Air Force Personnel Research

Recommendations for Improved Alignment

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Prepared for the United States Air Force

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Foreword

In 2009, Air Force Force Management Division (AF/A1PF) asked the RAND Corporation for assistance in identifying whether the existing personnel research efforts were meeting the broader Air Force's personnel research needs. In response, RAND Project AIR FORCE conducted a series of interviews with key personnel in the Air Force to identify the organizations involved in personnel-related research efforts. Informed by the findings, the RAND team suggested several ways to improve the organizational structure to reduce duplication and help streamline the work.

In 2011, the RAND team reported its recommendations for realignment to Air Force leadership in a draft report summarizing the state of the relevant organizations as of 2010. This report publishes those findings.

Although the organizations and their structures may have changed since the report was produced in early 2012 (to include merging of the Air Force Manpower Agency and Air Force Personnel Center), many of the findings and core recommendations of this work still stand.

For example, the report emphasizes the need for the following:

- increased communication, information sharing, and data sharing
- having a single authority with clear oversight responsibility for all the personnel research efforts ongoing in the Air Force and sufficient authority and institutional knowledge to coordinate that research
- better quality control and access to people with the right scientific expertise and resources
- increased visibility of the research to the wider Air Force.

Several Air Force offices continue to find value in citing the work and have requested that it be made part of the public record for current and future reference. The remainder of this report, therefore, makes public those findings and recommendations.

Raymond Conley
Director, Manpower, Personnel, and Training Program
RAND Project AIR FORCE

Preface

This document discusses how personnel research within the U.S. Air Force supports organizational policy decisions. It discusses the history of personnel research in the Air Force, as well as the present personnel research efforts and the organizations that house them. Though the Air Force began a reorganization that affects some of the organizational units we discuss herein, to the extent that these units undertake the same independent personnel research–related activities, the findings still pertain. We highlight some challenges in the current situation and the components that need to be included in the Air Force's solution.

The research reported here was commissioned by the U.S. Air Force Directorate of Force Management Policy (AF/A1P) and conducted within the Manpower, Personnel, and Training Program of RAND Project AIR FORCE as part of a fiscal year 2011 project, "Enhancing Personnel Selection and Screening Methods." This report should be of interest to those setting policy for personnel research efforts or conducting research on personnel issues in the Air Force.

RAND Project AIR FORCE

RAND Project AIR FORCE (PAF), a division of the RAND Corporation, is the U.S. Air Force's federally funded research and development center for studies and analyses. PAF provides the Air Force with independent analyses of policy alternatives affecting the development, employment, combat readiness, and support of current and future air, space, and cyber forces. Research is performed in four programs: Force Modernization and Employment; Manpower, Personnel, and Training; Resource Management; and Strategy and Doctrine. The research reported here was prepared under contract FA7014-06-C-0001.

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Summary

In 1991, the Air Force Human Resources Laboratory (AFHRL) was disestablished, leaving some of its functions to be carried out by various organizations across the Air Force. Similarly, the Air Force Occupational Measurement Squadron (AFOMS), the organization responsible for job analysis (JA)—known in the Air Force as occupational analysis (OA)—which serves as the foundation for much of human resource management (HRM), has been downsized several times in the past three decades, with the latest restructuring and downsizing occurring in 2009. Although the Air Force may still be addressing many personnel research needs through dispersed organizations, there is concern that the decentralization has left many parts of the HRM system without knowledge of, or access to, supporting personnel research.

Given this concern, the U.S. Air Force Directorate of Force Management Policy (AF/A1P) asked RAND Project AIR FORCE (PAF) to assess the current state of personnel research in the Air Force and examine how well the organizational structure underlying the existing personnel research efforts is meeting the broader Air Force's personnel research needs. To address this concern, we focused on three objectives: (1) describe the Air Force organizations collecting personnel-related data and conducting personnel-related research, identifying the type of data collected, type of research conducted, and how these initiatives fit into the organization's mission; (2) examine how much these organizations communicate and coordinate their efforts, share data, potentially overlap in their current work, and have the necessary resource capacity and expertise; and (3) identify potential gaps in the structure of current personnel research efforts and recommend strategies for eliminating those gaps. To address these study objectives, we reviewed existing documents outlining the responsibilities of each organization (e.g., Air Force instructions and other related Air Force documentation sources) and conducted exploratory semistructured interviews with representatives at organizations we identified as actively involved in personnel research.

The Role of Personnel Research in Organizations

Efforts to determine how to reduce or expand training, increase motivation, add new selection tests, reduce training attrition, and anticipate manning requirements could all be considered personnel research. Such personnel research informs such areas as recruitment, selection, classification, training, performance management, and work attitudes, which interact through an employee's tenure on the job. For example, recruitment should focus on individuals with the best fit between person and organization, in terms of values and knowledge, skills, abilities, and other characteristics (KSAOs), and selection should further narrow the field to allow entry

only to those employees with the best potential to facilitate the organization's goals. Performance management over an employee's tenure facilitates cohesive employee development and provides a way to reinforce desired behaviors. Attention to work attitudes throughout can facilitate transfer of training, performance of valued behaviors, and organizational change efforts.

The structure and synergy of these HRM practices are best informed by well-executed data—JA data, attitudinal data, and administrative data—gathered through surveys, interviews, focus groups, observation, tests, and human resource recordkeeping. Ideally, these data are recorded regularly and longitudinally to better model organizational experience and change. Aligning the HRM system as a whole facilitates the attainment of strategic goals and enables an organization to establish a strong, consistent climate. Without information about employee experiences on the job, an organization may blindly grope its way along and bypass the advantage of data-driven HRM decisions. This basis in data is particularly important in a time of resource constraints; the literature demonstrates the complexity that inheres in restructuring and downsizing: Mistakes may be costly. This type of forward-looking strategic personnel research has not been a priority in the Air Force for some time, as exemplified by the disestablishment of organizations and deprioritization of funding devoted to the purpose.

A Very Brief History of the Management of Personnel Research in the Air Force

AFHRL historically was tasked with responsibility for personnel research and development. With AFHRL and its heirs gone, no organization has had that same level of responsibility for research and the broad, strategic research and development focus for many years. Nevertheless, OA data continue to be collected and utilized for purposes of informing change in tech training and designing Weighted Airman Promotion System (WAPS) tests, and other organizations accommodate requests to conduct personnel research or have taken on responsibility for specific aspects of personnel research. Although some research and the collection of a variety of personnel data have continued, there is no single resource for consumers of personnel research. The deprioritization and dispersion of personnel research endeavors, and the current lacuna in strategic high-risk personnel research and development, have led to a variety of issues.

Personnel Research and Data Collection in the Air Force Today

Personnel research efforts are currently decentralized, with several different organizations involved in collecting personnel-related data and conducting personnel-related research. These organizations include both internal Air Force organizations and external contractors. The data being collected by these organizations range from JA data to test scores, performance ratings, and data on various workplace attitudes. Research efforts range from descriptive analyses of personnel data to longitudinal studies, such as those looking at test validation. Together, these organizations are collecting much of the key data required for current Air Force needs and engaging in important personnel-related research.

How Well the Current Organizational Structure of Personnel Research Efforts Meets Air Force Needs

Although many of the key elements of a smoothly working personnel research system exist in the Air Force or can be brought to bear with help from outside contractors, the current system is not optimal. Specifically, we identified some critical issues that inhibit the quality and efficiency of current personnel research efforts; these include narrow organizational missions, inconsistent data-collection coordination and data sharing, a lack of internal personnel research expertise, limited resources, reliance on contractors, and potential duplication of effort. To enhance the quality and efficiency of the system, we identified several needed components for organizational change.

First, there is a need to put in place an organizational structure that has *clear oversight responsibility over all the personnel research efforts* ongoing in the Air Force. Although the Air Force Manpower Agency (AFMA) is the hub for Air Force–wide attitude surveys and other organizations serve as the hubs for various other types of research (e.g., AF/A1P serves as the hub for selection and testing research), no one organization or structure actively coordinates them all. A key aspect of this component would be appropriate funding to enable a strategic, long-term research and development function.

Second, to achieve the benefits of such oversight, the organizational structure must have *sufficient authority to coordinate the disparate elements* of the Air Force's existing personnel research system. Knowing what data are available to Air Force decisionmakers is one step; the next step is having the authority to execute actions to eliminate duplication of effort for greatest efficiency, require the disparate elements to communicate as needed, and institute new research or collection of new data elements where gaps in the requisite data currently exist. The structure must also have sufficient authority and legitimacy to request the existing data from the collecting organizations to inform any decisionmaking for the personnel system as a whole.

Third, the organizational element must include *institutional knowledge*—a deep understanding of the Air Force and the way things are customarily done (its culture, values, and, of course, its personnel system)—to help determine true gaps in knowledge and the collection of the most-ideal data to fill these gaps.

A fourth component is *quality control* to ensure that ongoing and one-off research efforts meet minimum standards for quality and utility. A quality control function ensures that collected data can be more easily integrated into a smoothly functioning system and that a question does not remain unanswered because data collected for one or more aspects of the problem are inadequate to meet the need.

A fifth component is *access to scientific expertise and resources*—sufficient resources in terms of both funding and expertise to enable the Air Force to optimize its personnel system and operate as efficiently as possible without overburdening existing or new organizational structures. Without expertise and other resources, *quality control* is just a compelling slogan rather than an operationalized component.

Providing wider data availability is another key component. Currently, no organization's primary mission is to share all collected data with others, and, in supporting primary missions, the priority status given to doing the basic work of sharing data resources is understandably low. A good solution would enable data to be shared more efficiently without upsetting other vital priorities and missions. Additional personnel to organize the effort and lighten the load on organizations by taking on such "nonessential" tasks as formatting data sets for sharing

(including alleviating concerns about confidentiality of the data, and ensuring security) would facilitate the data-sharing process.

A final component is *providing increased visibility to the wider Air Force.* Visibility would be key to enabling the organizational structure to serve as a clearinghouse because it is probable that there are ongoing projects undertaken by organizations with relatively little formal connection to the Air Force personnel research system that are engaging in relevant efforts. This visibility component may also imply that some marketing of organizational purpose and resources would need to be done on an ongoing basis on behalf of the organizational structure.

How such key components are operationalized depends on the organizational structure chosen by the Air Force to bring the personnel research system into alignment. Further, certain issues require consideration. As in project management's concept of the triple constraint (projects can be economical, high quality, or fast, but one can achieve only two out of three; e.g., Kernzer, 2009), trade-offs must be made. With this in mind, we describe three potential scenarios for these organizations going forward (a *baseline plus one scenario*, a *comprehensive alignment scenario*, and a *hybrid scenario*). These scenarios incorporate all the key components and demonstrate various ways they may be incorporated in order to provide the solution to the current gaps (narrow organizational missions, inconsistent data-collection coordination or data sharing, a lack of internal personnel research expertise, limited resources, reliance on contractors, and potential duplication of effort). In all cases, we recommend inclusion of a Major Force Program 6 funding line to enable the organizational structure to take on a strategic research and development focus and be proactive rather than reactive. In the current climate of fiscal austerity, force restructuring should be undertaken with the support of personnel research.

First, *these organizations may continue as at present, in their existing hierarchies, with their current missions and functions* (the baseline plus one scenario). The oversight organizational structure could be relatively leanly composed of a few key personnel to provide for the various functions, including strategic research and development. A small oversight organization is relatively economical, involves the least wide-reaching change, and will least threaten existing stakeholders and stovepipes. Although this means that it may be easier and faster to implement, it also means that success may not be as wide-ranging and it may be problematic to structure the organization with sufficient personnel to enforce the overall clearinghouse mandate and achieve effectiveness and strategic alignment of personnel research. In terms of the triple constraints, this course maximizes speed and economics rather than high quality.

A second alternative is that *the various personnel research organizations discussed in this document could be reorganized under a single oversight organization* (the comprehensive alignment scenario). This places all the stakeholders together organizationally and emphasizes the commonalities rather than the differences, which would ideally facilitate communication and coordination; it would also create an organization with an explicit responsibility for aligning the personnel system with the research that should support decisionmaking. However, it would incur costs in both time and money to move and integrate organizations, as well as to recruit needed expertise, both for research support and for a marketing/liaison element. The old AFHRL was criticized for a lack of responsiveness to managers on the ground and in the field and to policymakers themselves. A new personnel research organization would need to remain integrated with the mission of the Air Force as a whole, inclusive of emergent concerns, to forestall this issue. This course of action maximizes quality and would likely not be either economical or fast.

A third option, *a hybrid approach* (the hybrid scenario), could also make sense. A new Personnel Research Directorate with a division focused more narrowly on JA-type data collection could house the organization known as the Occupational Analysis Division (technically, the OA flight)[1] and the Management Engineering Division of AFMA, and a second directorate could incorporate the other, more-disparate elements of AFMA, the organization known as the Airman Advancement Division (technically called the Test and Evaluation flight),[2] and the Data Reports and Retrievals Branch, Analysis Branch, and the Research and Assessments Branch currently at the Air Force Personnel Center (AFPC). Benefits include the advantages that accrue from collocating (organizationally if not geographically) organizations that have personnel research as a shared activity. However, merely collocating these organizations would not negate the need to hire additional personnel to coordinate and communicate among the organizations and develop and execute a strategic personnel research plan; in some senses, the needs would be more acute because the existing organizations, maintained in the overall structure, have historically been stovepiped in their roles and objectives. A strategic research element should be located with the rearranged organizations in San Antonio to fully optimize the geographic advantage, but some linkage to the strategic training research conducted in the 711th Human Performance Wing (711 HPW) is advisable and necessary to bring the entirety of the system into true alignment. This course does not explicitly optimize—or sacrifice—cost, speed, or quality. However, this course would move the Air Force closer to an optimization of the personnel research system and does have compelling benefits in terms of convenience.

Ultimately, bringing the personnel research system of the Air Force into alignment is an exercise in organizational change. Even the most economical and quick change the Air Force might make would require sustained commitment from leadership at the highest levels. However, given the costs that inhere in the personnel system itself, aligning the personnel research system to better support strategic decisionmaking offers the potential for large dividends, particularly in a time of resource constraints.

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[1] Currently, the Occupational Analysis Division is officially designated as flight within a squadron. See Chapter Three for more explanation.

[2] Currently, the Airman Advancement Division is officially designated as flight within a squadron. See Chapter Three for more explanation.

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Finally, we thank our reviewers, Sarah Meadows of RAND and Col. (Ret.) William Strickland of the Human Resources Research Organization (HumRRO), for their insightful comments and suggestions.

Abbreviations

2AF	2nd Air Force
711 HPW	711th Human Performance Wing
711 HPW/HP	711th Human Performance Wing Human Performance Integration Directorate
711 HPW/RH	711th Human Performance Wing Human Effectiveness Directorate
AAD	Airman Advancement Division
AETC	Air Education and Training Command
AETC/A1	Air Education and Training Command, Manpower and Personnel
AETC/A5/8/9	Air Education and Training Command Headquarters Directorate of Plans, Programs, Requirements and Assessments
AF/A1	Air Force Headquarters, Manpower and Personnel
AF/A1D	Air Force Directorate of Force Development
AF/A1DD	Air Force Airman Development Division
AF/A1DG	Air Force Culture, Region, and Language
AF/A1DI	Air Force Force Development Integration
AF/A1DL	Air Force Learning
AF/A1DO	Air Force Commissioning Programs
AF/A1DV	Air Force Diversity Operations
AF/A1E	Air Force Executive Services
AF/A1G	Air Force Guard Advisor
AF/A1H	Air Force Reserve Advisor
AF/A1I	Air Force Action Group
AF/A1M	Air Force Directorate of Manpower, Organization and Resources
AF/A1P	Air Force Directorate of Force Management Policy

AF/A1PA	Air Force Compensation and Travel Division
AF/A1PC	Air Force Civilian Policy Division
AF/A1PF	Air Force Force Management Division
AF/A1PI	Air Force Integration Section Division
AF/A1PP	Air Force Military Force Policy Division
AF/A1PR	Air Force Personnel Readiness Division
AF/A1PS	Air Force Continuum of Service Division
AF/A1PT	Air Force Training and Educational Requirements Division
AF/A1Q	Air Force Equal Opportunity
AF/A1S	Air Force Directorate of Services
AF/A1SA	Air Force Airman and Family Services Division
AF/A1SFR	Air Force Sexual Assault Prevention Response
AF/A1SO	Air Force Combat Operations Division
AF/A1SR	Air Force Requirements Division
AF/A1SS	Air Force Airman Resiliency Program Division
AF/A1ST	Air Force Armed Forces Entertainment Division
AF/A1SX	Air Force Future Operations
AF/A1SZ	Air Force Warrior and Survivor Care
AF/A2	Air Force Intelligence, Surveillance and Reconnaissance
AF/A3/5	Air Force Operations, Plans and Requirements
AF/A4/7	Air Force Logistics, Installations and Mission Support
AF/A8	Air Force Strategic Plans and Programs
AF/A9	Air Force Deputy Chief of Staff, Studies and Analyses, Assessments and Lessons Learned
AF/A9A	Air Force Analyses and Assessments
AF/A9F	Air Force Force Structure Analyses
AF/A9I	Air Force Analyses Foundations and Integration
AF/A9L	Air Force Lessons Learned
AF/A9R	Air Force Resource Analyses
AF/A10	Air Force Strategic Deterrence and Nuclear Integration Office
AFB	Air Force base

AFHRL	Air Force Human Resources Laboratory
AFI	Air Force instruction
AFIT	Air Force Institute of Technology
AFMA	Air Force Manpower Agency
AFMAO	Air Force Mortuary Affairs Operation
AFMC	Air Force Materiel Command
AFOMS	Air Force Occupational Measurement Squadron
AFOQT	Air Force Officer Qualifying Test
AFOSR	Air Force Office of Scientific Research
AFPAM	Air Force pamphlet
AFPC	Air Force Personnel Center
AFPOA	Air Force Personnel Operations Agency
AFRL	Air Force Research Laboratory
AFRL/RHA	Air Force Research Laboratory, Warfighter Readiness Division
AFROTC	Air Force Reserve Officer Training Corps
AFRS	Air Force Recruiting Service
AFS	Air Force specialty
AFSC	Air Force Systems Command
AFSVA	Air Force Services Agency
AL/HR	Armstrong Laboratory, Human Resources Directorate
AL/HRM	Armstrong Laboratory, Manpower and Personnel Research Division
ammos	advanced maintenance and munitions officer school
ASVAB	Armed Services Vocational Aptitude Battery
CA	Community Assessment Survey
CAC	common access card
CAIB	Community Action Information Board
CFM	career field manager
DCS	deputy chief of staff
DFAS	Defense Finance and Accounting Service
DLA	Defense Logistics Agency

DMDC	Defense Manpower Data Center
DoD	U.S. Department of Defense
DOT	U.S. Department of Transportation
DPE	Chief Master Sergeant Management
DPG	Air Force General Officer Management
DPO	Air Force Colonels Management
DPS	Air Force Senior Executive Management
DSYD	Data Reports and Retrieval Branch
DSYA	Analysis Branch
EEOC	Equal Employment Opportunity Commission
EQ-i	Emotional Quotient Index
FFRDC	federally funded research and development center
FOA	field operating agency
FY	fiscal year
GAO	U.S. Government Accountability Office (until 2004, the U.S. General Accounting Office)
HAF	Headquarters U.S. Air Force
HPW	Human Performance Wing
HPW/RH	Human Performance Wing Human Effectiveness Directorate
HQ	headquarters
HRM	human resource management
HRRD	Human Resources Research Databank
HumRRO	Human Resources Research Organization
IRB	Institutional Review Board
ISR	intelligence, surveillance, and reconnaissance
I/O	industrial and organizational
IT	information technology
JA	job analysis
JI	job inventory
KSAO	knowledge, skills, abilities, and other characteristics
MAC	Commercial Services Management

MAH	Central Civilian Classification
MAJCOM	major command
MAP	Performance Management
MAPP	Performance Planning Branch
MAS	Management Engineering
MEC	Mission Essential Competency
MFP	major force program
MILPDS	Military Personnel Data System
MRS	Manpower Requirements Squadron
OA	occupational analysis
OAD	Occupational Analysis Division
OAR	occupational analysis report
OPM	Office of Personnel Management
PAF	RAND Project AIR FORCE
PAS	personnel accounting symbol
PFE	promotion fitness exam
PME	professional military education
P-O fit	person–organization fit
QDR	Quadrennial Defense Review
QOL	Quality of Life Survey
ROTC	Reserve Officer Training Corps
RPA	remotely piloted aircraft
SAS	Studies and Analysis Squadron
SCN	survey control number
SERE	survival, evasion, resistance, and escape
SES	senior executive service
SKT	specialty knowledge test
SME	subject-matter expert
SNCO	senior noncommissioned officer
SRA	Strategic Research and Assessment Branch

TBAS	Test of Basic Aviation Skills
TXTE	Test and Evaluation Flight
USAFSAM	U.S. Air Force School of Aerospace Medicine
USAFSE	U.S. Air Force Supervisory Exam
U&TW	utilization and training workshops
WAPS	Weighted Airman Promotion System

CHAPTER ONE

Introduction

Background

According to the 2010 Quadrennial Defense Review (QDR), "America's men and women in uniform constitute the Department's most important resource" (p. 49). Thus, a well-designed human resource management (HRM) system[1]—one that selects the best people, provides the best training, puts the right people in the right jobs, and successfully promotes and retains the highest-quality performers—is vital to the U.S. Air Force's success. In the past several decades, the Air Force has implemented various organizational downsizings, office closures, and changes in organizational structures that have resulted in decentralizing how it conducts personnel research. One of the most notable changes occurred in 1998, when the last organizational unit with broad responsibility for personnel research and development, the Air Force Research Laboratory's (AFRL's) Human Resources Directorate, was disestablished, leaving some of its functions to be carried out by various organizations across the Air Force, but none with such a broad strategic research mandate. This was the culmination of a series of lab mergers and reorganizations that began (for personnel research) in 1991 with the disestablishment of the Air Force Human Resources Laboratory (AFHRL). Similarly, the Air Force Occupational Measurement Squadron (AFOMS), the organization responsible for job analysis (JA) (known in the Air Force as occupational analysis [OA]), which serves as the foundation for much of HRM, has been downsized several times in the past three decades, with the latest restructuring and downsizing occurring in 2009.

