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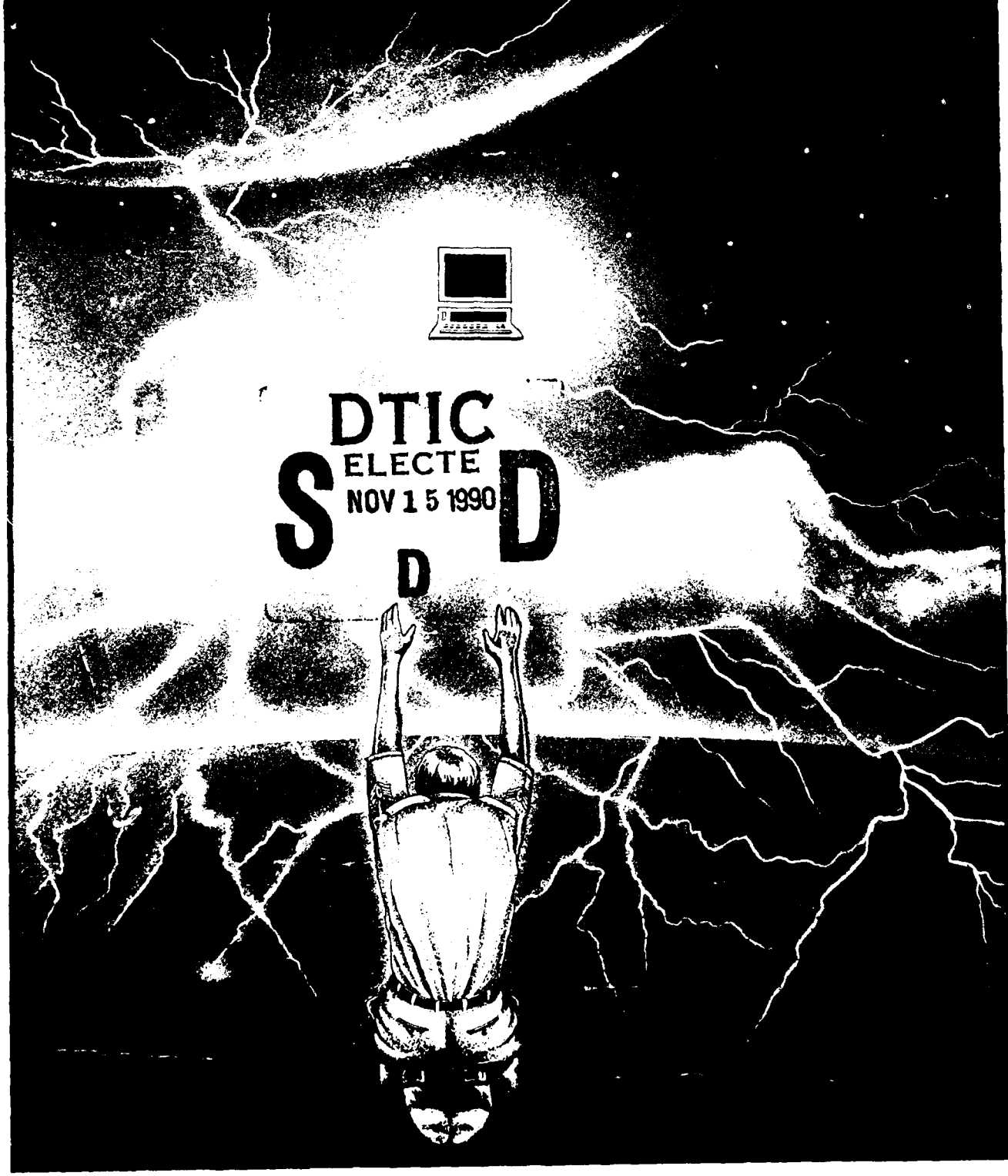
AIR FORCE AUDIT AGENCY MANAGEMENT INFORMATION SYSTEM

CHARLES A. HOBBS, Maj, USAF



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Air Force Audit Agency Management Information System

Hobbs

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Air Force Audit Agency Management Information System

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by

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Foreword

Access to information is an ever-increasing concern throughout the Air Force. Large, centralized computer systems have been with us for many years. The growing number of personal computers available to Air Force organizations brought with it a growing desire for information that is accurate, timely, and in the proper format. Also, there has been a corresponding growth in the computer literacy level of Air Force personnel that resulted in the growth of highly specialized information systems.

Maj Charles A. Hobbs's research builds on existing knowledge of information systems by explaining the differences between centralized and decentralized computing, and the strengths and weaknesses of each. These distinctions provided the basis for a survey of Air Force Audit Agency (AFAA) personnel which determined user information requirements that recommended a combination of centralized and decentralized information systems.

Although Major Hobbs's report addresses only the specific needs of the AFAA, his premise that modern information systems should consider the desires of the end users and should combine the best attributes of centralized and decentralized systems applies to any organization.

DENNIS M. DREW, Col, USAF
Director
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About the Author

Maj Charles A. Hobbs

Maj Charles A. Hobbs completed this study while assigned to the Airpower Research Institute, Air University Center for Aerospace Doctrine, Research, and Education at Maxwell AFB, Alabama. Major Hobbs is a 1971 graduate of the University of Virginia with a bachelor of arts degree in English literature. A graduate of Officer Training School, Major Hobbs was assigned as a missile combat crew commander in the Minuteman I and Minuteman III weapon systems. He then served as a member of the Air Force Reserve before being recalled to active duty in 1979 with the Air Force Audit Agency (AFAA). While with the AFAA, he served as an audit officer at Vandenberg AFB, California, and Kunsan AB, Korea. He was chief of the Area Audit Office, Little Rock AFB, Arkansas; and chief audit project manager for Information Systems, Headquarters AFAA, Norton AFB, California. In 1988 the auditor general of the Air Force selected him to be a research fellow and attend Air Command and Staff College. Currently, Major Hobbs is assigned to the staff, Headquarters AFAA. He and his wife Nancy have three sons—Al, Tom, and Ross.

Preface

In June 1988 John Boddie, auditor general of the Air Force, tasked me to assess the information system requirements of the Air Force Audit Agency (AFAA) as a research fellow for Airpower Research Institute (ARI) at the Air University Center for Aerospace Doctrine, Research, and Education (AUCADRE), Maxwell AFB, Alabama. Those familiar with ARI's reputation as "the doctrinal think tank of the Air Force" may wonder about the relationship between air power doctrine and information systems. Although this research does not provide new Air Force doctrine, it gave me an increased appreciation for the relationship of support agencies (such as the AFAA) to the operational mission of the Air Force. Perhaps more than any other factor, this appreciation was my most lasting legacy from this assignment.

There are many people to whom I owe thanks for their contributions to this project. John Boddie provided the challenge. Brig Gen Basil Pflumm and Kenneth Seifert gave me additional guidance and direction. I received immeasurable assistance from Troy Wideman's staff at AFAA headquarters. Jerry Kleeman, Don Locke, and Ken Dobbs all spent considerable time assisting me on the project; and Shirley Wilson provided the administrative support necessary to distribute, collect, and account for over 900 lengthy surveys. Richard Efnor supplied critical information on AFAA computer systems. I owe special thanks to CADRE's staff. Lula Barnes and Sheila Fears of AU Press inputted thousands of survey responses into a data base for analysis. Dr David MacIsaac provided me with several useful articles on information system design. Dr Bynum Weathers (research chair) and Dianne Parrish (research editor) gave me the benefit of their wisdom and experience in the field of academic research. Lt Col Manfred Koczur was always there with an encouraging word when things looked bleak. Finally, I owe the deepest debt of gratitude to my wife Nancy and my sons Al, Tom, and Ross who put up with my long absences and short temper during this year.

CHARLES A. HOBBS, Major, USAF
Research Fellow
Airpower Research Institute

Chapter 1

Introduction

Many of us worship machinery as fervently as our primitive ancestors worshiped sticks and stones.

Neil Macdonald
12 Aphorisms Regarding Thinking

Military personnel have come to worship the computer as the machine of the future and there is ample justification for awe of modern computing power. An ever-growing number of personnel have computers at home, at work, or at both places. The computer age has arrived throughout the Department of Defense and has increased mission effectiveness in many diverse areas. For example, the US Army has integrated computers down to unit level to field and support a more combat-ready force.[1] The Air Force also uses computers for a variety of applications to include military and civilian payrolls—even for reserving rooms for military travelers.[2] Presently, the personal computer is a common fixture in most offices in the Air Force.

As users become increasingly familiar with the functions and capabilities of modern computers, they need not "worship the machine." A computer possesses no magical capability to solve an organization's problems. An organization should establish its automation requirements based on operational needs—mission and special requirements. Thus, they must remember that the value of the computer lies solely in the increased capabilities it provides to the user.

Unfortunately, users often obtain the latest, state-of-the-art computer equipment and software without considering its usefulness to the organization. Those who doubt this tendency should look at the aggressive marketing campaign of computer companies to sell color printing capabilities for desktop computers. For example, users have paid as much as $75,000 for this color capability, and for some it was a wise investment. Other users may have purchased a capability for which they have little use. As one dissatisfied user put it, "I suppose I could print out letters in different colors, but that doesn't really justify the cost."[3]

My purpose in writing this report is twofold. First, John Boddie, the auditor general of the Air Force, tasked me to identify the requirements for a management information system (MIS) for the Air Force Audit Agency (AFAA). Since the AFAA is the sponsoring agency for my study, this purpose remains paramount.

My second purpose evolved as I researched the literature on systems analysis and design. The need to base computer acquisitions on desired capabilities (rather than desired hardware or software) had little coverage in the literature. Perhaps this lack of discussion is because acquiring computer systems based on requirements, rather than personal preference, seems like an obvious consideration. However, my experience as an information systems auditor with AFAA has taught me that computer users often buy systems based on personal preferences. Therefore, I am writing this report in hopes that it may serve as a guide for others in defining their computer needs.

This report consists of six chapters. This first chapter provides an introduction to a management information system. Chapter 2 provides a working definition of a *management information system*, a term that seems to have as many definitions as there are potential users. Further, the chapter discusses the system development process. Finally, and most important, chapter 2 explains the need for user involvement in identifying the specific requirements of the MIS.

Chapter 3 describes the mission and organization of the AFAA. As the internal auditors for the secretary of the Air Force, the AFAA has a unique mission and unique information requirements because it interfaces with many government organizations. Thus, the background information in this chapter will help you understand the specific reporting requirements discussed in the remaining chapters.

Chapter 4 lists the current suite of computer hardware and software within the agency. The auditor general has suggested that any future automated system should use existing hardware and software to the maximum extent possible. Thus, the data in this chapter is for planners who will design the system.

Chapter 5 specifically identifies AFAA information requirements through a survey of personnel at all levels of the organization—from administrative staff to senior-ranking executives. Additionally, this chapter provides an assessment of how well current management methods are meeting the organization's information requirements.

Finally, chapter 6 provides the auditor general with the "next steps" needed to transform the information requirements of AFAA users into a workable format (MIS). Chapter 2 takes the first step in this process by defining a management information system.

Notes

1. Lt Gen David Doyle, "Information as a Hammer in Forging the Ready Force," *Army*, October 1985, 270-75.

2. Capt James Cox, "SIMS—The Computers Are Coming," *Air Force Engineering and Services Quarterly*, Fall 1984, 25.

3. Suzanne Weixel, "But Do You Want Color on Your Desk?" *Computerworld*, 9 May 1988, 58.

Chapter 2

The Design of Management Information Systems

Because management information systems are most commonly implemented using computers, the design of an information system must be based on a knowledge of available computer hardware. Basically, information systems can be either centralized or decentralized. Centralized systems are run on large mainframe computers and decentralized systems are run on a number of smaller personal computers. A brief history of the evolution and evaluation of centralized and decentralized computer processing follows.

Centralized Systems

The earliest management information systems were implemented on large, centralized computers called mainframes.[1] As a college student in the early 1970s, I gained my first exposure to these mainframe machines. The IBM 370 series computer was controlled and operated in a highly centralized manner. Each day computer science students would line up in front of a small window, clutching a packet of computer punch cards. When we reached the head of the line, we would hand these cards to the graduate student who operated the computer. Upon our return the next day, a printed computer output awaited us. Usually this output contained many "error messages"—in my case, there were more errors than I care to recall.

The system we used was mainframe-oriented, centrally managed, and employed batch-processing methods. The system had several advantages and disadvantages. The main advantage was the graduate student who operated the computer. The students may have joked about his thick glasses and diminutive stature, but this person was an acknowledged expert in operating the computer. The IBM 360 was an extremely complex, expensive, and delicate piece of equipment.[2] Had the university permitted untrained, unqualified students direct access to such a machine, there is little doubt that we would have succeeded in running up huge maintenance and repair bills. The tiny window where the students submitted their computer cards was, in effect, the only entrance into a safe, sterile environment where the computer was protected from mistreatment or abuse.

The second principal advantage of centralized processing was enhanced efficiency of the computer. At the time, computer memory and storage space was limited and expensive.[3] For example, the data bases that the students used in running their programs were stored on large spools of computer tape because there was insufficient computer memory or direct access storage device (IBM's terminology for a disk drive) capacity to support student input.[4] In the centralized environment the computer operator saved all of the students' computer cards and input them to the computer at the same time. This meant that the computer tape only had to be mounted onto the computer once a day, thus saving considerable time and effort for the operators. Similarly, the portion of the computer's main memory needed for the students' programs could be loaded once, accessed in a single 10-minute computer run, and then freed up for other applications. There were other advantages, but they applied mainly to the computer and the computer staff.

The disadvantages of the system accrued to the user. Although the computer was protected from student mistakes, the student was not allowed to learn to operate the computer. Thus, sys expertise rested solely with the operator.

An obvious second disadvantage was the maximization of computer efficiency obtained at the user's expense. When the little window was closed and locked, the students were denied access to the computer, and they had to wait around until the computer center reopened. Similarly, the 24-hour wait for the return of computer outputs was highly inconvenient to the user. Imagine, if you will, a student program containing just one or two minor programming errors. If the machines were instantly accessible, the student could have checked the results and corrected the errors in just a few minutes. Instead, the system forced students to wait in line to input their work and then wait another 24 hours to see the results. Thus, even the most trivial programs might take days or even weeks to complete.

