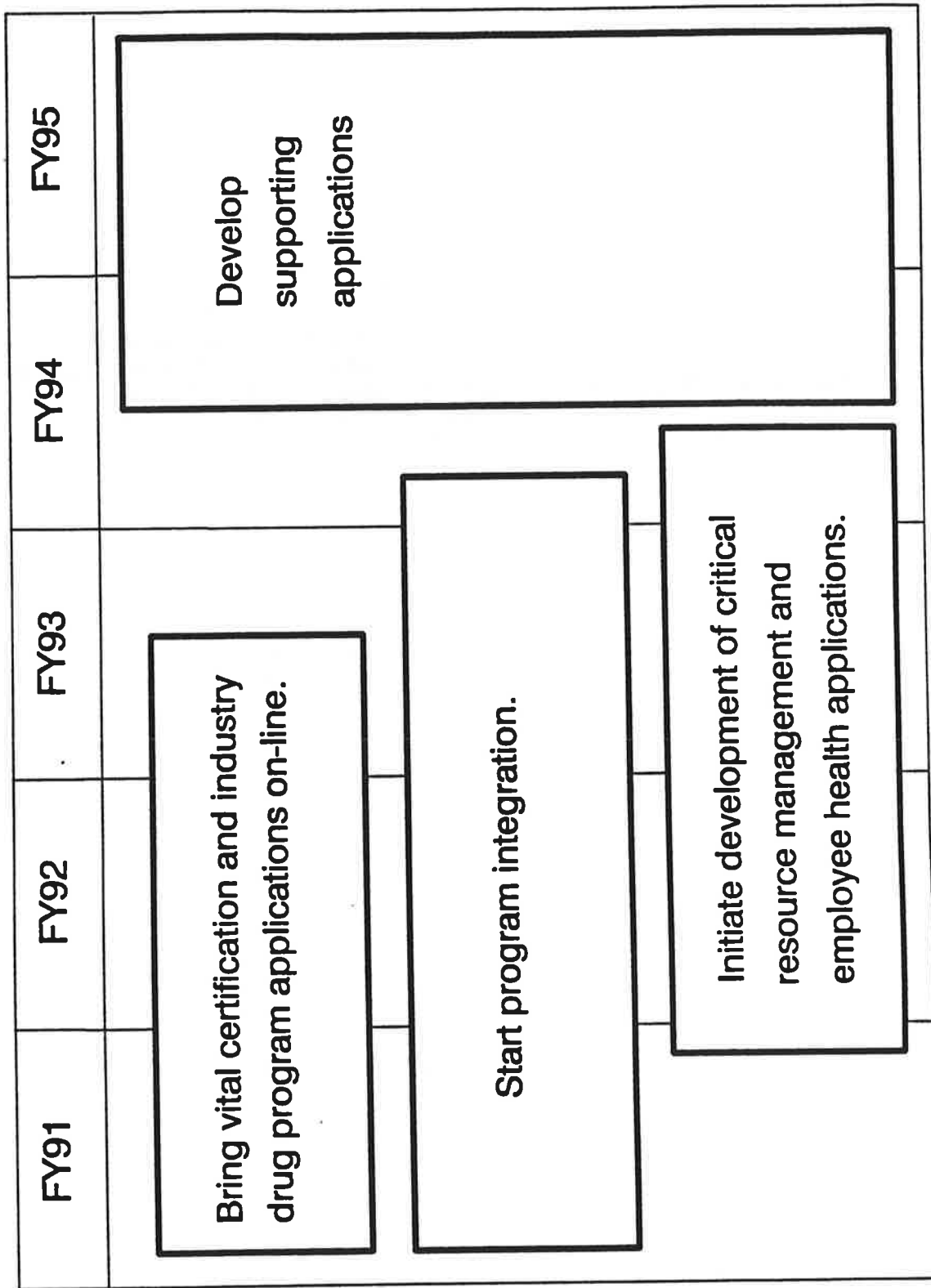


Figure 10-8
 AAM Information Technology Vision
 Integrated Support for AAM Functions



**Figure 11-1
Office of Aviation Medicine Information System Strategy**



critical AAM functions. The project opportunities that are implemented in this step are displayed in Figure 11-2. The second step is to implement critical program integration opportunities. These short- and intermediate-term projects build a foundation for information system integration. Figure 11-3 lists the project opportunities that provide access to information both within and outside the Office of Aviation Medicine.

The third step in the strategy is to provide support to the employee health and resource management functions. While recognizing that these are highly critical functions, resource constraints dictate that work not begin on these projects until the last quarter of FY91. Figure 11-4 lists the project opportunities that are critical to supporting the employee health and resource management functions. The final step is to implement the remaining project opportunities that support individual AAM functions. These projects are listed in Figure 11-5, Develop Supporting Applications.

11.2 Implementation Responsibilities

The implementation of the information systems strategy requires the coordination and participation of many groups. Figure 11-6 defines the organizations or individuals within the FAA and within AAM who must be involved to successfully implement the strategy. The major contribution of each group with respect to the strategy implementation is written on the graphic. The key responsibilities of each individual or group represented in the diagram are presented below. AAM-110's responsibilities, although not singled out on the diagram, are also listed.

Office of Management Systems

- Provide FAA-wide standards to guide project development.
- Provide FAA IRM Master plan.
- Provide contract vehicle for FAA IRM resources (e.g., OATS).

APR-300

- Manage and allocate AXR's IRM resources.
- Provide guidance, expertise, and planning to development efforts.
- Communicate AXR standards.
- Qualify and monitor developers.


AAM Senior, Divisional, and Regional Management

- Communicate the vision and strategy to AAM staff.
- Communicate changes in strategic direction to the IRM Working Group.
- Define measures that the IRM Working Group uses to determine the effectiveness of projects towards achieving the vision.

**Figure 11-2
Information System Strategy Steps
Project Schedule**

Strategy: Bring Vital Applications Online

Project	FY91	FY92	FY93	FY94	FY95
Aeromedical Certification System/ 8500 Automation	Software Prototype Host Prototype	First Phase Online			
Aeromedical Certification Process Analysis	Work Design; Incorporate SI, etc.	Functional Definition	System Development		
Medical Component of CAIS Upgrade	Part of AVN modernization				
Aviation Drug Abatement Program Compliance & Enforcement	Implementation				
Aviation Drug Abatement Program Management Information System	Prototype	System Development			
Maintain Existing Key Applications	Maintain Current Vital Projects				

 = Decision Point

**Figure 11-3
Information System Strategy Steps
Project Schedule**









Strategy: Start Program Integration

Project Opportunity	FY91	FY92	FY93	FY94	FY95
Data Architecture	Initiate Model Validate & Complete				
AAM Communications	Requirements Definition				
Policy & Directives	Work with ongoing System, Safety and Efficiency Review (SSER) project				
Technology Survey	APR-310 presentation				
ASAS Awareness	Access to existing ASAS data				
Other Data Base Awareness & Access		Determine existing resources and acquire new access as required			

= Decision Point

Figure 11-4
Information System Strategy Steps
Project Schedule

Strategy: Initiate Development of Critical Resource Management and Employee Health Applications

Project	FY91	FY92	FY93	FY94	FY95
Resource Management/Program Evaluation	 				
Research Project Tracking		 			
Covered Position Decision Support	 				
Occupational Health		 			

 = Decision Point

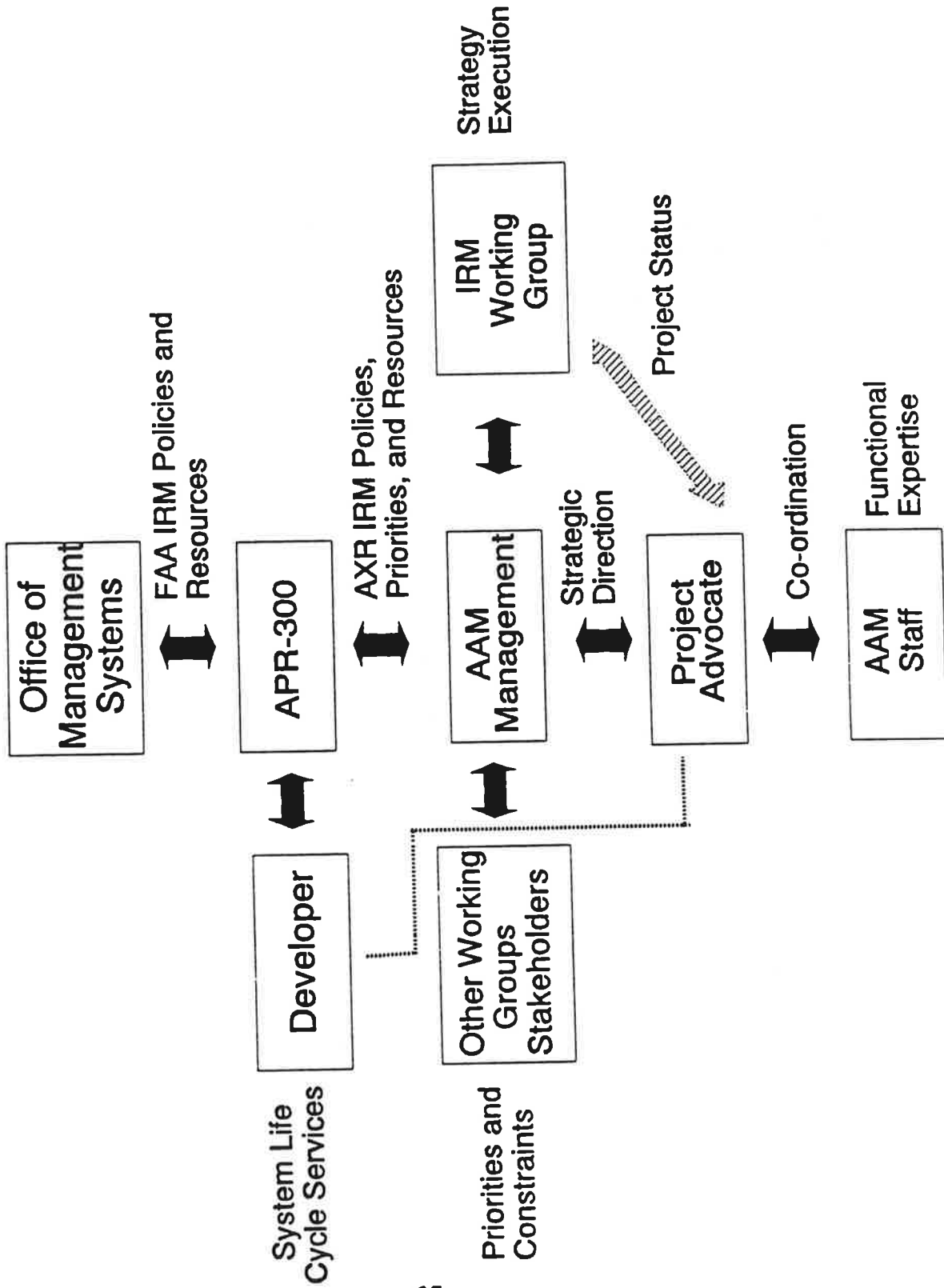
**Figure 11-5
Information System Strategy Steps
Project Schedule**

Strategy: Develop Supporting Applications

Project Opportunity	FY91	FY92	FY93	FY94	FY95
Decision Support	▲ Feasibility Study	▲ System development	▲		
Training Management		▲ Scope of needs	▲ Training plan	▲	
Marketing Support			▲ Requirements Study	▲ System development	▲
Employee Sub-stance Abuse Program Support			▲ Feasibility Study	▲ System development	▲
AME Management	▲ Feasibility Study	▲ Integration			

▲ = Decision Point

**Figure 11-6
AAM Strategy Implementation Roles and Relationships**



Project Advocate

- Serve as the Office of Primary Interest (OPI) and Contracting Officer Technical Representative (COTR) for the project (e.g., the project advocate for AMCS is AAM-300).
- Coordinate all activities necessary to develop and implement projects.
- Schedule and attend interviews.
- Communicate project progress to the IRM Working Group and AAM management.
- Make sure that the contractor has the cooperation and support needed to do the job.

IRM Working Group

- Report strategy implementation status to management.
- Ensure that project requirements reflect the needs of the entire AAM organization.
- Identify cross-functional requirements.
- Provide program expertise.
- Monitor projects.

Other Working Groups and Stakeholders

- Provide consensus from specialized areas concerning priorities and constraints.
- Provide context within which requirements are analyzed.
- Look at Office processes and determine if they need to change to enhance project effectiveness.

Office of Aviation Medicine Staff

- Provide project with functional expertise.
- Make themselves available as required.
- Participate in testing and evaluation sessions.

AAM-110

- Maintain a master schedule of all projects and monitor status of individual projects.
- Revise strategy to account for changes in priorities and resource availability.
- Request project resources from AAM management and APR-300.

Developer

Initiate and develop projects according to AXR and FAA life-cycle standards.

11.3 AAM Resource Requirements

The IRM Working Group estimated the development costs and the operating and maintenance costs of implementing the projects. The costs are summarized in Figures 11-7 and 11-8. The IRM Working Group also estimated the amount of time required from the project advocate, AAM staff, and the Working Groups in order to implement the projects. AAM labor requirements are summarized in Figures 11-9 through 11-12.

12.0 **Summary**

The AAM information systems strategy proposes implementing a series of project opportunities that will provide information system support for critical functions and enable the Office to share information within and between functions. The information systems strategy is designed to support AAM actions towards achieving the Office's vision as well as to support current priorities. A critical activity in implementing the strategy is ensuring that it is continually updated to reflect changes in current priorities or long-term goals. Resource requirements must also be re-estimated at the beginning of each development phase.

The strategy has positioned AAM to commit its information technology resources to areas which are beyond the common automation of routine tasks. The Office vision and the action plan contained in the strategy are elements that have already benefitted AAM in presenting and justifying its needs for future information technology funds. AAM is now viewed by the FAA as an organization that has a consensus view of where it is headed, and serious, well thought out plans for getting there.

The success of implementing the strategy requires continued support and participation from AAM management. Success also requires the participation and commitment of AAM personnel. It is critical that the information system strategy does not end up being "just another study."

**Figure 11-7
AAM Project Development Costs by Fiscal Year**

Project	FY91 (000)	FY92 (000)	FY93 (000)	FY94 (000)	FY95 (000)	Total Development Costs by Project
Aeromedical Certification System (8500 Automation)	757					757
Aeromedical Certification Process Analysis	130	370	300			800
Medical Component of CAIS Upgrade	①					
Drug Plan Tracking System	②					
Drug Abatement Program: Compliance & Enforcement	63					63
Drug Abatement Program: Management Information System	317	329				646
Data Architecture	100					100
AAM Communications	30					30
Policy & Directives (System, Safety & Efficiency Review)	③					
Technology Survey/ASAS Awareness & Access	④					
AAM Information System Strategy	16	16	16	16	16	80
Other Data Base Awareness and Access	15	25				40
Resource Management	130	80	120			330
Research Project Tracking	40	150	50			240
Covered Position Decision Support	60	290	300			650
Occupational Health		40	150			190
Program Evaluation		20	10			30
Decision Support	40	110	75			225
Training Management			100			100
Marketing Support			50	100	50	200
Employee Substance Abuse Program Support			40	100	50	190
AME Management	35	50				85
Total Development Cost by Year	1733	1480	1211	216	116	4756

① Part of CAIS - Medical Component - 125
 ② No new development on this project.
 ③ AAM labor only unless SSER initiative does not meet AAM requirements.
 ④ APR-300/AAM labor only

**Figure 11-8
AAM Project Operating and Development Costs by Fiscal Year**

Projects	FY91 (000)	FY92 (000)	FY93 (000)	FY94 (000)	FY95 (000)	Total		Development & Operational Costs
						Operational Costs	Development & Operational Costs	
Aeromedical Certification System (8500 Automation)		50	50	50	50	200		957
Aeromedical Certification Process Analysis			50	50	50	100		900
Medical Component of CAIS Upgrade								
Drug Plan Tracking System	47	47				94		94
Drug Abatement Program: Compliance & Enforcement								63
Drug Abatement Program: Management Information System			50	50	50	150		796
Data Architecture		10	10	10	10	40		140
AAM Communications								30
Policy & Directives (System, Safety & Efficiency Review)								
Technology Survey/ASAS Awareness & Access								
AAM Information System Strategy								80
Other Data Base Awareness and Access		10	10	10	10	40		80
Resource Management				40	40	80		410
Research Project Tracking/CAMI Maintenance	926	926	926	926	926	4630		4870
Covered Position Decslon Support/HIS Maintenance	20			50	50	120		770
Occupational Health				40	40	80		270
Program Evaluation				20	20	40		70
Decision Support				25	40	65		290
Training Management								100
Marketing Support					40	40		240
Employee Substance Abuse Program Support					50	50		240
AME Management			15	15	15	45		130
Total Development Cost by Year	993	1043	1061	1286	1391	5774		10530

**Figure 11-9
AAM Estimated Resource Requirements**

Project	Project Advocate		AAM Staff		Working Groups	
	Name	Hr/Wk	How Many	Hr/Wk	Name	Hr/Mth
Aeromedical Certification System (8500 Automation)	AAM-300	16	1	8		
Aeromedical Certification Process Analysis	AAM-300	16	8	64	P&O/RFS	4/group
Medical Component of CAIS Upgrade	AAM-300	4	1	4		
Drug Plan Tracking System	AAM-220	2	0	0		
Drug Abatement Program: Compliance & Enforcement	AAM-220	16	1	4		
Drug Abatement Program: Management Information System	AAM-220	16	1	4		
Data Architecture	AAM-110	8	16	64	P&O/RFS	2/group
AAM Communications	AAM-110	8	0	0		
Policy & Directives (System, Safety & Efficiency Review)	AAM-200	4	1	2		
Technology Survey	AAM-110/APR-320	4	0	0		
ASAS Awareness and Access	AAM-110/APR-320	4	0	0		
Other Data Base Awareness and Access	AAM-110	4	0	0		
Resource Management	AAM-120	8	11	8 hours each	P&O/RFS	2/group
Research Project Tracking	AAM-3	4	4	5 hours each		
Covered Position Decision Support	RFS	16	9	4		
Occupational Health	AAM-700	8	6	2		
Program Evaluation	AAM-120	4	11	4 hours each	P&O/RFS	2/group
Decision Support	FAS-SA	8	16	8 hours each	P&O/RFS	2/group
Training Management	AAM-120	4	16	4 hours each		
Marketing Support	FAS-SA	8	10	8 hours each	P&O/RFS	2/group
Employee Substance Abuse Program Support	AAM-201	8	9	4 hours each	RFS	4
AME Management	AAM-400	8	10	8 hours each	RFS	4
AAM Information System Strategy	AWG	32			P&O/RFS	4/group

Legend: RFS - Regional Flight Surgeons AWG - Automation Working Group
P&O - Policy and Operations FAS-SA - Special Assistant to the Federal Air Surgeon

**Figure 11-10
AAM Estimated Resource Requirements**

Project Advocate Total Development Time by Fiscal Year
Name Hr/Wk FY91 FY92 FY93 FY94 FY95

Project	Project Advocate Name	Hr/Wk	FY91	FY92	FY93	FY94	FY95
Aeromedical Certification System (8500 Automation)	AAM-300	16	768	768			
Aeromedical Certification Process Analysis	AAM-300	16	192	768	768	384	
Medical Component of CAIS Upgrade	AAM-300	4	192				
Drug Plan Tracking System	AAM-220	2	96				
Drug Abatement Program: Compliance & Enforcement	AAM-220	16	768				
Drug Abatement Program: Management Information System	AAM-220	16	768	768			
Data Architecture	AAM-110	8	384				
AAM Communications	AAM-110	8	384				
Policy & Directives (System, Safety & Efficiency Review)	AAM-200	4	192				
Technology Survey	AAM-110/APR-320	4	192				
ASAS Awareness and Access	AAM-110/APR-320	4	192				
Other Data Base Awareness and Access	AAM-110	4	40	96	96	96	96
Resource Management	AAM-120	8	384	384			
Research Project Tracking	AAM-3	4	16	192	96		
Covered Position Decision Support	RFS	16	384	768	576		
Occupational Health	AAM-700	8		384	384		
Program Evaluation	AAM-120	4		129	63		
Decision Support	FAS-SA	8	192	384	288		
Training Management	AAM-120	4		8	192	16	
Marketing Support	FAS-SA	8			288	384	257
Employee Substance Abuse Program Support	AAM-201	8			288	384	257
AME Management	AAM-400	8	288	96			
AAM Information System Strategy	AWG	32	1536	384	384	384	384

Legend: RFS - Regional Flight Surgeons AWG - Automation Working Group
P&O - Policy and Operations FAS-SA - Special Assistant to the Federal Air Surgeon

Figure 11-11
AAM Estimated Resource Requirements

Project	AAM Staff		Hr/Wk	Total Development Time by Fiscal Year				
	How	Many		FY91	FY92	FY93	FY94	FY95
Aeromedical Certification System (8500 Automation)	1	8		384	384			
Aeromedical Certification Process Analysis	8	64		768	3072	1152		
Medical Component of CAIS Upgrade	1	4		192				
Drug Plan Tracking System	0	0						
Drug Abatement Program: Compliance & Enforcement	1	4		192				
Drug Abatement Program: Management Information System	1	4		192	192			
Data Architecture	16	64		3072				
AAM Communications	0	0						
Policy & Directives (System, Safety & Efficiency Review)	1	2		48				
Technology Survey	0	0						
ASAS Awareness and Access	0	0						
Other Data Base Awareness and Access	0	0						
Resource Management	11	8 hours each		60	28			
Research Project Tracking	4	5 hours each			20			
Covered Position Decision Support	9	4		96	192	96		
Occupational Health	6	2			96	96		
Program Evaluation	11	4 hours each			29	15		
Decision Support	16	8 hours each		20	59	4		
Training Management	16	4 hours each				64		
Marketing Support	10	8 hours each				10	40	30
Employee Substance Abuse Program Support	9	4 hours each				5	20	11
AME Management	10	8 hours each		70	10			
AAM Information System Strategy								

**Figure 11-12
AAM Estimated Resource Requirements**

Project Working Groups Total Development Time by Fiscal Year
Name Hr/Mth FY91 FY92 FY93 FY94 FY95

Project	Working Groups Name	Hr/Mth	FY91	FY92	FY93	FY94	FY95
Aeromedical Certification System (8500 Automation)	P&O/RFS	4/group	24	96	96	24	
Aeromedical Certification Process Analysis							
Medical Component of CAIS Upgrade							
Drug Plan Tracking System							
Drug Abatement Program: Compliance & Enforcement							
Drug Abatement Program: Management Information System	P&O/RFS	2/group	48				
Data Architecture							
AAM Communications							
Policy & Directives (System, Safety & Efficiency Review)							
Technology Survey							
ASAS Awareness and Access							
Other Data Base Awareness and Access	P&O/RFS	2/group	48	48			
Resource Management							
Research Project Tracking							
Covered Position Decision Support							
Occupational Health	P&O/RFS	2/group		24	24		
Program Evaluation	P&O/RFS	2/group	24	48	12		
Decision Support							
Training Management							
Marketing Support	P&O/RFS	2/group			36	48	36
Employee Substance Abuse Program Support	RFS	4			36	48	36
AME Management	RFS	4		4			
AAM Information System Strategy	P&O/RFS	4/group	96	96	96	96	96

Legend: RFS - Regional Flight Surgeons
P&O - Policy and Operations

Appendix A
Workload Statistics

Sources: 1989 Aeromedical Certification Statistical Handbook

Summary of Calendar Year 1989 Aeromedical Certification
Division Workload Processing

AXR Statistical Information Summary - June 1989

Workload statistics provide some perspective on the resources that AAM has to work with to manage its programs and the level of activity in the program areas. Staffing, activity levels, and resource estimates are presented below.