With no central organization in charge of personnel research efforts, and in particular the kinds of broadly focused strategic research and development that were the purview of AFHRL and its heirs, disparate organizations across the Air Force—such as the Air Force Deputy Chief of Staff, Manpower and Personnel (AF/A1); the Air Force Deputy Chief of Staff, Studies and Analyses, Assessments and Lessons Learned (AF/A9); the Air Force Manpower Agency (AFMA); the Air Force Personnel Center (AFPC); the Studies and Analysis Squadron (SAS); and components of AFRL—must conduct or sponsor their own individual studies to address personnel-related issues as the perceived need arises. Thus, the focus tends to be more reactive than proactive, and programmatic research is difficult if not impossible. Although the Air Force may still be addressing many personnel research needs through these dispersed organizations, there is concern that the decentralization and deprioritization of the broad personnel research and development focus have left many parts of the HRM system without knowledge

[1] Although there is no standard definition of these terms, we use the term *HRM* broadly to include any effort directed at improving the effectiveness or efficiency of personnel or at reducing personnel costs and *personnel research* to mean any systematic investigation into how to improve some aspect of HRM.

of, or access to, the requisite personnel research. For that reason, the Air Force Directorate of Force Management Policy (AF/A1P) has questioned whether the current structure of personnel research efforts could be improved to more effectively and more efficiently meet the Air Force's personnel research needs.

Study Objectives and Analytical Approach

Given this concern, AF/A1P asked RAND Project AIR FORCE (PAF) to assess the current state of personnel research in the Air Force and examine how much the organizational structure underlying the existing personnel research efforts is meeting the Air Force's broader personnel research needs. To address this concern, we focused on three main objectives:

1. Describe the Air Force organizations collecting personnel-related data and conducting personnel-related research. For each, identify the type of data collected, type of research conducted, and how these initiatives fit into the organization's mission.
2. Examine how much these organizations communicate and coordinate their efforts, share data, potentially overlap in their current work, and have the necessary resource capacity and expertise.
3. Identify potential gaps in the structure of current personnel research efforts and recommend strategies for eliminating those gaps to ensure that the Air Force's broader personnel research needs are being met.

To address these three study objectives, we reviewed existing documents outlining the responsibilities of each organization (e.g., Air Force instructions and other related Air Force documentation sources) and conducted exploratory interviews with representatives at organizations we identified as actively involved in personnel research. We started our sample by interviewing former members of AFHRL and current members of the newly downsized AFOMS because these two organizations have, at least in the past, served as the Air Force's main source of personnel research and the OA data that can serve as a cornerstone of such work.[2] We then used a snowball sampling technique and our knowledge of Air Force personnel research efforts to identify other organizations involved in personnel research in the Air Force.[3]

From November 2009 to July 2010, we conducted several exploratory interviews with current and retired staff from 12 different Air Force organizations, including AFHRL, AFOMS, the two flights within Air Education and Training Command (AETC) known as the Occupational Analysis Division (OAD) and the Airman Advancement Division (AAD),[4] AFPC, AFMA, AETC's SAS, and several AF/A1 directorates. Although this coverage is not comprehensive (and, in fact, comprehensive coverage was beyond the scope of this paper), we do feel

[2] The importance of this type of data is explained in detail in Chapter Two.

[3] Snowball sampling is a technique of using new information collected during a project to continuously build on an existing sample throughout the project. In our case, during all of our interviews and discussions with those involved in current personnel research efforts, we asked whether there were any additional organizations we should consider in our study. Several of the organizations included in our study were identified in this way.

[4] Although these organizations have included the word *division* in their titles, they are officially considered flights, not divisions. See Chapter Three for more explanation.

we identified many of the major players in the personnel research arena in this manner and gained a broad perspective on ongoing endeavors suitable for our policy objectives. The interviews lasted between one and two hours and covered such topics as[5]

- respondents' background
- organization's past and current personnel research and data-collection activities
- potential and actual clients and users of the data they collect
- internal expertise and resources related to conducting personnel research
- use of contractors to outsource personnel research
- awareness of other existing personnel data-collection efforts
- involvement in any data sharing with other organizations.

During the interviews, we also asked the organizational representatives to provide any official or unofficial documents that described their organization's activities and talk about the processes used to collect and analyze data, the products produced, or any request they had received for assistance from other organizations. In addition, we examined the Air Force portal, which may be thought of as the Air Force's own worldwide intranet, and related websites for official documents (such as Air Force instructions and fact sheets) describing an organization's responsibilities.

Using the interview results, we discuss how personnel research fits into each organization's primary mission, how much the organizations have staff with personnel research expertise, the data-collection coordination and sharing among organizations, and potential duplication of effort. Using our evaluation of these key factors, we assessed how well the current, decentralized organizational structure of personnel research is meeting the broader needs of the Air Force. Using the information amassed, we identified how personnel research activities could potentially be managed more efficiently or effectively.

Report Timing

As noted in the foreword and in this chapter, the research documented here was carried out primarily in 2009 through 2011, and some reorganization has occurred subsequently (for example, AFMA and AFPC have been merged into a single field operating agency, or FOA). However, to our knowledge, alignment of personnel research was not a consideration in the reorganization, and disconnects are still of concern. The recommendations discussed in the report (such as increasing alignment, communication, data sharing, and dissemination of personnel research findings) are therefore still potentially applicable to the new organizations and can still be used to help guide further reorganization to increase efficiencies and reduce costs. The chapters that follow document the state of personnel research in the Air Force at the time of our research, but, most importantly, they highlight and illustrate several obstacles to meeting the Air Force's personnel research needs that may still remain.

[5] In some interviews, not all topics were covered.

Organization of This Report

In Chapter Two, we review key components of a successful personnel research program. In Chapter Three, we provide a historical review of personnel research within the Air Force, highlighting the work of AFHRL. In Chapter Four, we provide descriptions of other organizations involved in personnel data collection and provide an overview of their personnel research activities. In Chapter Five, we describe some of the problems associated with the current organization of personnel research in the Air Force; and finally, in Chapter Six, we provide recommendations regarding ways to improve it.

CHAPTER TWO

The Role of Personnel Research in Organizations

People are among the most valuable and expensive resources in organizations (Cascio, 2003; Lawler and Boudreau, 2009; Ployhart, 2006). Given this, both academics and organizations have a great deal of interest in personnel, and several academic disciplines have produced nearly a century of research on the topic.[1] Taken as a whole, this research has led to a set of key features that define a good HRM system.

This chapter provides an overview of some of those features, focusing on two issues relevant to this study: reliance on personnel research to drive HRM decisions, and the role of different types of data in HRM.

Defining *Human Resource Management* and *Personnel Research*

HRM and *personnel research* can mean different things to different people. Regardless of these differences, we use the term *HRM* broadly to refer to any effort directed at improving the effectiveness or efficiency of personnel or at reducing personnel costs and *personnel research* to mean any systematic investigation into how to improve some aspect of HRM.[2] In this sense, efforts to determine how to reduce or expand training, increase motivation, add new selection tests, reduce training attrition, and anticipate manning requirements could all be considered personnel research. Table 2.1 provides the wide variety of HRM topic areas that can cover the entire life cycle of an employee and examples of narrow personnel research objectives that fall within each topic area. Some research areas that we would *not* consider in our definition fall under the rubric of human factors (i.e., human interaction with machines and equipment), focus more on macro perspectives rather than individual-level components (i.e., some subfields in organizational behavior), or may be classified as research unrelated to the job or work context.

Aligning the Components of Human Resource Management

Although many organizations often treat personnel practices, such as recruiting, selecting, and training personnel, as separate functions, personnel research scientists argue that these HRM

[1] Examples of disciplines contributing to the study of personnel management include industrial and organizational (I/O) psychology, social psychology, sociology, organizational behavior, industrial relations, and HRM.

[2] These are not terms that have a standard meaning or for which there is a common definition in the academic or scientific literature; other valid definitions of these terms may exist. We chose these terms to describe the factors and facets of research that are the focus of this paper.

Table 2.1
Examples of Human Resource Management Topic Areas and Personnel Research Objectives

Example of HRM Topic Area	Example of Personnel Research Objective
Recruiting	Identify types of candidates to target for recruiting
Selection	Decide which tests to use to screen out less successful officer candidates Decide how to screen people for promotions
Training	Develop training to improve skills upon entry to the organization or to a particular career field Evaluate the success of training
Performance appraisal	Justify termination of unproductive personnel Identify the top candidates for promotion Identify personnel deserving of bonuses, pay raises, recognition, or other rewards
Employee development	Establish the criteria for giving employees feedback on areas for improvement Design education and development to improve skills across a career
Interests and attitudes	Measure job satisfaction Change perceived fairness of an organizational policy
Culture or climate	Increase workplace safety behaviors Encourage application of training on the job Increase unit cohesion Evaluate the effectiveness of sexual harassment training
Retention	Reduce training attrition Retain the best officers Determine a need for retention bonuses
Motivation	Identify how best to motivate employees Identify how to retain the best officers Identify why employees are engaging in counterproductive work behaviors
Job classification	Decide whether two career fields are similar enough that they should be grouped together into one career field
Manpower planning	Identify how many people are needed in a particular job

NOTE: This is not an exhaustive list of HRM topic areas or objectives.

functions should be instead managed as a cohesive, planful, and integrated system of interlocking parts—parts that should be aligned for the strongest effect not only with each other but also with the strategic purpose of the overall organization (P. Wright and McMahan, 1992; Lepak et al., 2006). This view is sometimes referred to as *strategic HRM*.

An integrated system ensures that one part of the system does not inadvertently conflict with the other parts of the system. For example, Bowen and Ostroff (2004; see also Ployhart, 2006) note that, if all aspects of the HRM system are working together to accomplish the same goals, this consistency sends a coherent and cohesive message to employees, which leads to establishing strong organizational norms in an organization. These strong organizational norms can, in turn, help strengthen the relationship between individual-level HRM efforts and macro-level organizational goals, thus helping to ensure that employees know which aspects of behavior will be rewarded and punished. This knowledge ultimately leads to more individuals behaving in ways that, in the aggregate, are beneficial to organizational performance. In contrast, if various HRM functions are not well-coordinated, they may inadvertently send inconsistent or even contradictory messages about what is valued by the organization. In such cases,

the resulting effort would be ineffective at creating the desired change and would have a much smaller potential impact on the organization's overall success.

Such poorly coordinated efforts or inconsistent messages in an HRM system can also negatively affect employee attitudes about the organization. There is a wealth of research showing that inconsistent policies, or policies viewed as procedurally unfair or unjust, can lead to lower organizational commitment and job performance and increase organizational withdrawal. (For a recent summary, see Colquitt et al., 2001.)

But, to send a coherent message, it is necessary to have a structure that fosters coordination and integration among the different aspects of the system and a consistent focus on the central strategic goals of the organization. One example of this synergy is that all aspects of the system should emphasize improving job performance: Personnel recruitment should target those likely to be the most-effective personnel for the job requirements the organization demands, selections from this recruitment pool should target those most able to fulfill job requirements, training should be tailored to enable personnel to do their required job tasks well, promotions should reward the most capable, compensation (monetary and otherwise) should enable the organization to retain the best and brightest, and the organization should have policies in place to encourage employees whose performance is inadequate to move on (or enable the organization to push them out directly).[3] In this example, if the individual components of the system do not have some overarching coordination and communication, there is no guarantee that all aspects of the HRM system will share the same focus on job performance or that, even when they do, they will share the same definition of the job performance that each is hoping to improve.

Regardless, the parts will ultimately act together when affecting the organization's overall success, which raises the question of how much of an impact failure to coordinate the various individual components of a personnel resource system has on the success of the whole organization. Although a lack of coordination can likely be ignored or tolerated without causing a catastrophe, scientists who study HRM systems agree that, when the individual components are not carefully and strategically aligned, they may end up rewarding or promoting behavior that does not facilitate overall organizational performance (Bowen and Ostroff, 2004). Such actions are, at best, inefficient or ineffective practices that ultimately hurt the organization's bottom line. Note that, in an organization with a large personnel system, the costs of small inefficiencies can accrue dramatically.

The Three Types of Data Typically Used in Personnel Research

Personnel research, the bedrock of HRM, relies heavily on three different types of data: administrative personnel data, attitudinal or opinion data, and JA data.

Administrative Personnel Data

Organizations typically collect and retain administrative data on employees, such as selection test scores, hire date, pay rate, completed training courses, and attrition. Often, such data

[3] Lepak et al. (2006) suggest that systems may have one or more of three policy emphases: employee knowledge, skills, abilities, and other characteristics (KSAOs); management of employee attitudes and motivation; or employee opportunities to contribute. In our example of performance, practices are naturally integrated among these three policy areas.

record the key indicators of organizational investment in an employee and their development. Because such data are so accessible, they are often used in personnel research; however, personnel records can be limited in the types of information available. For this reason, additional data are often needed to address personnel research efforts and, ultimately, identify organizational issues and potential solutions. A highly effective use of administrative data is to combine them with other sources of data to reduce data-collection burden and ultimately to reduce personnel research costs.

Attitudinal and Perceptual Data

Attitudes, opinions, beliefs and perceptions, and social norms can explain and predict how and why people do what they do (see, e.g., Ajzen, 1991, 2001; Ajzen and Fishbein, 1980; Bandura, 1977; Chaiken and Stangor, 1987; Judge et al., 2001; Roznowski and Hulin, 1992). For this reason, surveys, interviews, and focus groups commonly ask questions about them, and the resulting data can be used to diagnose areas in need of improvement or to measure whether efforts to change attitudes, norms, or beliefs have been effective. This type of data is used to inform many aspects of personnel research, and the Air Force regularly collects this type of information.

Job Analysis Data

The Air Forces uses the term *OA* to describe the act of collecting information about the activities and tasks Air Force personnel do on their jobs. Other names for the same or similar data-collection efforts include *JA*, *work analysis*, or *task analysis*. In this report, we use *JA* to refer to all concepts, except when we are speaking specifically of the Air Force's practices, where we use *OA*. At its most general level, JA is a systematic investigation into the work that people do and is, thus, one of the most fundamental types of data for HRM. Ash (1988) defines it as "attempts to reduce to words the things people do in human work" (p. 3). Typical questions on a JA survey deal with the importance or frequency of job tasks (Williams and Crafts, 1997). In other cases, data collection may involve observations of the work being performed or interviews and focus groups with job incumbents (Schmitt and Chan, 1998). Worker characteristic requirements, or the KSAOs needed for the job, can also be collected or identified through JA and can be quite useful for training and selection purposes (Brannick, Levine, and Morgeson, 2007).[4]

Table 2.2 highlights some example research questions for which JA, attitudinal, and administrative data are relevant. As noted by P. Wright and McMahan (1992), research can focus on specific HRM practices and highlight the optimal course in the given microfunctional view. However, as argued by Wright and McMahan themselves and others (e.g., Bowen and Ostroff, 2004; Huselid, 1995; Lepak et al., 2006), the appropriate approach is a systemic one. Individual personnel practices that make up the personnel system, or the development of such a system, should rest on empirical data. The data enable informed decisions about how things are integrated (or not); mismatches provide insight into constructing policies so organizations can send employees consistent, well-integrated messages about needed behaviors.

[4] Harvey (1991) notes that knowledge and skills are typically more easily observable through behavior, while abilities and "other" characteristics (such as personality attributes) are less directly observable on the job but may be assessed through other instruments that measure the constructs in question (e.g., aptitude or personality tests).

Table 2.2
Examples of Research Questions for Which Job Analysis, Attitudinal, or Administrative Data Are Relevant

Topic Area	Research Question	Attitude	JA	Administrative
Recruiting	How do you generate interest among underrepresented groups?	Yes	Yes	
	Which screening tools discourage people from applying for this job?	Yes		
Selection	What types of screening tools are needed for this job?		Yes	Yes
	Are perceptions of the screening process more favorable when their relationship to job requirements is explained?	Yes	Yes	
Training and education	What type of training is needed?		Yes	
	Do trainees plan to apply the training on the job? Why or why not?	Yes		
Classification	Which jobs are similar?		Yes	
	Does interest matter in person–job matching?	Yes	Yes	Yes
Monitoring workplace attitudes and perceptions	Does organizational commitment predict retention decisions or actual retention?	Yes		Yes
	Do perceptions of base services affect performance?	Yes	Yes	Yes
Performance evaluation	Does perceived fairness of promotions affect attendance?	Yes		Yes
	Is the promotion process identifying the best officers?		Yes	Yes

There are various ways to find out about employee work lives and elicit empirical data on how employees behave on the job, what attitudes motivate these behaviors, and, ultimately, how these attitudes affect performance at higher levels of aggregation (i.e., performance at the organizational, rather than individual, level). In the next section, we provide more detail on the role of job data in each personnel function listed in the table to illustrate the importance of various HRM practices and highlight some specific applications in each that may be taken individually as "best practices" or, more optimally, integrated together with the organization's strategic objective in mind. Moreover, by describing some of the findings and applications of personnel research over the years, we illuminate its usefulness and relevance for setting personnel policy.

Personnel Research Areas Requiring the Three Types of Data

Recruiting

Recruiting is the preliminary encounter potential employees have with a potential employer and the prequel of the selection process. For the Air Force, recruiting appropriate personnel in sufficiently large numbers is the starting point for force management efforts. The restriction on lateral hiring in the military for virtually all occupations means that the services recruit young,

inexperienced individuals and attempt to nurture them through their careers, with sufficient numbers of sufficient quality attaining seniority (i.e., promotion to higher rank) that the health of the service is ensured (Asch and Warner, 2001). Certain aspects of the recruitment process require information about the jobs themselves, preferably based on empirical data, including JA. These include realistic job previews, job descriptions, and person–organization fit (P-O fit).

Realistic job previews and job descriptions are exactly what they imply: presentations of accurate information about the job itself and a description of the work involved. Job descriptions may be used to attract appropriate applicants to the selection process and may save money by preemptively eliminating individuals who would not enjoy the job and who would ultimately attrit. Realistic job previews function similarly, although the effects of these types of selection interventions are often studied over a longer term. Research indicates that realistic job previews have small but stable effects on several important organizational outcomes, including reduction in voluntary attrition and increased performance (Phillips, 1998).

P-O fit (or person–job fit) concerns how much the individual and the organization or job suit each other. Attitudinal data can be relevant for understanding needs–supplies fit, one type of fit that describes the ways in which employees' needs or preferences are in some way met by their jobs. For example, Cable and DeRue (2002) demonstrated that perceptions of an organization's values are related to the employees' identification with the organization and turnover decisions (see also Kristof-Brown, Zimmerman, and Johnson, 2005). These outcomes are key for the military services because the military depends on attracting quality candidates early on and retaining these employees in a closed labor market.

Selection

Selection identifies those applicants with the KSAOs necessary to perform in a given job. JA, the standard method in determining which KSAOs are needed in a given job, is recognized by both the courts and professional practice as the hallmark of well-supported selection systems. Although the legislation, which includes the Americans with Disabilities Act (Pub. L. 101-336, 1990) and the Equal Pay Act (Pub. L. 88-38, 1963), does not cite JA by name, the Uniform Guidelines on Employee Selection Procedures of the Equal Employment Opportunity Commission (EEOC) (EEOC, 1978) do state that JA should be the basis of selection.

The essential issue these regulations and laws address is that the content of the selection test must ideally be related with job performance, both in terms of apparent content and in terms of actual correlation: JA provides information about what tasks are performed and what skills and abilities are necessary for performance. It is legal to reject job applicants based on job-related requirements; however, legal liability may be incurred if the reason for rejection is deemed unfair and not job-related. Although the military is not subject to some of the legal requirements that dictate employment in the civilian sector, it typically follows best practices and, where it deems practicable given the constraints of the military mission, best practices in selection.

Training and Education

Brannick, Levine, and Morgeson (2007) note that almost all jobs require some training. To the extent that a given job requires an employee to do unfamiliar tasks, training may be required, especially if the costs of mistakes are high. The first step in developing a good training program is identifying the gap between what is needed and what is available (Campbell and Kuncel, 2002). For entry-level employees, filling this gap should be included in their entry-level train-

ing. Christal and Weissmuller (1988) indicate that the military and the Air Force specifically have used JA (or OA) to inform training decisions with notable success, saving millions of dollars over the years. For example, training is used to ready entry-level employees for technical specialties, and OA has proven quite helpful in determining task training priority (Ruck, Thompson, and Stacy, 1987).

Employee learning happens over a career (McCauley and Hezlett, 2002), particularly in the Air Force, where career paths involve multiple jobs, sometimes in other Air Force specialties (AFSs) for which the requisite training may differ (e.g., Schiefer et al., 2007). JA data can be used to assess commonality of tasks across jobs and help estimate the resources required for retraining (Lance, Kavanagh, and Gould, 1993; Lance, Mayfield, and Gould, 1993). J. Mitchell, Yadrick, and Bennett (1996) describe some of the issues in developing a truly integrated training system, including conceptualizing career paths, inclusive of learning assignments and opportunities along the way, and identifying when retraining will be necessary.

Merely receiving training is not enough; that training must be applied, or transferred, from the training environment to the organizational and operational environment. L. Burke and Hutchins (2007) reviewed the literature on this topic and found that estimates of amount of training transfer varied widely from as little as 10 percent to 50 percent—that is, of training received, only about half of it, at most, is put into action. Burke and Hutchins' summary indicated that climate factors—including peer and supervisory support for transfer, transfer climate factors, and opportunity to perform trained behaviors—were on the whole a strong predictor of training success: Consideration of these issues enables training to pay off. Ford et al. (1992) demonstrated this specifically in the Air Force environment; they showed that supervisor attitudes and coworker support were key predictors of the breadth of opportunity for task performance on the job and of the complexity of the trained tasks themselves. Therefore, several different types of personnel data can be useful in improving training, ranging from JA to data collected on attitudes.