The disadvantage that I considered to be the greatest, however, was that the system lacked redundancy. In other words, if the system was in a "STOP state," there was nothing to do but wait until someone repaired the computer so that processing could resume.[5] For a student facing a deadline, this kind of delay was most distressing.

If these centralized systems were so poorly developed, why did users continue to acquire them—especially given the attitude of some early developers that users had to be motivated to "swim hard to keep from sinking?"[6] Part of the answer is, of course, that there was not much of an alternative. Until recently, the centrally located mainframe was the only computer available, and only computer professionals could operate and maintain them.[7]

The use of centralized systems in the Air Force was similar to use in the college environment. A primary advantage of a centralized system in the Air Force was standardization. A centralized system could meet the needs of a large organization by having a standard information system. Thus,

personnel transferring to a different job or moving to a new location would not have to learn a new system.[8]

Centrally developed and implemented systems also provided cheap, long-term data storage. Data from many different offices or locations could be written onto inexpensive spools of computer tape and kept in a clean, dry, and air-conditioned storage area.[9]

Large systems tended to have good documentation. Professionals prepared the design and operating documents and delivered them to the user as part of the system. Thus, when system problems or software logic errors (bugs) arose, the logic and source code used by the original programmers was available to aid in solving the problem.[10] As a rule, centralized data input was accurate because it was performed by experienced keypunchers who were able to use accuracy-enhancing techniques such as double punching, check digits, and hash totals.[11]

The most important advantage of the centralized system, however, was that information was a "corporate resource"—which meant that it was managed by a professional data base expert and was available to everyone in the organization. This system reduced the amount of effort needed to input data because it is entered only one time, yet it was available to many users. Additionally, such a system decreased the possibility that individuals would create their own "pools of data" to serve personal rather than corporate goals.[12]

Although this system had many advantages, it was frustrating for the user. Computer resources were so limited and expensive that users had to make every consideration toward increasing the efficient use.[13] However, rapid advances in technology quickly changed this situation.[14]

Decentralized Systems

By the early 1980s personal computers were appearing all over the Air Force.[15] Like many others, I quickly discovered that this new technology had many advantages. The greatest advantage was that, for the first time, the machine existed solely to serve the user. The long lines at the computer room window soon became a distant memory. The personal computer had the flexibility to fit its hours of operation to the user's schedule. Just as exciting was the quantum improvement in response time. Instead of waiting overnight for the results from a program, I could have my answers in a matter of seconds.

Another advantage was the amount of memory and direct-access storage which rapidly became available on the new desktop computers. In 1965 computer memory was very expensive, and a large machine had perhaps 4K of memory.[16] In 1984 the Z-100 computer had 444K of memory plus 720K of floppy disk storage. It also had more capabilities and reliability than the 1964 model ENIAC, which weighed 28 metric tons and was the size of a six-room house.[17] By 1988 this machine was replaced by a Z-248

computer that had over 1M of memory plus 40M of hard disk (five times more real storage than the old IBM 370).[18] This new machine had capabilities similar to the earlier mainframes, yet it was inexpensive enough for each operator to own.

A final advantage was cost. The new Z-248 cost less than $4,000, which was only a fraction of the $1 million that the university had allegedly paid to install the old IBM 370 series mainframe.[19] Even after adding accessories such as a top-of-the-line printer, a modem, and lots of advanced software, the personal computer was a bargain. This low cost enabled organizations to purchase many of the smaller computers, and it had a built-in redundancy that protected the user from computer failure. If one computer happened to malfunction, the user could simply move the data files to another nearby computer, run the program, and continue working. Even though there were many advantages of personal computers, there were also some disadvantages.

A primary disadvantage was that there was no real expert around to help solve a computer problem.[20] The highly skilled operator in the mainframe computer room was replaced with informal "computer gurus," some of whom were knowledgeable, and others who caused more problems than they solved.[21]

Even the improved availability and faster response time caused an unexpected problem—unrealistically high user expectations. In the past users had been content to wait 24 hours for a computer product, but by 1988 they would not tolerate any delay of more than a few seconds. In fact, when the new Z-248 computers arrived in 1988, one of their main selling points was that they were much faster than the supposedly obsolete Z-100s.

Sole ownership of the computer also had its disadvantages. Although the user controlled the machine, there was no one to safeguard against mistakes. Thus, a user who forgot to make backup copies of a large program ran the risk of having to recreate the program from scratch. In the old mainframe days the operators took care of the backup requirements.[22]

Perhaps the greatest drawback of personal computers is the tendency for users to automate tasks that they should perform manually.[23] In my case, this "data deluge" is best exemplified by a program I wrote to identify the highest priced item from a list of 30 items.[24] The program ran flawlessly, and I was quite proud of myself until a wiser coworker pointed out that a six-year-old child could do the same job manually in less time.

When personal computers arrived on the scene, a new kind of management information system (MIS) appeared. The American National Standards Institute (ANSI) defined management information systems as "management performed with the aid of automatic data processing."[25] Computer users quickly discovered that with the aid of application software packages such as Condor, DBase, or Enable, they could design and use highly personalized MISs. The advantages of such "user-driven computing" were obvious.[26]

Personal computers were highly responsive to the user. With a personal computer, you had instant access to the data in the system and could sort, select, or arrange it in literally the blink of an eye.[27] Thus, it is easy to see why people would prefer this rapid response to the old method of daily, weekly, or monthly reports.

Personal computers also greatly enhanced flexibility. A user could customize computer output to meet specific requirements. Printed reports could be tailored to include the needed information for a given decision without any extraneous data.

Unfortunately, user enthusiasm for the system overshadowed many negative factors (disadvantages and risks).[28] In my opinion, the greatest disadvantage was that information began to be seen as a *personal* rather than a *corporate* asset. This philosophy directly conflicted with the traditional view of the use of information in an organization.[29] However, there were other drawbacks that were not so obvious.

Duplication of effort became a real problem. Personalized information systems required personalized data entry. Thus, it became possible for the same piece of data to be entered individually into numerous systems on many different machines. Managers began to express concern that employees were spending too much time as data-entry clerks and not enough time doing their jobs. Moreover, many personalized MISs were just "one-shot" applications in which a single report did not justify its programming effort.[30]

Programming errors also became more prevalent as programming was performed by well-meaning amateurs instead of professional programmers. Indeed, "powerful computers" were "capable of powerful mistakes."[31] An excellent example of this type of risk is the celebrated legal case of James A. Cummings, Inc. versus Lotus Development Corporation, where the plaintiff unsuccessfully asserted that an error in program logic had caused his construction company to underbid a proposal by $254,000. The court found that the expensive error was the fault of a Cummings employee who had developed a faulty worksheet.[32]

Documentation and continuity were other problem areas. Most of the designers of these personalized systems were not computer professionals, and they did not understand or appreciate the need for proper documentation.[33] This created a continuity problem because only the individual who created the program could use it or make corrections to it. However, when that person left the organization, the MIS that had enhanced productivity suddenly became an unmaintainable liability.

New security problems also arose. Whereas the centralized computer facility was relatively safe from unauthorized intruders, personal computers were located in open areas or in individual offices. As a result, the MIS was more vulnerable to tampering, theft, and unauthorized access. Worse still, the growing practice of swapping software among personal computers made them vulnerable to "viruses."[34]

Computer viruses are not a new phenomenon, nor are they a problem that is unique to personal computers. An example of this virus was the Multiplexed Information and Computing Service (MULTICS) system, an early US Air Force MIS which was touted as being invulnerable to unauthorized access. In a test "raid," Air Force Lt Col Roger R. Schell and Steven B. Lipner used a program to defeat the security of MULTICS. This program was a virus that tricked the host computer into duplicating classified information and routing the copy to unprotected areas of computer memory.[35] Personal computers are, however, more vulnerable to virus attacks because the virus can be introduced either through shared computer diskettes or through the ever-growing networks that tie many computers together.

As the cost of computer hardware has plummeted, the availability and capabilities of computers have skyrocketed.[36] This revolution in computing has directly impacted the way management information systems are designed.

Early Design Approach

Management information systems are not new, and automated systems have been with us for some time.[37] These earlier systems used large, centralized mainframe computers forcing reliance on centralization that influenced the system design process.

Although there was never a standard process for the design and use of management information systems, the step-by-step procedures outlined by most experts were remarkably similar. Basically, the design approach was as follows:

1. The user organization identified the types of information required to do its job.
2. A systems analyst, an expert in MIS design and implementation, assessed the situation.
3. The analyst discussed the needs with the user.
4. The analyst performed a "feasibility study" and formulated a proposed system to meet the user's needs.
5. Once the user accepted the proposal, system development began.
6. The developer tested the new system and delivered it to the user.[38]

The resultant systems generally worked in a technical sense, but they did not always meet the expectations of the user. As many as 75 percent of all large systems were described as "operating failures."[39] One United Research Company poll of 92 chief executive officers found that 70 (76 percent) either "agreed" or "strongly agreed" that "decisions regarding resource allocation for information systems are typically based on promises of benefits or service that are seldom achieved."[40] In other words, the system worked fine, it just did not meet the user's needs or expectations.

The problem was not that analysts were incompetent, they simply were technicians and were not well acquainted with the business of the users.[41] As one expert stated:

> The difficulty with the traditional approach is the lack of participation by, and interaction with, the end user. The difficulties are exemplified by the classic series of drawings that depict the design versus the implementation of a child's swing in a tree—you know, the one that shows a precisely illustrated, level swing in the first panel and an obviously askew board hanging from two uneven ropes in the second.[42]

Many problems could be cited to illustrate the frustrations of these dissatisfied users. One significant problem was that the "standard reports," which many automated systems produced, were difficult to adapt to the special requirements or desires of individual users.[43] Often these reports were bulky and contained too much detailed information. Typically they contained a number of cryptic abbreviations. These abbreviations reduced the workload on the central computer, but they also required extensive training for the user. This "prespecified computing" proved "slow and expensive in person-power."[44]

Timeliness was also a problem. Often there was only one printer in the computer room, and reports had to be printed, collated, and manually distributed to the users. Thus, it could take several days for data to reach the desk of the person who needed it.[45] Another important issue was that centralized control of the management information system put the organization in a vulnerable position if any harm befell the computer. By placing all of their informational eggs in a single basket, an organization that relied heavily on its MIS risked catastrophe. Therefore, maintaining backup data and data-processing capabilities became necessary.[46]

Finally, security for centralized systems proved to be a mixed blessing. Physical security was enhanced by having all of an organization's data and hardware in a single, easily secured area.[47] Electronically, however, centralized data was vulnerable. Perhaps the most famous example of this vulnerability was the MULTICS system. Schell and Lipner penetrated the system and siphoned off classified information faster than the raiding computer could process it. The perpetrators actually had to program their computer to steal only the "best" information and ignore less important data.[48]

Thus, it can be argued that the evolution of computers has produced two types of MIS (the centralized mainframe system and the decentralized personal computer), and that each type has its own advantages and disadvantages. Unfortunately, new system design criteria that combine the best methodologies of both systems are just beginning to be proposed.

New Design Approach

Early efforts to apply the centralized mainframe system development methodologies to personal computers produced less than optimal results.

In 1985 I reviewed a major system development program that tried to combine an older centralized system with state-of-the-art personal computers. One problem was that the centralized system was being used to turn on the personal computers at eight o'clock each Monday and have them print a large, standardized report which in no way used the capability of the new machines to customize the data output. Another problem with the new system was that the data input was limited to 80 characters per line. This constraint required the users to look up and input numerous coded entries. This limitation was unnecessary. It was simply a carryover feature from the days of the 80-column punch card.[49]

These design problems were not limited to large, mainframe-oriented MIS developments. For example, I will relate my experience in developing a small, single-office system for reporting audit time expenditures. In developing this system I used a Zenith 120 series personal computer to assist the secretarial staff in submitting monthly reports to AFAA headquarters. Unfortunately, in my zeal to develop a perfect system, I committed several serious design errors.

My worst mistake was failing to document the logic and design of the system. Like many novices, I was so preoccupied with completing and delivering the system that I neglected documentation.[50] I also failed to plan for the optimal efficiency of the system by forgetting that "simple is the sign of skill."[51] The software package had a number of interesting command options, and I was determined to use all of them. Thus I delivered a system that contained a number of unnecessary sorts, merges, tabulates, and so on.

Finally, I never got around to making adequate backup copies of the system. As was the case with documentation, making a backup copy was a low-priority task that could wait until later. Once again, later never seemed to arrive.[52]

The results were catastrophic. The poorly designed software logic took too long to produce the required reports. Naturally, the computer did not complain about performing its functions for 30 minutes, but the secretaries were unhappy. Without proper documentation, I became the source for answering questions about how to operate the system. Worst of all, the lack of backup copies did not become a problem until the disks were accidentally erased, and by then it was too late to correct the situation.

The problems previously described, plus a host of others, are attributable to two factors: "the undereducated manager who lives only in the world of business and the reclusive MIS developer who speaks primarily computerese."[53]

Clearly, organizations need a system design methodology that can combine the best features of large, centrally designed systems with those of personal computers. In fact, the AFAA should explore the use of this design approach because it possesses both a modern, mainframe system and a large number of personal computers. Hopefully, we can avoid many system

design problems that stem from "traditional MIS departments and an explosively growing end user community . . . at perpetual loggerheads."[54]

Air Force Audit Agency Initial Design Steps

Based on this new design approach, the AFAA can develop an effective management information system if it follows these initial steps:

1. Determine what information AFAA users need to do their jobs thoroughly and efficiently. Given the mission of the AFAA and the variance of job skills and requirements discussed in chapter 3, this analysis will be time-consuming. Nonetheless, the analysis must be completed before a logical methodology can be instituted.
2. Determine how well these information needs are currently being met. A system designer should avoid fixing things that are not broken.
3. Establish criteria for determining which data needs can be addressed by the AFAA's mainframe computer system and those which can be met by the distributed capabilities of personal computers.
4. Designate an AFAA to manage MIS development. This agency would ensure that information requirements are met, limit duplication of data within the agency, and monitor system interaction.

Chapter 3 describes the agency's organization and identifies system factors that affect the design process. This information will guide future system development.