A.1 Staffing

In FY88, AAM was authorized for 306 positions: 277 positions were staffed, 29 remained to be filled. The number of positions authorized for each region is presented below along with the number of AMEs in the region. The second chart shows the number of positions authorized for each employee classification within the Field and Headquarters Divisions.

Aviation Medicine Staffing by Site

Site	Authorized Staffing	AME (1989 figures)
<u>Regions</u>		
Alaskan	4	105
Central	8	462
Eastern	10	802
Great Lakes	14	1,067
New England	7	235
Northwest Mountain	15	664
Southern	13	1,182
Southwest	11	862
Western Pacific	14	633
<u>Other</u>		
Technical Center	2	
Washington Headquarters	39	
AVN	0	
CAMI	169	
Military installation designations		395
International		280
Total	306	6,687

The total number of AMEs represents a decrease of 4.6% from 1988 figures.

Aviation Medicine Staffing by Class

Class	Authorized Staffing
Field	
Medical Officers	24
Other Professionals	24
Administrative/Clerical	48
Subtotal	96
Headquarters	
Medical Officers	16
Other Professionals	49
Administrative/Clerical	145
Subtotal	210
Total	306

A.2 Aeromedical Certification Division Statistics

Application Activity

The statistics listed below represent 1989 application activity. There was a slight increase in the number of applications received in 1989 over 1988 (3.2 %). There was a larger increase in the number of applications processed in 1989 over 1988 (17.5%). There was no change in the number of cases that required maintenance in 1989 over 1988 figures.

Activity	Volume
Applications received	481,168
Applications processed	502,284
Cases coded	493,688
Cases reviewed	251,469
Cases rejected	190,868

Correspondence/Inquiry Activity

The statistics below represent 1989 correspondence activity. 12.3% more correspondence was received in 1989 than in 1988. There was a slight increase in the number of telephone inquiries received (1.6%) in 1989 than in 1988.

Activity	Volume
Correspondence received	77,844
Telephone inquiries	58,228
Outgoing correspondence	107,836

Electrocardiogram Activity

There were 69,895 electrocardiograms received in 1989, an increase of 12.9% over the previous year.

A.3 Aeromedical Education Divisions

Sixteen (16) AME seminars were held in 1989. Total attendance was 1,550. One (1) less seminar was held in 1989 than in 1988, however, the number of attendees increased by almost 2%.

A.4 Future and Current Year Budget Figures

Presented below are actual (FY 1990) and projected (FY 1991 and FY 1992) funding and staffing figures for the Research, Engineering, and Development programs and the Operational programs.

Operations Appropriations

FY 1990

Funds	\$ 18,843.4
FTPs	256
FTEs	251
EOY FTPs 3/	233

FY 1991

Funds	\$ 20,355.0
FTPs	262
FTEs	254

FY 1992

Funds	\$ 30,534.0
FTPs	421
FTEs	335

Research

FY 1990

Funds	\$ 8,190.0
FTPs	74
FTEs	72

FY 1991

Funds	\$ 6,473.0
FTPs	83
FTEs	78

FY 1992

Funds	\$ 12,842.0
FTPs	99
FTEs	86

Appendix B
Current AAM Applications

Appendix B presents a matrix that summarizes AAM's current applications. The matrix shows the functions the applications perform, who uses the applications, and the source of the applications' information.

Current Applications

Applications	Decisions/Functions	Users	Information Source
Health Information Subsystem (HIS)	<ul style="list-style-type: none"> - Enables AAM to locate ATC who should be disqualified - Enables AAM to determine types of wellness programs to implement - Source of information to respond to Congress and others 	<ul style="list-style-type: none"> - Regional Medical Divisions - AAM Occupational Health Division 	<ul style="list-style-type: none"> - Consolidated Personnel Management Information Subsystem (CPMIS) - Airman Medical Certificate Application (Form 8500-8) - Workers Compensation Information System (WCIS)
Aviation Medical Certification Subsystem (AMCS) (Prototype)	Speeds the transmission and processing of the Airman Medical Certification Application (Form 8500-8)	<ul style="list-style-type: none"> - Aviation Medical Examiners - Regional Medical Divisions - Aeromedical Certification Division (AAM-300) - Other AAM personnel 	<ul style="list-style-type: none"> - Form 8500-8
Comprehensive Airman Information Subsystem (CAIS)	Provides a current and accurate profile of all certified airmen	<ul style="list-style-type: none"> - Aeromedical Certification Division (AAM-300) - Airman Certification Branch (AVN-460) - Regional Medical Divisions - Other AAM personnel 	<ul style="list-style-type: none"> - Results of airmen medical examinations - Applications for airman certifications - Crew member applications - Requests for information
Consolidated Personnel Management Information Subsystem (CPMIS)	<ul style="list-style-type: none"> - Provides FAA personnel information - Provides research with biographical and other information 	<ul style="list-style-type: none"> - Regional Medical Divisions - Department of Transportation - Human Factors Research Division (AAM-500) 	<ul style="list-style-type: none"> - Regional, Aeronautical and Technical Centers - Headquarters Human Resource Office
Budgeting System	Produces current & future budgets	Civil Aeromedical Institute (CAMI)	Budget estimates.
Medical Bills Tracking System	Enables Regional Divisions to track multiple bills received for the same individual.	Regional Medical Divisions	Regional Financial Management application

Current Applications

Applications	Decisions/Functions	Users	Information Source
Pre-employment Tracking System (PETS)	Does pre-employment tracking by region for air traffic controller positions	Personnel Regional Medical Divisions Security	Personnel Offices In the Regions
Standard Acquisition Management System (SAM)	Processes procurement requests	Regional Medical Divisions	Procurement Requests
Employee Substance Abuse Data Bases	Tracks progress of employees with substance abuse problems.	Regional Medical Divisions	Drug screening report from Compuchem Evaluation and treatment of people and facilities. Regional Medical Divisions
AME System	- Provides a current profile of AMEs, their designation, performance and training. - AME processing	Aeromedical Education Division (AAM-400) Aeromedical Certification Division (AAM-300) Regional Medical Divisions	Application for designation as an AME. Regional Medical Divisions Application for Medical Certification (8500-8s). Seminar Attendance
Special Issuance Tracking System	Provides data on airmen granted or denied special issuance certificates.	Aeromedical Certification Division (AAM-300) Regional Medical Divisions	Form 8500-8 Requests for reconsideration Medical/Hospital Reports.
Medical Accident System	Provides pre-crash, crash and post-crash medical data on general aviation accidents.	Aeromedical Certification Division (AAM-300) CAMI AAM Research AVN Regional Medical Divisions	Aircraft Accident Medical Information (FAA8025-2). Autopsies. Toxicologies. Form 8500-8 data

Current Applications

Applications	Decisions/Functions	Users	Information Source
Drug Report Matching System	Matches drug reports with PMIS roster to produce a matching list.	Southern Region	PMIS data Compuchem reports
Clinic Support Subsystem	<ul style="list-style-type: none"> - Stores medical records - Tracks clinic activity 	FAA Clinics	Employee visits Attendance at special services provided to employees
Regional Activity Reports	Monthly report of regional activity	FAA Headquarters	Regional Medical Divisions
Drug Plan Tracking Subsystem (DPTS)	<ul style="list-style-type: none"> - Track entities that submitted plans and the plan's status. - Provide information required for FAA and Congressional reporting. 	Drug Abatement Branch (AAM-220)	Drug Abatement Plans filed by civil aviation entities

Appendix C
Inventory of Information Needs

I. Information Needs from AAM Management Workshop - 5/11/90

AAM Management Workshop attendees were asked to submit the information that they needed to achieve the Office vision. The individually submitted information needs were compiled and grouped into subcategories within each vision statement for easier reference.

Vision Statement: All Program Areas are Integrated.

Resource data

- Cost data
- Cost accounting
- Budget information
- Resources/requirements
- Workload indicators

Employee data

- Employee information data
- Numbers
- Qualifications
- Locations
- Personnel
- Accident data
- ATC medical records
- Airman medical records
- Inter-office/region transfers
- Productivity/responsiveness

Reference data

- Catalog of all information systems within FAA/OAM
- Access to useful medical data bases available commercially
- Calendars/schedules
- Reference materials: regulations, guidelines, policies
- Progress notes - on work-in-progress
- Information across work groups/organizational elements eg. budget, equipment availability, etc.

Vision Statement: National Airspace System is Drug and Alcohol Free.

Testing Program Data

- Categories of people tested
- By whom
- When
- Why
- Type of technology used to test
- Types of tests performed and results
- Number of people tested
- Drugs found
- Positive test rate for each substance
- Category of employee testing positive
- Costs of program (\$ and people)
- Extent of present problem

Disposition of Airman

- Recommendations
- Disciplinary actions taken
- Rehabilitation actions taken
- Status of disciplinary/rehabilitation actions
- Treatment success
- Inpatient versus outpatient rehabilitation results
- Rehabilitation progress/success versus failure factor analysis
- Return-to-work information

Employee Data

- Initial hire status
- Relation between: initial hire status & training & abuse of alcohol/drug
- Arrest records and driving records
- Information on safety-critical NAS personnel i.e. Pilots, controllers, etc.; physical chemistry i.e. blood, urine, hair,
- Individual company data, including their approved plans; reference data etc.;
- Demographics of employees (social, educational background, etc.)
- Characteristics of likely abusers

Reference Data

- Current toxicology/pharmacology developments
- Data bank of available treatment resources; their location; rating
- Educational programs and assessments of program effectiveness (program validation)
- Education feedback

Miscellaneous

- Compliance actions taken - outcomes of action
- Accident causation data
- National Drivers Registry
- Enforcement actions
- Drug testing information
- FAA in-house
- Industry

Vision Statement: AAM Provides Same Day, Correct Certification Including Deferrals, Denials, and Special Issuances.

AME Data

- Background
- Training
- AME performance data (# exams, - quantity and quality)
- Quality control information
- Educational data and evaluations of their effectiveness
- # examiners
- # examinations
- Selected AMEs who are on a trial basis
- % of cases that the computer rejects
- Causes of rejection

Reference Data

- FAA medical "case law" in optimized source
- Regulations and policy for AME and employees - (maybe airmen)
- Clinical research data to back up decisions
- Medical standards & policy data
- Updated medication lists
- Criteria Manuals
- Medicine - counter indications, etc.
- Decision-making process for waivers/exceptions
- OAM certification policy information and standards

Airman Data

- Current exam results
- Demographic distribution of airmen
- # requiring adjudication or further review
- Pathology identified
- Identification errors
- Previous actions
- Interim medical information
- Treatment of results
- Current prescriptions
- Airman medical history

- Existing airman data base
- Previous examination data
- Airman certification data

Miscellaneous

- Costs, resources involved

Vision Statement: Human/Medical Factors in Accident Causation are Eliminated.

Pilot Data

- # pilots
- # hours flown
- Medical certification
- Ratings
- Experience
- Certification currency
- Demographic information on total pilot population
- Accidents/flight hours flown

Accident Data

- # accidents/# incidents
- Accidents/incidents details (from autopsies, toxicologies)
- Relationship between variables "training/experience/adverse outcomes"
- Weather
- Environmental factors
- Physiological factors
- Accident causes
- Frequency of accidents
- Locations of accidents
- Machine versus manual causes
- Historical accident data: causative factors, corrective actions
- Human factor profiles
- Compliance/enforcement actions
- Causal categories
- Pathological reports
- Autopsy data
- Toxicology data
- Medical certification data on pilots involved in accidents; training attendance record on same
- Previous accident findings and recommendations
- Pilot characteristics

Reference

- Current regulations

- Impacts of training programs (pilots, accident investigation)
- Human factors research (DOD, NASA, FAA, Foreign)
- Pilot training
- Enforcement actions
- Risk probability analysis
- Accidents/active pilots
- # accident prevention seminars given on human factors information
- Education plans

Vision Statement: An Effective Bio-environmental Medicine Program is in Place.

Site Data

- Studies of existing environmental conditions
- Environmental/Health risk assessment
- Hazardous materials
- Substances/hazardous conditions/materials in use by facility
- Safety data, environmental hazard data
- High risk areas - exposure - locations - etc.
- Tabulation of physical/chemical/biological hazards
- Tabulation of # exposed people in each of above hazard areas
- Psychological screen of population(s) or in mgr
- Physical screen of population(s) or in mgr

Employee Data

- Physical exam data
- ATCS medical certification data
- Employee health records
- Employee health baseline survey data
- Updates to employee health
- Employee demographics - general and health, wellness related (PMIS - Consolidated Personnel Management Information System)
- # employees
- Insurance costs
- Lost days for illness
- OWCP claims
- Medical disability claims
- Employee deaths
- Health screening outcomes
- Health screening availability

Reference Data

- Hazardous substances reference source on-line
- Legal requirements
- Available resources
- Current prevention and treatment methods

- Applicable statutes
- Medical toxicology data base
- Policies/procedures
- Hazards to look for
- Studies of psychological perceptions, etc.
- Case handling data

Program Data

- Programs required or needed
- Wellness issues
- Research areas
- Complexity of overall programs
- Reports of actions taken, problems, etc. with ID data.
- Educational materials
- Impacts of training programs
- Available training information
- Results of specialized data gathering (eg., stress studies)
- Correlate high incidence of OWCP/Disability and then utilize program of E.H. to "fix" and repair deficiency and then aggressively dispute those erroneous claims
- Reducing expenditures and outlay expense to government
- Results of other agencies program, successes and failures

II. Information Needs From Interviews

Individual interviews were conducted with AAM management to gather information on AAM's future direction and current programs and operations. Data relating to AAM's information requirements was abstracted from the interview notes and is presented below. Information requirements are presented by topic for easier reference.

Certification

Automation of the AME certification process and activities

Comments to clarify an air traffic controller condition noted on the medical application form.

Background information on the decisions that are made regarding medication and certification cases.

Certification policy and changes to the policy.

What the regions are doing relative to the certification of airmen and ATC programs.

Knowledge of exception-type events in certification.

Certification information that is accessible and useful.

Some of the information that is on the 8500 form.

Information on new drugs that people can be certified on.

Potential research opportunities gleaned from certification information.

Whether certification is disallowing the appropriate people.

Problem areas or groups of people with a certain disease from the certification data base.

Employee

OWCP costs.

FAA employee injury and illness case histories.

Baseline of employee health.

The HIS scope should be expanded beyond the Controller work force and encompass all FAA employees and work places. This would allow AAM to monitor employee health, spot dangerous work situations and react accordingly.

HIS updated and made more usable as a research tool, possibly as a means of assessing the health of the total work force.

FAA medical history on controllers. Information is needed both on the national and regional levels. On the national level, an Employee Health data base would collect broad information on selected items. Regionally, a great deal more detail is required.

Better way of tracking compensation claims.

Employee/ATC/airman whole medical file.

More information about the ATC stress problem.

Review and analysis of health of FAA work force.

Ability to respond to EEO-C complaints about why an ATC candidate was not selected.

Environmental

Work place safety/environment profiles.

Industrial hygiene data.

Budget

Budget data.

Budget information.

Dollars available for procurement of automation services.

Information on administrative matters and on resources. Resources that are available versus expended.

Up-to-date facts about where AAM is with respect to all three budgets.

AAM Functions

AAM orientation information.

Information on what each area does, priorities, and concerns.

Problems individual systems are having and what needs to be done.
Nationally classified positions and a good career ladder.
Control over training information.

Accidents

Toxicology studies for aircraft accidents.

Information that will enable you to determine the role of human factors in accidents. Air traffic controller performance and pilot performance factors that may lead to accidents.

Substance Abuse

Substance abuse program data.

Employees with substance abuse problems and their rehabilitation progress need to be tracked.

Identification of "problem" people.

Drug plan information: the name of the Medical Review Officer and the lab that they are using.

Drug plan management information system.

Compliance and enforcement information by entity.

Aviation Medicine Policy and Education

Current information on new topics in the field of aviation medicine.

Documentation of directives.

Experience and knowledge that is in people's heads.

A directives system that contains orders, action notices, advisory notices, etc.

Current medical concepts.

What is available in medical testing.

How and where to get information: biomedical, drugs, performance, research background information.

Provide scientists with state-of-the-art knowledge in their discipline.

Information on whether airmen can fly or control traffic with new medications.

Standards on what is acceptable and what is not acceptable.

AAM Activity/Planning

What people are doing now to meet their information needs.

Automated tracking system to ensure action items from evaluations are followed up on.

Program activity measures.

Key information only on all reports.

Program evaluation reports, recommendation, and follow-up.

Fewer and more meaningful workload statistics.

A strategic plan.

Information that people use today and need today - not information that may be needed someday.

AME Information

AME status and history in an easily accessible format.

Application completed by physicians who want to be AMEs.

Special issuance information from the AMEs.

Policy information that affects the AMEs.

Updated AME training information on the computer.

Research

Research that has been done at CAMI.

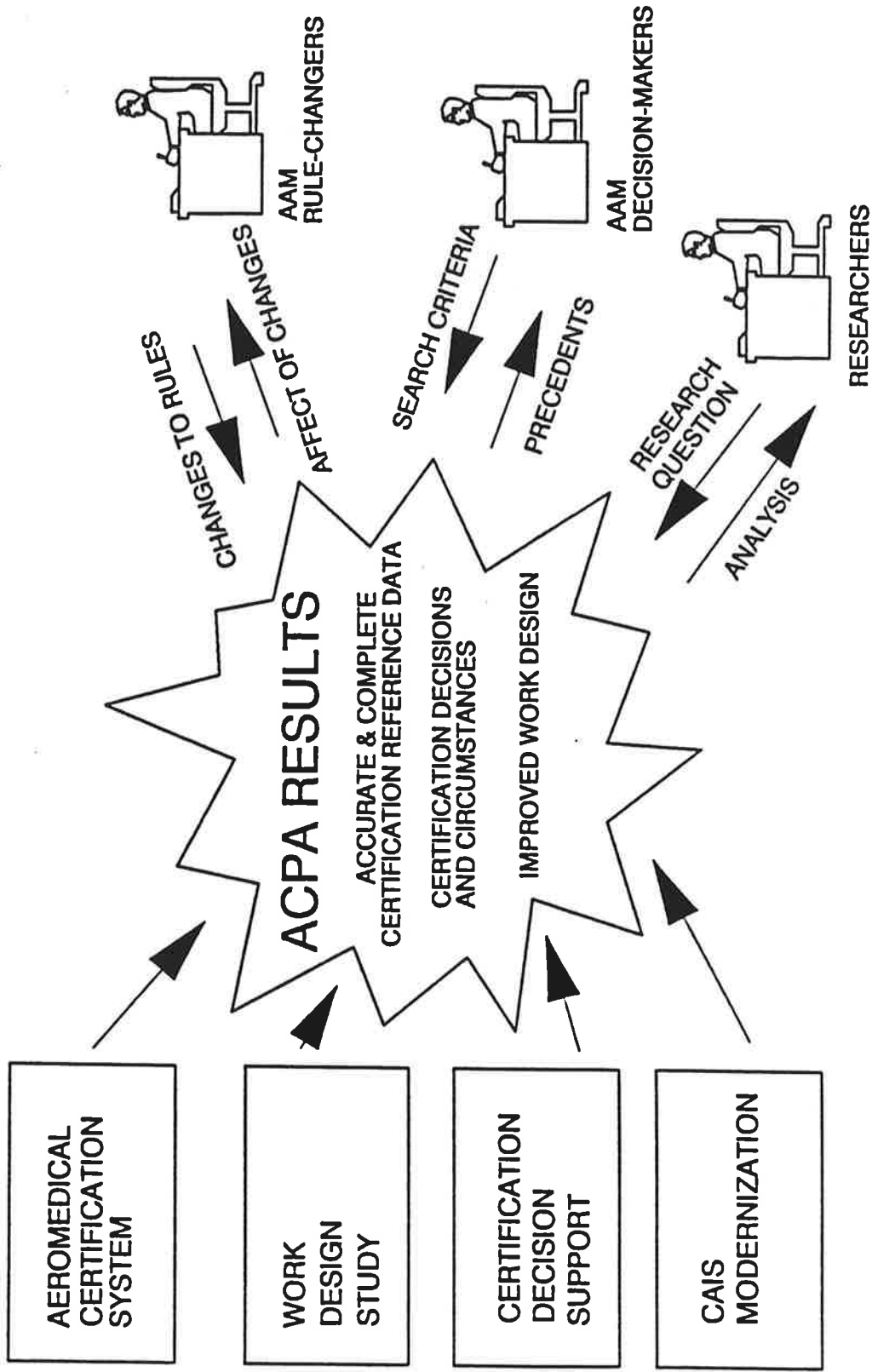
Schedule/milestone information on research projects.