Classification

Classifying jobs involves determining the similarity of different jobs for a given personnel purpose, such as selection, training, or compensation, and JA data are integral for this purpose (Harvey, 1991). One of the key purposes of OA data in the Air Force has been providing guidance for grouping and ungrouping AFSs (Christal and Weissmuller, 1988). For example, Driskill et al. (1989) explored the utility of various JA techniques for suggesting abilities required for Air Force jobs (i.e., facilitating selection and classification); Earles, Driskill, and Dittmar (1996) discussed another approach using subject-matter expert (SME) ratings to make the inferential leap between task statements and ability requirements.

Grouping jobs based either on tasks in common or the abilities required to perform the tasks helps in reassigning personnel. That is, should an employee need to change jobs for some reason, information about the employee's current tasks and the skills and abilities used to do those tasks, as well as the tasks performed and abilities needed for available jobs more generally, will enable that employee to be reassigned to another job that most closely matches his or her existing tasks and abilities and hence presents the least expensive option for the organization in terms of retraining.

Finally, classification serves another purpose related to selection. Once the abilities needed for a job are known and some minimum requirements met, an employee may be selected into a particular job based on the abilities he or she has—what is called *classification of personnel*

(rather than *classification of jobs*). Again, deciding how to classify personnel requires knowledge about the jobs themselves (and, hence, JA data). Other decisions in this process include what outcomes to maximize through this process and potentially require other types of data: aggregate job performance across all assignments, social benefits (e.g., percentage of minority placements), or job and career satisfaction. (See Rosse, Campbell, and Peterson, 2001, for an in-depth discussion of these issues.)

Monitoring Workplace Attitudes and Perceptions

Monitoring work attitudes and perceptions is not a "classic" personnel research function in that attitudes and perceptions were less a focus of personnel research in its early days; however, in recent decades, their importance has led to increasing attention. Work attitudes and perceptions include such factors as engagement, fairness perceptions, organizational commitment, and job satisfaction (overall satisfaction or satisfaction with individual facets, such as supervision, coworkers, the work itself, pay, benefits, or promotions). Employee perceptions of organizational climate and culture can also fall under this broad umbrella, including diversity climate, safety climate, climate for training transfer, and perceptions of organizational values. We focus on job satisfaction and safety climate here for illustrative purposes. Many of the same general findings are similar for other workplace attitudes and perceptions.

Roznowski and Hulin (1992) argue that a good measure of job satisfaction provides an organization with the single best way to predict its employees' behavior. Job satisfaction is one of the best-known and most-studied causes of organizational attrition (Hom and Griffeth, 1995) and has been linked with performance at the individual (Judge et al., 2001) and unit levels (Harter and Schmidt, 2006). In a military context specifically, Jordan et al. (2007) found that job satisfaction predicted organizational citizenship behavior among officers (helpful work activities that go beyond what is required on the job, such as assisting a colleague to complete an important task when that is not part of one's regular duties) enrolled in a professional military education (PME) course (their participants were primarily Air Force officers). Saari and Judge (2004) note that making work interesting and challenging for employees may be more effective in increasing job satisfaction than pay interventions. This also suggests that it is helpful to integrate information about the work situation (perhaps obtained through JA) with job satisfaction information to modify jobs to best retain employees and motivate them to higher levels of performance.

Given that safety climate can affect safety behaviors at work (Clarke, 2006), organizations also often aim to measure and improve it. *Climate* is generally defined as the aggregated employee perceptions of the workplace's policies, practices, and procedures about a specific content area. In this sense, *safety climate* could be defined as perceptions of management attitudes toward safety, effects of safety on promotions and social status outcomes, importance and effectiveness of safety training and enforcement guidance, workplace risk level, and the status of the safety officer (definition from Zohar, 1980).[5] Once perceptions of the different facets of safety climate (e.g., perceptions of management's attitudes toward safety) are known, an organization can attempt to change those perceptions through various interventions; for example, leadership training interventions have been developed and shown to be successful (Zohar, 2002).

[5] Clarke (2006) notes that this definition still has currency today, although other, broader conceptualizations have been suggested.

The above examples illustrate the important role that monitoring workplace attitudes and perceptions can have on employee and, ultimately, organizational effectiveness. But JA data can be useful here, too. For example, if making work interesting and challenging is important for job satisfaction, it would be helpful to have a picture of the tasks employees do on the job. Similarly, to evaluate safety climate, one should know what types of safety activities are required on the job.

Performance Evaluations

Ultimately, organizations hire employees to do a job, and how well employees do their job, or their *performance*, is assessed throughout their time with the organization. These evaluations of performance can occur for a variety of different purposes, including providing developmental feedback; identifying whom to promote; identifying those deserving of bonuses, awards, and recognition; diagnosing training needs; allocating annual pay raises; and identifying employees whose behavior needs corrective actions. As with selection, basing performance evaluation on a careful JA (e.g., potentially OA data) is an important defense against legal challenges (Brannick, Levine, and Morgeson, 2007; Latham and Mann, 2006); and performance management is the most common ground for legal challenge (Latham and Mann, 2006; Newman, Kinney, and Farr, 2004). Basing performance rating scales on JA data is also consistent with good professional practice in developing performance evaluation systems (Brannick, Levine, and Morgeson, 2007).[6]

To illustrate how tying performance evaluation to JA data can be important, we briefly describe its relevance in one type of performance evaluation: 360-degree feedback. Quality feedback allows employees to identify areas in need of improvement and to set specific difficult but attainable goals for improving those areas (Latham and Mann, 2006; DeNisi and Kluger, 2000); feedback perceived as fair is also more likely to be accepted (see, e.g., Flint, 1999). Three-hundred-sixty-degree feedback, which uses data from people all around the focal employee (e.g., peers, subordinates, customers, clients, and mentors, as well as superiors), is useless if the feedback is not based on actual job requirements or is vague or abstract. Creating a feedback rating system that forces raters to evaluate a person's performance on each aspect of the job helps ensure that the feedback both is interpretable and accurately accounts for the person's behavior on the job. In this way, critical aspects of the job cannot be accidentally left out, and irrelevant aspects of the job are less likely to influence the ratings. Moreover, the feedback may be more likely to be viewed as fair and to be integrated into actual performance (Flint, 1999). Personnel research and data collection are core parts of designing a good 360-degree feedback program, just as they are vital components of all types of performance evaluations.

Longitudinal Research

Much personnel data are collected longitudinally. Administrative data track organizational start dates, pay periods, and pay rates over time, for tax purposes if for nothing else. However,

[6] Stone et al. (1996) provide an example of directly applying OA knowledge to performance management in the Air Force; they used information about the number of core tasks (those performed by a high percentage of airmen in the same jobs, at the same level) performed, the number of noncore tasks performed, and the difficulty of those tasks to develop a system for rating job performance.

this represents the bare minimum of personnel data that can be collected longitudinally. An employee's experience of the organization is inherently temporal, progressing from recruitment to selection to some combination of training, performance management, and performance, until the point of employee departure or turnover. In an ideal organization, personnel data are collected throughout to monitor, predict, and enhance this experience, both for the employee and for the organization.

When using personnel research to capture employees' experience on the job and predict future behaviors, George and Jones (2000) point out that a consideration of time lags between data-collection points, anticipated duration of the effects being examined, and temporal aggregation help articulate the true nature of organizational experiences and the causal relationships of interest. Data collection that represents a single snapshot in time does not adequately portray organizational realities, given the inherent temporality of experience. In addition, some important organizational outcomes, such as absenteeism and turnover, tend to occur so infrequently that studying those behaviors in isolation requires aggregation of incidences of absenteeism and turnover over time (e.g., Hulin, 1991).

Adequate time lags are also required to determine whether various personnel practices are, in fact, bringing about desired change. Consider the training effectiveness criteria of behavior on the job: Inherent in any evaluation of this is sufficient time after the training occurs for trainees to *demonstrate* behavior on the job. Further, George and Jones (2000) note that, if theory or empirical evidence suggests that the effects of job redesign have a lagged effect on performance, performance data should be collected when the impact is expected to manifest or risk drawing the erroneous conclusion that the intervention was not successful, as well as a lost opportunity to utilize a validated and successful intervention in the future.

Longitudinal data collection is thus essential to ensure the proper evaluation of key personnel functions and the effectiveness of organizational interventions. Although W. Warner Burke (2006) notes that surveys may be the most useful method for tracking change over an organizational intervention, any data collection is an opportunity. Indeed, some longitudinal research combines administrative data, such as turnover records, with other types of data, such as job attitude data obtained from surveys. All that is required is organization and tracking of individuals over time. Proper considerations for the security and privacy of identifiable data are, of course, an essential requirement here; moreover, institution of tracking—or perceptions of tracking—when none had previously existed should itself be examined as a potential biasing factor in the results obtained. In an ideal organization, longitudinal data collection and research may also capitalize on the ongoing collection of personnel data. If an organization regularly assesses climate and job attitudes, for example, collecting information that allows these personnel data to be linked with administrative data, such as job changes, training, and performance management efforts, allows the organization to determine the effect of these organizational experiences without needing further data collection to elicit self-reported job changes, training, and performance. (Note, however, that self-reported data may also be subject to various biases, including those precipitated by perceptions of confidentiality and anonymity of the data, or the lack thereof.[7])

Several authors caution against surveying employees merely for the sake of obtaining information (e.g., Donovan and Brooks, 2006; Church and Oliver, 2006; Smith, 2003). Lon-

[7] Some research has explored these issues. See, e.g., Joinson, Woodley, and Reips (2007); Rogelberg et al. (2006); and Spitzmüller and Glenn (2006) for discussion of nonresponse, confidentiality, and anonymity.

gitudinal research and personnel data collection protect against repetitive oversurveying by allowing one data collection to be used for multiple purposes; they can also help show employees the impact and application of the data collected in terms of the cycle of organizational growth, change, development, and interventions. Donovan and Brooks, among others, emphasize that merely providing feedback reports to employees is inadequate: For employees to see these data collections as having merit and being worth their time and effort, the organization must be seen as acting on the information collected, whatever its form.

Summary

Recruitment, selection, classification, training, performance management, and work attitudes interact throughout an employee's tenure on the job. Recruitment should focus on individuals with the best fit between person and organization, both in terms of values and KSAOs, and selection should further narrow the field to allow entry only to those employees with the best potential to facilitate the organization's goals. Classification of personnel continues this course, matching employees with jobs in which they are most likely to thrive. Training, if needed, further prepares the employees with needed bodies of knowledge and skill sets. Classification of jobs indicates where job similarities will help employees transfer successfully between jobs and which jobs may be combined or separated most efficiently. Performance management over an employee's tenure facilitates cohesive employee development and provides a way to reinforce desired behaviors. Attention to work attitudes throughout can facilitate transfer of training, performance of valued behaviors, and organizational change efforts.

These HRM practices are best informed by well-executed data—JA data, attitudinal data, and administrative data—gathered through surveys, interviews, focus groups, observation, and human resource recordkeeping. Ideally, these data are recorded regularly and longitudinally to better model organizational experience and change. Aligning the HRM system as a whole facilitates the attainment of strategic goals and enables an organization to establish a strong, consistent climate. Without information about employee experiences on the job, an organization may blindly grope its way along and bypass the advantage of data-driven HRM decisions.

CHAPTER THREE

A Very Brief History of the Management of Personnel Research in the Air Force

Personnel research in the Air Force has its historical roots in two organizations: AFHRL and AFOMS.[1] Across its lifetime, AFHRL produced a wealth of personnel research on topics spanning all types of Air Force personnel issues. A product of AFHRL research, AFOMS was an organization dedicated to regularly collecting and applying OA (i.e., JA) data in the Air Force. This chapter provides a brief history of both organizations to describe the Air Force's former personnel research and development of strategic alignment of that research as a preface to a discussion of the current state of personnel research in the Air Force.[2] Note that, although we are discussing programmatic research efforts, individual studies were historically and are now conducted in the Air Force. Unfortunately, in contrast to the historical roots of personnel research in the Air Force, programmatic and strategic personnel research is all but precluded in the present.

The Air Force Human Resources Laboratory

Following World War II, the success of the aviation psychology program that helped identify potential airmen spurred an interest in personnel research and management (Brokaw and Perrigo, 1981). This, in turn, led to the establishment of several personnel research organizations from 1949 onward that focused on a variety of issues, including training, selection, classification, and manpower planning. AFHRL was established in 1968 after a special panel of the Air Force Scientific Advisory Board reviewed the Air Force's behavioral science program and recommended that the program be expanded by creating a new oversight organization and adding staff and funding. As a result, AFHRL was established as an Air Force Systems Command (AFSC) laboratory and designed to be a centralized organization supporting manpower, personnel, and training research and development. Along with its headquarters at Brooks Air Force Base, Texas, AFHRL included field programs collocated within other operating organizations and bases. With its establishment, AFHRL also incorporated the already existing Personnel Research Laboratory and the Training Research Division of the Aerospace Medical Research Laboratory under its umbrella. Overall, AFHRL was responsible for "planning and executing the USAF [U.S. Air Force] exploratory and advanced development programs for selection, motivation, training, retention, education, utilization and career development

[1] Note that these organizations' names varied over the years.

[2] Sources used in this chapter include reports that are not generally available and materials we were given during interviews. Where possible, we have cited relevant and generally available documentation.

of military personnel; also the composition of the personnel force and training equipment" (AFHRL, 1972).

Originally, AFHRL consisted of two divisions: the Advanced Systems Division and the Personnel Research Division. By the end of 1972, AFHRL had expanded to five divisions located across the country:

- Flying Training Division
- Manpower Development Division
- Personnel Research Division (Occupational and Career Development Branch, Personnel Systems Branch, Computer and Management Sciences Branch)
- Advanced Systems Division (Training Technology Branch, Personnel and Training Requirements Branch, Simulation Techniques Branch, Resource Instrumentation Branch)
- Technical Training Division.

By 1972, AFHRL also had 365 authorized manpower positions. Its staff was composed predominantly of civilians (63 percent), followed by airmen (23 percent), and officers (14 percent). Thirteen percent of personnel had Ph.D.'s, 27 percent had master's degrees, and 19 percent had bachelor's degrees, while 41 percent did not hold a college degree. AFHRL personnel also had a wide variety of expertise, including psychologists, economists, operations researchers, engineers, and mathematicians. The total budget at the time was more than $12 million (more than $64 million in 2011 dollars).

In 1983, AFHRL was assigned to the Aerospace Medical Division. Then, in 1991, AFHRL was incorporated into the newly established Armstrong Laboratory as the Human Resources Directorate (AL/HR). Like the original AFHRL, this new directorate was responsible for "planning and executing the Air Force exploratory and advanced development programs for research and development (R&D) related to manpower and force management, logistics systems technology, and training technology" (Buescher, Olvera, and Besetsny, 1989, p. 2). This included a manpower and personnel program in selection, classification, retention, force structure and force utilization; education and training programs in technical training, flying training, and crew and team training; simulation and training device programs to develop flight simulators and maintenance training simulators; and logistics and human factors programs in weapon system logistics and combat maintenance.

In 1997, the Armstrong Laboratory was merged with four other Air Force laboratories and the Air Force Office of Scientific Research to form AFRL, which was subordinate to Air Force Materiel Command (AFMC). Following this merger, AFRL decided in 1998 to discontinue funding for manpower and personnel research within the Human Effectiveness Directorate. In its place, funding for maintaining longitudinal databases of personnel research was to be continued, with contractors filling in the missing expertise. Unfortunately, the positions designated to maintain the personnel research databases were reassigned to meet other personnel priorities, leaving the databases unmaintained for several years (these databases are being restored by AFPC's Strategic Research and Assessments Branch, or SRA). As a result of this disestablishment, the work by AFHRL and its later heirs was discontinued or taken up by other organizations dispersed across the Air Force.[3] The Air Force has not had another organization

[3] Some of the original facets have persisted (i.e., training research has retained a research and development function within AFRL/Human Effectiveness).

solely dedicated to research and development for personnel purposes on this broad of a scale since, and the general-purpose manpower and personnel and human resources research function has not been a priority for many years, as exemplified by the lack of resources devoted to it. The absence of a single organization with a core of personnel research expertise has had some notable consequences, including the lack of a single organization to serve as a central resource for potential consumers of personnel research. Other consequences, such as a lack of in-house expertise and sometimes-limited data application and sharing, may be only secondarily related to the decline of AFHRL and its heirs and attributable more to the loss of coherent organizational memory, dispersion of endeavor, and overall deprioritization of the HRM mission.

Over the years, AFHRL and its heirs researched a wide range of personnel topics. Following are some examples:[4]

- developing the Weighted Airman Promotion System (WAPS)
- examining the officer promotion system
- developing the methodology for collecting, analyzing, and reporting Air Force OA
- evaluating the effectiveness of aircraft simulations
- developing formulas for Air Force Reserve Officer Training Corps (AFROTC) pilot trainee selection
- creating pilot performance measures for undergraduate pilot training
- determining aptitude requirements for various AFSs
- developing tests, including the Air Force Officer Qualifying Test (AFOQT)
- evaluating new training techniques
- evaluating person–job match
- measuring the effects of job satisfaction on reenlistment intentions
- determining the role of personality in job performance.

The Air Force Occupational Measurement Squadron

AFHRL originally designed and implemented Air Force OA and the WAPS. However, OA data collection and WAPS test development were eventually deemed to be operational functions; thus, in 1970, the occupational testing program was combined with the occupational survey program to form Detachment 17 of the 3300th support squadron under Air Training Command.[5] The new organization consisted of staff trained in implementing the OA and WAPS test routines designed by the AFHRL researchers. In 1974, Detachment 17 became the Air Force Occupational Measurement Center, and later AFOMS (A. Wright, 2009).

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[4] For annotated bibliographies of AFHRL's research from 1946 through 1995, see AFHRL, annotated bibliographies 1946–1995.

[5] The Air Force sometimes distinguishes operational activities from research activities based on whether a data-collection effort is carried out regularly (e.g., annually) as part of a routine process. Data collection that is not regular and routine tends to be viewed as research, whereas data collection that is routine and regular is considered an operational data-collection activity. This distinction comes from official guidance regulating funding streams for research (i.e., Major Force Program [MFP] 6 is devoted to research, development, test, and evaluation funding, while other streams, such as MFP 8, are devoted to more-routine maintenance efforts). Note also that this distinction is not one we use in our definition of *personnel research*; all data-collection activities, whether regular and routine or not, are considered personnel research under our definition.

AFOMS's primary mission was collecting OA data and using those data to inform the content of enlisted training programs and develop Specialty Knowledge Tests (SKTs) for the WAPS. AETC Instruction (AETCI) 36-2601 (1999) describes AFOMS as the "program which collects and maintains an occupational database to provide information about Air Force jobs. The process involves developing a survey questionnaire, collecting and analyzing data, and reporting resulting survey information" (p. 6). AFOMS routinely provided OA data to Air Force career field managers (CFMs), training personnel, and major command (MAJCOM) functional managers. According to one interviewee, the survey data were "designed to facilitate preparation for utilization and training workshops (U&TW) and other periodic reviews of personnel classification, training, and utilization programs and practices." AFOMS also developed data extracts to address other specific issues as needed (AETCI 36-2601, 1999). In 1997, AFOMS became an FOA reporting to the Headquarters AETC Directorate of Operations (HQ AETC/DO), now AETC A2/A3/A10. Originally, the squadron consisted of four flights, but, as a result of downsizing, only two flights remain: the OA flight and the Test and Evaluation (TXTE) flight. Although *OA* and *TXTE* are the official names on record for the two flights, the flights have come to be known under two different names: *OAD* and *AAD* for the OA and TXTE flights, respectively. These are the names they used when referring to their organizations in our interviews, and some Air Force policy documents use the same names when making reference to them.[6] Because these are the names by which the flights have self-identified, and they are no longer referring to themselves as a single organization known as *AFOMS*, we have adopted the two names they provided to us and by which they are commonly known. However, as AETC Manpower and Personnel (AETC/A1) subject-matter experts have noted, to date, they are not officially designated as divisions; they are instead technically still considered two separate flights within an Air Force–approved squadron. These organizations and their continuing data collection and applications are discussed further in the next chapter, on current Air Force personnel research and data-collection efforts.

Summary

AFHRL and its heirs were historically the organizations tasked with responsibility for all personnel research. For many years, no organization has had that same official level of responsibility. Nevertheless, OA data continue to be collected and utilized for purposes of informing change in tech training and designing WAPS tests, and other organizations accommodate requests to conduct personnel research or have taken on responsibility for specific aspects of personnel research. These organizations and their personnel research efforts are described in detail in the next chapter. Although some research and the collection of OA data have continued, since the last broadly focused personnel research vestige of AFHRL at AFRL was eliminated, there has been no single resource for consumers of personnel research and development, and there is no obvious organization for consumers (including, of course, those who set personnel policy) to which to turn for help and strategic guidance.

[6] See, for example, Air Force Instruction (AFI) 36-2623, 2012, and Air Force Pamphlet (AFPAM) 36-2241, 2013.

CHAPTER FOUR

Personnel Research and Data Collection in the Air Force as It Existed in 2011

As noted in the previous chapter, AFHRL was the Air Force organization historically tasked with responsibility for all personnel research and development. With AFHRL and its heirs gone as the centralized source of such research, no organization now has that same official level of responsibility. But that does not mean that personnel research is not being done now; rather, it is being done, but in a more decentralized and less strategic way. Today, personnel research is taking place in a wide variety of organizations, with no single organization clearly in charge, and none with a mission set that includes strategic research and development for the personnel system as a whole.