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Chapter 3

Organizational Factors

If all organizations used the same information in the same way, identifying management information system (MIS) requirements would be easy. In fact, some software house could write a "generic MIS" which any organization could buy off the shelf to satisfy its information needs. Unfortunately, each organization is unique and has different information requirements. Therefore, before identifying the information requirements of an organization, you must understand its mission, structure, and impact on Air Force operations. Also, one must understand the requirements of the end users of the system. Accordingly, this chapter describes the Air Force Audit Agency's mission, organization, auditor qualifications and experience, impact of its reports on the rest of the Air Force, and factors that affect system requirements.

Mission

The AFAA has the distinction of being chartered under public law as an original and permanent component of the Air Force. The National Security Act of 1947 charges the secretary of the Air Force (SAF) to "cause internal audit to be organized and conducted."[1] The AFAA's mission is to "evaluate the effectiveness and efficiency of Air Force management at all levels of command."[2] With the exception of certain Army and Air Force Exchange Service audits, which are performed under AFAA supervision, the AFAA is the only organization authorized to perform audit functions for the Air Force.[3] Originally, it was established under the jurisdiction of the comptroller general of the Air Force; however, because of the sensitive nature of the audit mission and an implicit need for managerial independence, it was later reorganized as a separate operating agency (SOA). To meet American Institute of Certified Public Accountants (AICPA) and General Accounting Office (GAO) standards of independence, the auditor general of the Air Force now reports directly to the secretary of the Air Force and receives policy direction from the DOD inspector general (DODIG).

Organization

Because military officers were perceived as being vulnerable to the influence of any senior-ranking officer, the job of auditor general of the Air Force was converted to a civilian position. The current auditor general is John Boddie, a senior executive service (SES) employee with headquarters at Norton AFB, California.[4]

Military command of the agency resides with the deputy auditor general of the Air Force, Brig Gen Basil Pflumm. General Pflumm is assigned to the Pentagon and maintains audit liaison with the Air Staff.[5]

Because the Air Force is a highly diversified, worldwide organization, the AFAA has adopted an organizational structure that serves the Air Force at headquarters and operational levels (fig. 1). Consequently, AFAA has two headquarters directorates and three operational directorates. Two of the operational directorates provide audit service to major commands and Headquarters USAF; one audits base-level activities.

Headquarters Directorates

The Directorate of Resource Management (AFAA/RM)—located at AFAA headquarters, Norton AFB, California—provides centralized control of the AFAA budget, supply activities, and administrative services. This directorate also performs management functions for both military and civilian personnel.

The Directorate of Operations (AFAA/DO), also located at Norton AFB, consists of three divisions that monitor AFAA operations at all levels. The Operations Division (AFAA/DOO) provides overall audit planning guidance that ensures high-quality audit projects. This division coordinates audit projects with other government agencies such as the GAO or DODIG to make certain that audit coverage is not wasted by duplicating recent or ongoing efforts. It also monitors the resolution of major issues such as fraud, violations of the law, management nonconcurrence with audit findings, or large potential monetary benefits that arise from AFAA audits.

The Technical Services Division (AFAA/DOT) has highly skilled specialists in various areas. These experts ensure that AFAA audits are "conducted by staff who collectively have the knowledge and skills necessary to conduct the audit."[6] This division employs computer scientists, engineers, contracting experts, a statistician, and an operations researcher. In the event that an audit requires technical expertise in areas not represented on the DOT staff, that is, law or medicine, this division can contract for additional support.

The Standardization and Internal Affairs Division (AFAA/DOV) audits the auditors. This division conducts operational reviews to ensure that audits are conducted under established policies and procedures.

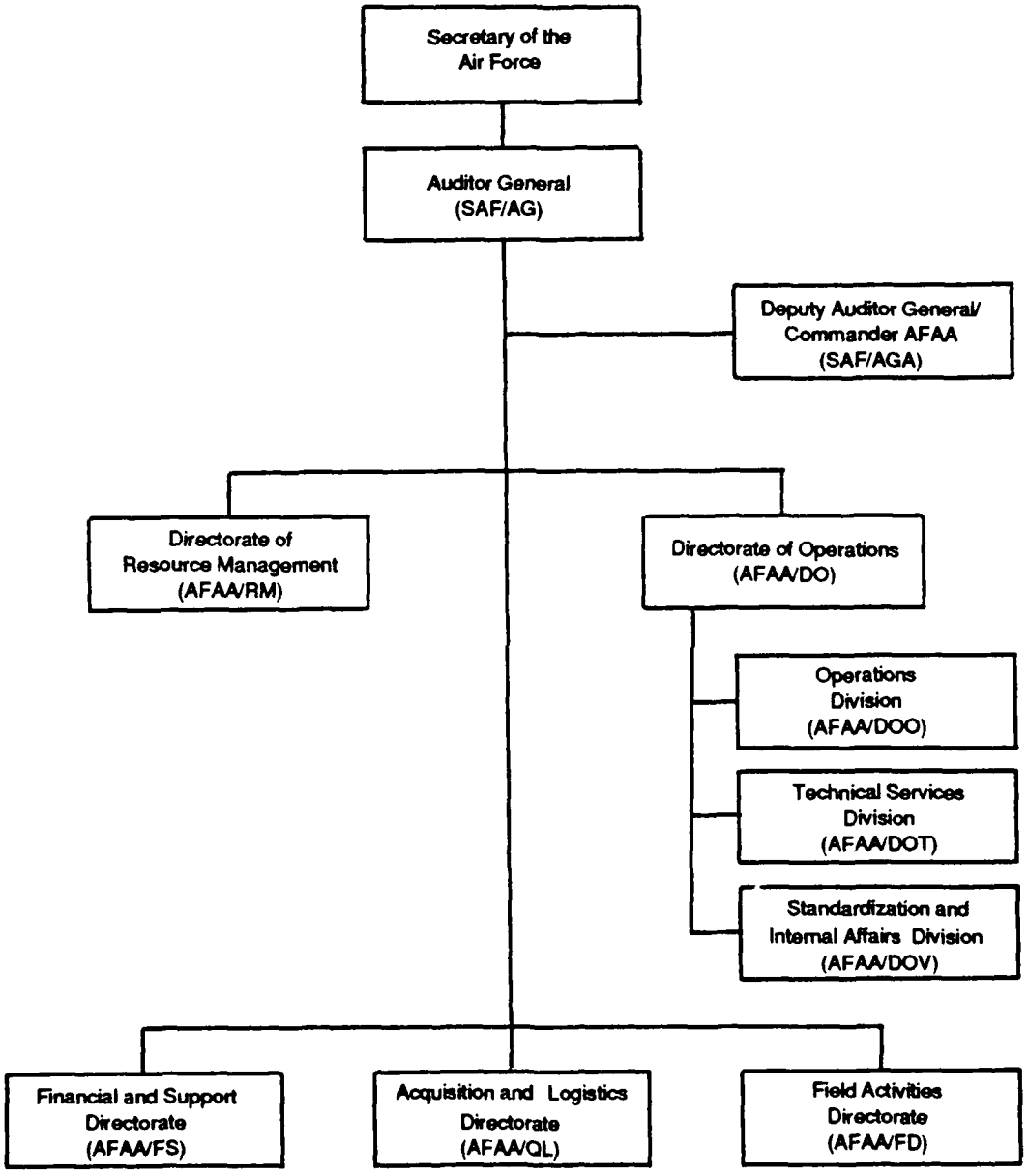

Figure 1. Air Force Audit Agency Organizational Chart.

Operational Directorates

The operational audit mission is primarily assigned to three directorates: Financial and Support Directorate, Acquisition and Logistics Directorate, and the Field Activities Directorate. They are responsible for the performance of audits and the reporting of audit results to the appropriate command level.

The Financial and Support Directorate (AFAA/FS) is located at Norton AFB and maintains subordinate field offices at six major Air Force bases. It is organized along functional lines and performs Air Force-wide audits in such diverse areas as standard computer systems; communications; personnel; morale, welfare, and recreation; support services; and major training missions. This directorate performs multilocation audits and reports its findings to the secretary of the Air Force via summary reports of audit (SRAs). Auditors assigned to this directorate are selected based on demonstrated performance within the agency or other government audit organizations.

The Acquisition and Logistics Directorate (AFAA/QL) is headquartered at Wright-Patterson AFB, Ohio. Like the Financial and Support Directorate, AFAA/QL performs multilocation, Air Force–wide audits and issues reports to the SAF. It, however, specializes in the multibillion-dollar business of logistics. Thus these auditors have extensive audit experience in the logistics environment. This directorate maintains subordinate field offices at 14 air logistics centers and Air Force Systems Command bases.

The Field Activities Directorate (AFAA/FD) is situated at Norton AFB, but its field offices are geographically dispersed to Air Force bases worldwide. These offices are tenant activities at 46 major bases and provide audit services to all other bases on a TDY basis. Additionally, senior-ranking auditors, assisted by relatively large audit staffs, are located at each MAJCOM and provide special audit services. AFAA/FD offices perform their audits at a single location and report their results to the local commander and the appropriate MAJCOM commander. Journeyman auditors assigned to these bases form the backbone of the agency, and they compete for promotion to supervisory or audit management positions.

Auditor Qualifications and Experience

AFAA auditors are assigned duties at all levels of management, and even the highest-ranking audit executives began their careers as base-level auditors. Approximately 75 percent of all AFAA auditors are civilians whose grades range from GS-5 auditor trainees to executives. All newly hired auditors must be graduates of a four-year college or university and must have a minimum of 24 semester hours in accounting. Military officers in the grades of second lieutenant to brigadier general make up the remainder of the auditor corps. Some of these officers spend their entire careers

assigned to AFAA while others have cross-trained from other specialties. Over 40 percent of all auditors hold a master's degree.

Whether they are military or civilian, however, all AFAA auditors must complete 80 hours of continuing professional education every two years. For many this continuing education results in professional certification as a certified public accountant (CPA), certified internal auditor (CIA), or certified information systems auditor (CISA). Nearly 30 percent are CPAs, CIAs, or CISAs.

Of importance to this report is the unusually high level of computer literacy among auditors. All auditors are classified according to their knowledge of computers and automated systems and receive extensive specialized training in accessing, operating, and auditing automated systems. The minimum level of computer competence required of AFAA auditors is certification as a "skill level 1" automatic data processing (ADP) auditor. Level 1 auditors possess an "overall awareness of the electronic data processing (EDP) environment, personal computers, Air Force systems, and areas of vulnerability."[7] They have received specialized training at in-house audit schools, have graduated from the ATC Auditor Systems Retrieval Course at Sheppard AFB, Texas, and have completed ATC-developed courses in personal computers and software.

Certification as a level 2 auditor presupposes knowledge at skill level 1 and requires the ability to "participate in system development audits, evaluate internal controls in major systems, discover potential areas of fraud, waste and abuse, and adapt and use software programs to test the accuracy of EDP systems being audited."[8] Level 2 auditors attend a course in residence at California Polytechnic Institute. Currently, over 25 percent of the agency's auditors are certified at skill level 2.

Skill level 3 auditors specialize in computer auditing and have "specific expertise in operating systems, data base management systems, software security, hardware/software controls, data communication and networking."[9] They are graduates of a contracted in-house school specializing in data communications and networking and many have received additional training at local universities, the DOD Computer Institute, or selected ATC courses. Approximately 10 percent of AFAA auditors have been trained and certified to skill level 3.

Impact of Mission on Air Force Operations

Although many people think of the AFAA as an organization with people that count cash and balance financial statements, its role is actually much greater than that. AFAA auditors "independently and objectively analyze, review and evaluate existing procedures and controls relating to all Air Force organizations, activities, programs, and functions."[10] Although the auditors do not function as area experts—who tell operational personnel how to do their jobs—they are experts at ensuring that government resour-

ces and assets are used effectively and efficiently. During wartime, auditors in the combat theater assess the "adequacy and effectiveness of support furnished to combat forces and controls used to prevent unauthorized diversion of equipment, supplies, and other forces."[11]

The agency's greatest impact on Air Force operations is through its various audit reports to commanders and managers. In fiscal year 1988, AFAA issued 1,420 installation-level reports to wing commanders that suggested improvements in areas as diverse as flying-hour utilization, spare parts inventories, commissary warehousing, and hospital operations. An additional 120 "Commander's Audit Program" reports were issued confidentially to base and wing commanders in response to requests for audit assistance. At the Air Staff level, the agency issued 87 reports to the SAF on a variety of operational, logistics, and comptroller topics.

In addition to identifying ineffective and inefficient practices, AFAA audit reports often show management ways to achieve mission objectives at a lower cost. The savings, referred to as *potential monetary benefits* (PMB), allow managers to reallocate scarce funds into other critical mission areas. During fiscal year 1988, AFAA auditors identified, and management concurred with, over $339 million in PMBs. This averaged nearly $412,000 saved for each of the agency's 823 assigned auditors, thus returning $10 in benefits to the Air Force for each dollar of salary paid to auditors.

Factors Affecting Information System Requirements

Many factors affect AFAA information system requirements. Unlike many other small organizations, it has offices and locations worldwide. This global network requires the agency to collect, process, and report information from any Air Force location.

The diversity of the AFAA mission also complicates MIS requirements. Like any MAJCOM or SOA, AFAA must maintain and process information relative to personnel management, budget issues, administration, etc. In addition, it requires and examines information about virtually every organization. Thus, information requirements can vary tremendously among individual auditors and/or audit offices.

AFAA's unique organizational placement—directly under the SAF with review and oversight authority by the DOD inspector general—also affects information system requirements. It generates requirements to collect and disburse information to non-Air Force agencies, which a more traditionally placed small organization might not have to do.

Ironically, AFAA's success at identifying, reporting, and correcting deficiencies and at discovering more cost-effective ways to achieve the Air Force mission further complicates MIS requirements. In fact, $339 million in cost benefits generates a great deal of interest from congressional staffers, civilian news organizations, and DOD agencies. As a result, numerous requests flow in for audit reports, audit resource expenditures, audit

methodologies, etc. Thus, the agency must frequently maintain, compile, and report information merely to satisfy the needs of non-AFAA organizations.

Finally, the high level of computer literacy among AFAA personnel also affects MIS requirements. AFAA auditors understand automation; therefore, they expect many operational features from their automated systems. Chapter 4 will discuss these expectations in relation to the incredible computing power available within the agency.

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Chapter 4

Hardware and Software

Chapter 3 described the complex, worldwide mission of the agency, the computer expertise of assigned personnel, and the impact of these factors on information requirements. There is one other factor that impacts on an organization's information needs; namely, the automated tools which are available to retrieve, store, and process information. This chapter discusses the suite of computer hardware and software available to agency personnel to perform their audit mission and examines some of the common ways auditors use these devices to increase productivity.