**Appendix D
Project Summaries**

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AEROMEDICAL CERTIFICATION PROCESS ANALYSIS (ACPA)



Information System Strategy Benefits

Project: Aeromedical Certification Process Analysis

<u>Group</u>	<u>Benefits</u>
AAM-300 Senior Management	Streamlines work flow. Improves office-wide coordination and decision-making on certification activities.
AAM-200 Regional Flight Surgeons AAM-300 Senior Management	Improved consistency and speed of certification case review.
AAM-600	Provides ability to use airman reference data as a research resource.
AAM-400	Improves AME management capabilities.
AAM-100	Improves certification activity measures.

AEROMEDICAL CERTIFICATION PROCESS ANALYSIS

Purpose:

The Aeromedical Certification Process Analysis (ACPA) project will look for ways to improve the certification process and provide individuals who review certification cases with an improved ability to make consistent, correct aeromedical certification decisions. The ACPA project will provide authorized individuals with access to the decisions that have been made in other cases and the circumstances surrounding the decisions. Certification reviewers will also benefit from advice or "expert" judgements on unfamiliar cases and from predictions on the impact of their decisions.

Background:

The Office of Aviation Medicine (AAM) needs to be able to make consistent, informed certification decisions and to communicate the decisions throughout AAM. Individuals at the FAA Headquarters in Washington D.C., at the Civil Aeromedical Institute (CAMI) in Oklahoma City, and at the nine regional FAA Offices review certification cases and determine whether the airman can be medically certified.

In order to be certified as a civil aviation pilot, an individual must hold a current medical certificate. Medical certificates are issued after individuals are examined by FAA physicians or Aviation Medical Examiners (AMEs) to determine if their health meets or exceeds the established medical standards. The applicant completes the Application for Airman Medical Certificate or Airman Medical and Student Pilot (Form 8500-8). The application records identification, medical history, current medications and medical treatment history. The AME performs the examination and issues, denies, or defers the issuance of a medical certificate. The AME then forwards the application and exam results to the Certification Division in Oklahoma City. The Aeromedical Certification Division (AAM-300) is currently developing the Aeromedical Certification System (AMCS) to automate the flow of data between the AME and AAM-300. The AMCS will streamline the certification process and address the need to collect accurate and complete source data.

Medical applications are reviewed if the AME defers the certification decision, the AME denies an applicant a medical certificate, the AME issues a medical certificate but the computer finds a discrepancy, or individuals translating the application data into computer-readable codes find applications which require review.

Information from the application and from the physical exam is collected, edited and processed by the Certification Division. The airman medical certification data is currently maintained as part of the Comprehensive Airman Information Subsystem (CAIS). CAIS is jointly administered by the Airman Certification Branch (AVN-460) of the Aviation Standards National Field Office (AVN) and the

Aeromedical Certification Division (AAM-130). Individuals responsible for reviewing cases currently receive the physical application form and exam results for review. Information on decisions made under similar circumstances is communicated informally and an individual reviewer has no way of knowing if he/she is aware of all relevant cases that have previously been handled. Different certification decisions can unknowingly be made with respect to applicants with the same current condition and medical history. Access to other certification cases and their circumstances will enable reviewers to make decisions based on decisions that have been made under similar circumstances.

Certification case reviewers would be further enabled if the expert judgement gained from years of certification experience could be captured and applied to difficult certification cases. Current decisions would be improved and the impact of the decisions used to build on AAM's certification expertise.

Subsystem Overview

One component of the ACPA is to develop a Certification Decision Support Subsystem (CDSS) that will provide authorized individuals with access to medical and administrative information from the Form 8500-8. The subsystem will also provide access to physical examination results, the aviation medical examiner comments and the certification decision (issued, denied, deferred, special issuance). While the main use of the subsystem is to support the certification decision-making function, the information should be in a level of detail that is appropriate for research and analysis by the Certification, Research, and Education areas. The information must be easily accessible to all authorized individuals.

Reviewers will be notified of cases that require their attention and each reviewer has a queue of pending certification cases. The subsystem supports searches on multiple selection criteria (such as medical condition, age, location, special issuance reason) and who made the final ruling on the case. The reviewer thus has all available information on similar cases as well as the names of who to contact for consultation if necessary. The reviewer then records his/her decision and the supporting reasons. References to airman information that may affect future medical certification decisions are maintained.

The CDSS also contains two models. The first model is to assist reviewers in making certification decisions. A series of questions prompts the reviewer for information relevant to making a certification decision and the model provides a determination with supporting statistics on the probable impact of the decision. The model is developed based on current experience and should be refined as more data is collected.

The second model is to help AAM policy-makers look at the effects of changes to medical standards on the current airman population. The potential rule change is entered and the model returns the

number of airman affected and relevant data about the airman. The model also supports ad hoc queries about the medical and demographic make-up of the airman population.

Major Milestones

- Feasibility Study
- Data Requirements Definition
- Review SI Tracking System, CAIS, and AMCS to determine functions systems perform, technology currently available and required/desired interfaces.
- System Development
- System Implementation

Functional Requirements Addressed

Provides certification reviewers with access to complete, accurate, and timely applicant information.

Provides certification reviewers with access to other certification decisions and the surrounding circumstances.

Enables AAM to validate/evaluate the effects of certification decisions.

Provides a model for making certification decisions.

Provides the Certification Division, Research Divisions, and the Education Division with access to detailed applicant information for research and analysis.

Benefits

Two AAM vision statements are supported directly by the ACPA project: same-day certification and program area integration. Program area integration is supported in that awareness of other decisions and the associated background increases the consistency of decisions that are made in similar circumstances. Same-day certification is supported in that access to other decisions on difficult cases speeds the time in which decisions can be made on similar cases, the work flow is refined to eliminate stumbling blocks and glitches, and automation is used to improve the certification process. Developing a model that captures AAM's expertise and experience also speeds the time in which difficult certification decisions can be made.

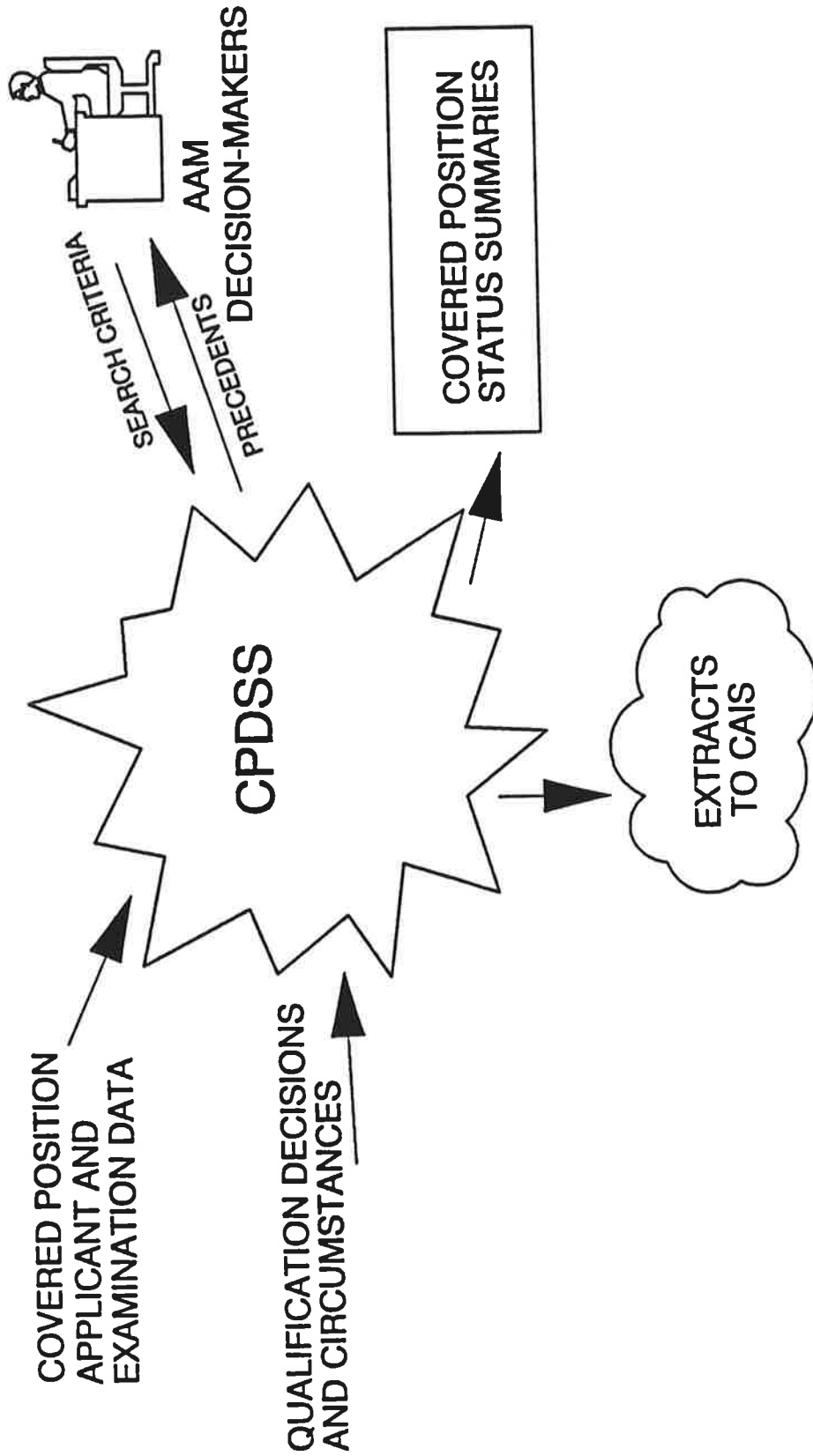
Two vision statements are supported indirectly by this subsystem: elimination of human factors in accidents and world leader in civil aviation medicine. Better and faster certification decisions result in a higher probability that only qualified airmen are certified; the human factor role in accidents would therefore be reduced. Better decisions would demonstrate AAM's competence and ability to provide high quality services.

Main Users

Certification reviewers at the Regional Offices, Headquarters, CAMI
Certification Division personnel
Research personnel
Education personnel

The remaining users will be identified during the data requirements phase.

COVERED POSITION DECISION SUPPORT SUBSYSTEM (CPDSS)



Information System Strategy Benefits

Project: Covered Position Decision Support Subsystem

<u>Group</u>	<u>Benefits</u>
Regional Flight Surgeons	Improves ability to make special consideration decisions on covered positions.

COVERED POSITION DECISION SUPPORT SUBSYSTEM

Purpose:

Regional Flight Surgeons (RFS) and FAA physicians determine whether individuals applying for, or currently in, FAA safety-related positions are medically qualified to safely function in those positions. The Covered Position Decision Support Subsystem (CPDSS) will support decision making with respect to these individuals by providing access to Air Traffic Control Specialist (ATCS) and other individual's medical data and to medical qualification decisions that have been made under similar circumstances.

Background:

The Office of Aviation Medicine (AAM) needs to be able to make consistent, informed decisions with respect to individuals applying for or currently in safety-related positions.

ATCS, Federal Air Marshalls and agency pilots are required to have a physical exam both when they apply and on an annual basis thereafter. They complete an 8500-8 form and are examined by either specially designated Aviation Medical Examiners (AMEs) or by FAA Flight Surgeons. The 8500-8 and the physical exam are sent to the Regional Office where the exam results are compared to approved medical standards. Applicants who do not meet the standards are not hired. The exams of employees who do not meet the medical standards are reviewed by the RFS. These individuals may be given a special consideration if the RFS obtains additional information that indicates the employee is medically qualified for the job.

Electronic technicians, another category of covered employee, must be examined by their own physician before they can be hired. They complete a Civil Service Commission Certification of Medical Examination (Standard Form 78). The form lists the job requirements and environmental factors that may affect the employee's ability to do the job. The physician must certify that the employee is physically capable of meeting the job requirements.

Employees often transfer to other FAA regions. The RFS in the employee's new region must have access to the employee's medical history to ensure that future qualification and treatment decisions take into consideration past decisions. The circumstances surrounding the decisions, particularly with respect to special considerations, must also be available.

Subsystem Overview

The Covered Position Decision Support Subsystem (CPDSS) will maintain individual medical and administrative information from the Form 8500-8. The subsystem will also record physical examination results, the aviation medical examiner comments, and the qualification decision (retained, not qualified, special consideration). While the main use of the subsystem is to support

the medical decision-making function, the information should be on a level of detail that is appropriate for analysis by the Medical Rulemaking function.

The subsystem will support searches on multiple selection criteria (such as medical condition, position, location, special consideration reason) and who made the qualification decision. Hence the reviewer will have all available information on similar cases as well as the names of who to contact for consultation if necessary. The reviewer records his/her qualification decision and the supporting reasons. The search capability will enable AAM to respond to requests for information on covered employees and to use the data for research purposes.

Information on agency pilots exams must be transmitted to the Certification Decision Support Subsystem to ensure that consistent information is maintained on the same person in each subsystem. Consideration should be given during the system development process to maintaining FAA employee data that is used by multiple applications in one data store.

The Covered Position Decision Support Subsystem will be able to support ad hoc queries and provide statistical reports. The subsystem must be easy to use and the information must be easily accessible. The appropriate security measures must be taken to ensure that only authorized personnel can access the information.

Major Milestones

- Feasibility Study
- Data Requirements Definition
- Review HIS to determine functions systems perform, technology currently available and whether it should be the starting point for this project development effort.
- System Design
- System Development
- System Implementation

Functional Requirements Addressed

Provides reviewers with access to complete, accurate, and timely information on individuals in specified covered positions.

Provides access to past history on ATCSs who transfer to other regions.

Provides statistics needed to measure standards and recommend changes.

Provides basis for looking at health trends of employees in specified covered positions.

Benefits

Two AAM vision statements are supported directly by this subsystem: same-day certification and program area integration. Same-day certification is addressed in that qualification decisions with respect to individuals in covered positions can be made more quickly if reference information and access to other decisions is available. Program area integration is supported in that awareness of other decisions and the associated background increases the consistency of decisions that are made in similar circumstances.

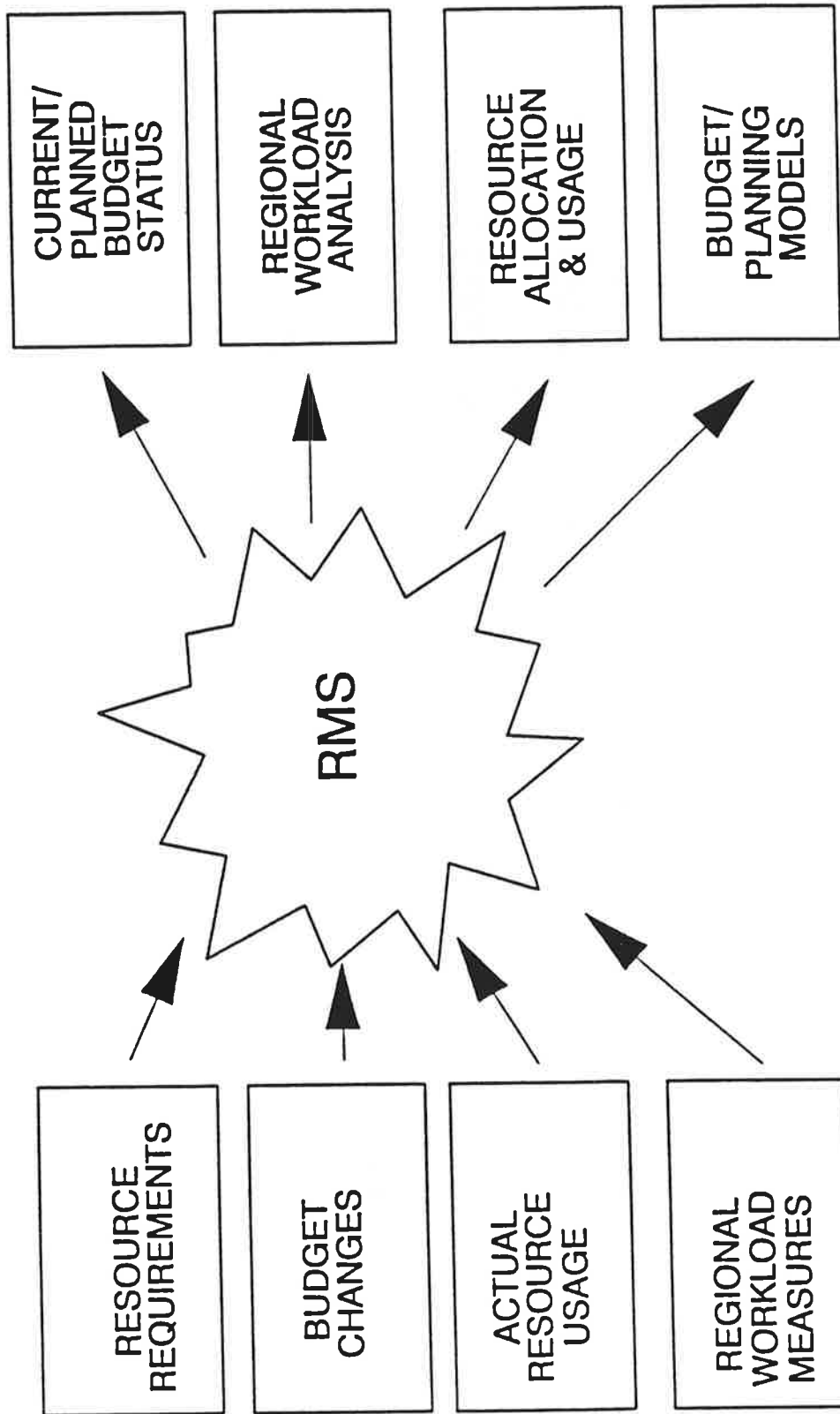
Two vision statements are supported indirectly by this subsystem: elimination of human factors in accidents and world leader in civil aviation medicine. Better and faster decisions on whether an individual is qualified for a safety-related position results in a higher probability that the human factor role in accidents would thereby be reduced. Better decisions also will demonstrate AAM's competence and ability to provide high quality services.

Main Users

Regional Flight Surgeons
Other Reviewers
AAM-200

The remaining users will be identified during the data requirements phase.

RESOURCE MANAGEMENT SUBSYSTEM (RMS)



Information System Strategy Benefits

Project: Resource Management Subsystem

<u>Group</u>	<u>Benefits</u>
AAM-100	Improves planning, budgeting, and reporting of program activities and costs.
Division Managers/ Regional Flight Surgeons	Reduces budget preparation time.
AAM Management	Supports planning and alternatives analysis.

RESOURCE MANAGEMENT SUBSYSTEM

Purpose:

The Resource Management Subsystem (RMS) will enable the Office of Aviation Medicine (AAM) management to more accurately estimate resource requirements, to support the estimates, and to be able to monitor the actual usage of resources against the estimates. The subsystem will also enable AAM to project the impact of alternative budgets on operations.

Background:

In order to accurately estimate and support resource requirements, the Office of Aviation Medicine must have an accurate listing of the goals that were defined for the fiscal period, the tasks that are being performed in each area to accomplish the goals, and of the resource requirements of each task.

The Plans, Evaluation, and Management Support Division (AAM-100) is responsible for the budgeting function. The Regional Medical Divisions and the Civil Aeromedical Institute (CAMI) send their budget requests to AAM-100. The process by which the budget requests are developed varies within each Division. The Medical Specialties Division (AAM-200) works with CAMI and the Regions to develop the budget that is finally submitted.

AAM is currently using an automated budgeting system. The results of a preliminary evaluation indicate that the system meets some but not all of the resource management requirements and requires work in order to be fully satisfactory.

Actual resource usage must be measured and compared to resource estimates. Plans for the current period can be adjusted according to available resources. Future estimates will be more accurate as they are based on actual resource usage. Currently, the Office of Aviation Medicine does not always have easy access to actual resource usage figures.

AAM's planning and resource management function would also benefit from a modelling capability that would help the Office look at the impact of different funding levels on program activities.

Subsystem Overview

The Resource Management Subsystem will enable individuals responsible for budget preparation to specify line items or budget categories for which staffing and resource estimates can be defined. Budgets will be maintained by fiscal and calendar year. The number of line items and the description of each line item can be modified as necessary for each fiscal and calendar year. Budgets can be developed for any organizational unit and rolled up

by a higher level group such as Division. Budgets may vary in format for division-specific use. A data requirements analysis will determine whether a standard format is required for budget discussions with AAM-200.

Actual resource usage will be recorded against the estimates. Reports on discrepancies between actual and planned resource usage will be produced. Discrepancy reports will enable AAM to investigate significant discrepancies, improve future estimates, and support the estimates. A data requirements analysis will determine the source of the actuals and the format, content, frequency and users of the reports.

The RMS will also provide a modelling capability that will enable AAM to project the impact of different funding levels across one, all, or selected programs.

Major Milestones

- Feasibility Study
- Data Requirements Definition
- Review the Budgeting System, the Medical Bills Tracking System, the Standard Acquisition Management System (SAM) and the Personnel Employment Tracking System (PETS) to determine the functions systems perform, technology currently available and required/desired interfaces
- System Design
- System Development
- System Implementation

Functional Requirements Addressed

Provides a budget collection/consolidation mechanism.

Provides estimates of resource requirements for current, past and future fiscal and calendar years.

Records and analyzes actual resource usage against the estimates.

Provides a modelling capability to view the impact of changes in funding across programs.