In this chapter, we provide an overview of those organizations—when we presented our findings in 2011—to illustrate the decentralized nature of the current personnel research in the Air Force and highlight various issues associated with this current decentralized structure of personnel research. Specifically, for each identified organization, we discuss its position within the Air Force organizational structure, summarize its overall mission, describe the suborganizations involved in personnel research, and discuss the following points about their personnel research efforts: the types of personnel data they collect, the data-collection methods they use, and whatever primary and secondary uses they make of the data.[1]

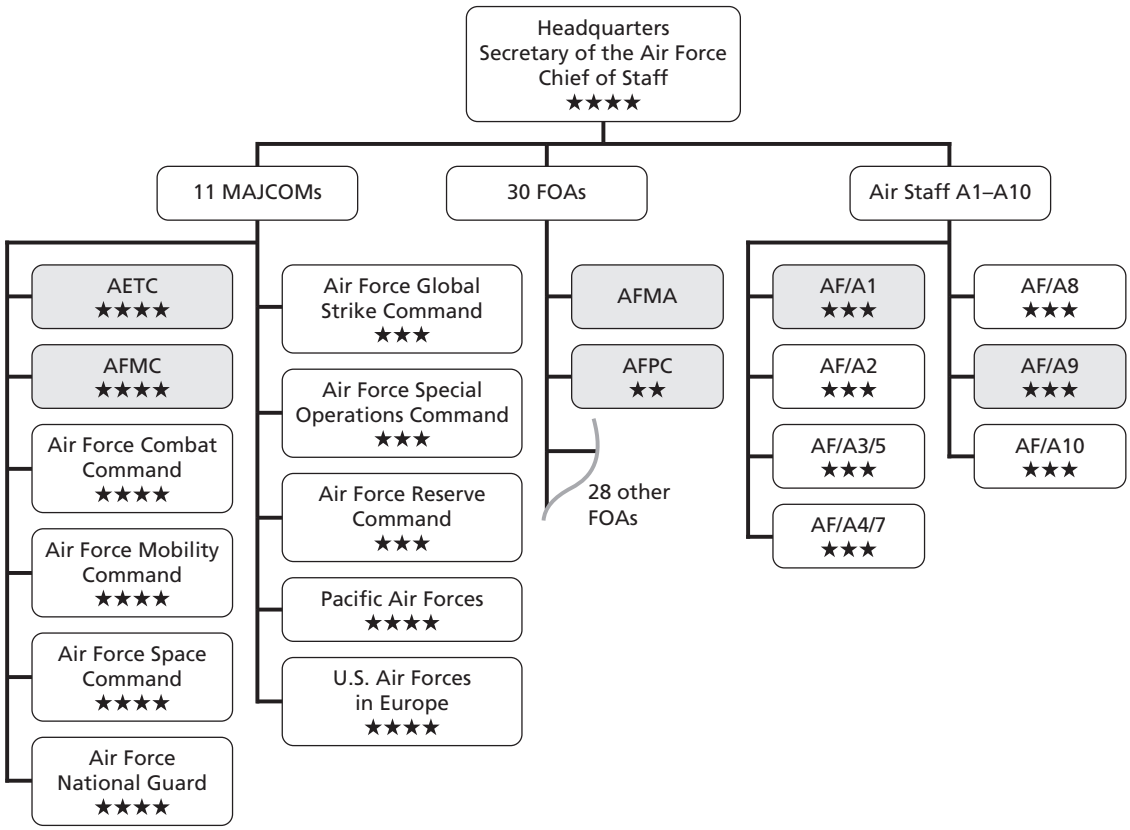
What Air Force Organizations Now Conduct Personnel Research?

We took a multistep approach to identify Air Force organizations now engaged in personnel research. In Figure 4.1, we highlight in gray the organizations we interviewed for this study, which reside in multiple locations in the broader Air Force structure. Our review of organizations engaged in personnel research is not exhaustive; rather, it was intended to be illustrative of the many organizations involved.[2] The information provided in this chapter is pulled from our interviews with key personnel in the various organizations, from information published on

[1] Note that, shortly after this research was completed, the Air Force began a reorganization process that affects some of the organizations discussed here (e.g., AFPC and AFMA). To the extent that these organizational units and subunits undertake the same personnel research–related activities, our findings still pertain, though organizational location and even name may change.

[2] We included the most common collectors of personnel-related data that we identified. Other organizations may be involved in personnel research, although they are not mentioned here. However, our coverage provided us with a broad perspective on ongoing endeavors. Some of the organizations listed but not interviewed were included for completeness as examples but not pursued because of our understanding that their use of individual-level personnel-related data was typically not direct (i.e., they were policy offices).

Figure 4.1
Air Force Organizational Chart Highlighting Organizations Involved in Personnel Research



NOTE: FOA = field operating agency. AF/A2 = Intelligence, Surveillance and Reconnaissance. AF/A3/5 = Operations, Plans and Requirements. AF/A4/7 = Logistics, Installations and Mission Support. AF/A8 = Strategic Plans and Programs. AF/A9 = Analyses, Assessments and Lessons Learned. AF/A10 = Strategic Deterrence and Nuclear Integration Office.

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the Air Force portal or in official Air Force publications (such as AFIs), and from institutional knowledge accumulated by RAND employees over years of working with various Air Force organizations. Though the majority of the information was collected between 2009 and 2010, we did update the information on AFRL by talking with additional organizational representatives. Moreover, key personnel in the organizations we interviewed originally were given the opportunity to review our draft in 2012 in its entirety to correct factual inaccuracies, update information, and provide their perspective on our conclusions; however, some factual errors may still be present because some organizations did not provide us with a response.

We also summarize in Table 4.1 the data-collection methods of the organizations identified, as well as the primary and secondary uses of personnel data of those organizations. Additional explanation of specific Table 4.1 entries can be found in the sections that follow.

Air Education and Training Command

Headquartered at Randolph Air Force Base (AFB), Texas, AETC is commanded by a four-star general and is one of nine active-duty MAJCOMs in the Air Force, shown in Figure 4.1. AETC is composed of the Air Force Recruiting Service (AFRS), two numbered Air Forces (although

Table 4.1
Types of Personnel Research Conducted by Air Force Organizations

Organization	Data-Collection Method	JA	Selection or Person Classification	Recruiting	Training	Job Classification	Workplace Attitudes and Perceptions	Feedback, Evaluation and Promotion	Competencies	Manpower Requirements
AETC (MAJCOM)										
OAD	Survey, focus group	■	▒	▒	■	■	▒	■	■	
AAD	Archival							■		
SAS	Archival, survey, test, observation	■	▒	■	■	■	▒	■		
AFPC (FOA)										
DSYD	Archival	■	■	■	■	■	■	■		
DSYA	Archival, survey		■	■	■		▒	■		
SRA	Archival, survey, test	C	■	■	▒	■		■	■	
AFMA (FOA)										
MAS	Archival, observation, interview, focus group	■								■
MAPP	Survey						■			
HQ AF/A1 (Air Staff)										
AF/A1D	Archival, interview	▒			■			■	■	■

Table 4.1—Continued

Organization	Data-Collection Method	JA	Selection or Person Classification	Recruiting	Training	Job Classification	Workplace Attitudes and Perceptions	Feedback, Evaluation and Promotion	Competencies	Manpower Requirements
AF/A1P	Archival, survey, test, interview, focus group, observation	C								
AF/A1S	Survey									
AFMC (MAJCOM), AFRL, 711 HPW										
711 HPW/RH	Archival, survey, test, focus group	C								
USAFSAM	Archival, survey, test, interview, focus group									
Other Air Force organizations (e.g., HQ AF/A9, AF/A1M)	Various methods	C/	C/	C/	C/	C/	C/	C/	C/	C/

NOTE: Cells highlighted in black represent the organization's primary uses of personnel data, while cells highlighted in gray represent the organization's secondary uses of personnel data. "C" indicates that we know that at least some of the work has been conducted by organizations external to the Air Force (i.e., RAND or a contractor). Organizations without Cs may also rely on external organizations. "/" denotes unknown information because these organizations were not interviewed. Note that the text includes information regarding some organizations we discovered at the end of our snowball sampling period that we did not pursue further. DSYD = Data Reports and Retrieval Branch. DSYA = Analysis Branch. SRA = Strategic Research and Assessment Branch. MAS = Management Engineering. MAPP = Performance Planning Branch. HQ = headquarters. AF/A1D = Air Force Directorate of Force Development. AF/A1S = Air Force Directorate of Services. HPW = Human Performance Wing. 711 HPW/RH = 711 HPW Human Effectiveness Directorate. USAFSAM = U.S. Air Force School of Aerospace Medicine. AF/A1M = Air Force Directorate of Manpower, Organization and Resources.

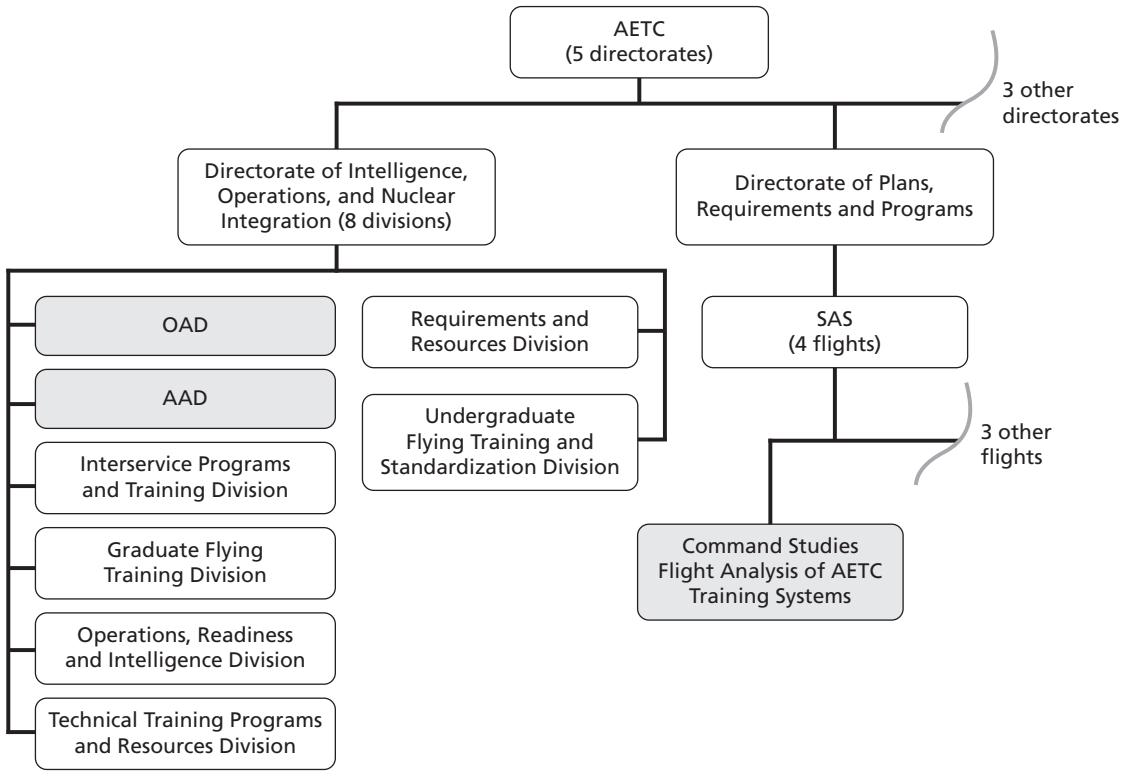
19th Air Force is being stood down), and Air University. AETC is in charge of recruiting (AFRS) and providing the basic military and technical training for each career field specialty. Through Air University, AETC provides continuing professional and graduate education for officers, enlisted members, and civilians throughout their careers. AETC has an annual budget of $8.4 billion and an assigned workforce of nearly 75,000 individuals. In fiscal year (FY) 2010 alone, AETC was responsible for recruiting roughly 30,000 individuals and providing basic, technical, and other specialized training to roughly 296,000 airmen (AETC, 2011).

As shown in Figure 4.2, OAD and AAD are located under the AETC Headquarters Directorate of Intelligence, Operations, and Nuclear Integration, and the SAS is located under the AETC Headquarters Directorate of Plans, Programs, Requirements and Assessments (AETC/A5/8/9). OAD and AAD each report separately to AETC.

Occupational Analysis Division

This organization is officially titled the OA flight.[3] The squadron once known as AFOMS (described in Chapter Three) faced a significant downsizing of staff and a shift to an all-civilian workforce in 2009. At that time, its previous four flights were consolidated into two

Figure 4.2
Air Education and Training Command Organizational Chart Highlighting Organizations Involved in Personnel Research



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[3] According to AETC/A1 subject-matter experts, this organization is officially considered a flight under an Air Force–approved squadron. It is not officially considered a division. See Chapter Three for more information.

new flights, one of which is now known as OAD (although *OAD* is the name it now uses, it is technically called the OA flight). At the time of our interview, OAD employed 37 civilians.

OAD's primary focus is on collecting OA data to inform the content of enlisted training programs and develop WAPS test items. The principal method of collecting OA data is through job inventories (JIs), which are administered to every person in a given enlisted AFS on a three-year cycle. JIs for officer AFSs are conducted on request; although requests for officer JIs are still relatively rare, they are becoming more frequent. From the JIs, OAD produces OA reports (OARs), which are automatically provided to CFMs, SKT development teams, training managers, specialty training requirement teams, and U&TWs.

Besides describing job duties, OAD also administers separate surveys to a sample of participants to establish task learning difficulty, training emphasis, and importance for promotion tests (though this last type of survey has now been discontinued and the information obtained via other data). The task learning difficulty survey goes to a small, targeted sample of senior noncommissioned officers (SNCOs) (about 100 E-6s and E-7s, depending on career field size) to determine how difficult it is to train the task effectively; the training emphasis survey also goes to a similarly targeted sample to determine how important a task is for performance by first-term airmen (and hence should be emphasized in training); and the testing importance survey goes to SMEs and others in a supervisory capacity (AFI 36-2623, 2006). The survey results are used by CFMs and training managers at technical training schools for selection of tasks to be trained in entry-level training courses and to assist SKT development teams.

OARs are delivered to technical training schools and briefed to users of the data in training, career field management, and testing. JI data are used to develop WAPS tests. According to AFI 36-2623 (2006), OA information is used for

- classifying AFSs
- developing and sustaining Air Force training programs
- guiding utilization of personnel
- supporting promotion tests for the WAPS and the SNCO Promotion Program.

Each JI, now collected through an online questionnaire, asks about *background information* (e.g., AFS, job satisfaction, deployments, reenlistment intentions, supervisory duties; additional demographic information is obtained from the respondent's common access card [CAC])[4] and *duty-tasks*—a checklist of all tasks that could be carried out in performing the job being surveyed, as well as the amount of time spent on the task.

The questionnaire development process takes a few months for each AFS. It starts with confirming and updating the previous survey items and identifying new items to add. This process includes reviewing prior JIs, job classification descriptions, and technical training standards; consulting with AFPC, functional managers, the AETC pipeline managers, and tech training representatives; and conducting focus groups with SMEs.

An OAR is prepared to describe the results of all the above analyses, and survey results are presented to the U&TWs to provide insights into the relevance of current training programs.

OAD has been asked to host other surveys and will do so if the surveys are training-related, although clients may have to wait several months for the survey to be administered. External and special studies conducted by OAD include gathering recruiting and training

[4] The JIs have been CAC-enabled for about two years.

input for AFRS, enhancing dental career structuring for the Air Force Dental Service, evaluating attitudes toward mobile learning delivery for Sheppard AFB Mobile Learning, and providing training course evaluations. OAD has conducted a small-business innovative research survey and factory development surveys and would like to develop surveys that capture job competencies. OAD would like to "widen the OA lane" but does not intend to expand into unrelated areas.

OAD's role is one of operational data collection focused on supporting Air Force training and testing programs by administering and analyzing the JI. Thus, although OA data would be useful in many other areas, OAD focuses only on those areas outlined in its mission. Furthermore, it has limited resources and expertise for broadening its role and for analyzing its own OA data.

OAD's role in personnel research is narrow in focus. It supplies raw data from the survey to the standard OA data users, but its staff does not perform any sophisticated statistical analyses because of limited resources and expertise to handle nonstandard requests. For example, a request for a classified study has been tabled for two years because OAD is not equipped to handle classified studies. As another example, data reports include basic summary statistics (such as sample sizes and average responses) for AFS subgroups, but OAD does not conduct tests of statistical significance to determine which group differences are larger than would be expected by chance alone. Nevertheless, OAD staff does occasionally conduct special studies on personnel-related issues; for example, it is conducting research on using the Emotional Quotient Index (EQ-i) as a screening device, but such research is not the main focus of the organization.

For this reason, in Table 4.1, we show OAD's primary uses of personnel data for JA, training evaluation, and job classification, with secondary uses including selection (as in the case of the EQ-i) and in recruiting and attitudes (which are covered in the additional assessments of reenlistment intentions and attitudes also included on the JI). Although OAD's data are not designed to be used in other aspects of personnel research, they should be. See Chapter Two for the myriad potential uses for similar data. However, using its data for some other purposes would require some additions to the current JI content. (See the discussion on the types of data needed by AFMA/MAS below for an example.)

Airman Advancement Division

This is officially TXTE.[5] The other flight created after the downsizing of AFOMS in 2009 is known as AAD (although *AAD* is the name it now uses, it is technically called the TXTE flight). AAD's mission is to develop and distribute the promotion tests and study guides to support the WAPS and SNCO Promotion System, along with the accompanying Professional Development Study Guides. AAD develops three promotion-testing tools: the SKTs, the Promotion Fitness Exams (PFEs), and the U.S. Air Force Supervisory Exams (USAFSEs). Over about 18 months, AAD develops 275 tests. Data from OAD's OARs are used to inform the content of the test items.

AAD's staff is skilled at implementing the procedures established by AFHRL and its heirs years ago; however, none have the psychometric expertise to continually adjust their techniques

[5] According to AETC/A1 subject-matter experts, this organization is officially considered a flight (called TXTE) under an Air Force–approved squadron. It is not officially considered a division (see Chapter Three for more information). However, to distinguish it from the similarly named flight described in the following section, we refer to this flight as AAD.

as professional practice changes. AAD's staff (many of whom have a master's-level education) includes programmers, database managers, test psychologists, and administrators. At the time of our interviews, AAD had no Ph.D.'s on staff and no one with an extensive background in statistics and psychometrics.

Although AAD's staff uses personnel data heavily, AAD does not appear to be collecting any of its own personnel data. It does also receive statistics on the items administered for the WAPS tests from AFPC, but again it receives rather than produces the data. We therefore marked AAD's primary use of the personnel data under the heading of evaluations and promotions in Table 4.1; however, AAD is best described as a consumer rather than a producer of personnel research.

Studies and Analysis Squadron

SAS was established more than a decade ago and serves as AETC's focal point for quantitative analysis, technology assessment, and operational test and evaluation (note that the function itself existed before this specific organization). SAS's mission is to enhance AETC recruiting, training, education, and decisionmaking by conducting research on AETC training systems and on new ideas and technologies. At the time of our interviews, SAS was composed of four flights: (1) the *Test and Evaluation Flight* focuses on operational test and evaluation of aircrew training systems and computer systems,[6] (2) the *Technology Innovation Flight* assesses training and education technology, (3) the *Training Analysis Flight* assesses maintenance training requirements for new weapon systems, and (4) the *Command Studies Flight* supports command decisionmaking through analysis and evaluation of AETC training systems and programs.

Of the four flights, the Command Studies Flight is the only one we identified during our interviews as regularly conducting studies related to personnel research, most of which are focused on training. However, the studies are quite varied, and SAS regularly employs a variety of analytic approaches and data-collection techniques, as needed. The Command Studies Flight includes one programmer, three operations researchers with M.A.'s, one civilian operations researcher, and a lieutenant with an operations research background. More than half the members of the flight hold advanced academic degrees. Staff members usually come from the Air Force Institute of Technology (AFIT) and stay at SAS for three to four years.

Study requests are typically directed to the commander, who then distributes the work based on individual expertise within the flight. SAS's goal is to produce data once or twice and then, if regular data collection is needed, pass responsibility on to the client to continue to implement. The following list describes some of the different projects SAS reported undertaking, illustrating the diversity of topics and clients:

- development, validation, and administration of the Test of Basic Aviation Skills (TBAS); SAS provides the scores to the pilot selection board (requested by AETC Directorate of Intelligence, Operations, and Nuclear Integration [HQ AETC/A2/3/10])
- Undergraduate Pilot Training Smooth Flow Scheduling system: SAS developed and tested the scheduling model for air and space basic course and flight screening and is currently transferring it to AFPC for ongoing implementation (requested by HQ AETC A2/3/10)

[6] This is the same name given to the flight described in the previous section. We refer to this flight as the *Test and Evaluation Flight*.

- analysis of new Armed Services Vocational Aptitude Battery (ASVAB) composite scoring method and development of job spin algorithm (requested by AFPC, AF/A1, AFRS, and 2nd Air Force [2AF])
- Technical Training Attrition Analysis: regression analysis of data from 129,000 recruits to study impact of lowering ASVAB cutoff scores (i.e., increasing the candidate pool) on technical training attrition rates. Study started at AFOMS but transferred to SAS because AFOMS did not have operations research staff. SAS liaised with AFRS and AFPC during the study. (Results were presented to AFRS and 2AF.)
- Randolph AFB automobile traffic control strategy
- Wing Level Maintenance Assessment Survey: administered to and analyzed results for 19,000 personnel (requested by AF/A4/7)
- balanced scorecard study survey: SAS administered the survey designed to help build a collaborative AETC team to 6,000 AETC personnel and analyzed survey results (requested by HQ AETC)
- creation of a tool to assign AFSs to enlisted airmen (requested by AETC Directorate of Plans, Programs, Requirements and Assessments [HQ AETC A5/8/9])
- analysis of the correlation between EQ-i training and success for students entering survival, evasion, resistance, and escape (SERE) instructor training (requested by AFOMS)
- evaluation of memory training program
- examination of the adverse demographic impact of a new form of the AFOQT for AFPC.

Although this list shows several non-AETC clients, most of SAS's projects come through AETC. Some, such as the training scheduling and EQ-i studies, have even been conducted for, or in tandem with, AFOMS (presently OAD). SAS personnel indicated that they also regularly conduct studies for AFRS and AFPC. As specified in its mission, SAS's primary use of personnel research is to support training; however, because SAS assists with other types of studies, we also noted selection and attitudes as secondary uses of its personnel research in Table 4.1.