Hardware

AFAA is a small organization, but in terms of automation it is something of a giant. Auditors have found that the computer acts as a "force multiplier" of audit effectiveness, thus they have rushed to acquire and use these automated systems. Because of the unique needs of the agency, it extensively uses both mainframe and personal computer systems.

Mainframe Systems

As of 1989, the backbone of the agency's hardware inventory consists of two Wang versus mainframe computers, one located at AFAA headquarters (Norton AFB, California) and the other at the Acquisition and Logistics Directorate (Wright-Patterson AFB, Ohio). These large computers serve a number of critical functions. They provide inexpensive, reliable, and long-term storage for agency data because of their large capacity tape and disk drives. Additionally, they provide larger computing power that allows timely production of standardized monthly reports. Because the mainframes are located within the directorates that perform multisite, Air Force–wide audits (AFAA/FS and AFAA/QL), they also perform a valuable word processing and data communication function. Obviously, because the SAF receives these audit reports and because they impact on operations throughout the Air Force, they undergo a considerable amount of scrutiny and review before they are issued. For the sake of efficiency, the agency has connected the two mainframe computers so that reports can be teleprocessed between bases. Thus, these computers allow each Air Force-level report of audit to be instantly circulated between the performing directorate and the head-

quarters. The Wang computers also support interoffice word processing for Headquarters AFAA, AFAA/FS, and AFAA/QL.

Although the two Wang computers perform well in supporting the agency's centralized directorates (HQ AFAA, AFAA/FS, and AFAA/QL), the cost of using them to provide similar capabilities to the field offices would be prohibitive. This is one reason that personal computers have become increasingly important to the AFAA mission.

Personal Computers

The agency uses personal computers both in support of the Wang mainframes and as stand-alone units located throughout the world (appendix A). To support less than 900 assigned personnel, the agency has obtained over 500 personal computers. Even the smallest field office may have six or more personal computers on hand. The predominate type of computer in use is the Zenith (Z).

As part of the original Air Force–standard personal computer purchase, the agency obtained Z-120 personal computers. Although auditors considered the capabilities of these computers state of the art in 1983, they lack the memory and storage capacity needed for larger data manipulations. Currently, auditors primarily use these machines for word processing of small reports and manipulation of small audit spreadsheets.

Zenith-248 personal computers replaced the Z-120s as the "computer of choice" at most agency locations. Because the Z-248s are considerably faster and more powerful than the Z-120s, they have taken over the larger word processing, data manipulation, and telecommunications functions at base-level audit offices. Audit managers at AFAA/FS and AFAA/QL also use these computers extensively.

Auditors have found many innovative uses for the Z-248. Often they use the Z-248 for downloading data from large mainframe computers. Once auditors download the data to the Z-248, they can use various data analysis programs to look for trends or abnormalities within the system being audited. Armed with this analysis, auditors can concentrate their efforts on areas with the greatest audit potential. The Field Activities Directorate (AFAA/FD) uses the Z-248 to collect audit resource expenditure data, consolidate it, and send it to both Headquarters AFAA and AFAA/FD regional offices. This enables senior supervisory and executive personnel to monitor the audit productivity of each office and auditor, and it also allows each chief to remain abreast of office performance. Finally, auditors use the Z-248s for typing base-level audit reports and for transmitting them to and from regional headquarters. This gives regional supervisors the ability to review, edit, and approve draft audit reports before they are presented to the local commander. This ensures a high-quality, timely audit product.

The Z-184, a portable, laptop computer, has most of the capabilities of the Z-248. The Z-184 is popular among audit managers at AFAA/FS and

AFAA/QL because they can take their work with them as they travel to job sites, audit conferences, or the Pentagon. Also, its built-in teleprocessing capability allows the auditor to send or receive time-sensitive information while on the road.

Software

The AFAA has standardized "application software" packages so that auditors can effectively use available computer resources. These packages enable auditors to give their computers complex commands that would normally require a computer programming professional. Within the agency, the type of software used depends on the type of computer. The Z-120 computers have individual software packages that perform a single function. Auditors use Wordstar for word processing; Condor or DBase III for data base construction and manipulation; Lotus 1-2-3 for spreadsheet analysis; and HyperAccess for personal-computer-to-personal-computer communication. Additionally, AFAA/DOT and AFAA/SI have designed special programs for audit functions such as break-even analysis, inventory modeling, random sampling, personal-computer-to-mainframe interface, and so forth.

The Z-248 and Z-186 personal computers use an IBM-compatible architecture which is different from the Z-120. Nonetheless, these machines run different versions of all the software available for the Z-120. Additionally, AFAA has purchased Enable-integrated software packages so that auditors can run word processing, spreadsheet, data base, and communications functions under a single program.

Summary

In the computer hardware area the agency primarily uses large, centralized mainframe computers to support the requirements of its centralized directorates while decentralized personal computer systems support field office requirements. In terms of software packages, the agency uses programs to perform word processing, spreadsheet, data base construction and manipulation, and special audit functions.

Now that you have some background information on agency operations and requirements, chapter 5 will focus on user information needs. It will provide the critical user input needed for developing a useful management information system.

Chapter 5

Survey and Analysis

The AFAA's mainframe and personal computer architecture provide its personnel with automated tools for the gathering, processing, analyzing, and reporting of audit-related information. AFAA distributed a survey to assess how well the needs of personnel were being met and to identify areas where system improvements could be made. Each auditor, staff member, supervisor, executive, and support person was asked to complete the survey. Survey results provided feedback on the importance of different types of information and whether it was available, timely, and in a useful format. Throughout this chapter refer to the survey at appendix B.

Survey Rating System and Design

In October 1988, AFAA/DOO distributed over 900 surveys and 483 individuals (54 percent) responded. This high percentage of return provides a representative sample of the population.

The survey responses ranged from 0 to 5 (0 to 6 in section 3). The "0" response provided a mechanism for people who did not wish to respond in some areas or to answer the remaining questions without polluting the data base. Similarly, a response of "1" showed that the data was not used in the respondent's particular job. This allowed people to answer only those questions that pertained to their job areas. Responses of "4" or higher reflected a positive response in that particular area.

The survey addressed four areas:

- information requirements,
- information availability,
- information timeliness, and
- information format.

The analysis of results led to conclusions about the need for, and best method of, providing MIS support in a given area.

In the area of information requirements, a high percentage of "4" (indicating that this information was *important* to the respondent's work) or "5" responses (indicating that the information was *critical* to the respondent's work) shows a strong, AFAA-wide need for this data. This distribution indicates the need for a centralized approach to the collection and management of the information. An area of information with a low percentage of "4" and "5" responses indicates the need for a decentralized approach. Such

a system would provide optimum responsiveness to the few users who need this information. The survey did not specifically address computers or automation because information does not have to come from a computer to be useful to the auditor. Thus, if information needs are met through "hard copy" sources, there is no need to change the procedure.

The second area addressed in the survey was that of information availability. As might be expected, information considered important or critical to an auditor's job should be available without much effort. Information of low value or that is seldom used should be available somewhere but should require more effort on the part of the user. It is at this point that automating information starts to play a role in the MIS process. Clearly, information with a high degree of perceived importance that is not available to the user must be accessible, and a centralized system is usually the answer. Likewise, information that is important to a limited number of people may still require automation, and a decentralized system usually provides the solution.

Information timeliness, the third area, more directly influences the need for automation. Information that is important to many people must be available in time for it to be effective. Automation can greatly enhance the timeliness of information availability by providing on-line access via remote computer terminals. Information that is not time-sensitive could be provided using manual methods.

The final area addressed in the survey was that of information format. More than the other three factors, the amount of automation used impacts the formatting of data. One of the advantages of computerization is the capability to "customize" output for individual users. Thus, for example, information that is important to a large number of people could be collected and maintained on a centralized mainframe system. However, if the users preferred a different format, they could download the information to a decentralized personal computer and reformat it using application software.

Analysis

For my preliminary analysis of the responses, I used Condor data base management software. For a more detailed analysis and graphic output of the results, I entered the Condor retrievals into a Lotus 1-2-3 spreadsheet. An analysis of each of the 25 questions follows.

Research Question #1—How much (or how little) do you need access to current regulations and directives?

Since compliance with regulations is often an integral part of auditing, one would expect auditors to consider access to current regulations and directives just as important to their work. Over 85 percent of those responding felt that this information was either important or critical to job accomplishment. Although agency access to regulations and directives is not automated, AFAA personnel seemed satisfied with its current

availability. Nearly 80 percent rated this item as being reasonably available, and over 80 percent felt the information was "generally current and timely." Finally, over 72 percent indicated that the information was clear and easy to understand. Figure 2 shows the strong correlation between the perceived importance of this information and its availability, format, and timeliness. (Note: Percentage figures in the text are total averages of the individual response percentages depicted in figures 2 through 26.)

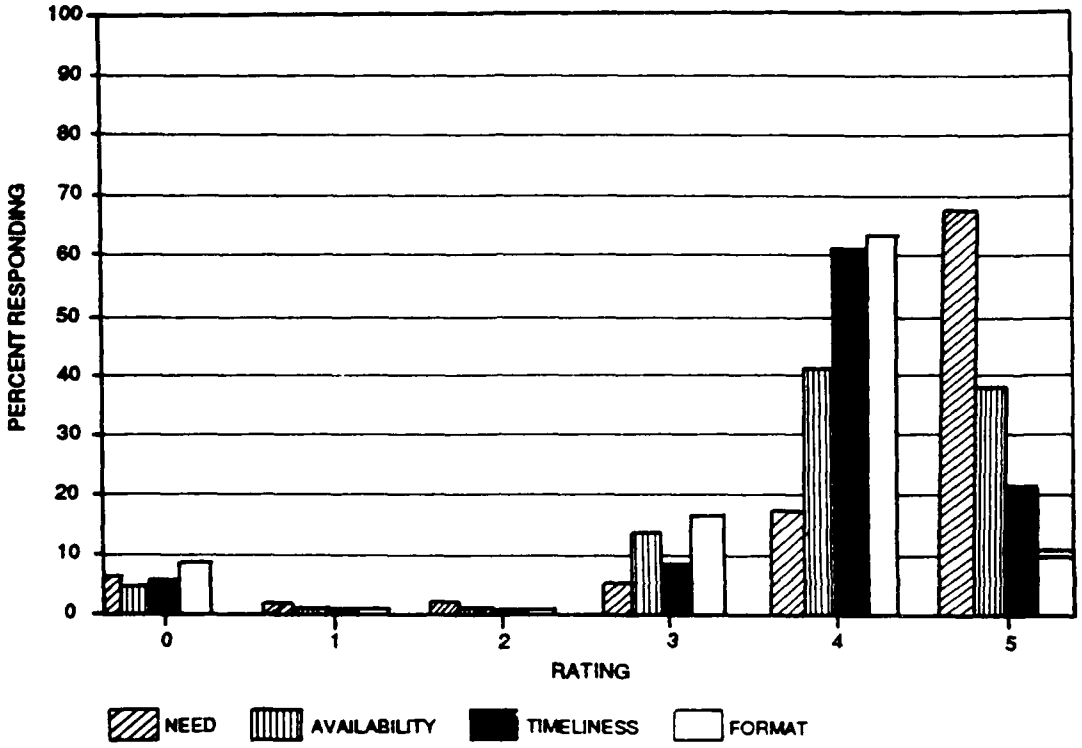

Figure 2. Current Regulations and Directives.

Audit agency personnel are satisfied with their access to current regulations and directives. Although some improvement (i.e., from good to perfect) is possible, any effort to provide an automated AFAA system probably would not be warranted. The possibility does exist for other organizations to develop automated systems for storing, processing, and distributing regulations and directives. When these systems become available, AFAA should obtain "read-only" access to them. This would enable audit offices throughout the world to have up-to-the-minute access via dial-up modems. Also it would permit auditors to do automated searches for specific items of audit interest.

Research Question #2—How much (or how little) do you need access to obsolete regulations and directives?

Although information of this sort is sometimes useful in specific audits, auditors deal primarily with current directives. The survey results support

this lack of need as only 15 percent felt it was valuable information ("4" or "5"). There were correspondingly low ratings in the areas of availability (11 percent), timeliness (12 percent), and format (37 percent). This is a positive indicator that unnecessary effort is not being expended to obtain information of marginal value. Figure 3 shows the interrelationships among the four factors.

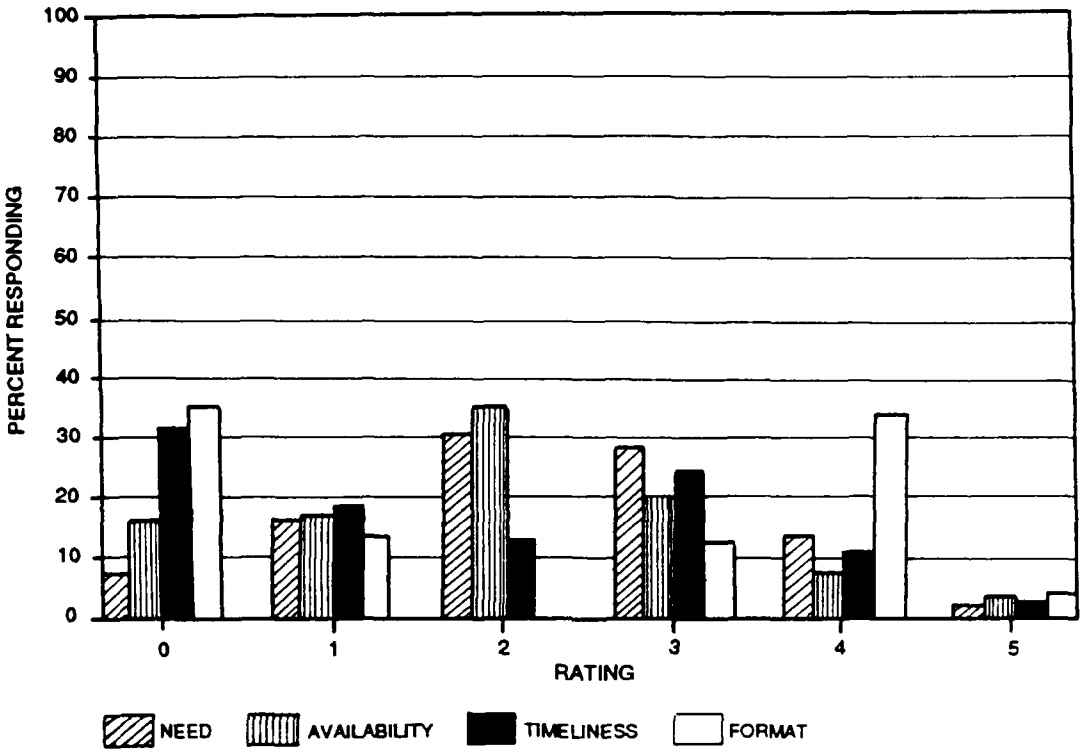

Figure 3. Obsolete Regulations and Directives.