Benefits

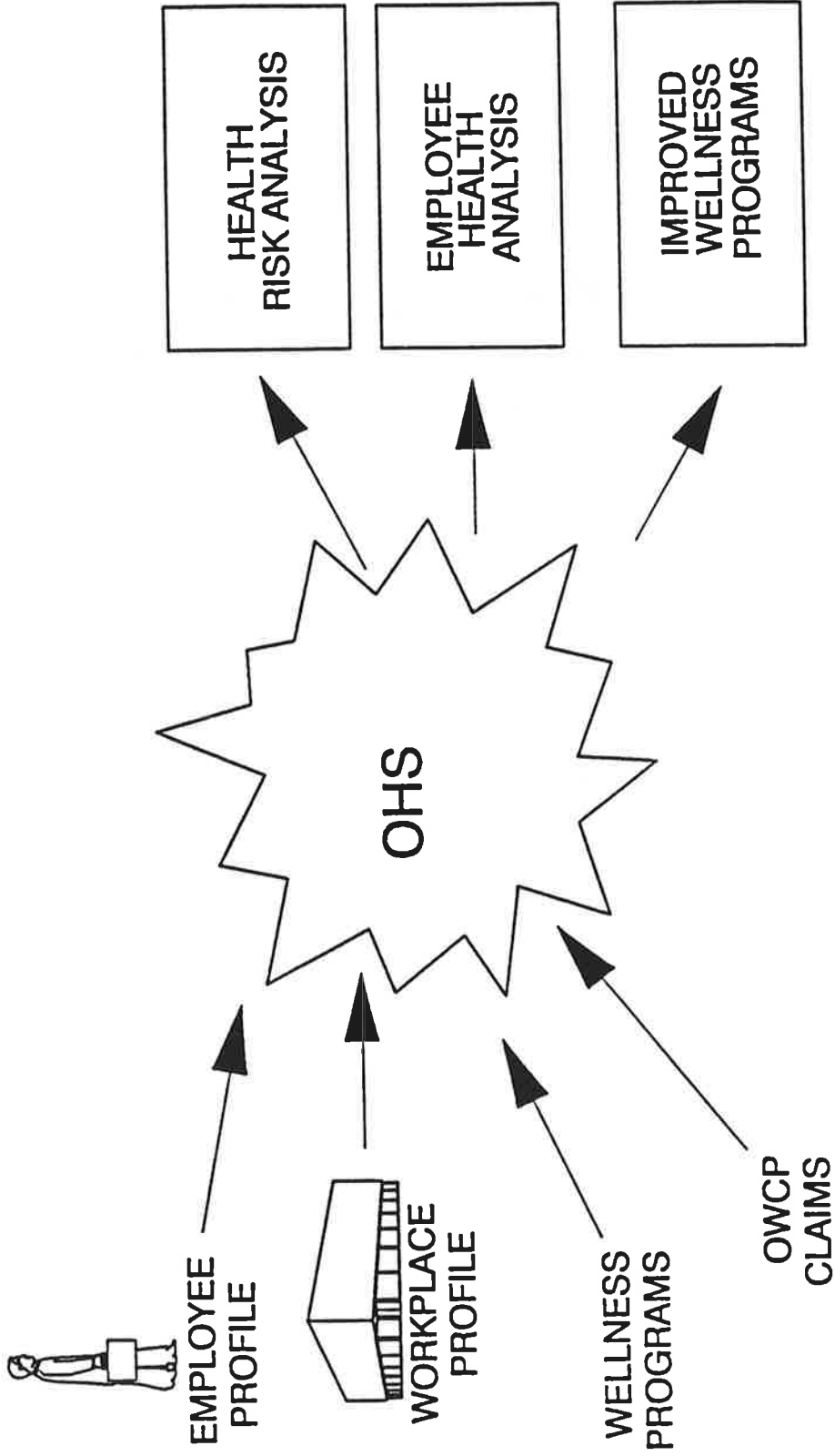
The Resource Management Subsystem supports the "all program areas are integrated" vision statement by enabling AAM to justify and prioritize resource requests. The RMS will provide AAM with better control over both office-wide and division-specific resource estimation and usage. Resource requirements can be quickly reprogrammed to reflect the latest economic and program factors.

Main Users

Individuals responsible for budget preparation
Division Managers at CAMI and Headquarters
Regional Flight Surgeons

The remaining users will be identified during the data requirements phase.

OCCUPATIONAL HEALTH SUBSYSTEM (OHS)



Information System Strategy Benefits

Project: Occupational Health Subsystem

<u>Group</u>	<u>Benefits</u>
AAM-700	Provides AAM with data on the health and safety of employees and work places. Supports the development of health-awareness and safety programs.
Regional Flight Surgeons	Improves ability to determine and meet region-specific employee health needs.

OCCUPATIONAL HEALTH SUBSYSTEM

Purpose:

The Occupational Health Subsystem (OHS) will provide the Office of Aviation Medicine (AAM) with the information that is needed to foster healthy employees who work in healthy places. AAM will be able to identify employees with health problems, identify hazards in the work place, and, when possible, correlate the two so that conditions can be improved.

Background:

The Office of Aviation Medicine is committed to enhancing and maintaining the worth of the individual. Providing a safe work environment and protecting the health of the individual are important aspects of this commitment.

The Office of Aviation Medicine (AAM) is responsible for providing occupational health programs for FAA employees pursuant to the Occupational Safety and Health Act, to Executive Order 12196, Occupational Safety and Health Programs for Federal Employees, and to OMB Circular A-72, Occupational Health Services for Federal Civilian Employees. Many of the FAA clinics that provided these services have been closed due to limited staffing and available resources. One of AAM's goals is to both reopen existing clinics and to create medical clinics as a mechanism for revitalizing aviation medical services. The Plans, Evaluation and Management Support Division (AAM-100) is responsible for a study to determine the optimum organizational structure to perform essential clinical/medical and associated administrative functions within the FAA's medical clinics at the Air Route Traffic Control Centers (ARTCC's) and at the Technical Center (ACT). Since the clinics appear to be a major vehicle through which AAM is planning to deliver occupational health services, the requirements definition study must include the clinic's information needs.

The FAA must comply with Occupational Safety and Health Act (OSHA) and Environmental Protection Agency (EPA) regulations. At the present time, there are two industrial hygienists who are responsible for ensuring that the Mike Monroney Aeronautical Center, Headquarters, and the Regional Offices are safe work places. This limited staffing does not allow for routine inspections or surveys of regional facilities. Additional staffing has been requested so that improved evaluations of FAA work places can be performed and necessary corrective action taken.

As a result of the reorganization of the Office of Aviation Medicine, most of the occupational health functions are the responsibility of the Occupational Health Division (AAM-700) located at CAMI. The Occupational Health Division will have three branches. The Occupational Medicine Branch (AAM-710) does not presently have any programs in place. Two potential programs

within the scope of this branch's charter have information needs that should be considered within the scope of this effort:

Ensure that individuals partially or fully recovered from medical problem stop receiving OWCP awards.

Develop, review and update medical standards for Air Traffic Control Specialists, Pilots, Federal Air Marshalls and potentially other agency occupations.

The Clinical Operations Branch (AAM-720) aims to devise and conduct programs which improve the health and fitness of FAA employees. AAM-720 has taken steps towards conducting health screening, health education, and fitness programs in support of the Aeronautical Center and CAMI. A future possibility for this branch is to become the Medical Evaluation Center for the FAA in conjunction with the proposed Aerospace Medicine residency program between the University of Oklahoma School of Medicine and the CAMI.

Current programs that AAM-720 is responsible for and whose information requirements fall within the scope of this subsystem include:

Providing outpatient care to Aeronautical Center students.

Providing initial care for Aeronautical Center employees for injuries or illnesses occurring at work.

Performing pre-employment physical examinations and urine drug screening when required.

Fulfilling medical requests from Regional Flight Surgeons on their employees who are students at the Center.

The Environmental Health Branch (AAM-730) is responsible for ensuring that the FAA is in compliance with OSHA and EPA regulations. The current staffing only allows for responding to emergency and semi-emergency situations in the regions and addressing the Aeronautical Center's industrial hygiene requirements. The consequences of limited staffing are:

Some FAA employees may be working in unsafe conditions.

The FAA may receive citations of noncompliance with certain OSHA and EPA regulations.

Awards to employees as hazardous duty pay are being contemplated for previous exposures to toxic chemicals.

Fines may be levied against the FAA.

The FAA may receive adverse publicity.

The positive results of an effective occupational health program and the adverse consequences of failing to comply with OSHA and EPA regulations have been receiving increased attention within the Office of Aviation Medicine. The limited resources which AAM currently has for these programs makes it extremely important that automation support be provided to collect FAA employee and work place information, analyze the information, develop appropriate corrective and health promotion programs, and evaluate the impact of the programs.

Subsystem Overview

The Occupational Health Subsystem (OHS) will record health profiles for new and existing employees and employee job and work location information. Health and work information will be updated over time and analyzed with respect to job, work location, or geographic region to determine the types of health-related issues that may arise and the preventive programs that may address these issues.

Employee OWCP claim information must also be made available to this application for analysis. Preventive or wellness programs may be developed to address frequently occurring health problems.

A profile of each FAA facility will also be maintained. Hazards will be identified and efforts to eliminate the hazards recorded. Employees who may be affected or who need to follow special procedures can be identified and measures taken to protect their health.

Major Milestones

- Feasibility Study
- Data Requirements Definition
- Review the Clinic Support Subsystem, the Consolidated Personnel Management Information Subsystem (CPMIS) and Personnel Employment Tracking System (PETS) to determine functions the systems performs, the information that may be applicable, the technology currently available and required/desired interfaces.
- System Design
- System Development
- System Implementation

Functional Requirements Addressed

Provides employee health profiles and analysis

Provides work place profiles and analysis

Provides OWCP claim analysis

Provides information on the impact of wellness programs on the employee population

Benefits

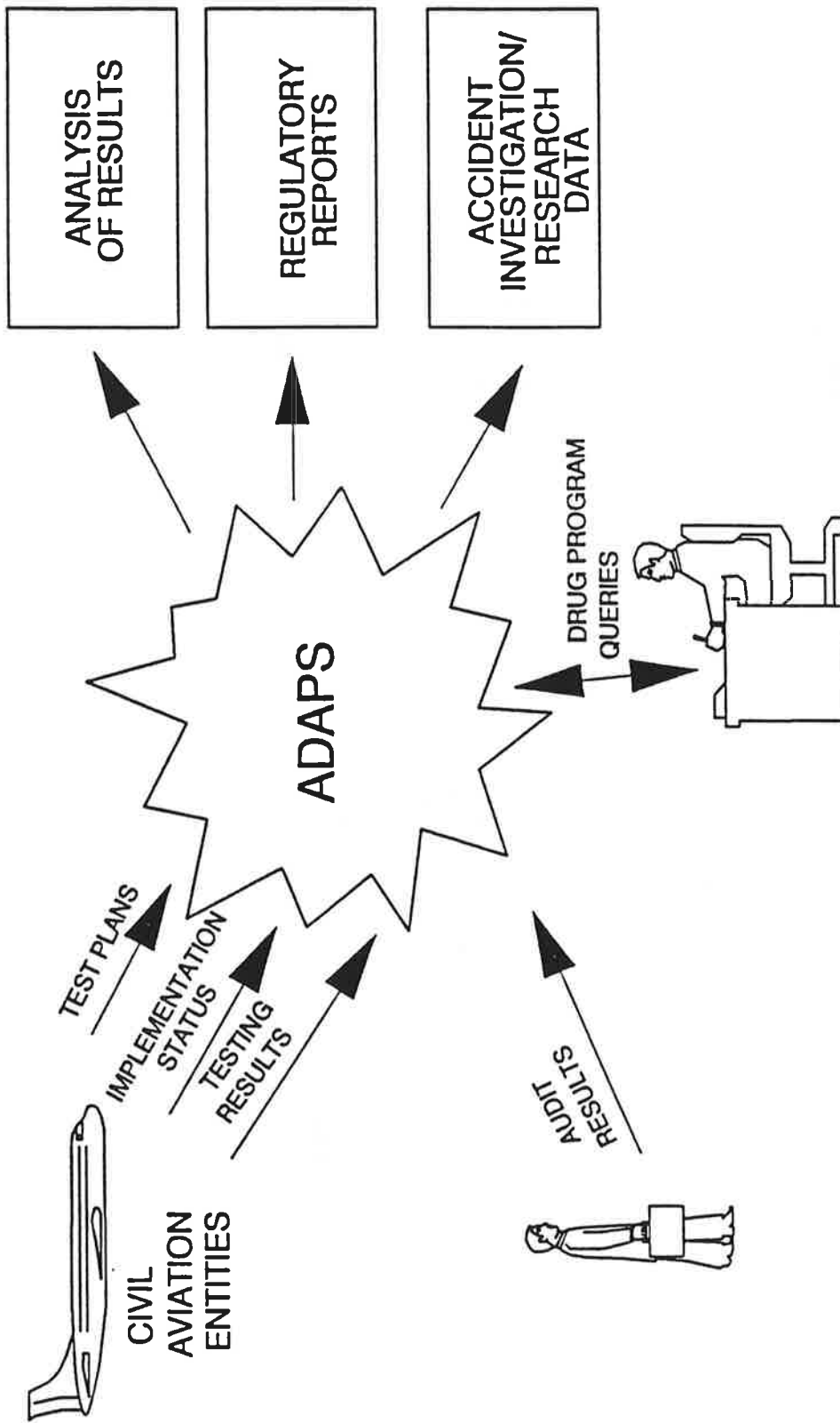
The Occupational Health Subsystem supports two of the vision statements: an effective environmental medicine program is in place and the worth of individual is recognized. The subsystem will enable the development of an effective environmental medicine program by providing employee and work place information, the ability to analyze the data, and support for providing the appropriate types of health improvement activities. Efforts to improve employee health directly support the vision of recognizing the worth of the individual.

Main Users

Occupational Health Division personnel
Regional Flight Surgeons
Medical Specialties Division

The remaining users will be identified during the data requirements phase.

AVIATION DRUG ABATEMENT PROGRAM SUPPORT (ADAPS)



Information System Strategy Benefits

Project: Aviation Drug Abatement Program Support

<u>Group</u>	<u>Benefits</u>
AAM-200	Reduces time and effort required to meet aviation drug abatement program regulations.
AAM-600	Provides the toxicology function with data that will be useful for research.

AVIATION DRUG ABATEMENT PROGRAM SUPPORT

Purpose:

The Office of Aviation Medicine (AAM) is responsible for ensuring that civil aviation entities establish anti-drug test programs according to the guidelines provided in the FAA's final rule, published in November 1988, as amended on April 14, 1989. The Aviation Drug Abatement Program Support (ADAPS) assists AAM in fulfilling this responsibility by automating the information contained in entity-submitted test plans and the collection, analysis, and reporting of drug test results. It will also provide automated assistance for program management, enforcement, and compliance functions.

Background:

14 CFR 61, 63, 65, 121, and 135 mandated an aviation industry drug testing program effective in December 1988. The rule requires domestic and supplemental air carriers, air taxi and commuter operators, other commercial operators, contractors to these air carriers and operators, and air traffic control facilities not operated by the FAA or the Department of Defense to implement anti-drug programs.

The anti-drug regulation requires aviation employers to provide education and training on drug abuse to employees and supervisors and to conduct drug tests on employees who perform sensitive safety- or security-related functions. Over 500,000 commercial aviation employees will be affected by this program. The FAA provides guidance materials to the industry to assist in the development and implementation of anti-drug programs.

The anti-drug regulation requires testing for marijuana, cocaine, opiates, amphetamines, and phencyclidine (PCP) during the following types of testing: pre-employment, periodic, random, post-accident, reasonable cause, and return-to-duty.

Aviation employers are required by the regulation to submit detailed anti-drug plans to the FAA for approval. The rule defines the components that must be included in an anti-drug plan, such as the name of anti-drug program manager; name and address of certified laboratory; name, address, state license number of Medical Review Officer; name of collection agency; description of procedures for the types of testing; description of how records will be kept confidential; and description of education/training program. The FAA has 60 days to review plans and advise the employers of approval or disapproval.

A staggered timetable for submitting plans and implementing the programs was established. Groups of air carriers, operators, and contractors were assigned specified dates by which plans had to be

submitted and a second set of dates by which the drug abatement programs had to be implemented.

The Drug Abatement Branch (AAM-220) has full responsibility for implementing all aspects of the final rule. Automation support exists for the drug plan tracking, test plan data capture, test results reporting, and statistical summaries.

The Drug Plan Tracking Subsystem (DPTS) was initially required to capture the data in submitted drug program plans and track approval/disapproval status through the submission process. The system has been updated to include storage and retrieval of pertinent plan information and the collection/analysis of semiannual and annual test reports. The system is standalone but has built-in data fields that will enable future integration with other ASAS subsystems. DPTS provides a series of screens that request air carrier/pilot identification information, status information, comments, and rider information. Rider information is recorded when the drug plan for a smaller carrier is appended to another carrier's plan. Status and statistical reports, such as number of plans received, approved, testing results, etc., are available.

Employers are required to submit semi-annual and annual reports to the FAA on number of tests conducted, number of positive test results, etc. The FAA will then assess the program results. The Medical Review Officer is required to report verified positive test results on crew members to the Federal Air Surgeon within 24 hours of verification. The FAA's focus with respect to the compliance aspect of the program will be to provide assistance to the industry rather than engage in enforcement actions. The Agency will, however, pursue enforcement actions for blatant disregard of the anti-drug regulation. DPTS maintains records of all plans and reports and verifies that entities are complying with reporting requirements by identifying delinquencies.

Consultants are being used to formulate a compliance plan. Information is expected to be required from the Vital Information Subsystem (VIS), the Enforcement Information Subsystem (EIS), and the Integrated Safety Information Subsystem (ISIS) so that they have the entire history of the air carrier if enforcement actions are taken. Other existing information systems must be investigated to determine if they have data that would assist AAM-220 in the compliance and enforcement aspect of this program.

Compliance and enforcement will be carried out by a systematic, nationwide audit of carriers. The contractor will provide the procedures and methodology and, if required, the manpower to do the audits. Collecting and storing the data is the most important component of the compliance and enforcement effort.

Implementation of the drug testing programs is currently underway.

Information system support is required to ensure that AAM can monitor compliance and provide the appropriate level of support to ensure that the aviation industry successfully implements their plans. DPTS provides short-term information system support; however, for the long-term, an integrated drug abatement program management information system is required.

Subsystem Overview

The Aviation Drug Abatement Program Support (ADAPS) will collect, store, analyze, and report on drug program testing information for the covered aviation-industry entities. Critical information that must be recorded for each entity is the Medical Review Officer, contact information, and the laboratory that the company uses to process the results. An inventory of authorized laboratories must also be accessible. The subsystem must provide AAM with the entities which must be alerted if changes in a laboratory's status occurs.

Testing results submitted by the covered entities must be recorded. Information recorded includes test result due dates, dates the test are submitted, and the test result findings. Test result information that is collected, analyzed, and reported will depend in part on regulatory requirements and restrictions.

The subsystem must also be able to record compliance audit information such as the audit date, auditor, findings, and subsequent actions taken. ADAPS must be able to access air carrier information stored in other systems and provide a complete profile of the air carrier, operator, or contractor. Enforcement actions must also be recorded.

The design of this subsystem must take into consideration the possibility that parameters such as the types of tests administered, the substances tested for and the population that must be tested could change subject to changes in the legislation. Reporting capabilities must also be flexible enough to meet both currently known and yet to be determined reporting requirements. Information collected as part of this effort is of interest to the Aeromedical Research Division and their information needs should be taken into consideration as part of this effort.

Major Milestones

- Feasibility Study
- Data Requirements Definition
- Review the modifications that are being made to the DPTS to determine the information recorded, functions performed, the technology currently available and required/desired interfaces.
- Review VIS, EIS, ISIS, and related ASAS applications to determine information that may be applicable and

- required/desired interfaces.
- System Design
- System Development
- System Implementation

Functional Requirements Addressed

Provides ability to monitor and support aviation industry entities' implementation progress.

Provides ability to collect and analyze program results.

Provides ability to produce regulatory reports on program results.

Provides ability to respond to possible changes in reporting requirements.

Provides ability to monitor compliance audit results and impact of enforcement actions.

Benefits

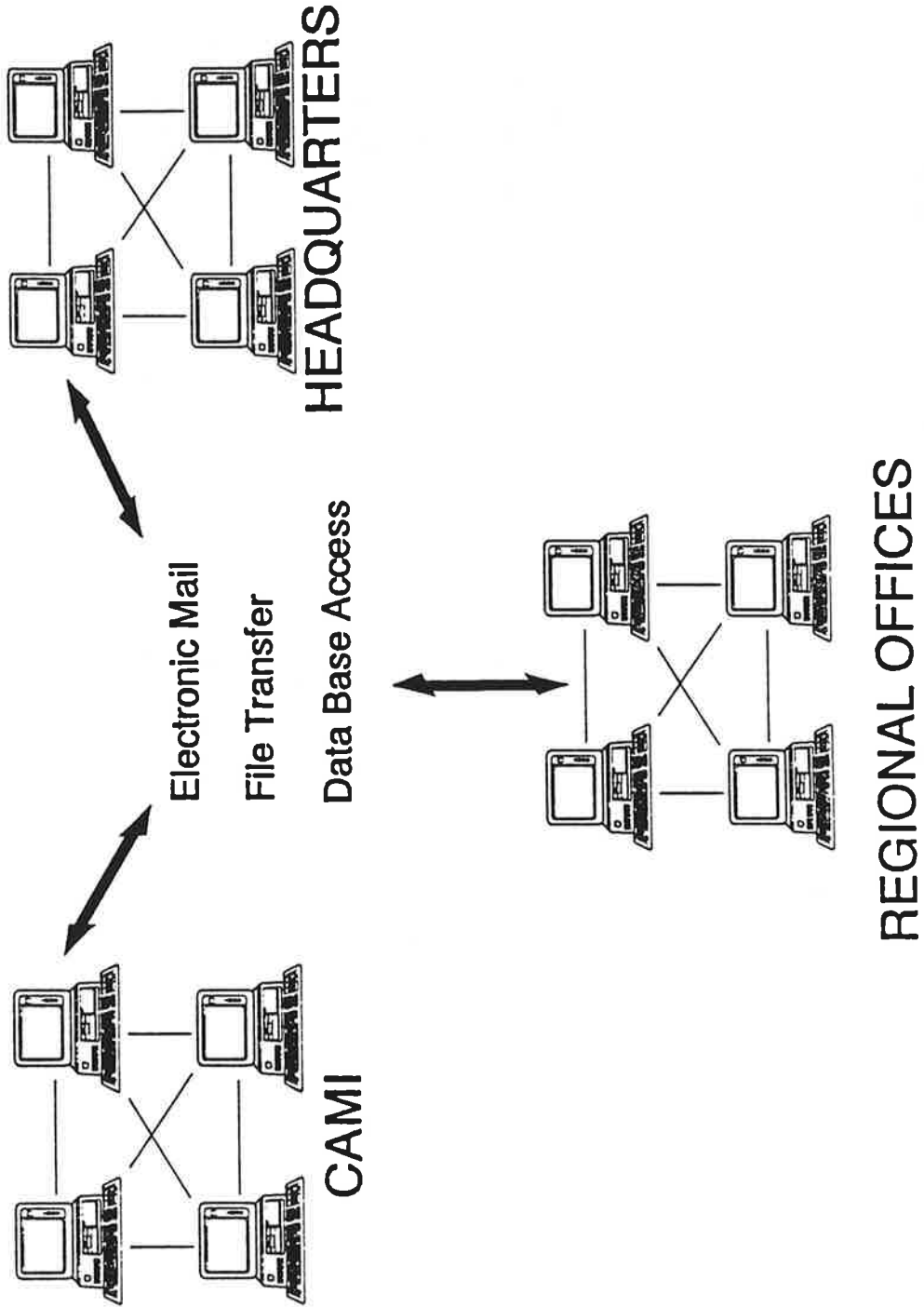
The aviation industry drug abatement program supports AAM's vision of a drug-free national airspace system. The Aviation Drug Abatement Program Support (ADAPS) supports AAM's implementation of this program and therefore will help to achieve this vision.