The availability of staff and resources is one limiting factor in SAS's ability to conduct research. For example, HQ AFRS recently asked SAS whether it could conduct six different studies, but SAS could staff only one. When SAS is overwhelmed with work, it refers requests to contractors or asks the client to table the request until a later time. Another limiting factor is its lack of expertise in certain aspects of personnel research, such as survey design. Nevertheless, SAS has accepted requests for survey research, and, in those instances, it did what it could to make the surveys successful. For example, for the Wing Level Maintenance Assessment Survey, the client (AF/A4/7) composed the questions while SAS provided guidance, and, for the Balanced Scorecard study, SAS administered the survey but sought the assistance of a professor at Air University to develop the stratified random sample.

Air Force Personnel Center

Headquartered at Randolph AFB, Texas, AFPC is a FOA of HQ USAF, Deputy Chief of Staff for Manpower and Personnel (AF/A1). It is led by a two-star general and employs more than 2,400 military, civilian, and contract personnel (U.S. Air Force, 2010a). AFPC's main mission is to ensure that "commanders around the world have the right number of skilled Air Force people in the proper grades and specialties to complete their missions" (U.S. Air Force, 2012). In support of this, AFPC is responsible for all personnel support and programs for officers (O-5 and below), enlisted (E-8 and below), and civilians (GS-15 and below). This includes managing

personnel distribution and career progression and personnel programs focused on promotions, performance evaluations, education, separations, and retirement, among others. AFPC is also responsible for maintaining all personnel data systems for military and civilian personnel (U.S. Air Force, 2010a).

AFPC is composed of seven directorates:

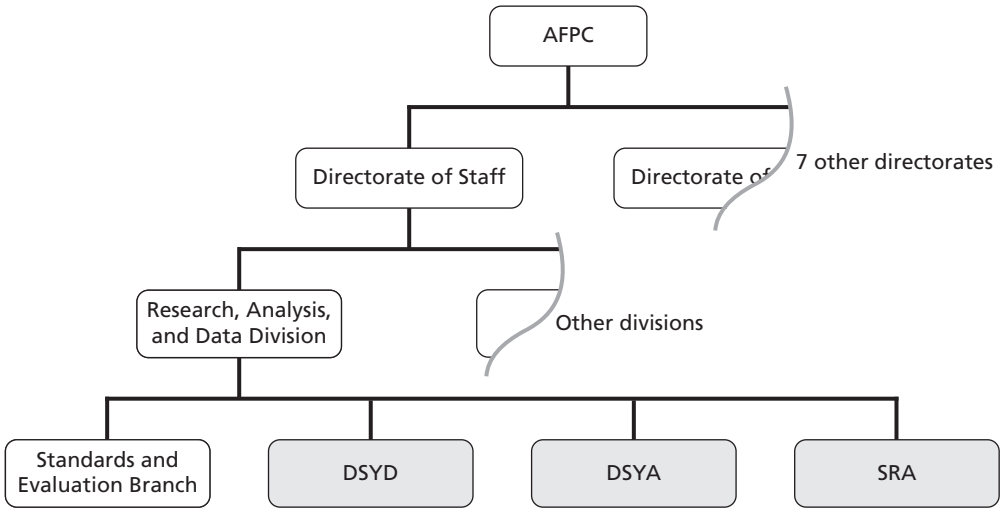
1. Directorate of Staff
2. Directorate of Air and Space Expeditionary Force Operations
3. Directorate of Assignments
4. Directorate of Civilian Force Integration
5. Directorate of Personnel Data Systems
6. Directorate of Personnel Services
7. Total Force Center.

As shown in Figure 4.3, AFPC's main personnel research activities are in the Directorate of Staff's Research Analysis and Data Division, which is composed of four branches. At the time of our interviews, the Standards and Evaluation Branch was only in the process of being developed; however, the remaining three branches were involved in personnel data collection or analysis in some capacity. Therefore, we describe those three branches and their research activities in more detail below.

Data Reports and Retrieval Branch

DSYD is responsible for maintaining more than 4,500 Air Force personnel data sets. These include extracts from the Military Personnel Data System (MILPDS), which contain detailed past personnel records on all Air Force active-duty, reserve, and guard members, including source of commission, date of entry, pay grade, career field, administrative actions, education prior to joining the military, PME, bonus pay (such as the foreign language proficiency bonus),

Figure 4.3
Air Force Personnel Center Organizational Chart Highlighting Organizations Involved in Personnel Research



RAND *TR1276-4.3*

base location, race, gender, age, and other personal demographics. In addition to MILPDS extracts, DSYD also maintains records from the civilian personnel database. All together, the data sets managed by this branch can be pieced together to provide highly detailed longitudinal information across a wide range of personnel variables.

From these data sets, DSYD produces more than 400 reports per year for various Air Force organizations that range from weekly or monthly data snapshots to quarterly or annual reports. Reports cover such topic areas as strength accounting, requests under the Freedom of Information Act (Pub. L. 89-554, 1966), manning products, and retention statistics. Recipient organizations may use the reports to inform a variety of personnel-related topics, including selection, recruiting, training, and evaluation and promotion. Additionally, DSYD conducts ad hoc data retrievals and reports when requested. For example, if someone in the Air Staff wants information on all the pilot-qualified officers serving in joint billets from the Air Force, this branch would be responsible for compiling the data. Other ad hoc report topics include requests for demographics, assignments, and PME profiles. Because DSYD's personnel data are used to inform any number of research areas, we noted those areas as primary uses in Table 4.1. However, DSYD does not do any in-depth analysis and interpretation of the topic areas in Table 4.1; it only provides data and summary reports to be used by other organizations.

Data requests commonly come from senior leaders in the U.S. Department of Defense (DoD), the offices of the Secretary of the Air Force, Air Staff, and AFPC. DSYD also provides data to other DoD-wide agencies, such as the Defense Manpower Data Center (DMDC), which maintains personnel data records on all military services, and the Defense Logistics Agency (DLA), which provides logistics support for all of DoD, the U.S. Department of Transportation (DOT), and the Defense Finance and Accounting Service (DFAS).

Analysis Branch

DSYA is responsible for producing any personnel reports that require more-complicated calculations beyond the simple requests for assembling of data sets normally handled by DSYD. As shown in Table 4.1, it conducts studies and policy reviews on such areas as selection, recruiting, training, and promotion (including providing support for the WAPS). Overall, these analyses focus on providing information about the current or historical state of personnel in the Air Force. For example, DSYA reported that recent projects have included examining the impact of recruiting waivers, examining the effect of PME credits on promotion and school selection rates, examining differences in retention rates by demographics, and creating a Reserve Officer Training Corps (ROTC) AFS classification model. It also described some minor survey development work to measure raters' perceptions of the past performance of individuals recalled from the guard and reserves. Therefore, we have also highlighted workplace attitudes and perceptions as a secondary use of the data DSYA collects. Overall, the reports produced address requests from within AFPC, as well as from other organizations in the Air Force (e.g., AETC or Headquarters U.S. Air Force [HAF]) or DoD.

Strategic Research and Assessment Branch

Housed within AFPC, SRA acts as a liaison with HAF Force Management Policy Division (AF/A1PF) to identify and oversee personnel-related research efforts in the Air Force.[7] SRA's

[7] At the time of the interviews with SRA, SRA liaised with AF/A1PF, the Force Management Policy Division. This was later renamed AF/A1PT.

mission was created as part of a restructuring of AFPC in 2007, with the main goal of filling in key research gaps remaining after the dissolution of AFHRL and its successors, such as Armstrong Laboratory, Manpower and Personnel Research Division (AL/HRM), although individuals within the unit were performing similar functions within AFPC previously. However, because SRA has a limited number of staff, these studies are generally conducted by contractors or, in some cases, other Air Force organizations (e.g., SRA supervised the validation of the TBAS by SAS). It described several past and current personnel research efforts (some conducted in-house and others contracted to outside agencies). Examples of the types of topics are shown here; given these examples, we note several corresponding primary uses of personnel data in Table 4.1:

- AFS restructuring
- the officer accession system
- the development of job performance measures
- test development and validation (e.g., AFOQT)
- identification and validation of screeners to improve person–job matching in training
- development of a selection battery for operators of remotely piloted aircraft (RPAs)
- development of realistic job previews
- development of new ASVAB composite scores for use in classification
- development and maintenance of the Human Resources Research Databank (HRRD), which serves as a historical archive of more than 50 years of personnel-related research data.

SRA is also responsible for fielding issues with, or proposed improvements to, the personnel testing system (AFI 36-2605, 2008) for the Directorate of Force Management Policy, Force Management Division (AF/A1PF). This includes reviewing proposed research related to personnel testing changes, providing advice on the research plan and Institutional Review Board (IRB) procedures, and reviewing final validation efforts and results to ensure they are consistent with well-established professional guidelines for testing and assessment (e.g., American Educational Research Association, American Psychological Association, and National Council on Measurement in Education, 1999). After review, a package of proposed changes is then forwarded to AF/A1PF for approval. SRA also oversees testing operations for the AFOQT (used in officer, pilot, and combat system operator selection) and the TBAS (used in pilot selection). SRA also described collecting JA-type data through contractors as part of its research efforts; however, as shown in Table 4.1, this is not a primary data-collection activity for this branch.

Many of the other organizations we interviewed were not aware that this branch exists or that it is available for consultation. Instead, most of SRA's clients are identified when the branch hears of Air Force testing efforts, which require SRA's approval (as specified in AFI 36-2605, 2008).

Air Force Manpower Agency

Like AFPC, AFMA is a FOA headquartered at Randolph AFB, Texas. AFMA reports to AF/A1M. Led by a colonel (O-6), AFMA employs a total of 425 active-duty and civilian personnel ("2009 USAF Almanac," 2009) to accomplish its primary mission: providing "the tools to identify essential manpower" needs (U.S. Air Force, 2010b, ¶ 2). Among its main responsibilities are

- determining manpower requirements, standards, and programming and resourcing factors (i.e., how long it takes for an average worker to do a task and how much time a person is available to do it)
- creating and maintaining standard position descriptions
- conducting and overseeing Air Force attitude and opinion surveys
- providing civilian classification oversight and centralized operational classification.

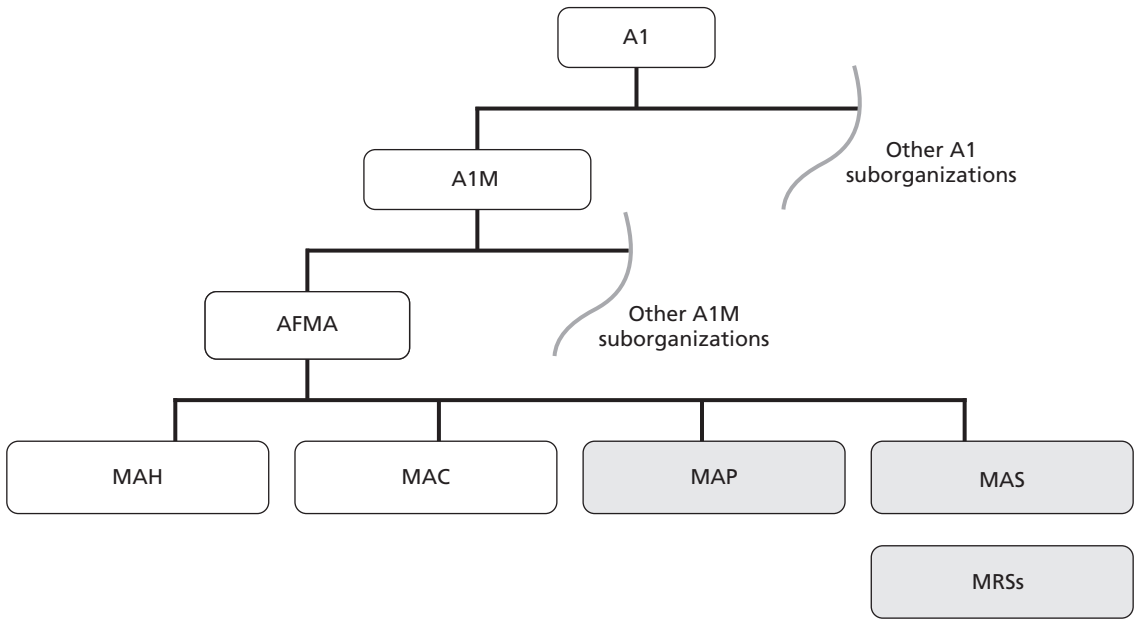
As shown in Figure 4.4, AFMA is made up of four divisions—Commercial Services Management (MAC), Central Civilian Classification (MAH), Management Engineering (MAS), and Performance Management (MAP)—and five regionally based Manpower Requirements Squadrons (MRSs), whose primary responsibility is to quantify manpower requirements. MAS and MAP are the two divisions we identified as regularly conducting personnel-related research and data-collection activities.

Management Engineering Division

MAS is responsible for establishing the manpower standards—or estimates for the number of man-hours necessary to complete a given task—for all Air Force career fields, which are used to develop estimates of the amount of manpower necessary for a given career field (i.e., manpower requirements).

The MRSs conduct the manpower studies, with oversight by MAS senior staff. Each MRS has about 50 staff, half military and half civilian, including management analysts, industrial engineers, and computer scientists. Interestingly, none have backgrounds in psychology or operations research, two fields that would also seem relevant to the issue of determining manpower requirements.

Figure 4.4
Air Force Manpower Agency Organizational Chart Highlighting Organizations Involved in Personnel Research



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Using available data, base-visit observations, and SME judgment, the MRSs work to identify the range of activities in a given career field and the typical time it takes to execute each activity. Although existing data sources are considered in the process of establishing manpower standards, such data are often not available to AFMA (e.g., OA data are not regularly provided to MAS) or do not directly address their needs (e.g., MILPDS data do not contain elements useful for developing manpower standards, and OA data do not include estimates for how long it takes the average worker to complete a task); hence, SME judgment and observation usually have the greatest impact on the final standards. According to the MAS representatives we interviewed, collecting the necessary data is not hard; finding the data and knowing someone who has them is much harder. When a manpower study is complete, a summary report of about ten to 12 pages is posted on the AFMA website.

MAS's (and the subordinate MRSs') role in collecting and analyzing job requirements puts its work squarely in the realm of personnel research. Table 4.1 shows the primary purpose of its research is describing the job task duration requirements (e.g., a form of JA) and manpower analyses.

Performance Management Division

The Performance Planning Branch (MAPP) within MAP includes the Air Force Survey office. MAPP's primary responsibility in this regard is overseeing all Air Force–wide assessments of attitudes or opinions (i.e., including any polls, surveys, questionnaires, interviews, or focus groups). AFMA assigns official survey control numbers (SCNs), which designate that an assessment has been officially approved by AFMA.[8] Air Force personnel are asked to ignore any Air Force–wide studies of opinions or attitudes not approved by AFMA.

As part of the approval process, MAPP ensures that each survey

- uses sound measurement practices (i.e., will yield reliable and valid results)
- meets operations security requirements
- satisfies the Privacy Act (Privacy Act of 1974, Pub. L. 93-579) where applicable
- does not create an undue survey burden on personnel
- is endorsed by Air Force leadership to which the survey findings apply (to reduce duplication of effort).

MAPP estimates that it reviews about 80 percent of all surveys of Air Force personnel.[9] For the three months from January to March 2010, it reported reviewing 46 survey requests, of which 28 were approved and 18 were rejected. Approved surveys included such topics as personal safety; the preparations for, exposures to, and impacts of Air Force deployments; mental health; and several personnel system surveys. Examples of the types of studies approved by MAPP are

- tobacco use survey
- tobacco use, postban survey

[8] Other organizations, including the Inspector General, Air University, and AFIT, can issue SCNs or provide other forms of approval for assessments of attitudes or opinions. Air University and AFMA coordinate survey authorizations, while AFIT, which issues SCNs for student projects, operates more independently.

[9] Among the remaining 20 percent are surveys approved by other organizations, such as AFIT and AF/A1PF, and surveys that are not Air Force–wide, such as those administered to a single base and that, thus, do not require AFMA approval.

- Air Force personal safety survey
- preparations, exposures, and impacts of Air Force deployments: a focus on mental health
- Air Force center for engineering and the environment stakeholder assessment
- total force integration personnel accounting symbol (PAS) code deployment process tasking
- advanced maintenance and munitions officer school (ammos) student research
- balanced scorecard survey
- employee exit interview
- resilient military couples
- workforce development and gap analysis
- performance-based award survey
- department of engineering mechanics graduate and supervisor surveys
- line of duty and Medical Evaluation Board survey
- mentorship program; mentee preprogram, mentee postprogram, and mentor postprogram evaluations
- Air Force climate survey pilot test
- nonstandard aviation, aircrew survey
- AFIT Squadron Officer School
- MQ-9 simulator survey
- follow-on review: issues from Fort Hood survey
- effects of downsizing
- Security Forces: study on deployment
- intelligence, surveillance, and reconnaissance (ISR) deployment survey.

MAPP also helps develop, administer, and analyze some surveys on a case-by-case basis as time, resources, and workload priorities permit. MAPP has a small number of staff, which limits how much assistance it can provide, although it does have considerable analytic capacity well-suited to this purpose, with several behavioral scientists, including some research psychologists, several operations research analysts, and some information technology (IT) staff. In the three months from January to March 2010, MAPP designed and implemented eight large and 11 medium-sized surveys. Given that MAPP's conduct of studies on attitudes and opinions is a central part of its mission, we marked its primary use of personnel-related data as falling under "workplace attitudes and perceptions" in Table 4.1.

Although MAPP regularly collects or approves the collection of very rich personnel data sources, its data sharing and linking capability is limited, to protect the confidentiality of the respondents. For example, one MAPP-developed survey, the Air Force climate survey, is administered every two or three years and covers a wide range of attitudes, including overall job satisfaction, perceived stress levels, workloads, work hours, reenlistment intentions, views about leadership, and views on other pressing issues. Although the 2010 climate survey included many of the same topics as the 2008 version (which included nearly 250,000 respondents), identifiers are not retained after each survey is completed; therefore, only aggregate estimates by groups can be compared longitudinally.

MAPP's role in conducting attitudinal and opinion studies is also limited because it does not have access to data from the many externally built surveys (or data collected through other means), even if such surveys are MAPP-approved. Studies designed and analyzed by outside contractors or even other organizations in the Air Force are not required to deliver the data

to MAPP, and MAPP typically does not have reason to request them. MAPP does, however, direct inquiries to the owners of externally collected data in the hopes of facilitating data sharing, and it does retain deidentified data from its own studies and can reanalyze those data as needed.

Deputy Chief of Staff, Manpower, Personnel and Services

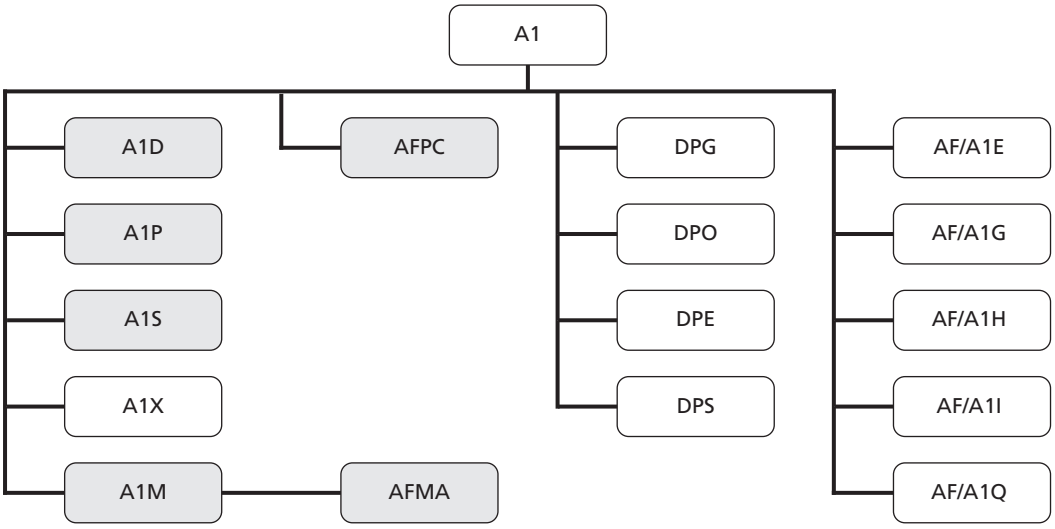
At HAF, five deputy chiefs of staff (DCSs) are responsible for plans and policies for the major operational activities of the Air Force: AF/A1, Air Force Intelligence, Surveillance and Reconnaissance (AF/A2), Air Force Operations, Plans and Requirements (AF/A3/5), AF/A4/7, and Air Force Strategic Plans and Programs (AF/A8). They report directly to the highest-ranking military officer in the Air Force, the Chief of Staff, and preside over the HAF Air Staff.

The DCS for AF/A1, which is responsible for plans and policies for managing military and civilian personnel life cycles (DoD, 2006), has four directorates (shown in Figure 4.5) with suborganizations that were identified in our interviews as frequently engaged in personnel research. Those suborganizations are described below.

Air Force Directorate of Force Development

AF/A1D has six suborganizations, as shown in Figure 4.6. We identified two suborganizations in AF/A1D as organizations that have occasions to conduct personnel research: Air Force Airman Development Division (AF/A1DD) and Air Force Force Development Integration (AF/A1DI).

Figure 4.5
Deputy Chief of Staff for Manpower and Personnel Organizational Chart Highlighting Organizations Involved in Personnel Research



NOTE: DPG = Air Force General Officer Management. DPO = Air Force Colonels Management. DPE = Chief Master Sergeant Management. DPS = Air Force Senior Executive Management. AF/A1E = Executive Services. AF/A1G = Air Force Guard Advisor. AF/A1H = Air Force Reserve Advisor. AF/A1I = Air Force Action Group. AF/A1Q = Air Force Equal Opportunity.