The perceived low value of this data does not justify a centralized system to access, store, or process obsolete regulations. Thus, a decentralized system could satisfy any individual or local requirement. As mentioned in question #1, if future automated systems provide this information, AFAA should consider gaining access.

Research Question #3—How much (or how little) do you need access to technical orders (TOs)?

Although this information does not appear to be valuable to anyone outside the using organization, certain auditors might need to use TOs for operational reviews. The survey revealed that 55 percent felt that this information was important. Most indicated that availability (50 percent), timeliness (53 percent), and format (46 percent) were proportional to the value of the information required (fig. 4).

Again, the needs of the agency are being met by current methods. Therefore, there is not a need for a centralized system to maintain TO data.

However, access to non-AFAA data systems such as the automated technical order system (ATOS) would provide this data to auditors with increased availability and timeliness.

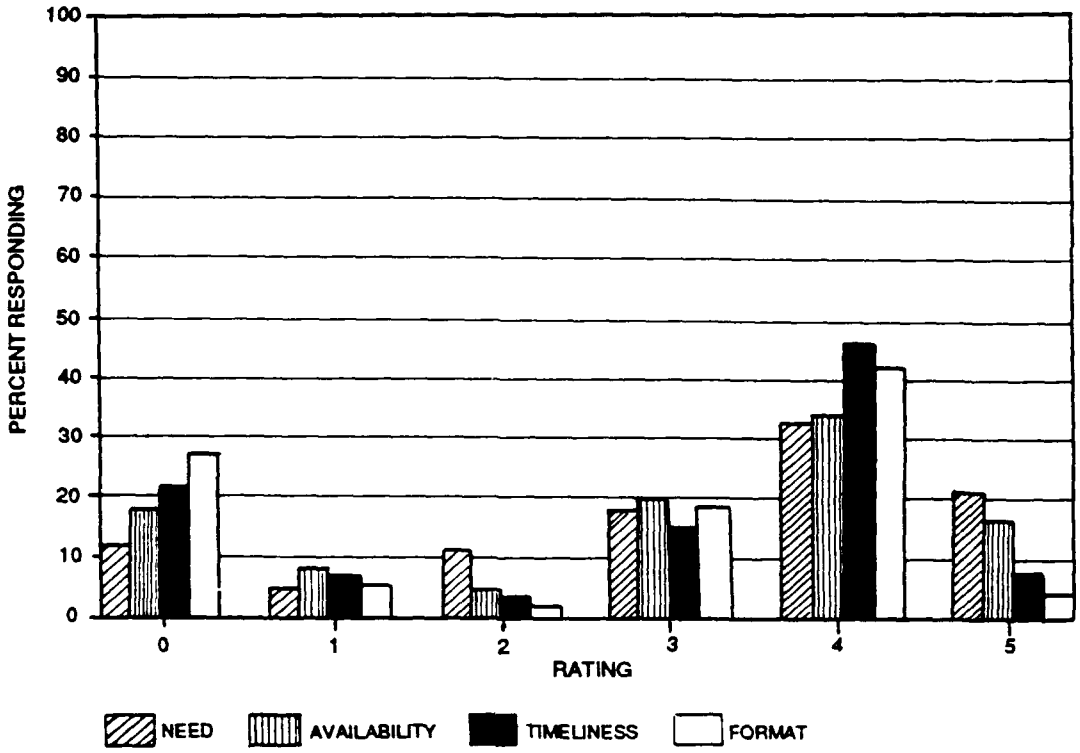

Figure 4. Technical Orders.

Research Question #4—How much (or how little) do you need access to legal references?

Frequently, audit projects require auditors to be familiar with laws and statutes in a particular area. From the survey over 48 percent felt that this information was important to their work; 35 percent were satisfied with its availability; 30 percent with its timeliness; and 22 percent with its format (fig. 5).

Although the respondents felt that legal information is important, its access poses a problem. Therefore, to gain this access, AFAA should use other centralized systems such as Federal Legal Information Through Electronics (FLITE) to meet this need. AFAA personal computers could access these centralized data bases using existing software. Once the agency arranges this access, they should provide auditors with instructions on how to use the system.

Research Question #5—How much (or how little) do you need access to "library-type" references?

Occasionally, auditors review areas requiring specific technical knowledge. From the survey only 19 percent expressed a significant need

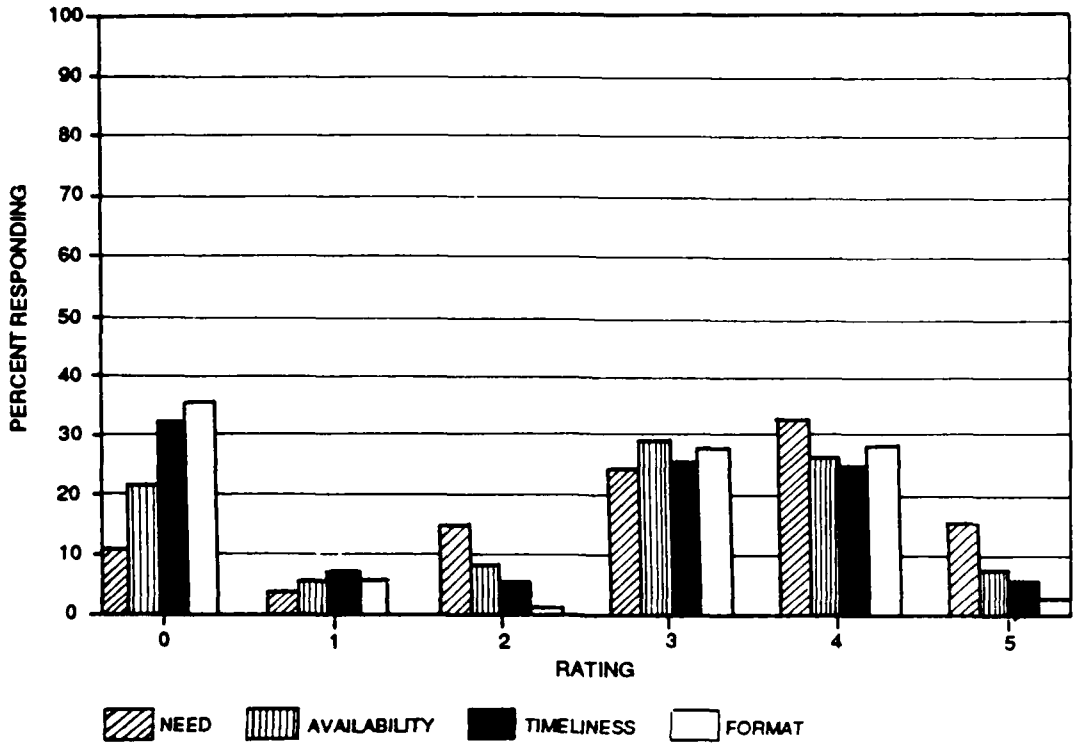

Figure 5. Legal References.

for this information; 33 percent were satisfied with its availability; 29 percent with its timeliness; and 45 percent with its format (fig. 6).

Improving the availability of this data appears to be of marginal value. Suggest the agency take no action in this area.

Research Question #6—How much (or how little) do you need access to AFAA audit guides?

Audit guides provide auditors with standardized techniques and tests that apply to specific audit subject areas (e.g., base supply). Currently they are centrally developed and issued in hard copy to AFAA offices. Over 60 percent of the respondents rated audit guides as important information; however, they appeared to be satisfied with its availability (80 percent), timeliness (54 percent), and format (67 percent) (fig. 7).

The current method of providing AFAA audit guides is working well. It does not appear that automating this process would be cost-effective.

Research Question #7—How much (or how little) do you need access to AFAA-produced audit programs?

An auditor develops a program for each audit project; and because many audit topics are similar, programs from one project can be helpful in designing other programs. Over 47 percent of those responding rated these programs as being important to their audits. Auditors were happy with the availability (61 percent), timeliness (41 percent), and format (60 percent) of the information (fig. 8).

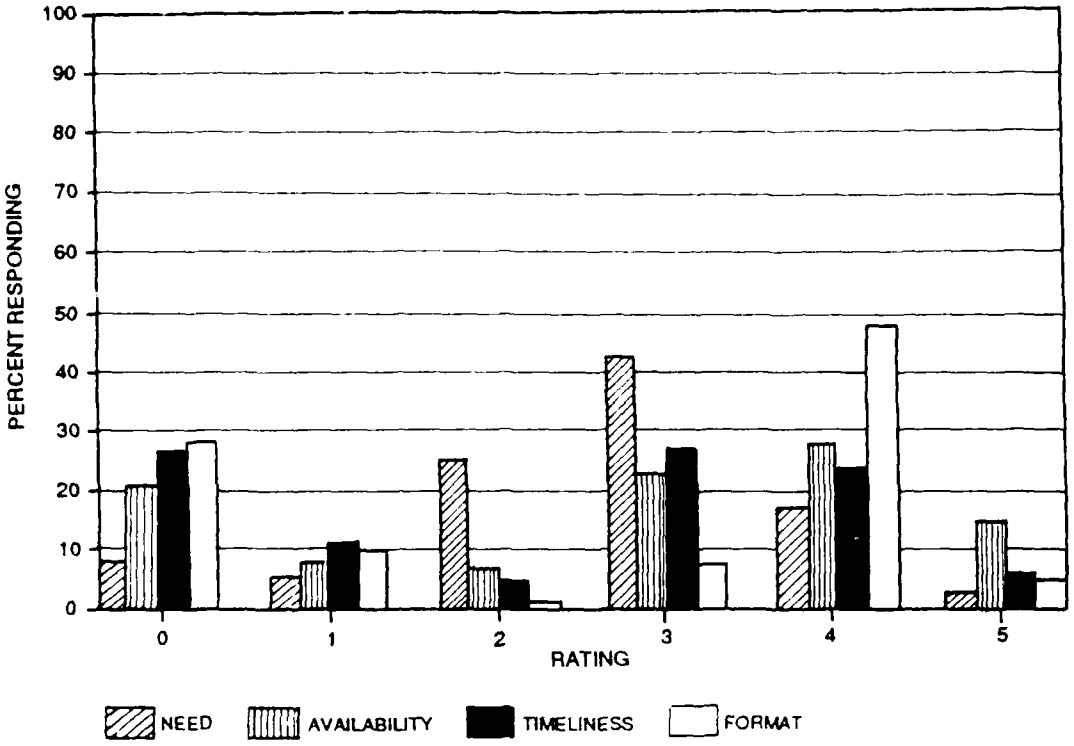

Figure 6. Library References.

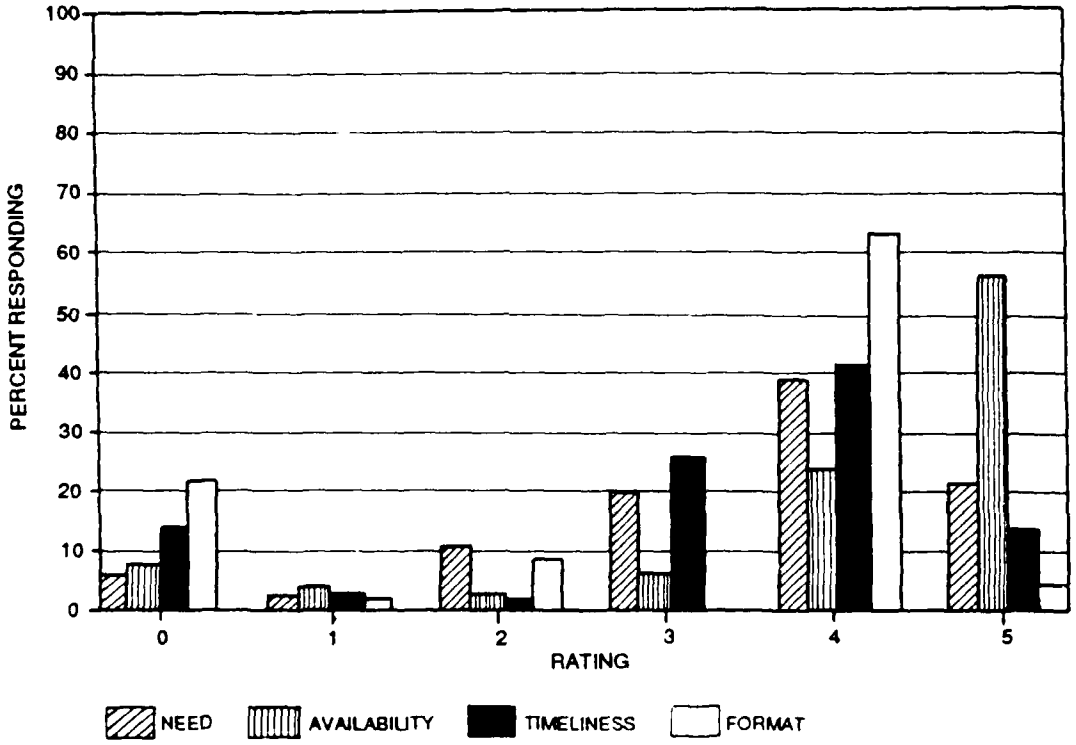

Figure 7. Air Force Audit Agency Audit Guides.