Main Users

Drug Abatement Branch
Research Division

The remaining users will be identified during the data requirements phase.

AAM COMMUNICATION PROJECT



Information System Strategy Benefits

Project: AAM Communication

<u>Group</u>	<u>Benefits</u>
All AAM Staff	Improves intra-office communication and team work by implementing a common, office-wide electronic mail system.
Senior Management	Provides an efficient and effective mechanism for communicating Office goals, strategy, and policy.
Working Groups	Provides an efficient and effective mechanism for communicating, scheduling, and disseminating information.

AAM COMMUNICATION PROJECT

Purpose:

The Office of Aviation Medicine (AAM) needs to be able to link all its employees in a single network and provide them with a single, AAM-endorsed electronic mail system. The Office must also provide the training and motivation to ensure that the system is used regularly. The AAM Communication Project looks at the availability of effective, efficient, and accessible electronic mail systems as well as other potential communication channels, and selects and implements an electronic mail system.

Background:

The Office of Aviation Medicine (AAM) is a geographically and functionally diverse organization. Effective operation depends on clear and frequent communication between Headquarters, the Regional Offices, and the Civil Aeromedical Institute (CAMI). Frequent communication helps to ensure that consistent decisions are made with respect to certification cases and medication issues. It also helps to ensure that FAA and AAM policies and regulations are interpreted consistently and that all employees are aware of the Office's vision and priorities.

At the present time there are many electronic mail systems in use throughout the Office. In addition, a number of individuals within AAM do not have access to electronic mail. This project is to facilitate intra-office communication by providing all AAM employees with access to a standard Office-wide electronic mail system.

Subsystem Overview

Required electronic mail features will be documented. The requirements must consider the characteristics and volume of data that will be sent using the system. Another study, the AAM Data Model, will be looking at data characteristics and volume. This project should use their findings. Electronic mail systems that currently exist within the Office of Aviation Medicine will be evaluated to see if usage should be expanded to all Office employees or if the system will be redundant with the implementation of an office-wide system. It may be appropriate to eliminate electronic mail systems which have limited features and access. Telecommunications technology recommended by the OATS contract must be investigated as part of this project.

The outcome of this study will provide APR with a list of electronic mail features that are required to support AAM functions. Training, documentation, and user support must be provided to ensure that employees are capable of using electronic mail and are motivated to use the product. This project will also investigate new, or soon-to-be available, communications technologies. The Systems Technology Branch (APR-310) of the Office of Program and Resource Management (APR) will be consulted

to provide an outlook of state-of-the-art communication technologies.

Major Milestones

- Feasibility Study
- Data Requirements Definition
- Review the electronic mail systems currently in use to see if they are still required, or if one should be implemented Office-wide.
- Review OATS contract recommendations.
- Review new communication technologies
- Select electronic mail system
- Implement electronic mail system

Functional Requirements Addressed

Provides and endorses use of a single system throughout AAM

Provides accessible, timely intra-office communications capability.

Provides training and support to use the communications system.

Benefits

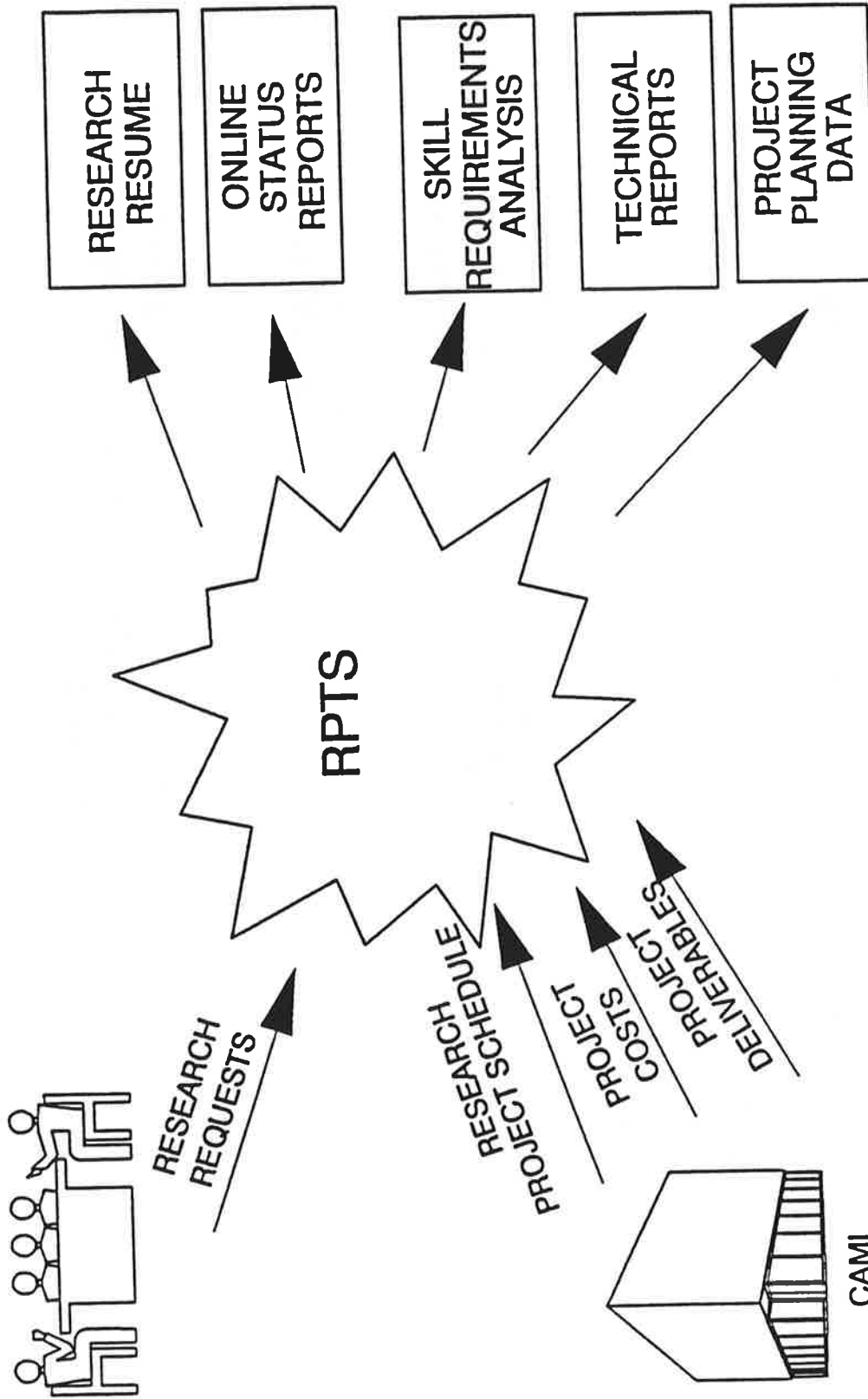
The AAM Communication Project directly supports AAM's vision of integrating all program areas. The ability to effectively communicate makes it possible to share information, understand each others' responsibilities, and promote teamwork.

Main Users

AAM employees

Additional users will be identified during the data requirements phase.

RESEARCH PROJECT TRACKING SUBSYSTEM (RPTS)



Information System Strategy Benefits

Project: Research Project Tracking Subsystem

<u>Group</u>	<u>Benefits</u>
AAM-500 AAM-600	Reduces effort to prepare research proposals and report on project status due to on-line, standardized formats. Improves ability to determine skill requirements based on history of project requests.
AAM-200	Supports external reporting and management decision-making on research projects.
All AAM Staff	Provides information on on-going research activities.

RESEARCH PROJECT TRACKING SUBSYSTEM

Purpose:

The Research Project Tracking Subsystem (RPTS) improves AAM's ability to manage and report on the research project process. It enables the research area to track research requests, efficiently prepare research proposals, inform others as to the status of the projects, and to justify requests for resources.

Background:

The Biomedical and Behavioral Science Branch (AAM-240) is responsible for soliciting research requests from FAA organizations. Once a year, letters are sent to FAA operating divisions to solicit potential research opportunities. About 20 responses are typically received in this manner. AAM-240 frequently interacts with FAA operating divisions through vehicles such as meetings or task forces. This informal contact also results in potential research problems.

AAM-240 works with the Federal Air Surgeon to determine the research requests that will be pursued. The determination is based on a match between the urgency and nature of the requests, the available resources, and the types of expertise available at the Civil Aeromedical Institute (CAMI).

Research requests are reviewed by the Director of CAMI and assigned to either the Human Resources Research Division (AAM-500) or the Aeromedical Research Division (AAM-600). AAM-240 personnel work on research projects as well. Their research facilities are located at the Technical Center in Atlantic City. Research is performed by this group when CAMI is overloaded or AAM-240 has an expertise in a particular area. The majority of research projects, however, are based at CAMI.

Most research requests are submitted as a letter, not a statement of work. Once the request has been assigned to a principal investigator (PI) a research proposal or Aeromedical Research Resume (Form 9950-1) must be completed. The research resume lists the problem the project addresses, the organization and individual performing the work, and a brief technical summary. The PI works with the requestor to complete the resume. If the study fits into an existing task, it is added to the research proposal; a 9950-1 is not completed.

The FAS currently reviews and approves the completed research resume. A Research Committee that is in the process of being formed will be responsible for reviewing the resumes.

The principal investigator is responsible for performing the research. The research process includes preparation, execution of the experiment or study, and interpretation and documentation of the results. Most PIs have their own information system support and research data base. Results are formally communicated in an

Office of Aviation Medicine Technical Report. Journal articles are often a by-product of research projects. Research results are also informally communicated to different areas within and outside of AAM.

Researchers prepare monthly and quarterly status reports. Monthly reports are provided to AAM-240. Quarterly reports are prepared and distributed both to Headquarters and to the research sponsor. Reports are prepared using word processing software. The reports are not consistent in the type of information or level of detail provided with respect to schedules, milestones, and report status.

The Research Project Tracking System addresses the need for improved project management and consistent project status reporting.

Subsystem Overview

The Research Project Tracking Subsystem (RPTS) records research project requests, their priority, the status of the requests and the skills required to conduct the projects. The RPTS then matches the skill requirements against available talent to assist in the research request selection process. Additional skill requirements can be determined based on high priority requests that were incapable of being addressed due to an absence of the appropriate skill. AAM will thus have the information required to support hiring or training requests to acquire needed talent.

The subsystem automates research resume preparation and assists in the preparation of project schedules. Tasks and milestones are clearly defined with estimated and actual task completion dates. The research project status is updated and maintained online. The Biomedical and Behavioral Sciences Branch will be able to view project status and schedules online. Paper status reports will be eliminated. Actual and estimated project costs are also tracked. Actual versus estimated project cost and length are used as input for planning future projects. AAM will have the information required to support and justify requests for resources.

Source material referenced by the researchers in preparation for conducting the research as well as resulting technical reports and journal articles published will be tracked by the subsystem. Future investigators researching a topic would be able to easily reference source material used for a similar project as well as results achieved by related research performed within AAM.

Major Milestones

- Feasibility Study
- Data Requirements Definition
- Review current research project reporting applications to determine functions systems perform, technology currently available and required/desired interfaces
- System Design
- System Development
- System Implementation

Functional Requirements Addressed

Provides research project status information.

Provides research project staffing requirements.

Supports requests for resources.

Provides library of technical reports available at CAMI and Headquarters.

Operational Requirements

To be determined.

Benefits

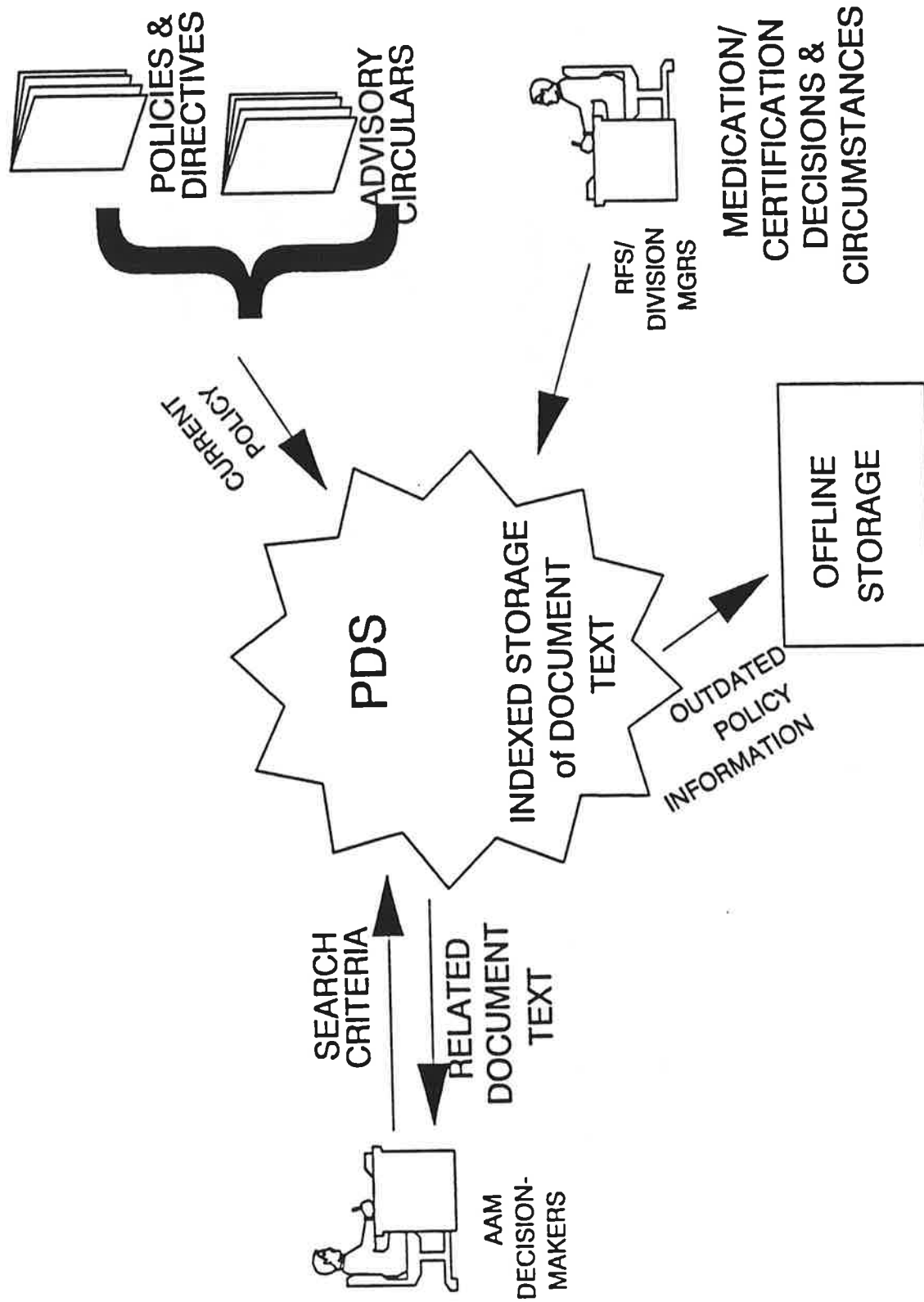
By improving AAM's capacity to perform research, the Research Project Tracking Subsystem directly supports AAM's vision of being a world leader in civil aviation medicine. RPTS enables AAM to increase the scope of topics within which AAM has expertise, improve the quality and quantity of research results, and increase the Office's ability to serve the aviation community in a consulting role. These attributes demonstrate the Office's competence in the field of aviation medicine.

Main Users

Research Division
Headquarters

The remaining users will be identified during the data requirements phase.

POLICY and DIRECTIVES SUBSYSTEM (PDS)



Information System Strategy Benefits

Project: Policy and Directives Subsystem

<u>Group</u>	<u>Benefits</u>
AAM Management	Facilitates communicating new office policy and procedures to AAM personnel nationally.
AAM-200 AAM-300 Regional Flight Surgeons AMEs	Takes advantage of system, safety, and efficiency review (SSEER) initiative. Ensures that aeromedical certification and special consideration decisions are made based on current policy and regulations.

POLICY AND DIRECTIVES SUBSYSTEM

Purpose:

The Policy and Directives Subsystem (PDS) facilitates consistent, high quality decision making by providing easy access to all current FAA and Office of Aviation Medicine (AAM) policy and regulatory material. The Policy and Directives subsystem project will be part of the system, safety, and efficiency review (SSER) initiative.

Background:

One of the Office of Aviation Medicine's priorities is to ensure that consistent, high-quality decisions are made by personnel located in nine FAA Regional Offices, FAA Headquarters in Washington, D.C., and the Civil Aeromedical Institute (CAMI) in Oklahoma City. In order for consistent decisions to be made, everyone who makes decisions must be aware of regulatory policies and guidelines currently in effect. At the present time, new or updated policies and regulations are distributed to and maintained in each Division. Individuals in different physical locations may receive updates at different times. There may also be a time lapse before the outdated material is replaced or clearly marked as outdated. Consistent decision making is hindered by the possibility that different versions of regulations are currently in use.

Maintaining information manually also impedes AAM's ability to determine and access all regulations and guidelines that may apply to a particular situation. An individual may either overlook a relevant regulation or may not be aware of its existence. The resulting decision is therefore not based on all available information.

Another factor that affects the quality of decision-making is the difficulty of determining the precedence for certain regulations. Knowledge of the precedence and of the rationale for the current regulations makes it easier to apply the regulation or guideline and recognize exceptions.

The Policy and Directives Subsystem enables AAM to locate all relevant regulatory material for a particular circumstance and, if required, to trace back the precedence for the regulation. It ensures that current regulations are maintained and updated in a single source. Decision makers can be confident that they are aware of all relevant information.

Subsystem Overview

The Policy and Directives Subsystem (PDS) maintains current policies, orders, directives, advisory bulletins, and other regulations and statutes applicable to the Office of Aviation Medicine. The data is indexed to provide access to related regulations by key word, subject, date and other relevant search

criteria. Precedents that have been established with respect to medication decisions are also maintained. Outdated material is either off-loaded or clearly identified as out-of-date.

Document imaging technology should be explored as it is designed to handle paper-intensive applications that require sophisticated indexing schemes. For example systems that support legal reference systems may be appropriate for this application.

Three ASAS subsystems perform similar functions to the needs described above. The Automated Federal Aviation Regulations Subsystem (AFARS) provides access to the full text of the Federal Aviation Regulations (FARs). The Rules Genesis Subsystem (RGS) speeds the process of tracing the genesis of current regulations to their predecessors in earlier versions and initial bulletins. The Policy Memoranda Subsystem (PMS) tracks memoranda written to clarify regulations where possible ambiguities exist. These subsystems must be explored to determine the applicability of the content and technology to this project.

Major Milestones

- Feasibility Study
- Data Requirements Definition
- Review the AFARS, RGS and PMS to determine the functions systems perform, technology currently available and required/desired interfaces.
- System Design
- System Development
- System Implementation

Functional Requirements Addressed

Provides ability to review all regulatory material and guidelines that may impact a decision.

Ensures that current policy and regulations are easily accessible.

Provides access to precedents upon which policy or regulations are based.