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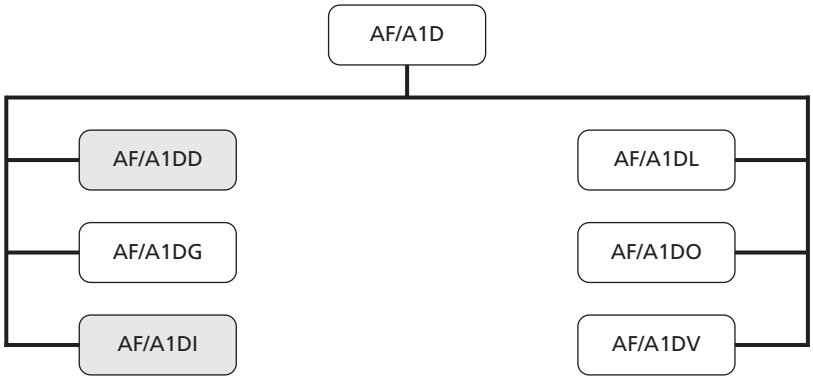
Figure 4.6
Air Force Directorate of Force Development Organizational Chart Highlighting Organizations Involved in Personnel Research



NOTE: AF/A1DG = Air Force Culture, Region, and Language. AF/A1DL = Air Force Learning. AF/A1DO = Air Force Commissioning Programs. AF/A1DV = Air Force Diversity Operations.

RAND *TR1276-4.6*

Air Force Airman Development Division

The first organization, AF/A1DD, focuses on force development policies, including developing the force-wide institutional competencies list (AFI 36-2013, 2008). At the time of our interview, AF/A1DD described its most recent personnel research effort as civilian talent management. The study, carried out by AF/A1DD personnel, focused on identifying the most-critical institutional competencies and occupational requirements for each senior executive service (SES) position (n = 165), and the study findings were used to adjust various aspects of SES development. Training and competencies are, therefore, noted as primary uses in Table 4.1.

Air Force Force Development Integration

The second suborganization involved in personnel research in AF/A1D, AF/A1DI, is tasked with ensuring that candidates are qualified for senior-officer, enlisted, and civilian positions. One major component of AF/A1DI's work is identifying the experiences, skills, and competencies needed to be considered qualified for those senior positions, something it does using such records as duty history, educational background, and PME. At the time of our interviews, AF/A1DI was developing tools to help CFMs identify critical competencies and conduct gap analyses comparing current personnel with the personnel they need in terms of experience, education, and training. These activities are noted in Table 4.1 as secondarily involving JA data, with the primary uses being training and development of competencies.

AF/A1DI also provides tools for career development. For example, one tool, developed by an external contractor, allows an employee to pick three peers, three subordinates, and one supervisor to provide feedback about his or her strengths and development needs on 27 institutional competencies. (This is noted as feedback in Table 4.1.) Some SNCO PME classes (at the discretion of the instructor) collect this feedback before students go to the schoolhouse, and then the results are used during the course, with instructor guidance. In past years, AF/A1DI has also conducted other personnel-related surveys (e.g., on institutional competencies for chief master sergeants), some of which has been with the assistance of RAND.

At the time of our interviews, AF/A1DI was not collecting any new data because of budget constraints.

Air Force Directorate of Force Management Policy

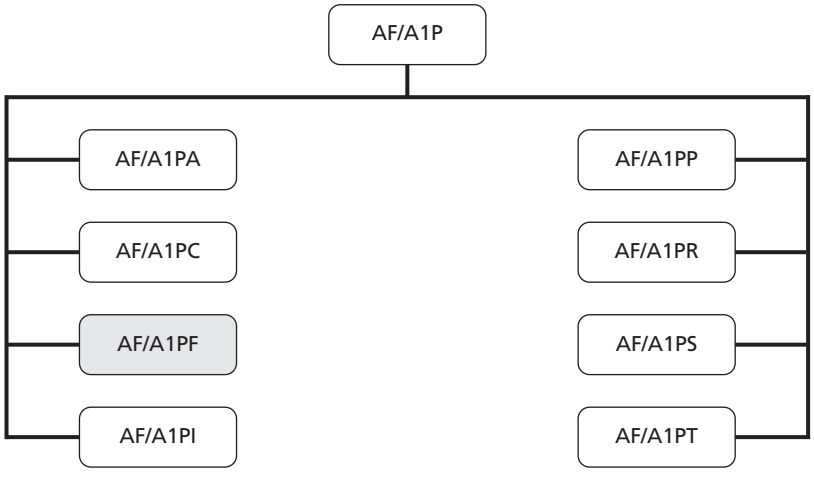
AF/A1P, which is "responsible for developing objectives, performing analysis, and developing force management policies to effectively shape and balance the AF's Total Force" (AFI 36-2013, 2013), has several divisions illustrated in Figure 4.7. At least one of these divisions—AF/A1PF—is heavily involved in personnel research.

Air Force Force Management Division

AF/A1PF has requested RAND's help in multiple personnel research efforts, including examining strength requirements in enlisted jobs, improving the person–job matching system, evaluating the AFOQT, and improving officer accession selection processes. In addition to its collaboration with RAND, AF/A1PF plans to administer a survey to validate a set of occupational competencies recently produced by two other contractors; ultimately, it aims to develop occupational competencies for all AFSs. It also described plans to develop a web-based tool so staff can provide self-assessments of their skills in the identified competencies and supervisors can confirm the accuracy of the self-assessments. In addition, in 2009, AF/A1PF developed the items, sample, and analysis plans for a retention survey, which was then fielded and implemented by AFMA. Finally, AF/A1PF regularly conducts in-house surveys and workshops (typically focused on career field retention or sustainment) and analyzes their results. These various activities are noted in Table 4.1 as primary uses of data, with a secondary use of JA data.

AF/A1PF has a staff of about a dozen analysts, mostly officers and some civilians, but it also relies on the experience of AFPC's SRA, which works closely with AF/A1PF to award

Figure 4.7
Air Force Directorate of Force Management Policy Organizational Chart Highlighting Organizations Involved in Personnel Research



NOTE: AF/A1PA = Air Force Compensation and Travel Division. AF/A1PC = Air Force Civilian Policy Division. AF/A1PI = Air Force Integration Section Division. AF/A1PP = Air Force Military Force Policy Division. AF/A1PR = Air Force Personnel Readiness Division. AF/A1PS = Air Force Continuum of Service Division. AF/A1PT = Air Force Training and Educational Requirements Division.

RAND *TR1276-4.7*

contracts for studies addressing various personnel research issues. SRA and AF/A1PF together determine research agendas, write statements of work, monitor contracts, brief results, and make recommendations. AF/A1PF hired three new industrial and organizational psychologists in 2011 (physically located with SRA) in the hopes of creating a technically trained in-house personnel research team to reduce its reliance on contractors.

Air Force Directorate of Services

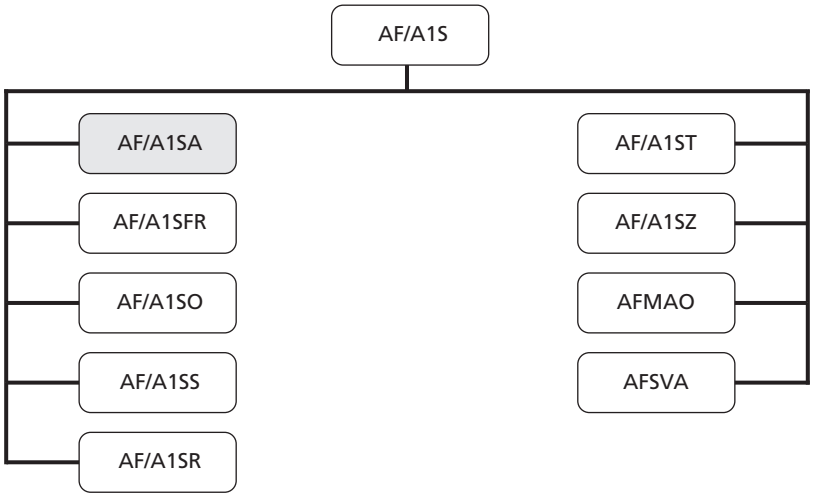
AF/A1S is responsible for Air Force–wide and base-level service programs, including lodging, food service, fitness, child development programs, golf, social clubs, libraries, Air Force uniforms, sexual assault prevention, airman and family readiness, mortuary affairs, recreation activities, and entertainment (AFI 36-2013, 2009a). As shown in Figure 4.8, AF/A1S has nine separate divisions or agencies.

Air Force Airman and Family Services Division

Although many of these agencies may conduct surveys to support their missions, we learned from our interviews that AF/A1SA has conducted at least three major personnel research surveys—the Community Assessment Survey (CA), the Quality of Life Survey (QOL), and a Spouse Survey—all of which are designed to assess various attitudes and perceptions (as noted in Table 4.1).

The CA, produced in conjunction with the Community Action Information Board (CAIB), has evaluated topics of interest to each Air Force community (i.e., active duty, reserve, guard, spouses, and civilians) every two to three years, since 1993. Although AFMA devel-

Figure 4.8
Air Force Directorate of Services Organizational Chart Highlighting Organizations Involved in Personnel Research



NOTE: AF/A1SA = Air Force Airman and Family Services Division. AF/A1SFR = Air Force Sexual Assault Prevention Response. AF/A1SO = Air Force Combat Operations Division. AF/A1SS = Air Force Airman Resiliency Program Division. AF/A1SR = Air Force Requirements Division. AF/A1ST = Air Force Armed Forces Entertainment Division. AF/A1SZ = Air Force Warrior and Survivor Care. AFMAO = Air Force Mortuary Affairs Operation. AFSVA = Air Force Services Agency.

RAND *TR1276-4.8*

oped, fielded, and analyzed the CA in the past, in 2010, AFMA was unable to assist; hence, an outside contractor was hired to take on that role.

The QOL survey, which began in 2008 and was administered again in 2010, is used to drive Air Force–wide changes to base services. Designed by an external consulting firm, it evaluates how various base-level programs (e.g., lifestyle, relationships, units, housing, libraries, child and youth programs, fitness programs) affect QOL, people's satisfaction with the programs, and the programs' effects on retention and readiness. In 2008, 50,000 active-duty airmen were invited to take the survey, and about 14,000 (28 percent) responded. A larger sample, including family, civilians, guard, and reserve, was planned for the 2010 administration to allow reporting of results by multiple subgroups (e.g., by AFS, base, and MAJCOM).

The Spouse Survey, administered in 2009, was a one-time event to supplement information from an earlier survey on Air Force culture and included questions on finances, children, and satisfaction with Air Force leadership. No future spouse surveys are planned because of funding constraints.

AF/A1SA's personnel research results have been briefed to a variety of Air Force leaders, including the Chief of Staff, AF/A1S, mission support group training commanders, and the functional community. When reports are published, they are accessible to base-level commands, MAJCOMs, and mission support group commanders. Although AF/A1SA owns the survey databases, in some cases, the data reside with a contractor (e.g., a contractor retains the CA data).

Air Force Directorate of Manpower, Organization and Resources

AF/A1M was among the organizations identified in the AF/A1 Air Staff community that may be involved in personnel research. Although we did interview representatives from AFMA (the FOA described previously and illustrated in Figure 4.4), we did not interview representatives from the other AF/A1M Air Staff suborganizations mentioned in Figure 4.4. This, therefore, is an example of an organization we identified through our snowball sampling technique but did not contact for interviews. Nevertheless, we note it here as having been identified as potentially involved in personnel research, with the primary area of application of the data in the area of manpower requirements.[10]

Deputy Chief of Staff, Studies and Analyses, Assessments and Lessons Learned

Another of the five HAF DCSs who report directly to the Chief of Staff—AF/A9—is also likely involved in personnel research. AF/A9's vision (as described in various A9 briefings) is to ensure gold-standard quality studies, analyses, assessments, and lessons-learned processes; to illuminate emerging DoD issues; and to fireproof key Air Force leadership decisions. It is composed of the following five directorates:

- Air Force Analyses and Assessments (AF/A9A)
- Air Force Force Structure Analyses (AF/A9F)
- Air Force Analyses Foundations and Integration (AF/A9I)
- Air Force Lessons Learned (AF/A9L)

[10] Our list of organizations is not intended to be comprehensive; nevertheless, because this particular organization may regularly conduct personnel research, we felt that its absence here would be conspicuous. Therefore, we opted to include it but provide only cursory details.

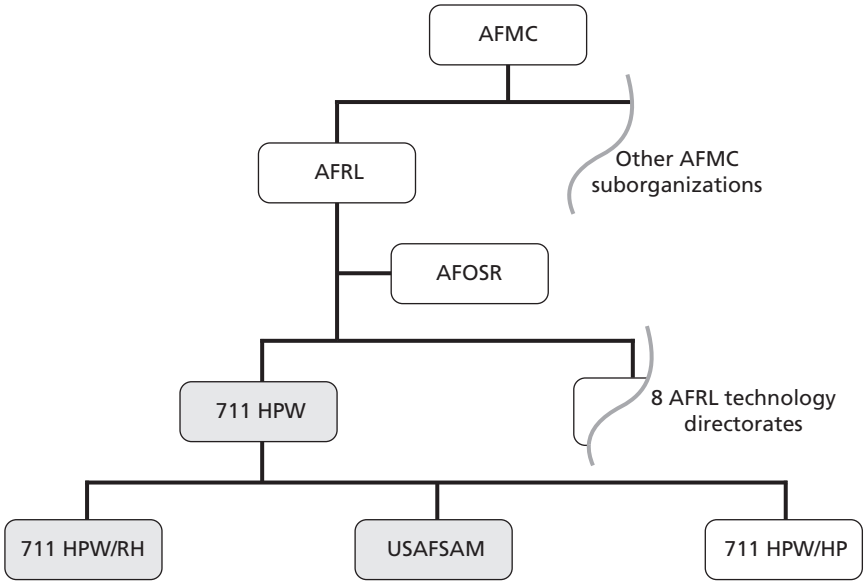
- Air Force Resource Analyses (AF/A9R).

Although we did not interview any representatives from AF/A9, as we did with AF/A1M, its involvement in personnel research was mentioned during our snowball technique, and personnel research seems applicable to the areas defined by its various directorates. For this reason, we have included a brief mention of it here; because we did not interview AF/A9 representatives, we are not providing specific details on current or past personnel research activities, though our understanding indicates that AF/A9's primary use of personnel data is for determining manpower requirements.[11]

Air Force Materiel Command's Air Force Research Laboratory

As shown in Figure 4.9, AFRL is a suborganization of one of the Air Force's nine active-duty MAJCOMs, AFMC. It is located at Wright-Patterson AFB. AFRL's mission is "leading the discovery, development and integration of affordable warfighting technologies for America's aerospace forces" (U.S. Air Force, 2009, ¶ 1). AFRL employs approximately 1,400 military and 5,400 civilian personnel throughout the Office of Scientific Research and nine technology directorates and is responsible for the Air Force's $2 billion science and technology budget.[12]

Figure 4.9
Air Force Research Laboratory Organizational Chart Highlighting Organizations Involved in Personnel Research



NOTE: AFOSR = Air Force Office of Scientific Research. 711 HPW/HP = 711 HPW Human Performance Integration Directorate.

RAND *TR1276-4.9*

[11] This organization represents one of the later discoveries of our snowball sampling technique; as a result, we did not include it in our interviews. As a reminder, our list of organizations is not intended to be comprehensive; nevertheless, because this particular organization could have a need to conduct personnel research on a regular basis, we felt that, if it were omitted from this chapter, its absence would be conspicuous. Therefore, we opted to include it but provide only cursory details.

[12] For more information on AFRL, see U.S. Air Force (2009).

When we first started our interviews, we met with a representative from the 711 HPW (one of the nine technology directorates in AFRL shown in Figure 4.9), who described the organization but stated that the 711th was not engaged in any personnel-related data collection or research activities. Since then, however, we have learned that the 711th is trying to reengage in manpower and personnel science and technology with a focus on such topics as RPA, cyber personnel, and battlefield airmen, and we have spoken with some additional personnel. This work is being conducted in the Human Effectiveness Directorate and in USAFSAM, two of the three organizations within the 711 HPW umbrella. The overall 711 HPW mission is "to advance human performance in air, space, and cyberspace through research, education, and consultation" (AFRL, 2011d, p. 1).

AFRL's work in the training domain is an ongoing effort dating to prior to AFHRL's dissolution, in various organizations (currently, in the Warfighter Readiness Division [AFRL/RHA]; see Bell and Casey, 2007; AFRL, 2011b). That work has included the development of the concept of Mission Essential Competencies, or MECs, which is formally defined as a "higher-order individual, team, and inter-team competency that a fully prepared pilot, crew, flight, operator, or team requires for successful mission completion under adverse conditions and in a non-permissive environment" (Alliger et al., 2007, p. 14). These bear similarities in some cases to OAD's task statements, although they tend to be at a more granular level than the Air Force's enterprise competencies (we have noted competencies as a primary use in Table 4.1). The methodology behind MECs has been shared with sister services, as well as other nations' military services, including the United Kingdom's. Currently, AFRL/RHA personnel are working with U.S. Army personnel to apply the MEC process to development of manpower requirements, though this application has not, to date, been investigated for the Air Forces' manpower requirement process. The work is done in-house, although, when demand requires, contractors are also utilized.

Moreover, since 2004, at least one AFRL 711 HPW lab member in the Human Effectiveness Directorate has been tasked with selection and classification support of AF/A1P, applying data maintained by SRA for the purpose, while others (under the 711 HPW suborganization USAFSAM) have conducted selection and classification work for high-demand career fields as part of their aerospace medicine consultation mission (noted as primary uses in Table 4.1). USAFSAM includes at least one on-site contractor with a degree in I/O psychology, although expertise tends otherwise to be in the clinical or medical context. We also discovered through one of our other RAND projects that personnel within the 711th were in charge of an external contractor's work assessing the strength requirements of enlisted AFSs for use in determining cut points on the Strength Aptitude selection test (noted in Table 4.1 as a secondary use of JA), although the funding for this may have been discontinued.

Other Organizations

Throughout our interviews, we identified several other organizations whose main mission may not be focused on personnel research but who may be involved in personnel research in some capacity. For example, we know that all the MAJCOMs have their own studies and analysis organizations that often do ad hoc personnel-related research for the MAJCOM. In addition, the Air Force portal had a survey tool that could be used by any airman to conduct a base-level

assessment of attitudes and opinions about any topic of his or her choosing.[13] We also discovered that the Air Force Surgeon General's Office is conducting a study to determine needs for job reengineering to reduce injuries and increase job safety. Finally, we did not interview all the suborganizations within AFPC, the Air Staff, AETC, or AFRL. Nevertheless, we suspect that some of those other suborganizations may conduct personnel-related research. For example, we know AETC often conducts ad hoc evaluations of education and training effectiveness. Thus, in Table 4.1, we also include a row for these other organizations that may be involved in personnel research in some capacity. Again, because we are unaware of their exact research activities, we have included a "/" to represent the areas in which they may be involved.

In addition to these research efforts conducted in the Air Force, personnel research and data collection are often contracted out to external organizations. For example, AFPC's SRA reported that most of the studies it oversees are contracted out. Similarly, external contractors commonly conducted studies sponsored by HAF, such as AF/A1. Therefore, we have included a "C" in Table 4.1 where research contractors may be conducting studies for the Air Force.

One of the larger external contributors to Air Force personnel research is PAF, which has served as the Air Force's only studies and analysis federally funded research and development center (FFRDC) for more than 60 years. Much of RAND's PAF work is directed toward non–personnel-related research areas, such as acquisitions and logistics or strategy and doctrine. Nevertheless, personnel research is a major focus for one division within PAF: the Manpower, Personnel, and Training program. In this program, RAND's research covers a variety of personnel-related issues, including training, the development of competencies, and evaluating current Air Force personnel policies or systems. Following are some types of studies RAND has conducted for the Air Force in the past ten years:

- assessing training for cross-cultural skills
- developing officer occupational competencies
- examining required development experiences for space and missile officers
- examining general personnel indicators for the medical and professional officer corps (e.g., rates of accessions, promotions, retention)
- assessing the validity of the AFOQT
- examining the adequacy of the current officer specialty structure
- examining ways to improve the development and utilization of intelligence officers
- assessing the extent to which current pilot training will meet future skill requirements
- evaluating reasons for attrition in certain high-attrition tech training programs
- identifying the components of expeditionary predeployment training.

In addition to RAND, many external contractors conduct personnel research studies for the Air Force. Some of these organizations are contracted by the Air Force agencies listed in Table 4.1, and some are contracted by other offices located throughout the Air Force. We did not attempt to account for or evaluate the qualifications of the many contractors providing personnel research services to the Air Force. Nevertheless, we know that, of the many contractors employed by the Air Force to conduct personnel research, some are reputable personnel research firms that have staff with the highly specialized skill sets required to conduct research in the areas listed in Table 4.1 (e.g., personnel with Ph.D.'s in psychometrics, I/O psychology,

[13] In 2011, at the completion of this report, we were informed that this tool was being discontinued.

organizational behavior). We also know that it is highly likely that some of the contractors conducting this research for the Air Force do not possess the requisite skills.

Summary

As we have seen, personnel research efforts are decentralized, with multiple organizations involved in collecting personnel-related data and conducting personnel-related research. These organizations include both internal Air Force organizations and external contractors. The data being collected by these organizations range from JA data to test scores, performance ratings, and data on various workplace attitudes. Research efforts range from quick descriptive analyses of personnel data to longitudinal studies, such as those looking at test validation. Together, these organizations are collecting much of the key data required for current Air Force needs and engaging in important personnel-related research. In the next chapter, we address the implications of the current structure and whether the myriad of data collected by the many organizations is sufficient to meet the needs of the Air Force.

CHAPTER FIVE

An Examination of How Well the Current Structure of Personnel-Related Research Efforts Meets Air Force Needs

The main study purpose was to assess how well the current organizational structure of personnel research activities can meet the needs of the broader Air Force. In this chapter, we seek to answer this question.