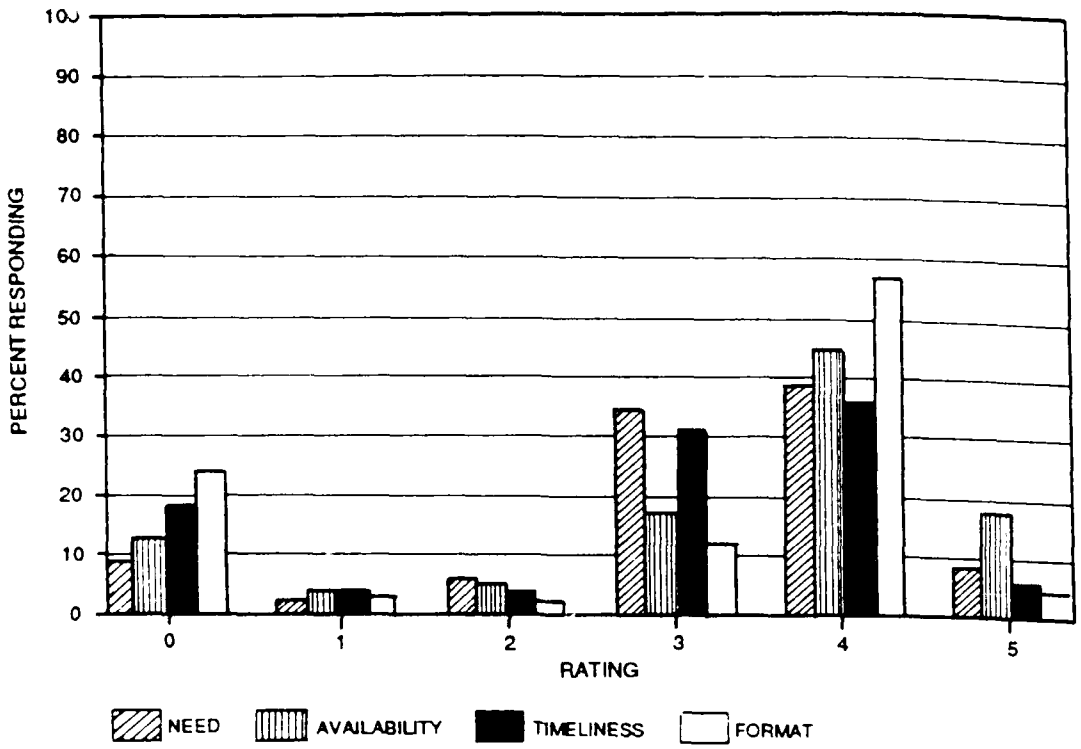

Figure 8. Air Force Audit Agency Audit Programs.

Current methods of providing audit programs to auditors are working well. Additional development in this area would not be warranted.

Research Question #8—How much (or how little) do you need the text of AFAA local audit reports?

Because problem areas noted in one report of audit may exist at another base or location, many auditors use existing reports to channel their audit efforts. Over 39 percent rated access to AFAA local audit reports as important or critical to their jobs; however, an even greater number were pleased with its availability (58 percent), format (59 percent), and timeliness (34 percent) (fig. 9).

Current methods for obtaining local reports of audit are working well. It appears that further automation would not provide appreciable improvements.

Research Question #9—How much (or how little) do you need the text of AFAA "blue-book" reports?

Audit managers in AFAA/FS or AFAA/QL usually produce these reports and send them to the secretary of the Air Force. Because these reports discuss major Air Force-wide problems and can impact on policies at all levels, they are of interest to audit personnel throughout the agency. Additionally, auditors at base level can often adapt the audit approach in the blue-book reports to produce timely audits at their particular locations. Over 29 percent of those responding felt that these reports were important

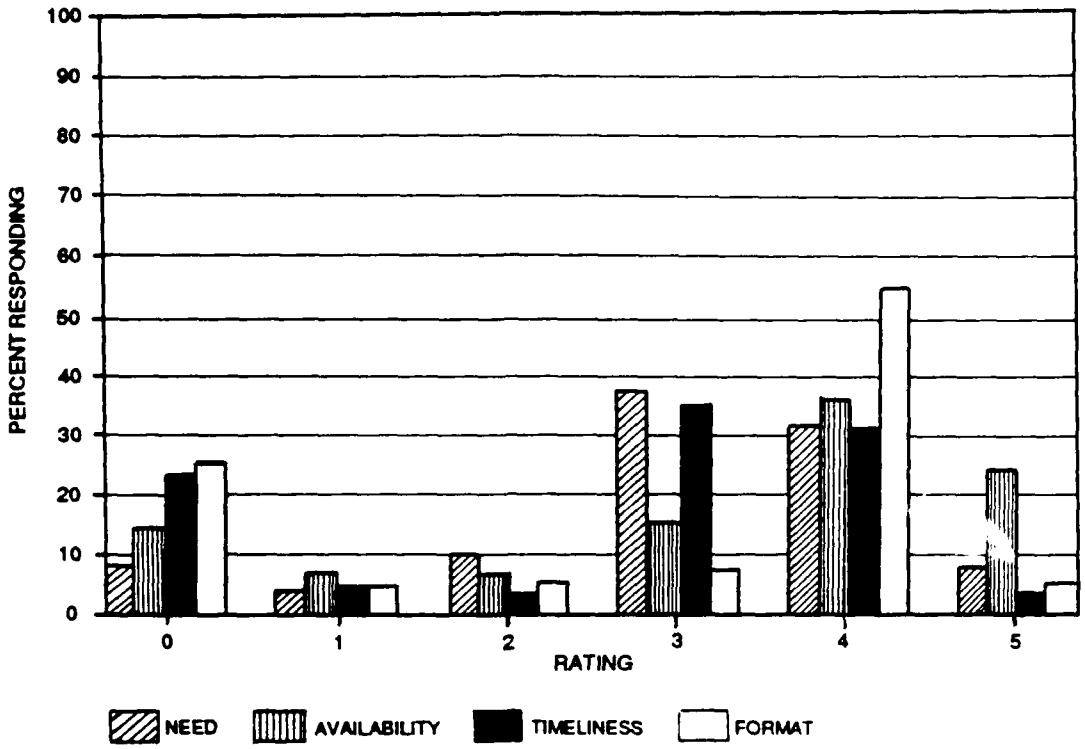

Figure 9. Air Force Audit Agency Local Reports.

or critical to their jobs. They were generally positive in their appraisal of information availability (39 percent), timeliness (31 percent), and format (45 percent) (fig. 10).

The current process of distributing hard copies of blue-book reports of audit to field offices and staff agencies meets the needs of AFAA personnel. Automation of this process would not be advisable at this time.

Research Question #10—How much (or how little) do you need data related to AFAA reports of audit?

Auditors use information such as the number of findings, report title, and so forth for researching potential audit topics. AFAA headquarters uses the information primarily to respond to various non-AFAA taskings. For example, the agency must forward specific report information to the DODIG on a semiannual basis. This data is of moderate value (30 percent) to the agency as a whole, although a small but significant number of respondents (8 percent) felt that it was critical to their jobs. Respondents were pleased with the information's availability (38 percent), timeliness (31 percent), and format (45 percent) (fig. 11).

The results of this question point out the need to combine the best features of both centralized and decentralized systems. To ease the uniform collection of data from AFAA offices around the world, you need a centralized system. Because the use of the data tends to be highly specialized and the reporting requirements of the DODIG and other external agencies are

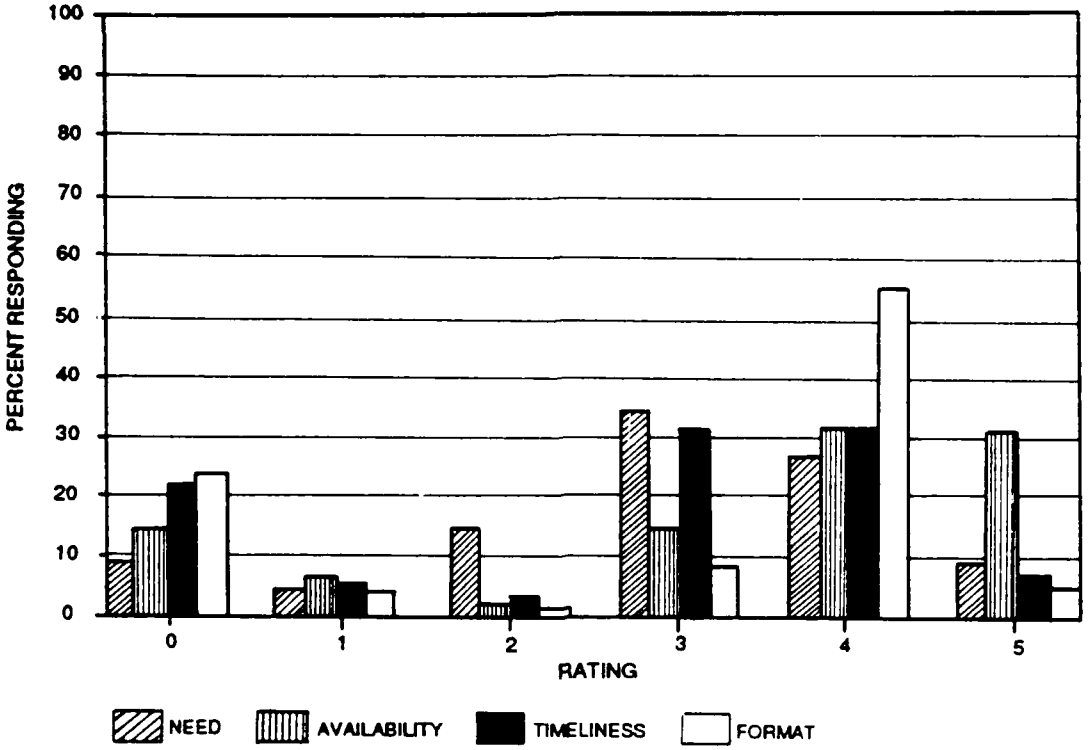

Figure 10. Air Force Audit Agency Blue-Book Reports.

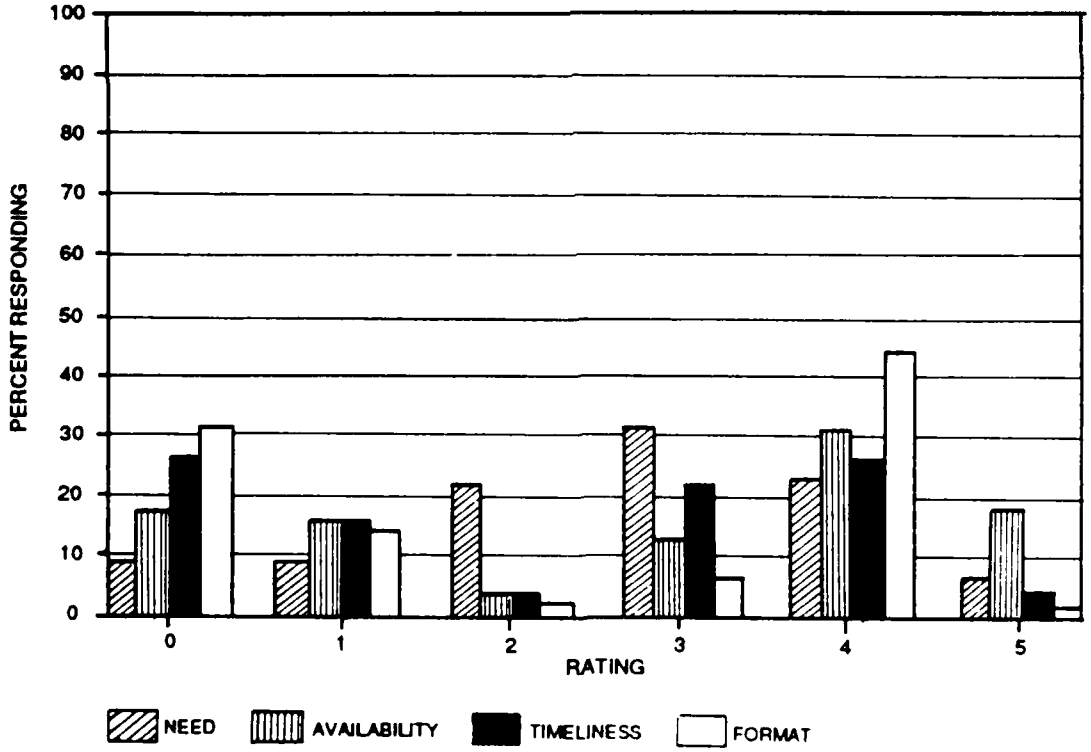

Figure 11. Air Force Audit Agency Report Data.

subject to changes beyond the control of the agency, the formatting power of a decentralized system is more valuable. As a result, AFAA should use standard processes to collect and store the information on the Wang mainframe system. Also, AFAA should maintain interfaces that allow the data to be downloaded to decentralized systems for specialized processing.

Research Question #11—How much (or how little) do you need access to non-AFAA audit guides and audit programs?

These non-AFAA products are similar to AFAA audit guides and programs, except that they are from other audit organizations. Some auditors find the information useful in specific circumstances. The value of non-AFAA products is limited because these reports rarely discuss Air Force procedures. Only 15 percent of those polled felt that access to these guides and programs was important to their duties. A corresponding number of respondents were satisfied with its availability (11 percent), timeliness (13 percent), and format (22 percent) (fig. 12).

This is a prime example of a system that works well without placing any burden on the information system capability of the agency. Non-AFAA agencies are providing the amount of information that AFAA auditors require satisfactorily. Any effort to change current procedures would be nonproductive.