Benefits

The Policy and Directives Subsystem (PDS) directly supports two AAM vision statements: program area integration and same-day certification. Program area integration is supported in that policy and regulation information is viewed as an office resource, is continually updated, and is readily available to anyone who needs it. Same-day certification is supported in that access to information improves decisions and enables them to be made more quickly. The PDS supports two other AAM vision statements indirectly: eliminating the human factors in accidents and AAM is a world leader in civil aviation medicine. Better and faster decisions improve the probability that only qualified airmen are

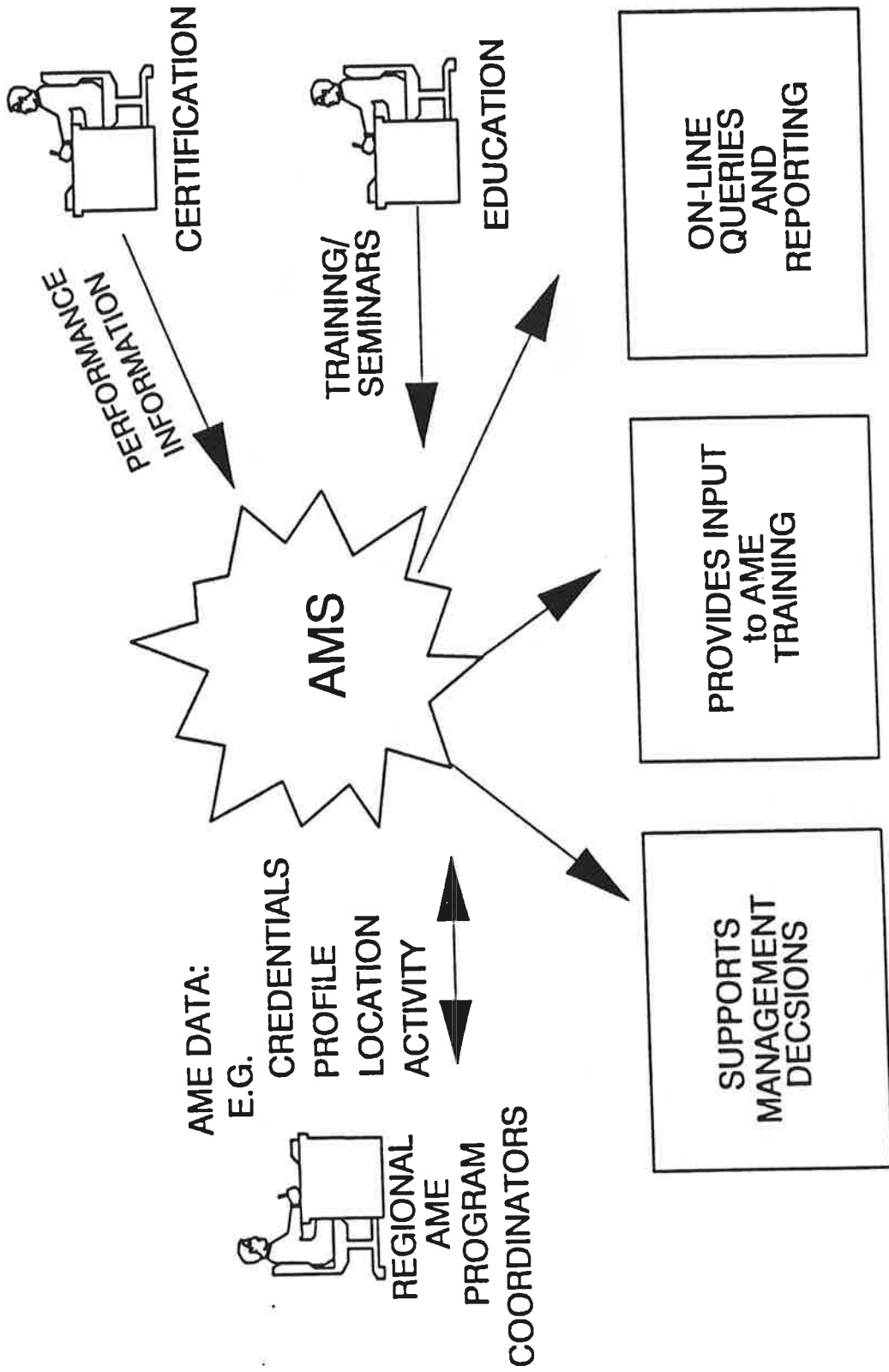
certified; the human factor role in accidents would therefore be reduced. Better decisions would also demonstrate AAM's competence and ability to provide high quality services.

Main Users

AAM decision makers located at Headquarters, CAMI and in the Regional Offices

The remaining users will be identified during the data requirements phase.

AME MANAGEMENT SUBSYSTEM



Information System Strategy Benefits

Project: AME Management Subsystem

<u>Group</u>	<u>Benefits</u>
AAM-400	Improves ability to maintain, analyze, and report on national AME data.
	Improves ability to determine AME training requirements and to plan training sessions.
Regional Flight Surgeons	Improves ability to coordinate AME management decisions with AAM-400.

AVIATION MEDICAL EXAMINER MANAGEMENT SUBSYSTEM

Purpose:

The Aviation Medical Examiner Management Subsystem (AMS) will provide the Education Division, the Certification Division, and the Regional Division Aviation Medical Examiner (AME) Program Coordinators with the information needed to identify AME training requirements, monitor AME activity and performance, and ensure that the correct number of AMEs are in the correct locations.

Background:

Aviation medical examiners are an integral part of one of the Office of Aviation Medicine's most visible programs: airman medical certification. The AME's role in this program is to perform a physical exam and to determine if the airman meets the specified medical standards. The AME forwards the completed Application for Airman Medical Certificate or Airman Medical and Student Pilot (Form 8500-8) to the Certification Division at the Civil Aeromedical Institute (CAMI). The form is currently sent through the mail. The form information will be sent electronically with the implementation of the Aeromedical Certification Subsystem (AMCS). The AMCS will also help ensure that the AMEs send CAMI complete and accurate information.

AAM's workload is significantly increased when an AME incorrectly completes an application or makes a certification decision that later needs to be reversed. Aviation safety may also be compromised by an incorrect certification decision. It is critically important that AMEs are provided with current, complete and accurate medical standards and examination procedures; are trained to submit the correct information, in the correct format and the appropriate level of detail; are provided with measurable performance standards; and held accountable to those standards.

The Aviation Medical Examiner System Order (8520.2D) provides policy guidance for the administration of the AME System including procedures for designating and terminating the designation of AMEs. The Order includes both performance criteria and the procedures to designate or terminate AMEs in the regions, the military and overseas.

The Manager of the Aeromedical Education Division (AAM-400) is responsible for designating and terminating flight surgeons who are AMEs at military posts and AMEs located in foreign countries or areas not under the responsibility of a Regional Flight Surgeon (RFS). RFSs designate AMEs and terminate designation for AMEs in their regions. The Education Manager is responsible for planning, developing, administering, and evaluating AME education programs, evaluating AME performance and providing the RFS with evaluation information.

Physicians who want to be AMEs contact the Regional Aviation Medical Examiner Program Specialists. The AME Specialists keep a list of physicians who want to be AMEs. Physicians must have an established practice and be licensed to practice medicine. The physicians complete an application form that records identification, education, experience and license information. The AMEs send the completed application plus references to the Regional Program Specialists. The Program Specialists keep a list of physicians who have applied and send the completed applications to the Education Division Manager at CAMI. The Education Division queries the National Registry of Physicians and the State Registry to confirm that there are no problems with the physician's license. The application information is recorded on the Education Division's computer system and a tape is built in the format required by the National and State Registry. License information is confirmed on a quarterly basis.

AAM determines the desirable number and geographic location of AMEs based on the number of pilots and where they are located. Adequate coverage is generally measured as a ratio of 1 AME to 100 pilots within a specified geographic area. In order to be designated, a licensed, practicing physician must attend two training seminars. The Aviation Medical Standards and Procedures Workshop must be attended by a physician and one staff member and is designed to train AMEs and their staff in the accurate completion of FAA Form 8500-8. The Program Specialist invites the physicians to attend a workshop and forwards the attendance list to the Education Manager. Regional medical personnel, AAM-400, and the Aeromedical Certification Division (AAM-300) conduct the workshop. The RFS is responsible for preparing certificates that designate the physicians as AMEs. The certificates are issued at the conclusion of the workshop.

Aviation Medical Seminars provide physicians with basic and continuing education in aviation medical specialty areas. The Education Division is responsible for preparing the seminars and the regions host and provide logistical support for the seminars.

Selected AMEs may also attend a Medical Aspects of Aircraft Accident Investigation Seminar. These seminars provide an understanding of the techniques, procedures, and regulations for the medical aspects of aircraft accident investigation. These AMEs will assist the RFS, upon request, in investigation of aircraft accidents.

Some AMEs are additionally designated to perform physical exams to ensure that air traffic control specialists (ATCS) and other employees in FAA safety-related positions are medically qualified for those positions.

The Education Division is currently using an automated AME System to help manage AME training and monitor performance. AME data bases are also maintained in the regions. The results of a preliminary evaluation indicate that the system meets some but not all of the AME program management requirements and requires work in

order to be fully satisfactory. The AME Management Subsystem will evaluate the AME System and regional data bases to determine how to best utilize existing functions and technology. AMS will enable the Education Divisions, the Regional Medical Divisions, and the Certification Division to maintain a list of physicians who want to be AMEs and their status; to determine how many AMEs are required and where they should be located; to define high quality performance criteria and monitor AME performance against the criteria; and to schedule and monitor AME training requirements.

Subsystem Overview

The AME Management Subsystem (AMS) will record the number of physicians who have requested to be designated as AMEs and their current status. Status designations will indicate the steps completed in the designation process: application completed, application approved, attended workshop, attended seminar. The system will also track the AME's designation date and report on AMEs who need to be redesignated, or who need to attend an Aviation Medical Seminar.

The types of services the AMEs can provide are also listed (2nd and 3rd class examination, 1st class examination, employees in safety-related position examinations, accident investigation).

The subsystem will also record the contacts AAM has had with the requesting physicians and the AMEs. Contact information includes date, performance evaluations, management decisions, and action taken. Contact information will help support potential legal actions that may need to be taken.

AMS will record the types of available seminars, when they are scheduled, who is scheduled to attend, and who actually attended. A user will be able to look at a seminar and view the planned attendees or look at an AME and view the seminars he/she plans to attend. A schedule can be sent to the region sponsoring the seminar. AMEs can be sent a schedule of seminars for which he/she is registered.

AMS will record performance standards, performance evaluations, actions taken, and other personnel management information. Standard letters for designation, warning, termination and other actions are available. Letters can be customized as required. The AME Management System will be able to access medical certification reference information as required to evaluate AME performance or to respond to questions regarding AME actions. Security measures must be taken to ensure that only authorized personnel can access both certification and AME information.

AMS will be able to access airman information to determine the number of airmen by region and thus the required number of AMEs by region. The subsystem will provide information on locations that need AMEs, the number needed, and the available AMEs, their status and the order in which they should be selected.

AMS will have an ad hoc query and an ad hoc reporting capability. The system must be able to support users at Headquarters, CAMI and in the Regional Medical Divisions.

Major Milestones

- Feasibility Study
- Data Requirements Definition
- Review the current AME System to determine functions it performs, technology currently available and required/desired interfaces.
- System Design
- System Development
- System Implementation

Functional Requirements Addressed

Provides AME status information.

Provides AME performance information.

Supports scheduling of AME seminars and records seminar attendance.

Supports designation or termination decisions.

Supports analysis to determine requirements for new training courses and seminars.

Benefits

The AME Management Subsystem supports AAM's vision of same-day certification. Well-trained, component AMEs will make correct certification decisions. The percentage of cases requiring reviews and the number of reversals should therefore decrease. The elimination of human factors in accidents and the world leader in aviation medicine vision statements are supported indirectly as the probability of only qualified airmen being certified is increased.

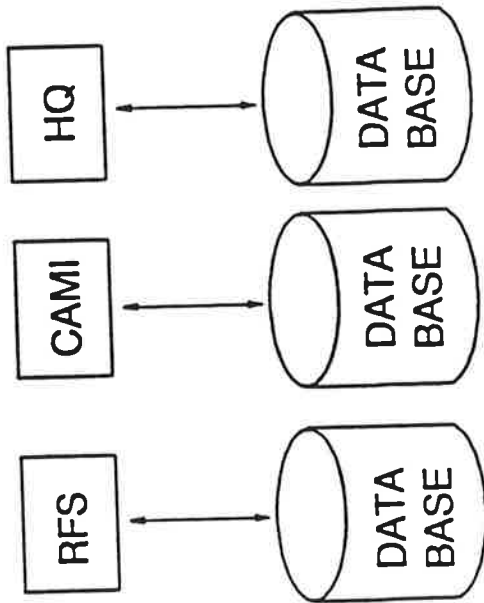
Main Users

Education Division
Regional Divisions
Certification Division

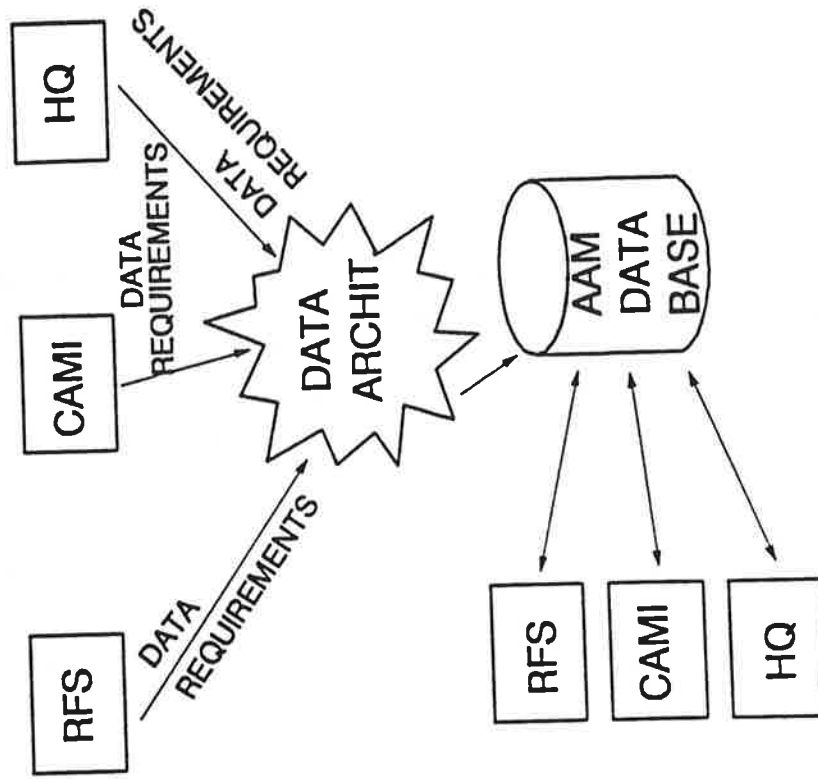
The remaining users will be identified during the data requirements phase.

AAM DATA ARCHITECTURE

BEFORE



AFTER



Information System Strategy Benefits

Project: AAM Data Architecture

<u>Group</u>	<u>Benefits</u>
AAM-100	Improves IRM management through greater knowledge of AAM data requirements.
Division Managers/ Regional Flight Surgeons	Provides all AAM staff with an awareness of and the ability to access and use information collected anywhere in AAM.
Senior Management	Provides the data structures that will allow AAM to promote program integration and cross-functional applications.

AAM DATA ARCHITECTURE

Purpose:

The AAM Data Architecture provides the Office of Aviation Medicine (AAM) with control over and access to its data. The data architecture creates a data structure that describes the data items that exist within the Office, where they currently reside, and the logical relationship between elements. It enables AAM to create a single data source and standards that will enable the future development of applications to support an integrated AAM.

Background:

The administration and operation of AAM's major programs requires that Headquarters, the Regional Divisions, and the Civil Aeromedical Institute (CAMI) work as a team to solve problems, make decisions, and communicate the resulting solutions and decisions. Effective teamwork relies on everyone feeling confident that the data upon which decisions are based is complete, accurate, and current. Optimally, data is updated by one source, maintained in a single location, and available to all who have the need and authorization to use it.

AAM data currently exists in multiple locations, is updated from multiple sources and is not easily accessible to authorized individuals. Each application or function has a singular view of the data. Individuals are therefore making decisions based on different versions of the same data.

The AAM Data Architecture provides an Office-wide view of the data used by the Office of Aviation Medicine. It brings together the different views of the data and provides a foundation from which data bases can be designed for future applications.

Subsystem Overview

The AAM Data Architecture project reviews the data that is received, processed, and distributed in each Regional, Headquarters, and CAMI Division. Duplicates in data elements and multiple names that identify the same item are examined and resolved so that each data item in the model is unique. The meaning assigned to a data element name is clearly communicated to all personnel.

Relationships between data elements and data volumes are recorded. The data elements are organized to provide a view of the data relationships and natural groups. The data architecture is therefore a synthesis of many separate user views of data.

The data source and end use of the data are also defined. Physical data bases are developed based on the data structure. Office-wide, division-specific, or individual applications are built that access and update the data bases. The appropriate security is in place to make sure that only authorized data access is permitted.

Major Milestones

- Feasibility Study
- Data Requirements Definition
- System Design
- System Development
- System Implementation

Functional Requirements Addressed

Enables AAM to catalogue and manage its data.

Provides users with a high level of confidence in data quality.

Reduces duplication of data across AAM.

Provides the foundation on which to build future applications.

Benefits

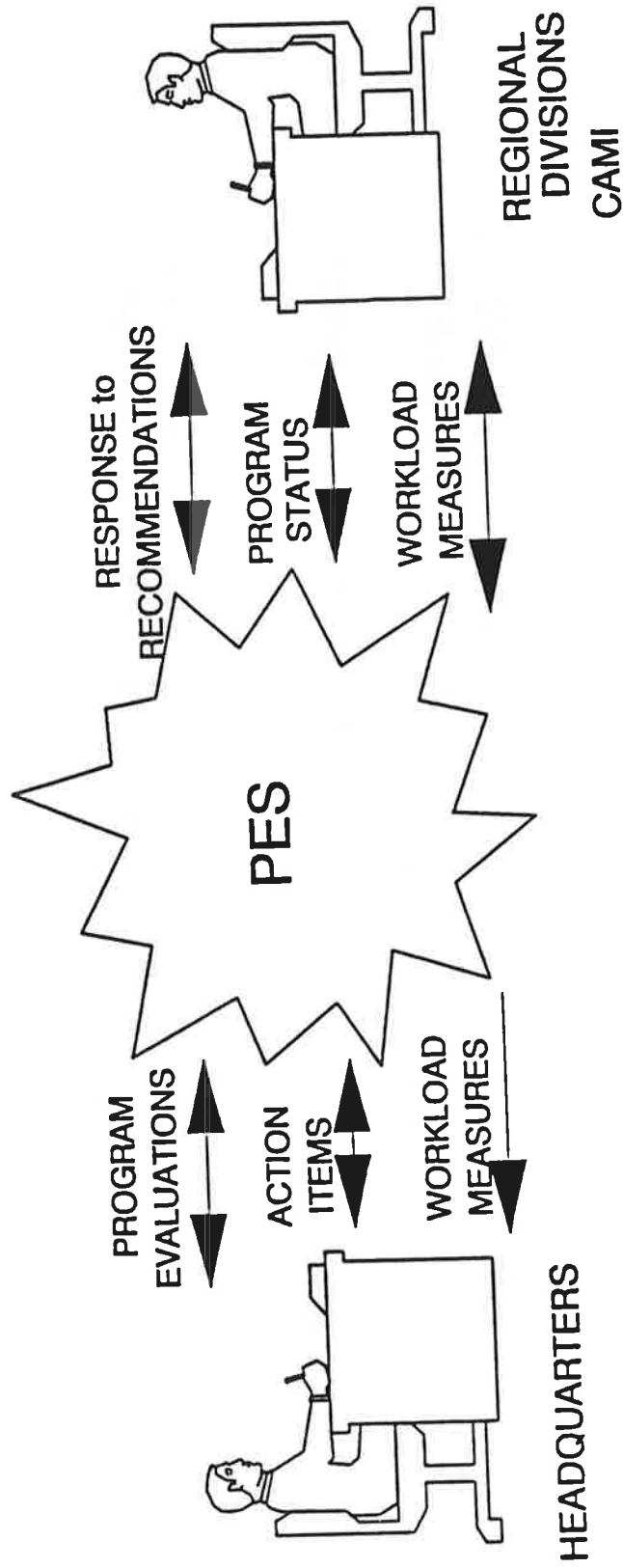
The AAM Data Architecture Project supports AAM's vision of integrating all program areas. The result of the data model, accurate, complete and accessible data, will enable better and more consistent decisions. AAM recognized that its success is tied to operating as an integrated entity. A well founded data model will enable the cross-program and cross-organization communication needed to allow AAM to function as intended.

Main Users

All Office of Aviation Medicine personnel

The remaining users will be identified during the data requirements phase.

PROGRAM EVALUATION SUBSYSTEM (PES)



Information System Strategy Benefits

Project: Program Evaluation Subsystem

<u>Group</u>	<u>Benefits</u>
AAM-100	Improves ability to obtain accurate and complete workload statistics.
	Improves ability to define program activity guidelines.
Regional Flight Surgeons	Improves ability to provide consistent, high quality programs and services.

PROGRAM EVALUATION SUBSYSTEM

Purpose:

The Program Evaluation Subsystem (PES) will provide the Office of Aviation Medicine (AAM) with information on the status and effectiveness of program activities. Headquarters, the Regional Divisions and the Civil Aeromedical Institute (CAMI) each play a role in operating the Office's major programs. In order for the Office to work together to provide services effectively and efficiently, each group must understand each other's responsibilities, constraints, and priorities. The program activities performed in each area must be defined, measured, and communicated for the programs to operate effectively and efficiently.

Background:

The Plans, Evaluation, and Management Support Division (AAM-100) is responsible for evaluating AAM program activities in the Regional Offices and at the Civil Aeromedical Institute (CAMI). Program activity is currently assessed using workload statistical reports and on-site evaluations. The Regional Divisions and CAMI provide AAM-100 with quarterly workload reports that contain statistics on various activities performed by the field divisions. The report information is difficult for the Regional Divisions to produce and for AAM-100 to interpret.

On-site evaluations are conducted by two evaluation officers who visit the Regional Offices and CAMI on an annual basis. Evaluation criteria have been developed for all programs and communicated to the Regional Divisions. The evaluators report on the Regions' effectiveness in meeting these guidelines. Action items are documented and recommendations made on how to improve program effectiveness. At the present time, the findings are presented verbally, followed by an evaluation report.

The Program Evaluation Subsystem promotes consistency in program operations by improving communication between AAM-100 and the field divisions. The PES also improves the effectiveness of program activity by providing a mechanism for communicating ways that have been found to increase program effectiveness between Headquarters, the Regions and CAMI.

Subsystem Overview

The Program Evaluation Subsystem (PES) will record workload statistics that effectively convey the level of program activity at CAMI and in the Regions. A data requirements study will determine measures that the field is able to provide and AAM-100 is able to use. Workload statistics are analyzed and are used as input for determining resource requirements.