The Air Force is conducting a great deal of personnel-related research, despite the current decentralized nature of the organizational structure. The various organizations involved in personnel research engage in a wide variety of investigations and, taken together, collect all three types of data typically used in personnel research (i.e., administrative data, attitude and perception data, and JA data) that form the cornerstone of data-driven HRM decisionmaking. However, we found that there are also some critical issues that currently inhibit the quality and efficiency of current personnel research efforts, including the following:

- narrow organizational missions
- inconsistent data-collection coordination or data sharing
- a lack of internal personnel research expertise
- limited resources
- reliance on contractors
- potential duplication of effort.

Table 5.1 provides an overview of which issues were identified (indicated by a checkmark) in the organizations we reviewed in Chapter Four. In cases in which we did not have enough information to identify whether an issue applied, we have included a "/" in the column. Similarly, when an issue was not applicable to the activities or mission of an organization, we noted this by including "NA" in the column. The intersection of narrow missions, inconsistent data collection and sharing, and inconsistent communication leads to potential duplication of effort; we do not include that as a separate column in Table 5.1 specifically, though potential areas of overlap include work on competencies and selection (the reader is referred to Table 4.1 in Chapter Four to see some additional potential areas). We then discuss each of the issues we identified in greater depth. Although these issues rest on information gathered in this study, they are similar to issues seen by other observers of government, including the U.S. Government Accountability Office (GAO) (e.g., GAO [then, the U.S. General Accounting Office], 2002) and Liebowitz (2004).

Table 5.1
Critical Issues Regarding Current Personnel Research Efforts

Organization	Narrow Mission	Inconsistent Data-Collection Coordination or Sharing	Lack of Personnel Research Expertise	Limited Resources	Reliance on Contractors
AETC					
OAD	✔	✔	✔	✔	
AAD	✔	NA	✔		
SAS	/	✔	✔	✔	
AFPC					
DSYD	✔		NA		
DSYA	/			✔	
SRA		✔		✔	✔
AFMA					
MAS	✔	✔			
MAP	✔		/	✔	✔
HQ AF/A1					
AF/A1D		✔	NA	NA	✔
AF/A1P		✔	NA	NA	✔
AF/A1S		✔	NA	NA	✔
A1M		/	NA	NA	/
HQ AF/A9		/	NA	NA	/
AFRL 711 HPW					
711 HPW/RH		✔		✔	✔
USAFSAM		✔			✔

Narrow Organizational Missions

The first issue we identified affecting current personnel research efforts within the Air Force is that several of the organizations have very specific, narrow missions focused on supporting the needs of their larger parent organizations. As Table 5.1 shows, this was an issue for OAD, AAD, AFPC's DSYD, and both of AFMA's divisions involved in personnel research. Specifically, OAD described its main focus as collecting OA data. AAD described a sole focus on developing study guides and tests in support of WAPS. AFPC's DSYD maintains broad personnel databases but described its primary purpose as developing summary reports of the personnel data only. Finally, of AFMA's two divisions, MAS described its mission as focused on developing manpower standards, while MAP described its main purpose as hosting and providing oversight of all Air Force–wide attitude and opinion surveys. In contrast, the other

organizations we examined described themselves as having much broader missions instead of this more singular focus.

Having a narrow organizational mission is not necessarily an impediment to conducting quality personnel research, but, in certain cases, it can inhibit the ability to meet the Air Force's broader needs. For example, OAD described its main mission as developing JI surveys to collect data on the tasks people do for enlisted occupations. The JA data it collects are then used as input for developing and validating training, for job classification, and for supporting the development of promotion tests and study guides in AAD. When asked to describe other potential uses it saw for the data collected, OAD stated that it had not thought about how the data could be used in other ways. Instead, it was focused on fulfilling its primary mission and supporting the needs of AETC, its parent organization. However, as discussed in Chapter Two, JA data serve as the foundation for much of personnel research and can be used across the personnel spectrum, such as in recruiting, selection, and performance appraisal. As an example of such broader applications, before the disestablishment of AFHRL and its heirs, work was being done on an application of OA to a performance management system (see Hedge and Teachout, 1992). Although OAD reports presently being engaged in broader marketing and collaborative efforts, the JA data collected by OAD are not used in this broader manner. Other organizations' lack of awareness regarding availability and usefulness of these data was confirmed in our interviews with the various organizations we identified as involved in personnel research. Thus, in cases such as this, the narrow mission of the organization actually results in data not being used to the fullest extent and inhibits the ability of personnel research to meet the needs of the broader Air Force.

Inconsistent Data-Collection Coordination or Data Sharing

A second issue we identified was that there was often inconsistent coordination of data-collection efforts and inconsistent data sharing. As Table 5.1 shows, this was an issue for OAD; SAS; AFPC's SRA; AFMA's MAS, AF/A1D, AF/A1P, and AF/A1S; and 711 HPW/RH and USAFSAM.

In many cases, a lack of data-collection coordination was related to the issue of organizations focused on fulfilling very specific, narrow organizational missions. For example, OAD and AFMA's MAS both collect JA data, but they do not currently coordinate any of their data-collection efforts. OAD is the designated organization for OA (JA) in the Air Force and uses a JI survey to collect information on the tasks people perform, the time they spend on each task relative to other tasks, and the difficulty of those tasks. To develop manpower standards, AFMA's MAS needs data on the amount of time people spend on each task. However, this is not something that OAD's JI survey currently collects. Therefore, AFMA independently collects these additional data on the tasks people perform in their occupations. Thus, although these two organizations are both collecting similar data, and it would seem relatively easy for this to be added to OAD's survey, their data collections are not currently coordinated. This appears to be partly the result of their focuses on different missions and purposes for the data.

Similarly, other organizations view the data they collect as serving their own very specific research purposes, resulting in inconsistent coordination and sharing with others. For example, although SAS does not necessarily have a narrow organizational mission in terms of the personnel research it conducts, it described its research as focused on supporting its parent

organization, AETC. Therefore, much of the data it collects are not shared and made known to the wider Air Force community because the data are collected for research focused on training and education. Likewise, AF/A1D and AF/A1P both described conducting research to examine how to apply competencies to the personnel management system. However, they each view their own research on competencies as very distinct from the others and reported seeing little overlap in their efforts. Therefore, although they might benefit from coordination and data sharing, they reported not doing so. The 711 HPW/RH also conducts research on (mission-essential) competencies; however, they noted that their work is actually more similar to the work conducted by OAD in terms of granularity and hence coordination and data sharing with OAD would have more utility. This coordination has not been pursued actively because of time and resource constraints.

Finally, USAFSAM also examines issues related to selection testing but views its work as very occupationally specific, in contrast to A1P's Air Force–wide mandate; thus, in this instance, data sharing and coordination are not considered relevant, although presumably findings from both general and specific cases have potential to cross-generalize.

In other cases, there is inconsistent data sharing because the data may be housed with contractors instead of the sponsoring organization. For example, the CA conducted by AF/A1S was administered online through a contractor because AFMA did not have the capacity to host the survey or store data. The MAJCOM and Air Staff own the database, but it is now stored with the external contractor. As a result, any historical data analysis needed (e.g., different displays of results) requires specific separate funding for the contractors to pull and present the data. Thus, the availability of the data to other Air Force organizations is limited.

Finally, inconsistent data collection and sharing also occur because of a lack of awareness about other organizations that may be involved in similar personnel data-collection activities or research. For example, AFPC's SRA is in the process of updating and maintaining an HRRD, which is designed to maintain an archive of human resource data from the past 50 years. However, this branch reported that most of the other Air Force organizations are not aware of the work it does and, therefore, are less likely to take advantage of the data it collects and stores.

A Lack of Internal Personnel Research Expertise

A third issue we identified is that several of the organizations we interviewed lack the necessary internal personnel research expertise to effectively carry out their activities to the highest-quality standards possible. As Table 5.1 shows, this was particularly an issue for OAD, AAD, and SAS.

For example, SAS receives various requests from other Air Force organizations to conduct studies, but it reported a limited capacity to meet many of these requests. Although it has individuals on staff with research backgrounds and Ph.D.'s, most of its expertise is in operations research, which does not necessarily fit the skill sets needed for many of the study requests. In some cases, it has solicited the expertise of others outside of SAS, such as professors at the Air University or personnel in AFPC's SRA. However, it often has to turn requests away that it does not feel that it has the expertise to meet, especially when these studies fall outside of its main mission.

In addition, as we learned in our interviews with representatives from OAD and AAD, these organizations have continued using largely the same methods for WAPS test development and OA data collection and analysis that were established by AFHRL many years ago, though the organizations have made improvements in delivery (i.e., going to web-based services), tracking, and software. AFHRL was supporting continued development of OA software and of promotion testing techniques as recently as 1989 (Buescher, Olvera, and Besetsny, 1989). Since that time, however, progress in the field of personnel research has been made that would potentially benefit AAD and OAD.

We found that AAD does not have the necessary internal expertise to do its own psychometric analyses. Currently, AAD conducts basic descriptive analyses on its promotion tests by using an automated computer program developed years ago. Although this program provides many of the necessary basic descriptive statistics, it is unclear how some of the statistics are calculated. In addition, there has been advancement in such areas as differential item functioning (using item response theory rather than classical test theory) that could benefit AAD. However, to our knowledge, it does not currently have the internal expertise to address these issues and could, therefore, benefit from adding Ph.D.'s with personnel or testing research backgrounds, such as psychometrics, education, or I/O psychology.

Finally, OAD reported having the expertise needed for its current work, which is primarily descriptive, but reported that it did not have the necessary expertise to do more-advanced statistical analyses for its own work or what is required for some of the ad hoc study requests it receives.

Limited Resources

In addition to a lack of internal research expertise, several organizations also reported having limited resources, in terms of both funding and available staff. As Table 5.1 shows, this is an issue for OAD, SAS, AFPC's DSYA and SRA, AFMA's MAP, and the 711 HPW/RH.

Most of these organizations reported that they had enough resources to conduct their current activities. However, they reported that they often do not have the necessary funding or staff numbers to be able to respond to many external study requests. For example, AFMA's MAP and its subordinate unit, the Air Force Survey Office, is the designated authority for reviewing and approving any Air Force–wide opinion- and attitude-based surveys. As a result, many organizations also solicit its expertise in survey development and analysis. However, MAP reported a limited capacity to help those organizations desiring this kind of expertise because of limited staff and funding. Additionally, their limited resources can also lead to significant waiting periods for survey approvals. The 711 HPW personnel with whom we spoke also indicated that the resources to support general personnel research were difficult to secure and that repeated attempts to do so had not succeeded.

Though such resource challenges may be common in today's Air Force and indeed in many organizations, the lack of resources supporting a broader personnel research agenda in some fashion is nonetheless problematic. A time of tightening budgets suggests that thoughtful force restructuring from a strategic research perspective would be a mandate; however, the current resource situation among organizations conducting personnel research is too constricting to even support requests outside individual organizations' immediate missions. Certainly, no organization currently has the explicit broad bandwidth and resources to engage in such per-

sonnel research in a strategic, forward-thinking rather than reactive, manner. Even AFRL's 711 HPW, armed with its research and development mandate, is unable to undertake the effort on the broad scale that would be required to meet the needs of the Air Force as a whole.

Reliance on Contractors

Because of a lack of internal research expertise and funding for same, several organizations also reported relying on contractors to conduct much of their research. As Table 5.1 shows, this is an issue for AFPC's SRA, AFMA's MAP, AF/A1D, AF/A1P, AF/A1S, the 711 HPW/RH, and USAFSAM.

Although contractors can serve a useful function, a heavy reliance on them can also result in several issues when it comes to maintaining institutional knowledge and making data available to the wider Air Force. For example, in cases in which different contractors are involved in personnel research, this dispersion of work makes it more difficult to maintain internal Air Force knowledge of what data were collected, what studies were conducted, and what key findings were obtained in past years. As already mentioned, the data may also reside with contractors, potentially limiting their wider use by other Air Force organizations. Also, relying on contractors can be problematic when the individuals making the decisions about the appropriate contractor to use for a project have limited knowledge about the capabilities of the contractor. This can result in contractors being hired that do not have the necessary expertise or knowledge of the Air Force (or, unfortunately, necessary expertise or knowledge more generally). Thus, with no broad oversight of the various external contractors collecting data or what happens to the data following the study, a reliance on contractors can create further challenges. Contractors can supply a wide variety of focused expertise that would otherwise be beyond the funding capability of the government and hence do provide efficiencies; moreover, in some cases, they help satisfy demand that temporarily outstrips government capacity. However, insufficient in-house expertise for the Air Force to leverage in contractor selection may preclude capitalizing on this efficiency.

Potential Duplication of Effort

Finally, because of both a lack of communication and data sharing among these organizations and a lack of an overall personnel research alignment, there is the potential for duplication of effort. Without a single entity in charge of personnel research, consumers of that research are left with no guidance about whom to contact to get that research accomplished, and several Air Force organizations accept requests to conduct personnel research or engage in research to support their own ends without consideration of cross–Air Force similarities in data needs or strategic future data applications.

As shown in Table 4.1 in Chapter Four, organizations are involved in collecting similar personnel data and conducting research on related topics. For example, there is an overlap in collecting JA-type data. OAD is the designated organization for OA (JA) in the Air Force. However, other organizations, including AFMA's MAS, AFPC's SRA, several AF/A1 divisions, and the 711 HPW/RH, also reported collecting JA-type data. Currently, however, these organizations do not report coordinating these efforts. As noted, the 711 HPW/RH's work on

MECs is perceived as more similar to OAD's JA work (rather than competencies per se); in that instance, there has been some communication between the two organizations regarding the similarities, but time and resource constraints have not permitted a systematic exploration. Coordination with other organizations doing work on competencies is not seen as applicable.

Another area of potential duplication of effort is research on competencies. Both AF/A1D and AF/A1P reported conducting research on how to apply competencies to the personnel management system. However, they did not report coordinating any of their current efforts and saw their research on competencies as very distinct given AF/A1D's focus on enterprise competencies and AF/A1P's focus on occupational competencies. Given that enterprise competencies, by design, extend across the Air Force and are present in all jobs (albeit in varying levels) and given the likely (and admitted, as in job groupings) commonality across occupations in the Air Force, these enforced distinctions seem unwarranted.

Thus, our research revealed that several organizations are involved in similar data-collection efforts and in conducting research on similar personnel topics. However, with no centralized body overseeing this type of work, these organizations are often unaware of the similar efforts or, even when aware of them, may not see the similarities. As a result, there is the potential for unnecessary duplication of effort that costs the Air Force money and reduces the efficiency of personnel research efforts overall.

CHAPTER SIX

Components for Better Alignment and Applied Scenarios

Personnel research is the bedrock of a well-designed personnel management system. It serves as a scientific basis for identifying, diagnosing, and solving problems in the personnel system and offers data-driven evidence about the impact of changes to the personnel system. However, the impact of personnel research can be easily overlooked. Personnel management systems usually continue to function without it; decisions about whom to hire, whom to fire, what type of training is needed, and other personnel matters continue to be made in its absence. And many organizations continue to exist and even thrive without it. So why should the Air Force be concerned about personnel research?

Although many of the key elements of a smoothly working personnel research system exist in the Air Force or can be brought to bear with help from outside contractors, the current system is not ideal in terms of the Air Force's personnel needs. Although the current system could probably continue and maintain the existing overall personnel system at less-than-optimal efficiency for some time, action now would be helpful to forestall systemic issues and align the system. Although our approach did not permit us to determine specific estimates of the cost of lost efficiency in the personnel research system that supports personnel policy decisions, the high cost of personnel as a whole (approximately $37 billion in the active Air Force alone for 2013; DoD, 2011) suggests that even minuscule gains have potential for large cost savings, while minuscule inefficiencies can impose large costs.

The Air Force is entering a time of resource constraints and will be making changes to the personnel system in consequence. Restructuring and downsizing should be informed by research because such changes may be costly. Certainly, the literature on organizational downsizing and mergers and acquisitions suggests that the costs of organizational changes can be high in terms of employee psychological, physical, and economic health; findings apply both for those who remain, as well as those who leave the organization. The literature from the macro perspective is equivocal at best in terms of gains in organizational profitability and other strategic outcomes, so a holistic perspective suggests that downsizing requires a considered approach (see, e.g., the recent review by De Meuse, Marks, and Dai, 2011).

Finally, a quantitative summary of the strategic human resource literature suggests that systems of personnel practices have a positive effect on various measures of organizational performance, including accounting returns, market returns, and retention, and that systems of practices have a stronger positive effect than do individual best practices (Combs et al., 2006). Without consideration of the contingencies that are being reinforced throughout the system (and a true perception of the contingencies at the individual level obtained through asking employees), disorganized personnel practice and policy strategies can result in reinforcement of behaviors that contravene the interests of both the organization and potentially even individual

employees. For example, the Air Force is both a military organization and a nuclear enterprise; thus, the enforcement of safety behaviors and maintenance of a high safety climate are key to success. Deviations from safety climate and policies that support such climate can be informed by research (e.g., Clarke, 2006). Thus, organizational promotion policies and practices that reward "meeting mission" more rapidly in a time of war, without due process for safety requirements, might be one example of a performance management system that does not align with the interests of the organization.[1] Of course, such failures of safety climate can result in consequences negative for both the Air Force and its employees.

To summarize, the personnel system is important, and better alignment (and sufficient research to support that alignment) can yield dividends. The Air Force should care about that alignment and support it through research that is similarly aligned to meet mission. Although personnel research in a strategic sense has not been an Air Force priority for many years (as evidenced by dearth of funding), a strategic approach now would be a worthy priority for Air Force leadership and is one being undertaken by the federal government more widely. GAO (2002) explicitly states in its model for human capital management that two critical success factors for strategic human capital planning are data-driven decisions and alignment with the organization's strategic needs. Success is measured by how well strategic objectives are met; for the personnel system of the Air Force, this means that success can be measured by how well the Air Force maintains, retains, and develops a workforce with the requisite KSAOs that enables the service to fly, fight, and win; enables a climate that facilitates this process; and maintains the job satisfaction of that workforce (given job satisfaction's established links to retention). A prospective rather than reactive perspective inheres in the consideration of strategic outcomes, especially in times of resource constraints, when a long-term outlook is necessary to determine reasonable trade-offs between short-term and long-term objectives. This success requires data to inform policy decisionmaking about force shaping. Liebowitz (2004) notes that, in their extensive writings on the topic for the context of the government workforce, both the Office of Personnel Management (OPM) and GAO have emphasized the need for organizations "to become less hierarchical, process-oriented, 'stovepiped,' and inwardly focused" (p. 8).

In this chapter, we make some recommendations about what components should be considered in undertaking change and, ultimately, provide some alternative organizational structures as a starting point for discussion. The issues we identified in the current personnel system should be alleviated, with an integrated and forward-looking system set up to enable their resolution and provide better capacity for research to support essential personnel policy decisions. In some cases, personnel research can itself inform some of the considerations to implement these components appropriately.

Essential Components for Change

Any change effort undertaken by the Air Force should contain specific elements that will enable the personnel system to meet the challenges of the future. These components flow directly from the overall research findings of this study and seek to resolve the existing issues,

[1] A performance management system consists of the specific personnel policies and procedures for evaluating and documenting performance. Personnel management is the larger overall structure within which a performance management system exists.

although they may be operationalized in a variety of different ways. We identified the critical gaps in the Air Force's current personnel research system of narrow missions, inconsistent data collection and coordination, lack of requisite expertise, limited resources, reliance on contractors, and potential duplication of effort. Thus, the change components we recommend seek to address these.

Oversight over All Personnel Research Efforts

One component that is clearly missing in the current system is an organizational structure that has clear oversight responsibility over all the personnel research efforts ongoing in the Air Force. Although AFMA is the hub for Air Force–wide attitude surveys and other organizations serve as the hubs for various other types of research (e.g., AF/A1P serves as the hub for selection and testing research), no one organization or structure actively coordinates them all. To make sure the entirety of collected data is brought to bear on personnel decisionmaking and to perceive where gaps in the personnel data available exist that may result in poor personnel decisionmaking, some oversight is needed. This organizational structure should be informed in some fashion of all work being done—attitudinal or otherwise, contractor or otherwise, operational or otherwise—so that its usefulness for the system may be judged and properly integrated. This oversight would enable the alleviation of problems occasioned by narrow organizational missions and enable awareness of inconsistent data-sharing and duplication issues in order to resolve them.

Oversight is more than just awareness, however. The relative stability of AFOMS methodology over the decades as technologies and best practices updated does suggest that the mere existence of an organization, such as AFHRL, with the explicit mission set for personnel research and development is insufficient to overcome funding and organizational stovepiping issues: Oversight responsibility must be explicit to allow expertise to inform operational processes. Moreover, this oversight should be married with an explicit mandate to consider long-term Air Force needs and engage in research and development. The longer view is essential in an organization with restrictions on lateral hiring and the subsequent need to ensure that the fruits of recruitment and selection pay off 20 and 30 years down the line, through the course of careers, in mature officers and NCOs able to guide the Air Force itself. This helps answer the call to shift to a strategic approach to human capital management, as issued by GAO (Walker, 2002).

Sufficient Authority to Coordinate Efforts

To achieve the benefits of oversight, it is necessary for the organizational structure chosen to have sufficient authority to coordinate the disparate elements of the Air Force's existing personnel research system. Knowing what data are available to Air Force decisionmakers is one step; the next step is having the authority to execute actions to eliminate duplication of effort for greatest efficiency, require the disparate elements to communicate and share data as needed, and institute new research or collection of new data elements where gaps in the requisite data currently exist. Such gaps include questions that may be anticipated strategically as the Air Force restructures to make best use of its resources. The structure must also have sufficient authority and legitimacy to request the existing data from the collecting organizations to inform any decisionmaking for the personnel system as a whole and to require existing organizations to restructure their processes when necessitated by changes in best practices.

A performance management system that reinforces cooperation and coordination would help enable this authority, as would a concerted effort at support from Air Force leadership.