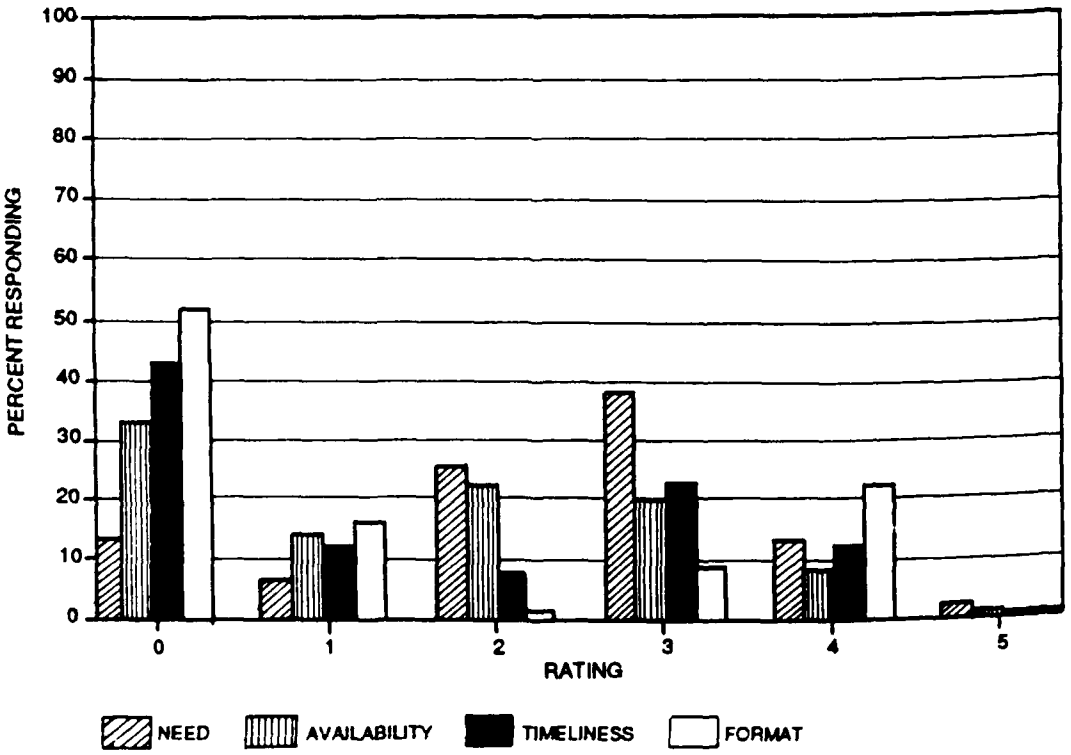

Figure 12. Non-Air Force Audit Agency Audit Guides.

Research Question #12—How much (or how little) do you need non-AFAA reports of audit?

Auditors sometimes use non-AFAA reports of audit in researching an audit topic. Similar to non-AFAA audit guides and programs, these reports rarely deal directly with Air Force-related topics. As a result, only 13 percent of the respondents thought that this information was important to their jobs, and they were satisfied with its availability (13 percent), timeliness (12 percent), and format (28 percent) (fig. 13).

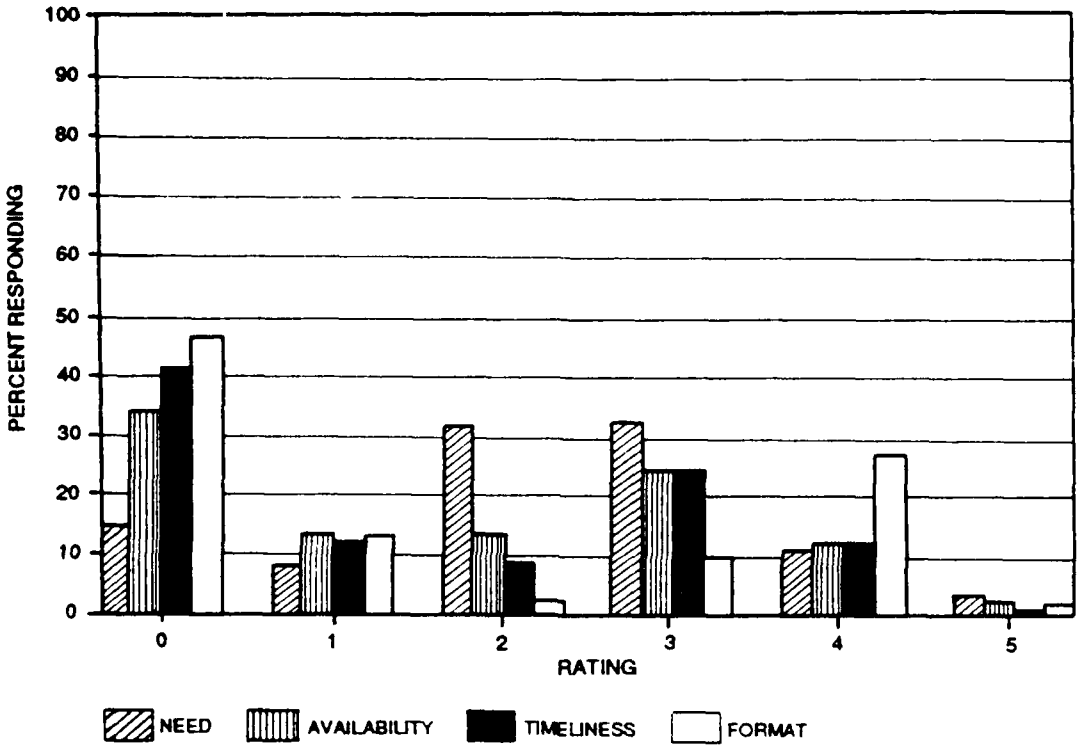

Figure 13. Non-Air Force Audit Agency Audit Reports.

Current methods are adequate to meet agency needs. Further effort in this area is unwarranted.

Research Question #13—How much (or how little) do you need access to data related to non-AFAA audits?

Such data can be useful for comparing AFAA to other audit agencies, but it would have little value beyond that. A small number of those responding (7 percent) felt an important need for this information. Those that did need the data were pleased with its availability (6 percent), timeliness (7 percent), and format (16 percent) (fig. 14).

The current system works well. There is no need to change anything.

Research Question #14—How much (or how little) do you need access to non-AFAA information systems?

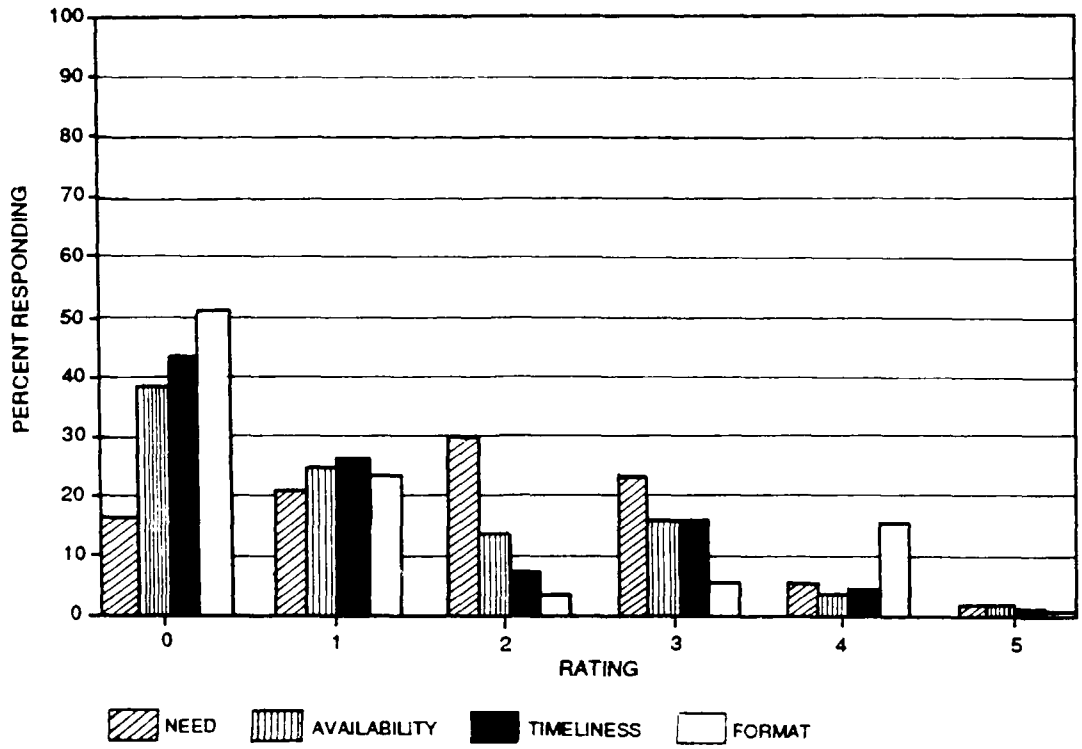

Figure 14. Non–Air Force Audit Agency Audit Data.

Similar to questions #11 through #13, this information is useful to certain individuals. Auditors ranked this information as having limited value (16 percent). Only 9 percent of the respondents gave a correspondingly high rating to the availability of the data, and only 10 percent gave high marks to its timeliness. Under format, 17 percent indicated a favorable response (fig. 15).

The disparity between the need for this data and its availability and timeliness indicates that improvements are required. However, the low rating under need suggests that a decentralized system is probably the answer. To improve both timeliness and accessibility, AFAA auditors and audit offices should obtain permanent, "read-only" system access. This would give individuals the capability to access such systems at any time, using their decentralized personal computer capability, thus eliminating the overhead of a centralized tie-in to non–AFAA systems.

Research Question #15—How much (or how little) do you need access to classified information?

Because the AFAA audit mission involves the entire spectrum of Air Force activities, auditors may require access to classified data. In fact, 35 percent of all respondents felt that classified information was important or critical to their jobs. Unlike the situation noted in question #14, audit personnel found that the availability (32 percent), timeliness (39 percent), and format (40 percent) of classified information corresponded to its importance (fig.

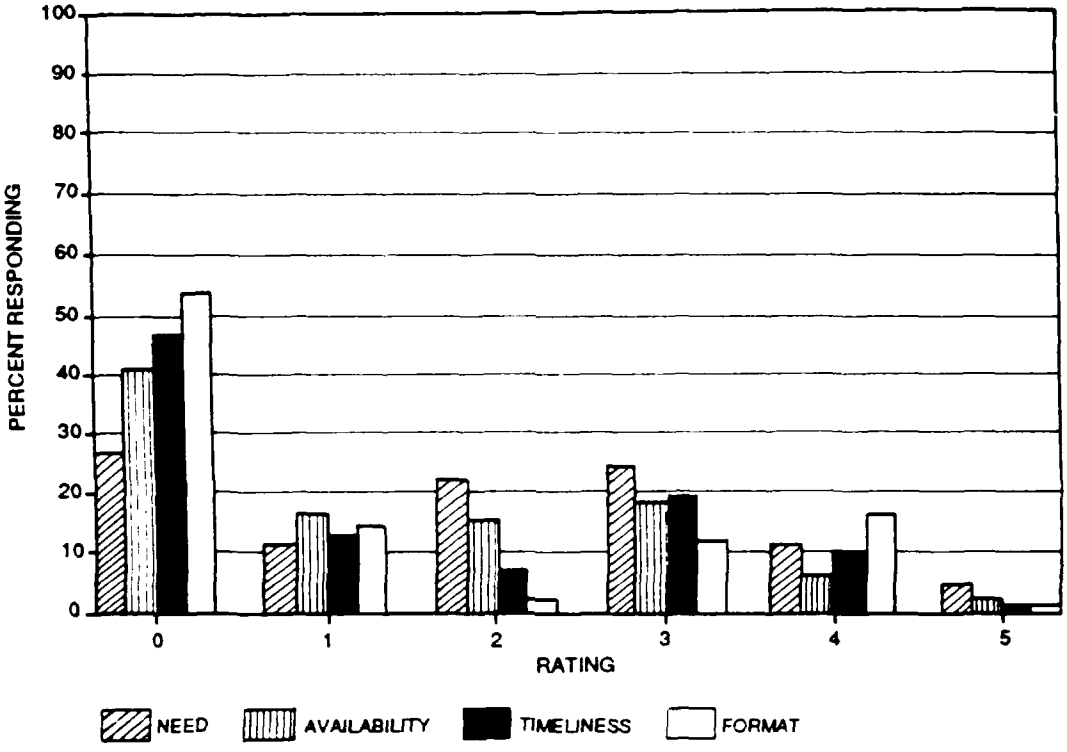

Figure 15. Non–Air Force Audit Agency Information Systems.

16). Although the agency has no difficulty in obtaining access to all levels of classified data, it has problems in accessing non–AFAA information systems. This is probably due to two factors: well-established procedures for obtaining access to classified information and preauthorized access to classified information. Audit personnel have valid security clearances and can easily gain access to this information as soon as they establish a need to know.

Current procedures for obtaining classified information provide adequate, timely, and properly formatted information for audit functions. The agency should adopt similar procedures to obtain access to non–AFAA information systems.

Research Questions #16–22—These specific items of information relate to the management of audit resources. The questions refer to the need for data during project management by auditors, supervisors, audit managers, executives, audit clerks, and others.

Research Question #16—How much (or how little) do you need information about ongoing audit projects?

Knowing, for example, how many man-days have been invested in an audit effort helps audit supervisors to manage their work loads. Currently, the centralized Wang mainframe system collects and maintains this data. A large number of respondents (44 percent) ranked this information as

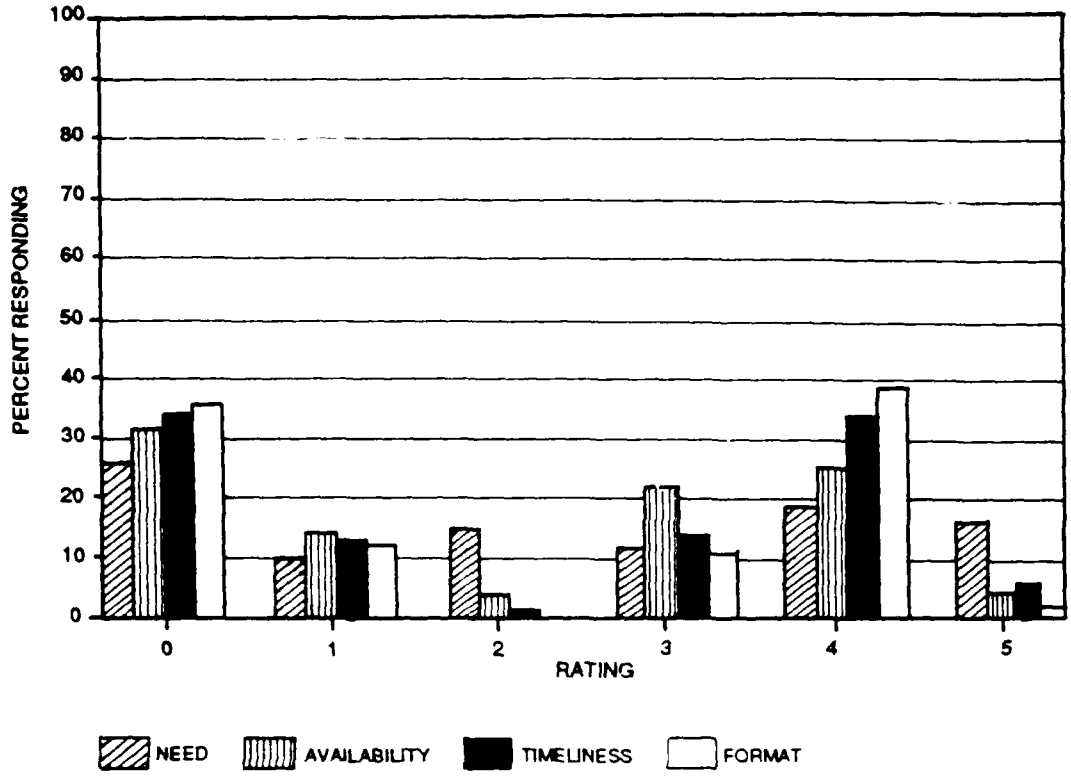

Figure 16. Classified Information.

important to their audit duties. Also, they gave high marks for availability (55 percent), timeliness (39 percent), and format (51 percent) (fig. 17).