The PES will be used to promote consistency in the level of service provided and in program operation. Program evaluation criteria will be recorded and made available to all Divisions responsible for operating the programs. The Divisions will use the subsystem to provide feedback to AAM-100 on the implementation of the criteria and on any recommended changes to the criteria or the monitoring process.

Program evaluation information including the evaluator, the Division evaluated, recommendation, comments, and follow-up actions will be recorded. The division responsible for implementing the recommendations will record the effectiveness of the recommendations and follow up actions taken. Common issues and concerns in program operation will be identified from the evaluation results and communicated to all involved so that a joint solution can be found. The PES will also be used to communicate ways to improve program effectiveness throughout AAM. The subsystem will record actions or strategies that have been used by a Division to increase operational efficiency or to improve the level of service provided. Recommendations for improving program effectiveness can thus be effectively communicated throughout AAM.

Major Milestones

- Feasibility Study
- Data Requirements Definition
- Review the Regional Activity Reports to determine the information that may be applicable and the technology currently available and required/desired interfaces.
- System Design
- System Development
- System Implementation

Functional Requirements Addressed

Provides a means to promote consistency in program operations across Regions.

Enables AAM to look for common operating problems, recommend solutions, and follow up on the effectiveness of the recommendations.

Provides a mechanism for communicating ideas to improve program operations.

Benefits

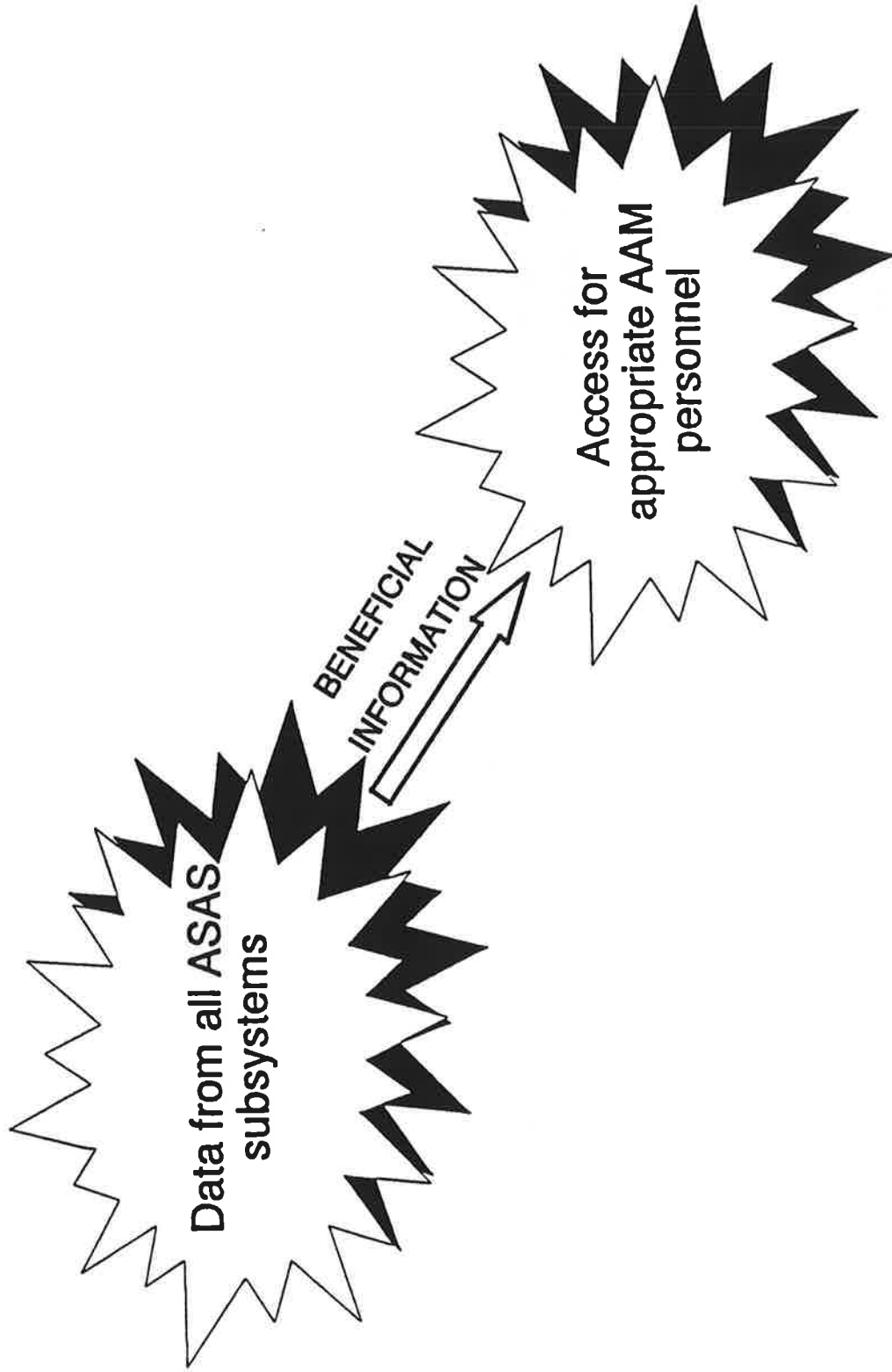
One of AAM's visions is to integrate all program areas. The Program Evaluation Subsystem supports this vision statement by providing a mechanism through which AAM can promote consistent program operation, communicate ideas to promote program effectiveness, and identify and support resource requirements to effectively operate the programs.

Main Users

AAM-100
Regional Divisions
CAMI

The remaining users will be identified during the data requirements phase.

ASAS AWARENESS AND ACCESS PROJECT



ASAS AWARENESS AND ACCESS PROJECT

Purpose:

The Office of Aviation Medicine (AAM) is continuing to seek out cost-effective methods for improving the scope and quality of available information. The ASAS Awareness and Access project addresses this need by providing AAM with an overview of the information contained in the ASAS and access to the subsystems.

Background:

AAM is an integral part of the Regulatory Standards and Compliance (AXR) organization and must be in a position to utilize existing Aviation Safety Analysis System (ASAS) subsystems and to develop systems that are compatible with the ASAS. The ASAS is made up of approximately 35 subsystems containing data about rules and regulations, aircraft, air carriers, and airmen. AAM records and analyzes information on these subject areas and, as such, may be able to benefit from access to existing ASAS data.

The ASAS Awareness and Access project will determine the relevance of ASAS data to the Office of Aviation Medicine's information needs, and provide access to the ASAS data and training in how to use the software.

Subsystem Overview

The ASAS Awareness and Access project will evaluate the relevance of individual ASAS subsystems to the AAM community. The information contained in each ASAS subsystem will be reviewed and compared to the data requirements of the AAM project opportunities and to the information requirements of each AAM functional work site.

In cases where ASAS data is found to have the potential to be beneficial, steps will be taken to register the appropriate AAM staff as users, provide connectivity to the ASAS hardware, and train the users.

Major Milestones

- Feasibility Study
- ASAS Information Evaluation
- ASAS Training

Functional Requirements Addressed

Provides AAM with access to an additional source of aviation safety data.

Increases AAM awareness of ASAS subsystem content and technology.

Benefits

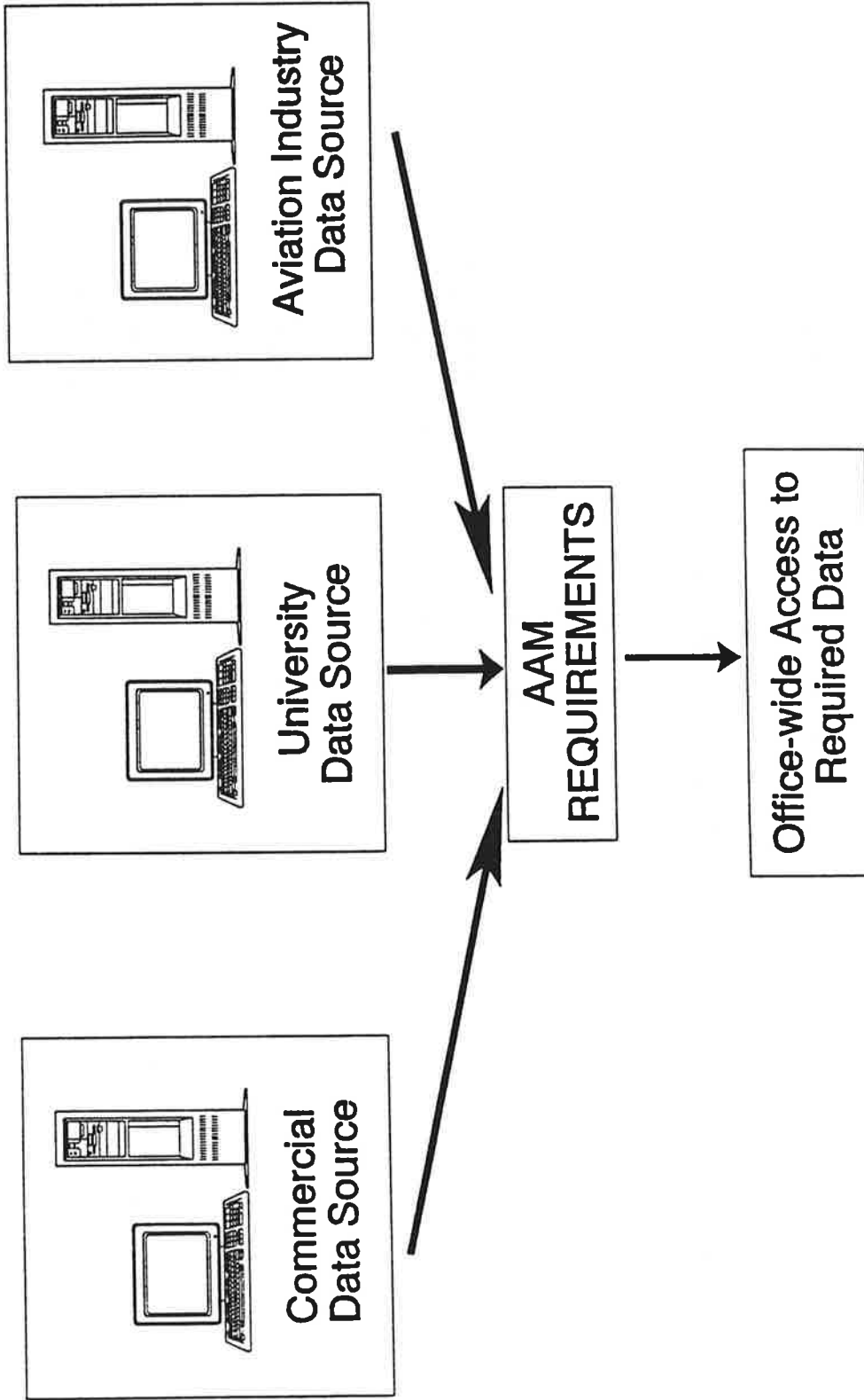
The ASAS Training project supports AAM's vision of integrating all program areas by enabling AAM to realize one of the conditions that indicate high performance of the vision statement. Access to ASAS data will make information from sources outside of AAM available to all when needed.

Main Users

Headquarters
Regional Divisions
Civil Aeromedical Institute (CAMI)

The remaining users will be identified during the data requirements phase.

OTHER DATA BASE AWARENESS AND ACCESS PROJECT



Information System Strategy Benefits

Project: Other Data Base Awareness and Access

<u>Group</u>	<u>Benefits</u>
Division Managers/ Regional Flight Surgeons	Informs AAM staff of information resources currently used within the Office so that access can be expanded to other areas if needed.
	Provides additional sources of data to support AAM functions.
Senior Management	Ensures that access to outside data source is acquired in a cost-effective manner.

OTHER DATA BASE AWARENESS AND ACCESS PROJECT

Purpose:

The Office of Aviation Medicine (AAM) management believes that there is a significant amount of information contained in data bases outside of the FAA that if available, would improve AAM's performance of its duties. The Other Data Base Awareness and Access Project will identify these data bases, assess their value to AAM, and determine the best way to provide AAM with the appropriate access. The project also looks at outside data that currently exists within AAM divisions and provides access to other divisions.

Background:

Many AAM functions will benefit from access to non-AAM data. The research function, for example, often needs access to medical data bases that are maintained on data bases outside of the Civil Aeromedical Institute (CAMI).

The ASAS Awareness and Access Project will provide AAM with access to additional aviation safety data. The Other Data Base Awareness and Access project will identify the non-AXR data bases to which AAM requires access as well as investigate outside sources of medical, aviation safety, or aviation industry data to determine data sources that may apply to AAM.

Subsystem Overview

The Other Data Base Awareness and Access Project will contact the AAM divisions to determine the specific data sources to which they currently have access, the sources to which they require access, and the type of access required. The data bases will then be prioritized according to the urgency with which the data is required. The method for obtaining access, the equipment requirements, and the cost involved will then be determined and evaluated against the need for the data. Access will be provided to data bases when both the cost of access and the need for the data meets AAM's evaluation criteria.

The project will also investigate publicly available data bases, medical school data bases, and aviation industry data bases that may meet AAM's requirements for reference information.

Major Milestones

- Feasibility Study
- Data Base Investigation
- Data Bases Access Provided

Functional Requirements Addressed

Provides AAM with access to additional sources of reference data.

Benefits

The Outside Data Base Access project supports AAM's vision of integrating all program areas by enabling AAM to realize one of the conditions that indicate high performance of the vision statement: information from sources outside of AAM is available to all when needed.

Main Users

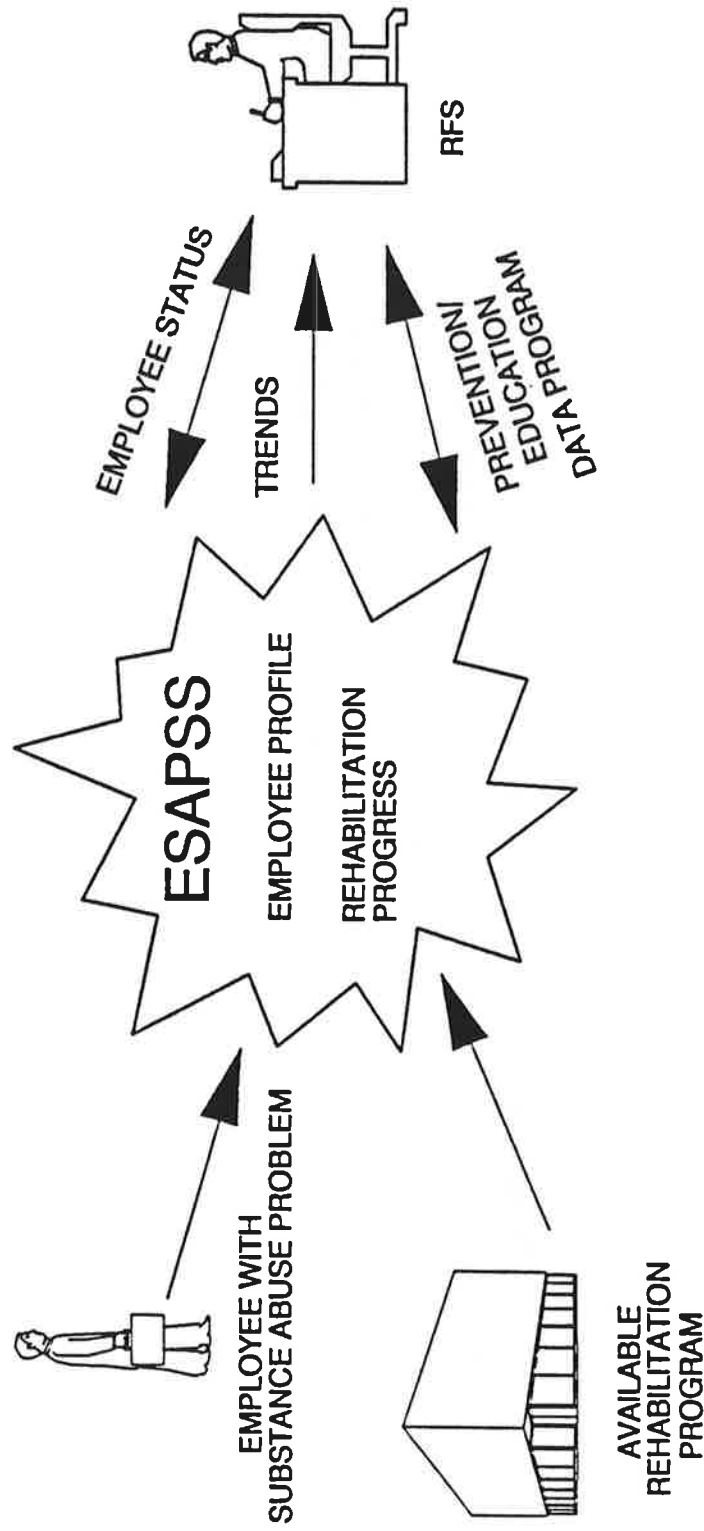
Headquarters

Regional Divisions

Civil Aeromedical Institute (CAMI)

The remaining users will be identified during the data requirements phase.

EMPLOYEE SUBSTANCE ABUSE PROGRAM SUPPORT SUBSYSTEM (ESAPSS)



Information System Strategy Benefits

Project: Employee Substance Abuse Program Support Subsystem

Group

Regional Flight Surgeons

Benefits

Improves ability to track employees enrolled in rehabilitation programs.

Improves ability to evaluate strengths and weaknesses of rehabilitation programs.

EMPLOYEE SUBSTANCE ABUSE PROGRAM SUPPORT SUBSYSTEM

Purpose:

The Office of Aviation Medicine (AAM) is responsible for tracking the progress of FAA employees with substance abuse problems. The Employee Substance Abuse Program Support Subsystem (ESAPSS) will improve AAM's capacity to track the progress of employees with substance abuse problems and develop prevention programs.

Background:

FAA employees in sensitive and safety-related positions are required to undergo pre-employment and random substance abuse testing. While the testing program is operated outside of the Office of Aviation Medicine, the Office of Aviation Medicine helps the FAA achieve the goal of a drug-free, healthy work force by providing general and rehabilitation program support for the Employee Substance Abuse Program.

Substance abuse test results are received by the Regional Divisions on a daily basis. Regional Office personnel access the Compuchem system and print the results of the drug tests. The report results are distributed to the employee, to the medical center for inclusion in the employee's medical records, and are entered into regional data bases. When a positive test result is received, the Medical Review Officer (MRO) is notified. The Regional Flight Surgeon is typically the MRO. The positive test result is either explained and downgraded to negative or verified as positive.

If the positive result is verified, the employee's manager is informed and is responsible for relieving the employee of safety-related responsibilities and giving him/her the option of removal from his/her position or entry into a rehabilitation program. The Employee Assistance Program (EAP) is notified and if the employee chooses to enter a rehabilitation program, the EAP evaluates the extent of the problem. The MRO provides the EAP counselor with a list of recommended rehabilitation programs and the counselor works with the employee to establish the best program. At the end of the rehabilitation process, the MRO reviews an evaluation report and makes a recommendation for after-care treatment in conjunction with an EAP counselor. Currently, Aviation Medicine's responsibilities for follow up care are not clearly defined.

The Office of Aviation Medicine also works with the EAP in situations where substance abuse is found as a result of an employee seeking assistance for other reasons.

AAM recognizes the need to prevent substance abuse as well as to provide rehabilitation support for employees who are substance abusers. AAM intends to focus efforts on developing effective substance abuse education programs and to facilitate a supervisor's ability to detect impaired performance.

The Employee Substance Abuse Program Support Subsystem (ESAPSS) will enable AAM to track and report on the progress of employees with substance abuse problems and to analyze the success of various treatment programs. The ESAPSS will also support efforts to develop effective substance abuse prevention programs.

Subsystem Overview

The Employee Substance Abuse Program Support Subsystem (ESAPSS) will record employee test data, test results, and the series of actions that are taken with respect to employees who tested positive for substance abuse. Rehabilitation program information including location, type of treatment offered, and availability will also be recorded.

The ESAPSS will analyze the data to determine the success rate of various treatments and rehabilitation centers, the post-treatment success rate, the characteristics of employees who are successful in their rehabilitation effort, and the characteristics of employees who are substance abusers. The ESAPSS will thus support AAM in its efforts to monitor rehabilitation progress and success, develop preventive education programs, and improve supervisors' ability to detect substance abusers.

This project will also determine if the EAP has information system support for their role in the Employee Substance Abuse Program and the impact or feasibility of sharing information.

Major Milestones

- Feasibility Study
- Data Requirements Definition
- Review current employee substance abuse data bases to determine information or technology that is relevant to this project.
- System Design
- System Development
- System Implementation

Functional Requirements Addressed

Improves AAM's ability to track progress of employees in rehabilitation programs.

Improves AAM's ability to evaluate strengths and weaknesses of local rehabilitation programs.

Assists AAM in determining the critical factors in substance abuse prevention.

Improves substance abuse detection skills.