Institutional Knowledge

Ideally, this organizational structure will also include the component of institutional knowledge. A deep understanding of the Air Force and the way things are customarily done—its culture, values, and, of course, its personnel system—will assist in determining true gaps in knowledge and the collection of the most-ideal data to fill these gaps. Data collection is needed for organizational decisions, but, if the wrong questions are asked because of a misunderstanding about the Air Force, the data are meaningless and the effort to collect them wasteful. In addition, having an intimate understanding of the Air Force as an organization furthers an understanding of what information is available. Historical understanding and institutional knowledge will also inform efforts to coordinate disparate organizational elements as needed, enable the organizational structure to leverage authority more effectively, and understand what resources might best be brought to bear to tackle a given personnel system problem.

Quality Control

The component of institutional knowledge illuminates the need for an additional component: quality control. Currently, even as no one organization is responsible for oversight of personnel research efforts overall, no one organization is responsible for ensuring that ongoing and one-off research efforts meet minimum standards for quality and utility. In some cases, individual organizations may not have the requisite knowledge even to choose an appropriately equipped contractor. Institutional knowledge can help ensure that research efforts collect the correct information to answer the question under investigation. A quality control function ensures that collected data can be more easily integrated into a smoothly functioning system and that a question does not remain unanswered because data collected for one or more aspects of the problem are inadequate to meet the need. Quality control is necessary, in short, to ensure that the data collected are appropriate to the purpose and serve the needs of the Air Force with efficiency.

Access to Scientific Expertise and Resources

Without expertise and other resources, *quality control* is just a compelling slogan rather than an operationalized component. Perception of the ideal integration of different aspects of personnel data collected to answer a given research question and the ability to monitor the rigor with which the data are collected and determine whether quality is adequate require a background in research design. Methodological expertise is not enough, however: Appropriate theoretical orientations will be required as well to enable a more strategic, long-term, and aligned view. This suggests that appropriate backgrounds include I/O psychology, organizational behavior, or related fields. Multiple perspectives and research backgrounds would probably be useful. Personnel with such backgrounds would be helpful in filling any gaps in expertise at various existing Air Force organizations, such as those we identified. Further appropriate expertise would assist planning efforts to enable existing structures to reorganize data-collection efforts for greatest efficiency and, when needed, determine appropriate contracting support. Personnel are expensive. Data collection can also be expensive. Thus, a key aspect of this component would also be sufficient resources in terms of funding, as well as expertise, to enable the Air Force to optimize its personnel system and operate in the most efficient manner possible with-

out overburdening existing or new organizational structures. This ensures that the solution to currently limited resources within individual organizations is actually achieved.

Wider Data Availability

This document describes the breadth and depth of personnel data collected in an ongoing and ad hoc manner, although a comprehensive census of all such projects in the Air Force was beyond the scope of this paper. Moreover, the number of organizations we found engaging in such research and the numerous studies still speaks to the extensiveness of the Air Force's efforts. Much of the data collected may be used for multiple purposes. However, they currently are not, for a variety of reasons. A key component of change efforts would be to smooth the path for wider data availability. The oversight and coordination components described above would go a long way to alleviating the lack of centralized knowledge of the existence and nature of data-collection efforts. The resource component would enable data, once known, to be shared, by funding personnel time to actually manage the databases and navigate the legal and privacy requirements for these data linkages to occur. However, this too should be an explicit mandate. Currently, no one organization's primary mission is to share all collected data with others, and, in supporting primary missions, the priority status given to doing the basic work of sharing data resources is understandably low. A good solution to the issues of the Air Force's personnel research concerns would enable data to be shared more efficiently without upsetting other vital priorities and missions. Additional personnel to organize the effort and lighten the load on organizations by taking on such nonessential tasks as formatting data sets for sharing (including alleviating concerns about confidentiality of the data and ensuring security) would facilitate the data-sharing process.

Increased Visibility to the Wider Air Force

Last but not least, a component of the change would need to be increased visibility to the wider Air Force for the organizational structure chosen. Currently, some personnel research organizations in the Air Force have relatively high visibility, while others do not; any coordinating structure would need sufficient visibility for various proponents in the Air Force to easily find the structure and recognize it as an Air Force–wide resource, as well as a structure serving a clearinghouse function. Visibility would in fact be key to enabling the organizational structure to serve as a clearinghouse because it is probable that there are ongoing projects undertaken by organizations with relatively little "official" or formal connection to the Air Force personnel research system that are engaging in relevant efforts. Although a personnel research organization may not have the capacity or authority to conduct the research requested itself, it could advise on such matters and direct questions to appropriate organizations. This visibility component may also imply that some marketing of organizational purpose and resources would need to be done on an ongoing basis on behalf of the organizational structure.

Applied Scenarios

Ultimately, the Air Force leadership must determine its own course of action with regard to aligning the ongoing studies, analysis, and research on personnel issues to better support its mission and vision. Thus, we suggest components necessary (oversight, authority, institutional knowledge, quality control, expertise and other resources, data availability, and visibility) in

an organizational structure for that structure to provide the solution to the current gaps we perceive in the Air Force personnel research system: narrow missions, inconsistent data sharing and coordination, lack of expertise, limited resources, reliance on contractors, and duplication of effort. The Air Force itself must determine its own proper course to enable change to be possible and tenable for all stakeholders involved.

In all cases, we would suggest that at least some of the funding for the new structure be from MFP 6, slated for science and technology research and development. This would enable the new organizational structure to take on the task of strategic research and development that has been lacking in the personnel system as a whole since the last human resources–centric component of the Armstrong Laboratory was dismantled during the adjustment under AFRL. Historically within the Armstrong Lab and today at AFRL, some of the health-related work, such as that conducted by USAFSAM, is funded through non–research and development (i.e., non–MFP 6) funds. Although this integration with the research and development–funded lab structures was considered a bit unusual, the synergy worked in the past (Duffner, 2000) and, as the current situation at AFRL demonstrates, could work again.

Although the way forward must be determined internally by the Air Force, it is still useful to present some example scenarios of possible approaches the Air Force may undertake to meet its needs. These alternatives may serve as a tool to engender useful discussion among key stakeholders. Thus, we suggest three potential approaches: We will call these the *baseline plus one scenario*, the *comprehensive alignment scenario*, and the *hybrid scenario*. In developing these scenarios, we attempted to address the range of possibilities, including the minimal intervention (*baseline plus one scenario*, so called because it adds only a minimal oversight component—the *plus one*—to the overall organizational structure to address the gaps we noted), the maximal intervention (*comprehensive alignment scenario*, so called because it involves substantial reorganization to align personnel research), and a middle option (*hybrid scenario*, so called because it is a hybrid of the two extremes). Each of these will include the components for change that address the identified gaps. Because the current effort focused on existing personnel research organizations in the Air Force, and because these functions are likely to continue in some fashion in the immediate future, our alternatives focus similarly on these organizations and functions. Reorganization and organizational change never take place in a vacuum, and certain factors require consideration when plotting the future course. These include the interrelated issues of cost, convenience of implementation, potential for effectiveness, continuation of current good efforts, and quality of current and future efforts. As in project management's concept of the triple constraint (projects can be economical, high quality, or fast, but one can achieve only two out of three; see, e.g., Kernzer, 2009), trade-offs must be made in the decision of what organizational structure to utilize. For example, the cheapest option is not always the best option in terms of actually enabling the potential for effectiveness. Thus we use the three constraints as a lens through which to view the potential approaches to better aligning the work being done by organizations within the Air Force.

Baseline Plus One Scenario

First, *these organizations may continue as at present, in their existing hierarchies, with their current missions and functions*. The oversight organizational structure could be composed of relatively few key personnel to provide for the various key components that resolve the concerns we noted. These personnel would have to have the requisite expertise to serve as personnel research SMEs capable of identifying gaps caused by lack of coordination and narrow mis-

sions, to provide expertise when needed on personnel research issues, and to enable the quality control component. Moreover, one or more people within the structure would need to embody institutional knowledge of the Air Force and existing personnel research mechanisms to best leverage existing research, studies, and resources more generally. Some staff would be necessary to facilitate data coordination and sharing among various organizations to provide for the component of wider data availability. Finally, there would need to be a sufficient number of personnel, funded appropriately, to enable a more strategic focus, manage the oversight function itself, facilitate coordination and data sharing, and promote visibility. So, although this option considers a relatively small number of personnel, examination of the demands inherent in the task dictates that even a small oversight organizational structure would require several personnel with various functions and capacities to enable success. Authority for such a structure could be made explicit in official doctrine and enforced via contingencies that allow the organization some control over funding or employment decisionmaking for the other organizations involved in the personnel research system.

In the spirit of openly confronting potential barriers to change, effectiveness and strategic alignment of the personnel research undertaken are less likely to be achieved in this course, in part because existing stovepipes are maintained and underestimating the resources required to overcome them is a temptation that would be difficult to counter. Insufficient resources would not just ensure failure but, in effect, add a useless layer of bureaucracy to the already-complex process of workforce planning and management, rather than adding a true asset and strategic partner. The costs of potential continuing duplication of effort and lack of quality control overall are hard to estimate but, as noted, are likely to be expensive; add to that the cost of funding another layer of bureaucracy rather than an organization empowered to meet its mission of strategic alignment of personnel research. However, the maintenance of existing organizational structures does make this exemplar course of action easier to implement. This path optimizes cost and convenience because it is relatively inexpensive, requires no inconvenient changes, and would enable the undisturbed continuation of high-quality ongoing research. In terms of the triple constraints, this course maximizes speed and economics rather than quality.

Comprehensive Alignment Scenario

A second alternative is that *the various personnel research organizations and functions discussed in this document could be reorganized under a single oversight organization*. This has the advantage of placing all the stakeholders together organizationally and emphasizing the commonalities rather than the differences, which would ideally facilitate communication and coordination of research itself, as well as enabling wider data availability. Moreover, this has the advantage of creating a central organization with an explicit responsibility for aligning the personnel system with the research that should support decisionmaking. This enables the oversight component and creates an organization with sufficient breadth of mission to integrate incoming information from current structures with relatively narrow mission sets. Institution of an appropriate performance management system within the organization would provide additional impetus to official oversight authority. Institutional knowledge would be retained within the organization, though an investment in additional billets would still need to be made for personnel to serve as various strategic SMEs and provide for the quality control component and to provide relevant personnel research expertise. Additional billets would also still be needed to facilitate actual data sharing without overburdening existing personnel, although it is possible that, as greater data-collection efficiency is achieved, fewer people will be needed to manage and coor-

dinate existing data. Because all personnel research would be centered here, it is likely that the visibility component would be achieved as a matter of course; however, care should be taken that the organization is sufficiently high in the organizational structure of the Air Force, or sufficiently well-publicized, that it may serve as a beacon.

Complications attend this exemplar scenario as well. The old AFHRL was criticized for a lack of responsiveness to managers on the ground and in the field and to policymakers themselves. Some of our interlocutors suggested that AFHRL was an ivory tower, disconnected from the broader needs of the Air Force, and that perhaps this disconnect is what ultimately led to its demise. It would be vitally important for a central personnel research organization to remain integrated with the mission of the Air Force as a whole, inclusive of emergent concerns, to forestall this issue. Careful consideration of the appropriate contingencies to facilitate responsiveness to the needs of policymakers while retaining sufficient rewards for engaging in a strategic approach would be necessary. This approach might also require increased communication with operational stakeholders to clearly draw the parallels between the research and its applications. A research organization may suffer here: The prototypical researcher is not known for "people" skills, and this is true even for scientists in person-focused disciplines, such as psychology. A failure of communication and responsiveness on the part of this organizational structure raises the specter of an Air Force determination that an organization that supports a personnel system research application for strategic alignment is not truly meeting the needs of the Air Force and is instead a "resource sink" that does not facilitate the strategic goals of the service. Because personnel research is necessary to ensure that decisionmakers have data on which to rest their recommendations, this possibility is a definite concern.

This course offers some definite positives. Good research is likely to be continued, and future research is likely to be given the coordinated time, attention, strategic focus, and expertise needed. Putting everything together under one roof maximizes the potential for strategic alignment and effective coordination although, as exemplified in the macro literature on downsizing, there would likely be an adjustment period of at least a year or two before gains would be perceptible (De Meuse, Marks, and Dai, 2011). Moreover, funding streams would be no simple matter because part of the strategic alignment and research and development mandate would necessitate MFP 6 funding in tandem with other types of funding, such as MFP 8. Although such funding combinations have worked in the past and continue to work in the present (e.g., aerospace medicine and health sciences units, such as USAFSAM, with other research at the Armstrong Laboratory, as well as AFRL; Duffner, 2000), they are far from the customary way of doing business in the Air Force, and due care would need to be exercised to make the combination tenable.

Additional trade-offs inhere in this example scenario. Given the current entrenched stovepipes and issues of moving organizations, as well as the required resources in terms of expertise, it would be quite expensive in terms of time and money to implement this course and allow sufficient time for improved performance to manifest. Moreover, to avoid some of AFHRL's past problems, further resources would likely be required for a marketing and communication element. This course maximizes quality and would likely not be either fast or economical.

Hybrid Scenario

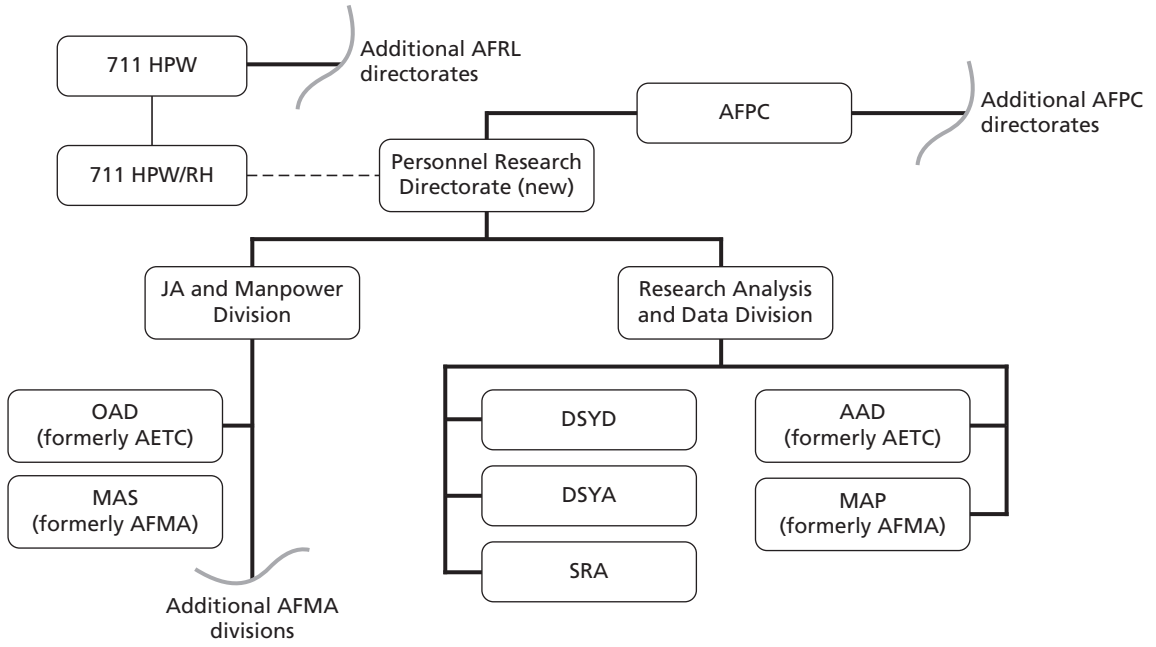
A third example structure scenario, a *hybrid approach*, could also be taken. For example, as shown in Figure 6.1, a new Personnel Research Directorate with a division focused more narrowly on JA-type data collection could house OAD and AFMA MAS, and a second divi-

sion could incorporate the other, more disparate elements of AFMA, AAD, and the DSYD, DSYA, and SRA currently at AFPC. This would put all the organizations regularly conducting operational personnel research together. As shown here, the strategic mission could be worked into the personnel overseeing the new directorate, with research and development funding utilized as appropriate. This would resolve concerns regarding individual narrow missions. Additional personnel within the directorate management could fulfill the needed requirements for personnel research subject-matter expertise and institutional knowledge, which would still enable appropriate leveraging of resources to fill remaining identified gaps through contracting for external skill sets or achieving synergies within the new organizational structure. Benefits include the advantages that accrue from collocating (organizationally, if not geographically) organizations that have personnel research as a shared activity. Oversight is easier, and placing them in the same organizational structure enables creation of a performance management system designed to reward cooperation and coordination of data and effort and to enable the oversight personnel to execute both their authority and mandate for quality control. Because many of these organizations are located in San Antonio, collocation organizationally need not disrupt the personal lives of the employees and result in a shedding of experienced workforce and a loss of institutional knowledge, as has been a concern for base realignment and closure (e.g., Masi et al., 2009). AFPC is the FOA with the responsibility for maintaining the Air Force's personnel system and has visibility in that regard, which would partially meet the visibility needs of the new organizational structure. Finally, these organizations collectively also have a history of responsiveness to the needs of their superior organizations, which should transfer to some degree.

The needed mandate for a strategic approach does add some complications to this solution because the research and development functionality in the Air Force is situated under the acquisition community rather than with the personnel community and is located at AFRL in Dayton, Ohio, rather than with the personnel organizations in San Antonio. Moreover, integration of the ongoing training research and development work being conducted at AFRL today within the 711 HPW would be necessary to truly bring all of the personnel research endeavors into alignment. Although aligning OAD more closely with the other personnel organizations located at San Antonio would further integrate the application of OA to the personnel research process within the Air Force, this alone would not integrate the full breadth of training personnel research being done.

It should be explicitly noted that merely collocating these organizations would not negate the need to hire additional personnel to coordinate and communicate among the organizations and develop and execute a strategic personnel research plan; in some senses, the needs would be more acute because the existing organizations, maintained in the overall structure, have historically been stovepiped in their roles and objectives. Maintaining existing structures with such a history would transfer organizational climate and culture in its entirety. Although this could serve as a benefit in the sense of transferring responsiveness to the Air Force mission, it could serve as a drawback in the sense that the inclination to remain stovepiped would transfer as well. As with a fully integrated new organization, communication with the wider Air Force would still be necessary, especially to highlight the changes and to advertise the effectiveness engendered by any synergy, as well as to enable the organization to serve its clearinghouse function via its sheer visibility. The strategic research element should be located with the rearranged organizations in San Antonio to fully optimize the geographic advantage. That said, an outpost in Dayton with a few personnel, or explicitly identified personnel in both the new

Figure 6.1
Example of an Air Force Personnel Center–Based Structure Tying Together Key Personnel Research Components



RAND *TR1276-6.1*

directorate and at AFRL to serve as liaisons, would unite the broad strategic research element coordinating the other personnel research endeavors with the ongoing training research and development and facilitate science and technology synergy. Whatever the course chosen in this particular regard, a linkage to the 711 HPW is advisable and is shown in Figure 6.1 with a dashed line.

In terms of cost, this option is a middle road because additional resources would still be required for coordination, data sharing, and expertise and to fill data-collection gaps. It is somewhat convenient to implement in the sense of existing geographic collocation, but overcoming stovepipes would still require time and effort. However, this does add the definite benefits of needed expertise to monitor quality and resources to help align personnel research more strategically, and integrating those resources within the organizational element should avert issues of those resources being simply another bureaucratic layer. Current good efforts are likely to be maintained. This course does not explicitly optimize—or sacrifice—cost, speed, or quality.

Although none of the three constraints is maximized, this course would move the Air Force closer to an optimization of the personnel research system and has compelling benefits in terms of convenience. In fact, should the Air Force at some point in the future determine that complete strategic alignment of the personnel research system is a goal it wishes to pursue, this course would serve to make that final move less painful in terms of cost and speed of implementation.

As of this writing, the Air Force is already moving in this direction, merging AFPC, AFMA, and AFSVA, the Air Force FOA whose primary mission is a service and support function, providing many benefit programs and services, such as gyms and exchanges. However,

the extent to which the coordination of personnel research is a goal or even a consideration in this reorganization is unknown. Certainly, incorporation of the long-term strategic alignment of personnel research is not, to our knowledge, currently a part of the design and on no one's agenda.

Final Thoughts

Overall, we found that the alignment within the personnel research system that should be supporting the Air Force's personnel policy decisionmaking is currently imperfect. We identified several concerns: narrow missions, inconsistent data sharing and coordination, lack of expertise, limited resources, reliance on contractors, and duplication of effort. Our solution entails a set of essential components for change (oversight, authority, institutional knowledge, quality control, expertise and other resources, data availability, and visibility), and we explicated these through application to three potential scenarios the Air Force may undertake, ranging from a baseline plus one through comprehensive alignment. These vary in terms of the priority placed on optimizing cost, speed, or quality, as seen in Table 6.1. In the table, black indicates the approach with the greatest amount of optimization of a given constraint factor; gray, moderate optimization; and white, nonoptimization.

Organizational change is a nontrivial matter. Hedge and Pulakos (2002) cite research that suggests that approximately 70 percent of change initiatives, such as Total Quality Management, fail. Beer and Eisenstat (1996) examined the organizational change literature and summed it up with three recommendations for successful implementation:

- Organizational change should be systemic—that is, any organizational change should be framed in terms of the organizational system in which it occurs and properly aligned with the organization.[2]
- Barriers to the change process should be openly addressed in the process. That is, there are many reasons for resistance to organizational change, including comfort with the current system and the threatened prerogatives of various elements within the system. Beer and Eisenstat note that it is impossible to develop a realistic plan for implementing change without a similarly realistic approach to this resistance.
- Stakeholder buy-in and mutual partnerships are key because these stakeholders are ultimately responsible for how change initiatives are implemented.

Table 6.1
Notional Optimization of Triple Constraint Factors

Factor	Baseline Plus One Scenario	Comprehensive Alignment Scenario	Hybrid Scenario
Economics			
Quality			
Speed			

[2] Note that this recommendation echoes the recommendations provided by GAO and OPM about human capital management, as well as the literature presented in Chapter Two.

Ultimately, bringing the personnel research system of the Air Force into alignment is an exercise in organizational change. Even the most economical and quick change the Air Force might make would require sustained commitment from leadership at the highest levels. However, given the vast nature of the personnel system itself, and the costs that inhere in the system, aligning the personnel research system to better support strategic decisionmaking offers the potential for large dividends, particularly in a time of resource constraints.

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