Benefits

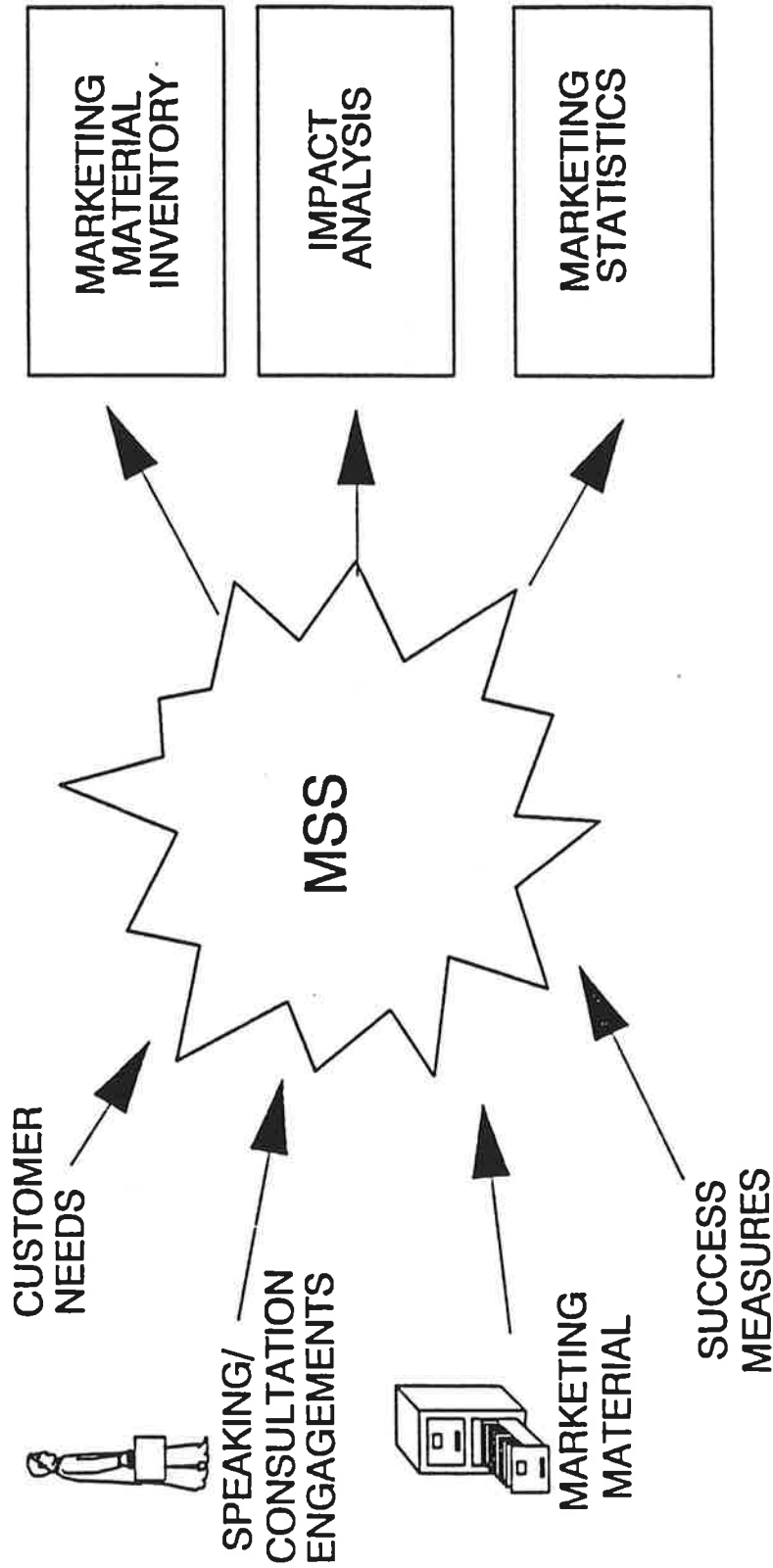
The Employee Substance Abuse Program Support Subsystem (ESAPSS) directly supports the AAM vision statement of a drug-free national airspace system by improving the FAA's ability to ensure that employees with substance abuse problems are no longer in safety-related positions. The ESAPSS also supports the vision statement recognizing the worth of the individual as the subsystem improves AAM's ability to assist an employee in the rehabilitation process and to prevent employees from becoming substance abusers.

Main Users

Headquarters
Regional Divisions
Civil Aeromedical Institute (CAMI)

The remaining users will be identified during the data requirements phase.

MARKETING SUPPORT SUBSYSTEM (MSS)



Information System Strategy Benefits

Project: Marketing Support Subsystem

Group

Benefits

Senior Management Improves ability to provide the right services and programs.

Improves ability to promote aviation medical services and programs.

MARKETING SUPPORT SUBSYSTEM

Purpose:

The Marketing Support Subsystem (MSS) will enable the Office of Aviation Medicine (AAM) to more effectively provide aviation medical services to the FAA and the aviation community, to communicate the types of services that AAM provides, and to support requests for resources so that AAM can continue to provide high quality services.

Background:

AAM is devoting a significant amount of time and resources towards recruiting top personnel, developing superior facilities, and providing a high level of service to aviation industry personnel. AAM thus makes a significant contribution towards aviation safety.

Many individuals within the FAA and the aviation community are unaware of the diversity of functions that AAM performs and the services that the Office provides. Many people do not understand what the Office does beyond the medical certification function. Increased recognition of the Office's contribution would increase the Office's ability to recruit personnel, to support requests for staffing and/or resources, and to determine additional programs that would help to improve employee and airman health.

AAM personnel are often asked to give presentations or lectures at both FAA and non-FAA aviation medical conferences. AAM also provides literature, gives tours of facilities and gives presentations to local community groups. AAM employees also serve as consultants on projects related to their expertise both within and outside the FAA. Speaking and consultation engagements are currently tracked informally. The impact of these presentations is currently not tracked or analyzed.

Aviation medicine must continue to expand and improve services offered based on the changing medical needs of the FAA and the aviation community. Improvements come from feedback on the services currently offered and from suggestions for other health- and safety-related programs.

The Marketing Support Subsystem will improve AAM's ability to continue providing the right services and to encourage use of those services by recording, analyzing, and reporting on the results of feedback on current activities and the impact of promotion-related activities.

Subsystem Overview

The Marketing Support Subsystem (MSS) will record requests for information from phone calls, inquiries, or outside lectures or presentations to help determine the type of services or programs that AAM should provide. Information such as where the requester is calling from and how the individual was referred to AAM will be

recorded. This information will help AAM to determine the segments of the aviation industry or the general public which need to be made aware of the services that AAM provides. It will also be a source of ideas for future programs or changes to current programs.

Speaking or consultation engagements that are planned or have been completed will be recorded and the number and types of presentations will be tracked. The pool of available presenters and the topics upon which they are qualified to give presentations will be maintained along with current schedules. AAM will be able to determine who is available to give a presentation on a certain date on a particular topic. A data requirements analysis will determine if other employee skills should be collected and maintained by this subsystem. AAM would then have a pool of available talent from which to draw to provide specialized or one-time services.

The impact of presentations will be evaluated based on the number of information requests received after the presentation, additional presentations requested, and other measures. Feedback on current programs and services will also be recorded and analyzed to help improve their content and quality.

The MSS will maintain an inventory of promotional literature, copies of presentations, technical papers or articles, and other material that is available for distribution or can be used in a presentation. AAM employees will be able to determine if literature is available to be sent in response to information requests.

The MSS will support recruiting efforts by enabling AAM to demonstrate its strength in providing and supporting a broad range of aviation medical services. It will also help to support resource requests by enabling AAM to show how the organization adds value.

Major Milestones

- Feasibility Study
- Data Requirements Definition
- System Design
- System Development
- System Implementation

Functional Requirements Addressed

Analyzes the impact of promotional activities.

Enables AAM to determine services and programs that need to be provided.

Provides support for resource requests.

Consolidates AAM's marketing resources.

Benefits

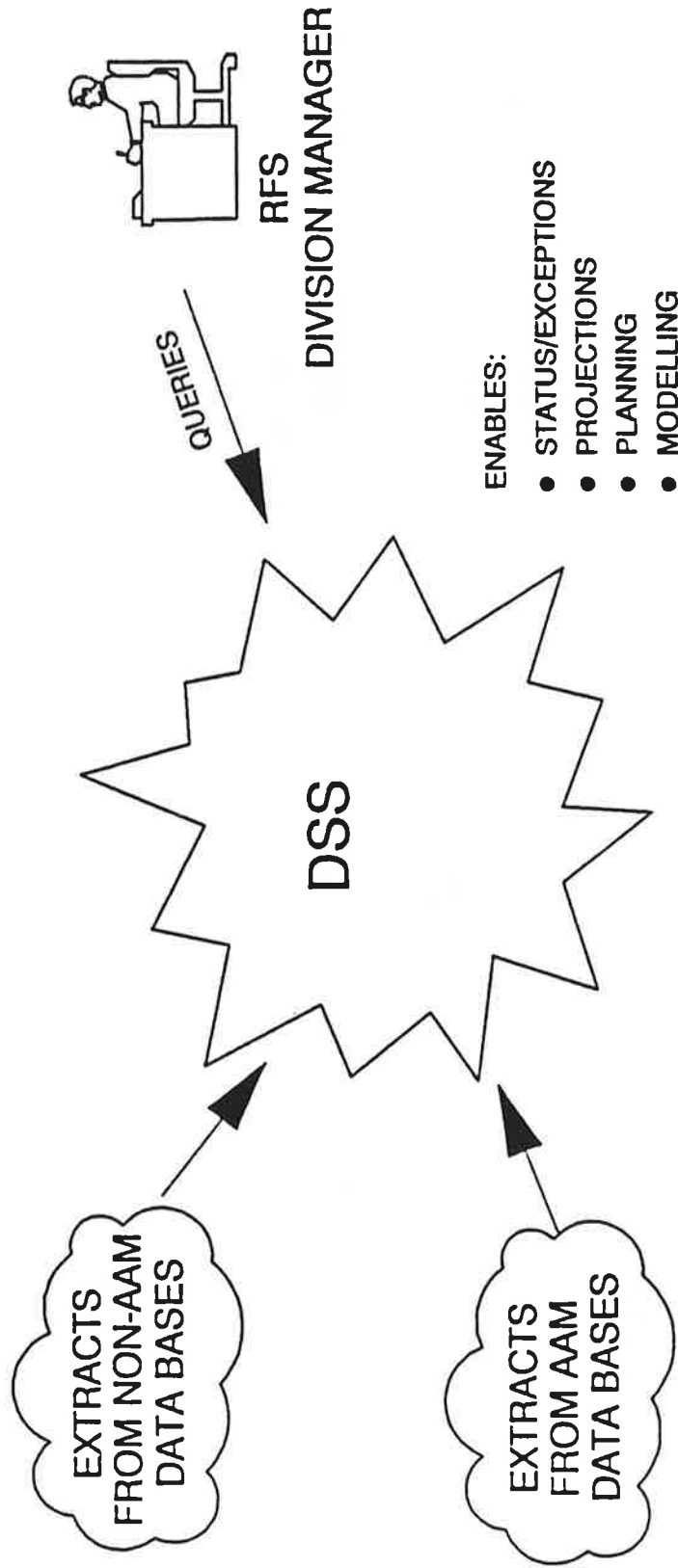
The Marketing Support Subsystem supports AAM's vision of being a world leader in civil aviation medicine in that it helps to increase FAA, aviation-community, and public awareness of aviation medical activities and services. Increased awareness leads to increased support for and utilization of services which helps to improve the quality of the programs and services.

Main Users

Headquarters
Regional Divisions
CAMI

The remaining users will be identified during the data requirements phase.

DECISION SUPPORT SUBSYSTEM (DSS)



Information System Strategy Benefits

Project: Decision Support Subsystem

<u>Group</u>	<u>Benefits</u>
Senior Management	Improves ability to access and analyze Office-wide program, resource, and employee information.
Division Managers/ Regional Flight Surgeons	Improves ability to access and analyze Division-specific program, resource, and employee data.

DECISION SUPPORT SUBSYSTEM

Purpose:

Office of Aviation Medicine (AAM) Management must have access to information that will enable them to measure their divisions' effectiveness, to determine what requires their immediate attention, and to determine the factors that may affect future plans. The Decision Support Subsystem (DSS) will gather, summarize, and analyze operating information to support management decision making.

Background:

The Office of Aviation Medicine (AAM) operates eight major programs that provide a wide range of services and information to the FAA, the aviation community and the general public. Program management capabilities are improved when management attention is focused on the impact of environmental changes, trends in airman and employee health, current problems or inefficiencies, and other factors that can significantly impact the content or operation of aviation medical programs. Identifying problems before they become crises enables management to spend time on employee development, training programs and program and strategic planning. At the present time, problems are often not identified until they become crises.

Much of the information required to plan effectively and to be proactive is located on numerous systems both within and outside AAM. Information produced in one area, however, is not always available to individuals in another area. Gathering and analyzing the data to project the impact of trends and issues on aviation medical programs is a time-consuming and difficult task. AAM's ability to take preventive action and to look towards the future is therefore limited.

The Decision Support Subsystem (DSS) will reduce the time and effort required to detect potential problems, analyze trends, and look at the impact of program activities by accessing, analyzing, and summarizing critical management data.

Subsystem Overview

The Decision Support Subsystem (DSS) will gather resource allocation and usage information, program effectiveness measures, airman and FAA employee health trends, environmental factors, and information on other FAA programs or plans that may impact aviation medicine. Much of this source information will be available from other planned AAM information system projects.

Resource allocation and usage information will be available from the planned Resource Management Subsystem. Program effectiveness measures will be available from the Program Evaluation Subsystem and the Marketing Support Subsystem. Airmen population and health trends will be available from the Certification Decision Support Subsystem. FAA employee health trends and environmental trends

will be available from the Occupational Health Subsystem and the Covered Position Decision Support Subsystem. A data requirements study will determine the information that is required from other FAA organizations and where the data resides.

The DSS will produce summary statistics, report on trends and exception situations, and provide an ad hoc query and reporting capability that will enable managers to do division-specific data analysis. Strategic decisions will thus be based on a common source of information that is available to all authorized users.

Major Milestones

- Feasibility Study
- Data Requirements Definition
- Review current and planned AAM subsystems as well as other FAA systems that may have information or use technology that is relevant to this project.
- System Design
- System Development
- System Implementation

Functional Requirements Addressed

Enables management to take actions to prevent potential problems from becoming crises.

Enables management to spend more time on employee development and strategic planning activities.

Summarizes, analyzes, and reports on resource, program, airman, employee and environmental information.

Enables AAM to base strategic decisions on a common source of information.

Benefits

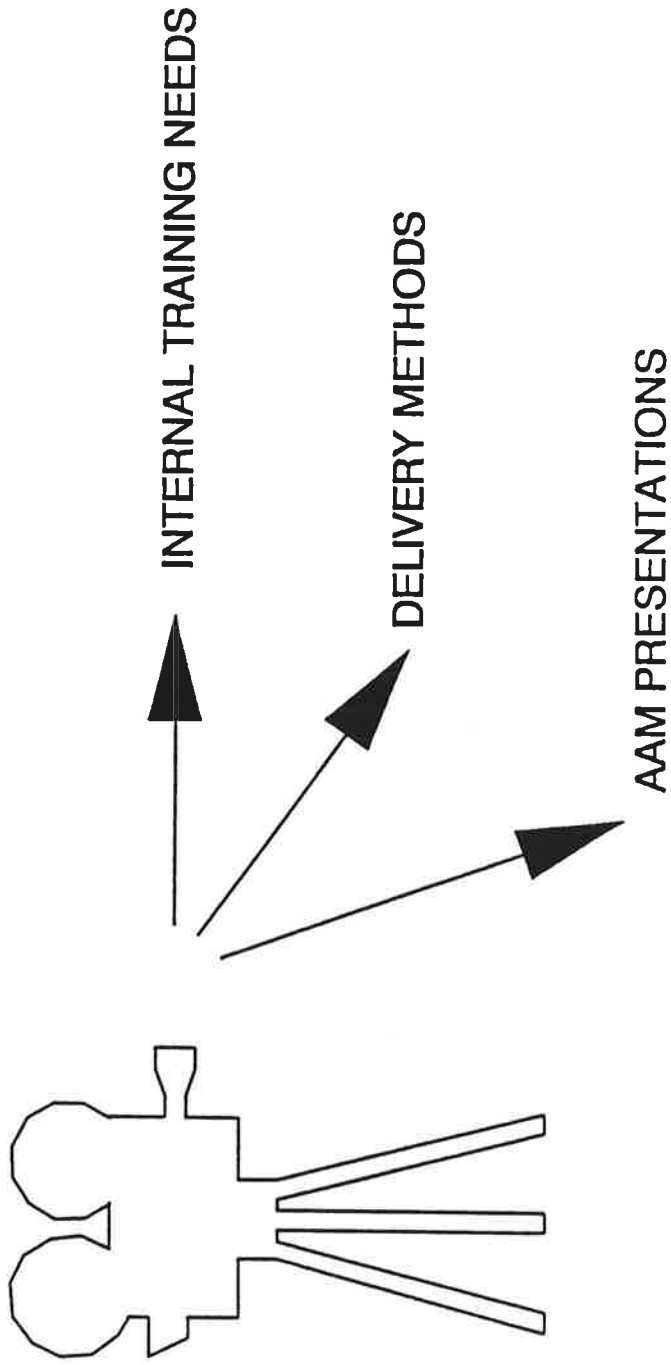
The Decision Support Subsystem supports several AAM vision statements. It supports the vision of integrating all program areas by enabling AAM to view information as an office resource and to base strategic decisions on a common source of information. The worth of the individual is recognized vision statement is supported in that pro-active management creates a better work environment and gives management more time to focus on employee development. The world leader in civil aviation medicine vision statement is supported in that preventing rather than reacting to crises results in more effective programs that provide higher quality services.

Main Users

Headquarters
Regional Divisions
Civil Aeromedical Institute (CAMI)

The remaining users will be identified during the data requirements phase.

TRAINING MANAGEMENT PROJECT



Information System Strategy Benefits

Project: Training Management

<u>Group</u>	<u>Benefits</u>
AAM-100	Identifies Office training needs and cost-effective training alternatives.
Division Managers/ Regional Flight Surgeons	Identifies employees who need continuing education.
All AAM Staff	Improves ability to stay current in field and learn new skills.

TRAINING MANAGEMENT PROJECT

Purpose:

The Office of Aviation Medicine (AAM) must look for cost-effective ways to provide continuing education for its employees. The Automated Training Project will look at ways to take advantage of the technical advances in education and AAM's in-house expertise to provide cost-effective continuing education to AAM employees.

Background:

The Office of Aviation Medicine (AAM) administers and operates programs that require a variety of skills and levels of experience. Highly competent employees are required to do research to continue to expand aviation medical knowledge and to apply the research results to improve program operation. With limited resources available for education and training, creative ways must be explored to provide continued education and training. The Automated Training Project looks at the types of training required within AAM and at how advances in education technology can be taken advantage of to provide the training.

Subsystem Overview

The Automated Training Project will record the types of training required within Headquarters, the Regional Offices and the Civil Aeromedical Institute (CAMI). Training requirements will be prioritized and common training requirements identified. Alternatives for providing training will then be explored. Training requirements will be divided into logical categories such as automation-related, aviation-medical, office administration, and management.

Training alternatives should be explored for each category. Commercially available self-training tapes are available on a variety of topics. Computer-aided-instruction is available on a variety of software programs and automation-related subjects. Medical school practicums or adult education curricula may also be a source of creative ideas for providing training.

Lectures, technical reports or presentations given by AAM personnel may be capable of being recorded or more widely distributed to provide a cost effective solution for continuing education.

The Systems Technology Branch (APR-310) of the Office of Program and Resource Management (APR) will also be consulted to provide an outlook on state-of-the-art training and education technologies that may be applicable to the Office of Aviation Medicine.

Major Milestones

- Training Requirements Definition
- Training Methods Overview
- Training Method Selection
- Training Development
- Training Implementation

Functional Requirements Addressed

Provides AAM with a pool of qualified individuals capable of providing improved aviation medical services.

Improves AAM's ability to hire and retain qualified people.

Maintains a centralized index of training resources.

Benefits

The Automated Training Project supports two of AAM's vision statements: being a world leader in civil aviation medicine and recognizing the worth of the individual. The world leader vision is supported in that well educated employees are going to maintain high standards of quality in their work. High quality work demonstrates AAM's competence. The worth of the individual is recognized in that providing employees with education and training increases their ability to grow in their careers and to take on increased responsibility.

Main Users

Headquarters
Regional Divisions
CAMI

The remaining users will be identified during the data requirements phase.

TECHNOLOGY SURVEY PROJECT

- **Technology Driven Business Planning**
- **New Technology Overview**
- **Technology Investigation**

Information System Strategy Benefits

Project: Technology Survey

<u>Group</u>	<u>Benefits</u>
AAM-100	Enables IRM planning function to identify, evaluate, and incorporate state-of-the-art technologies that provide innovative methods for accomplishing AAM functions.
Senior Management	Ensures that AAM is taking all available options into consideration when defining long-term goals and strategies.

TECHNOLOGY SURVEY PROJECT

Purpose:

The Office of Aviation Medicine (AAM) must seek out and take advantage of advances in technology that will improve its capacity to promote and improve aviation safety. The Technology Survey project addresses this need by bringing state-of-the-art technologies and their potential applications to AAM's attention.

Background:

The Office of Aviation Medicine's mission is safety in aviation through medical knowledge. AAM is continually looking for methods to expand the types of research that can be performed, new ways to apply medical knowledge, more effective educational methods, and more cost-effective ways to offer new or existing services.

The technology driven method of business planning espouses investigating the application of technology advances to an enterprise for purposes of improving operational efficiency and effectiveness. Examples of new technology are CD Roms, hand-held data entry devices, and interactive video disks.

Today's technology has the potential to transform current functions as never before. With the increase in technology offerings it is getting more difficult to become informed and evaluate innovations that have the potential to improve business problems.

The Technology Survey project will present an overview of new technology that has recently been released or is about to become available in the market place. AAM can then decide whether it makes sense to pursue new items.

Subsystem Overview

The Systems Technology Branch (APR-310) of the Safety Information and Technology Division (APR-300) is responsible for keeping up-to-date on technology issues. In its present capacity, APR-310 routinely conducts technology studies and oversees the introduction, application, and implementation of new technology. The Technology Survey project will work with APR-310 to explore and present relevant findings of its activities to the Automation Working Group (AWG). In turn, the AWG will ask APR-310 to investigate technology it feels is relevant to its mission.

Major Milestones

- Feasibility Study
- Technology Investigation
- Technology Presentation

Functional Requirements Addressed

Enables AAM to look for methods to gain and apply aviation medical knowledge.

Benefits

The Technology Survey project supports AAM's vision of being a world leader in civil aviation medicine that sets universally applied standards and works with other agencies to accomplish its mission. Technology has the potential to provide cost-effective ways for AAM to establish and achieve higher quality standards in services and products than is believed possible today. Technology may also improve AAM's ability to communicate and work with other national and international agencies to improve world-wide aviation safety.

Main Users

Headquarters
Regional Divisions
Civil Aeromedical Institute (CAMI)

The remaining users will be identified during the data requirements phase.