The centralized system for obtaining, processing, and distributing this information is appropriate and is providing satisfactory results. The agency could improve timeliness by automating the information flow from field offices to the centralized computer.

Research Question #17—How much (or how little) do you need information about planned audit projects?

Information such as this is important to auditors and their supervisors because it facilitates an orderly and efficient work flow. Over 39 percent of the respondents rated this as important or critical to their jobs, and they gave high ratings for availability (55 percent), timeliness (37 percent), and format (47 percent) (fig. 18).

Users felt that current methods were satisfactory, with no problem in terms of availability, timeliness, and format. Increased effort in this area would not be productive at this time.

Research Question #18—How much (or how little) do you need access to summary data?

AFAA headquarters personnel would find this information especially important because it could provide office productivity comparisons and performance trends. Respondents rated this information as average importance, with 29 percent feeling that it was important or critical to their

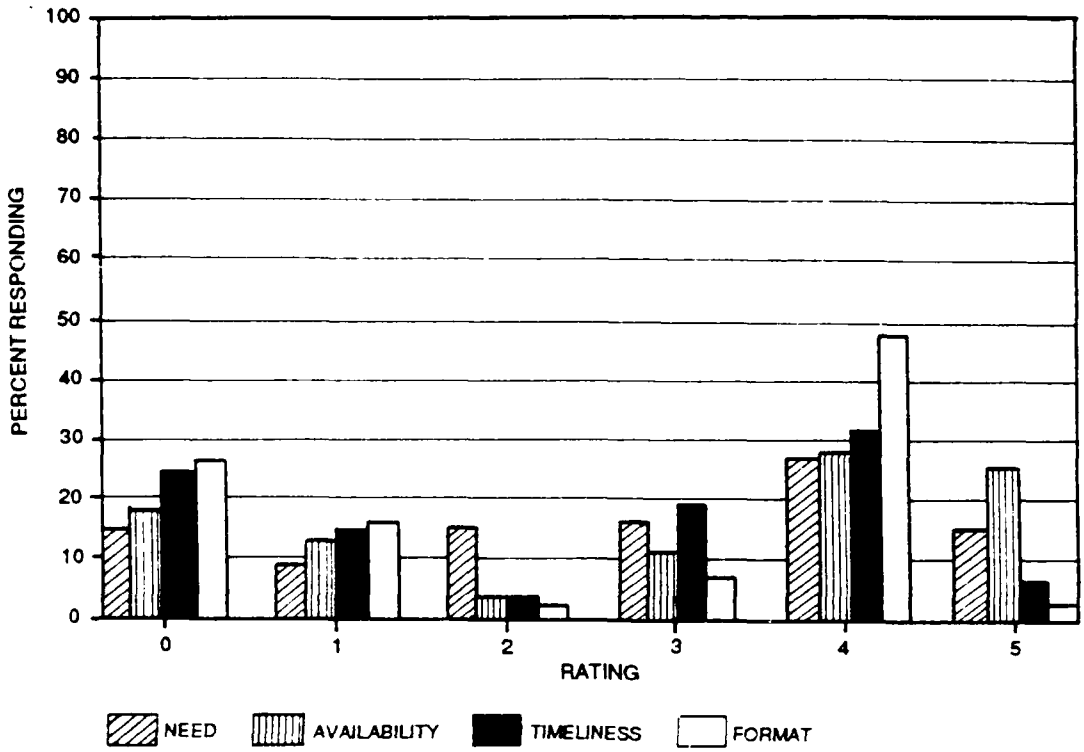

Figure 17. Ongoing Projects.

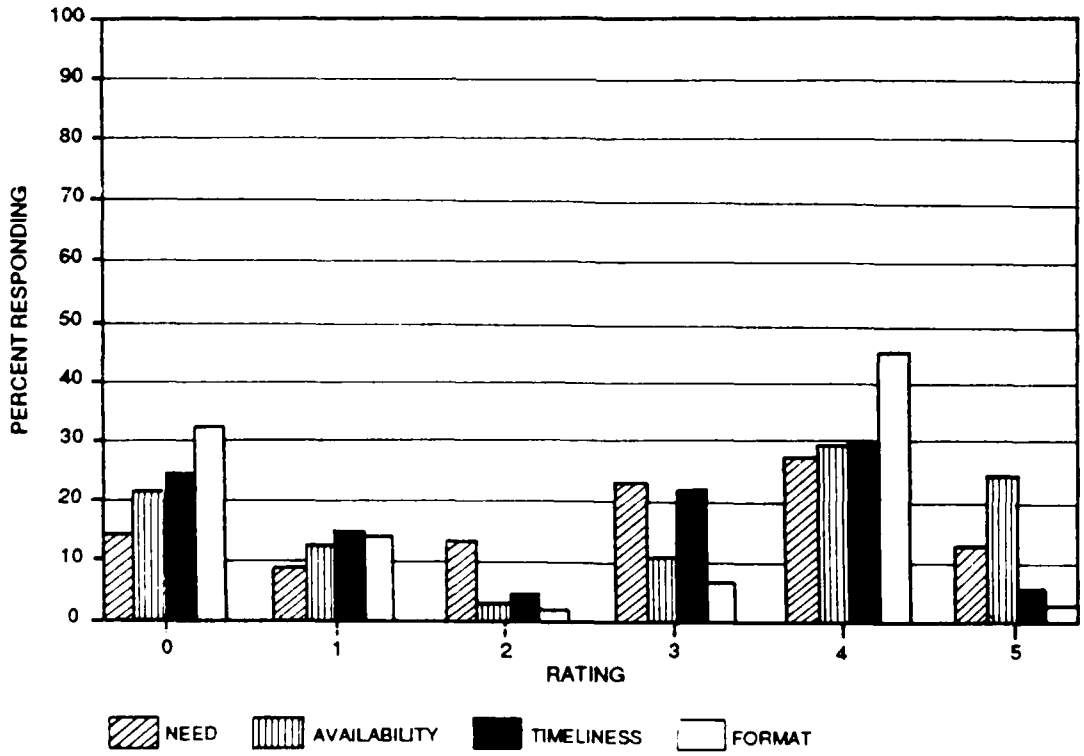

Figure 18. Planned Projects.

mission. Although they were satisfied with its availability (31 percent) and format (24 percent), the timeliness of the information (19 percent) did not quite match their requirements (fig. 19). Of those who felt that this information was critical (7 percent), availability and format percentages were much lower. Only 2 percent indicated that the information was current and on time. Less than 0.4 percent characterized the format as "Exactly the format I want."

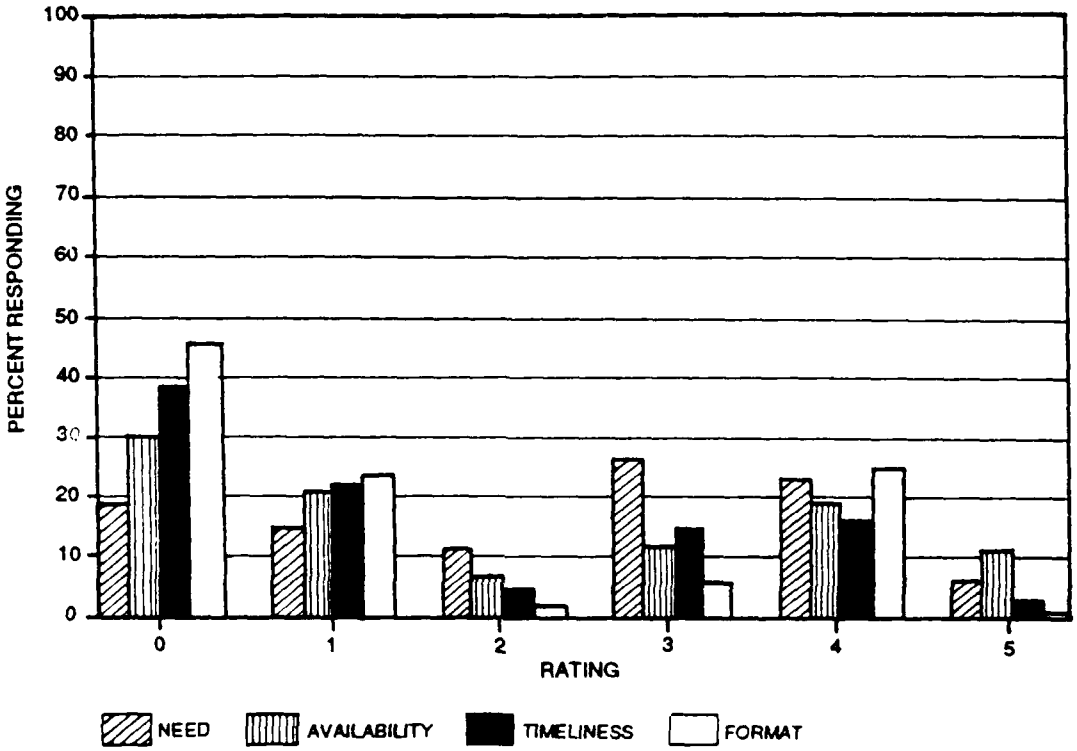

Figure 19. Summary Data.

Because the information's availability was rated higher than its importance, we can say that current centralized methods are working well. The relative lack of timeliness and adequate format points out the need to strengthen our decentralized ability to retrieve and process the information. There are two solutions to this problem. The first solution is to use automated interfaces to allow users with decentralized personal computers to access the information at the centralized computer. Also, decentralized processing capability is another solution. This involves using the data base capability of Enable (the AFAA standard application software) to allow users to customize report output to their individual tastes.

Research Question #19—How much (or how little) do you need access to productivity trends?

Such data allows managers and supervisors to identify trends in important statistical areas and to correct those that are unsatisfactory. Only 13

percent of the respondents felt that such data was relatively important, with its availability (16 percent), timeliness (13 percent), and format (18 percent) proportional to its perceived importance (fig. 20).

Overall, the need for this information is being met by current procedures. There is no need for additional effort in this area.

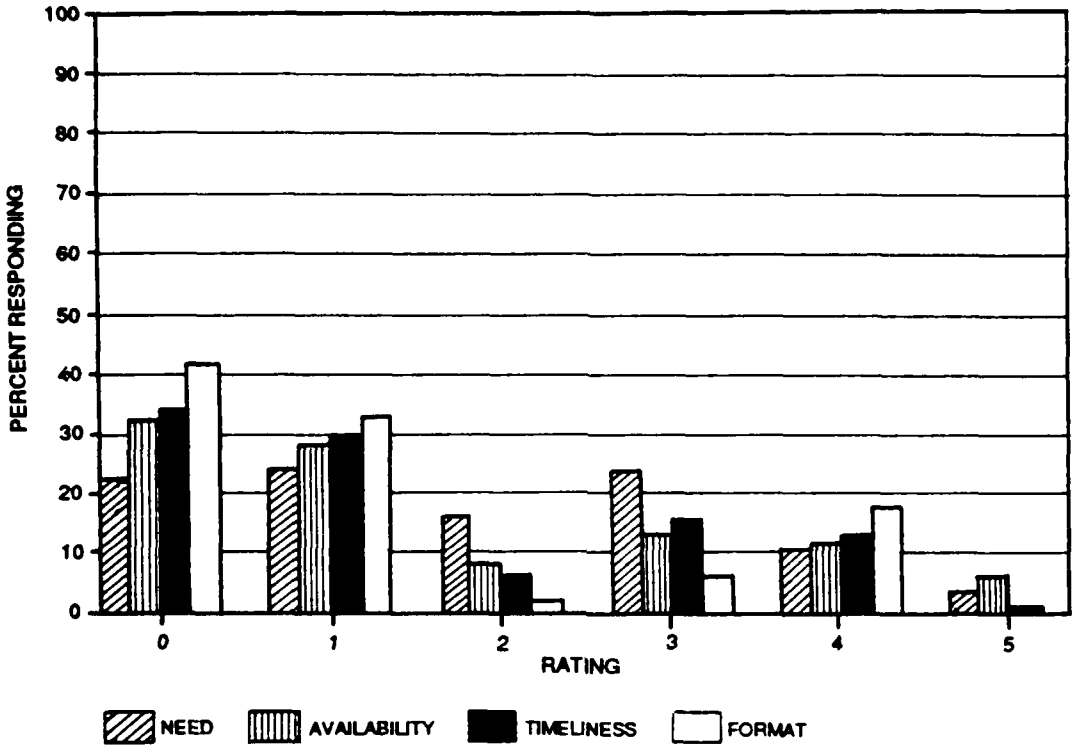

Figure 20. Office Trends.

Research Question #20—How much (or how little) do you need information about the area to be audited?

Information concerning the size and mission of an audit entity, its relative importance to the overall mission, and the date of the last audit in the area would be useful to auditors and their immediate supervisors. They could concentrate their efforts on the most important areas and avoid overauditing smaller clients. Not surprisingly, almost 55 percent of AFAA personnel thought that this information was important or critical. Unfortunately, its availability (31 percent), timeliness (33 percent), and format (43 percent) were unsatisfactory (fig. 21). For those who indicated that this information was critical (16 percent), the gap was even greater. Only 7 percent thought the information was "easily available," with less than 4 percent pleased with its timeliness and less than 1 percent with its format.

Because a high percentage of respondents rated this information as important, a centralized system is necessary. However, the need for timeliness and format indicates that decentralized accessing and process-

ing of the information would be useful. Thus, the agency should use its mainframe computers to provide a centralized repository for this data. The agency should also permit automated access to the data via communications software and provide end users with the decentralized capability to process the data in the desired format.

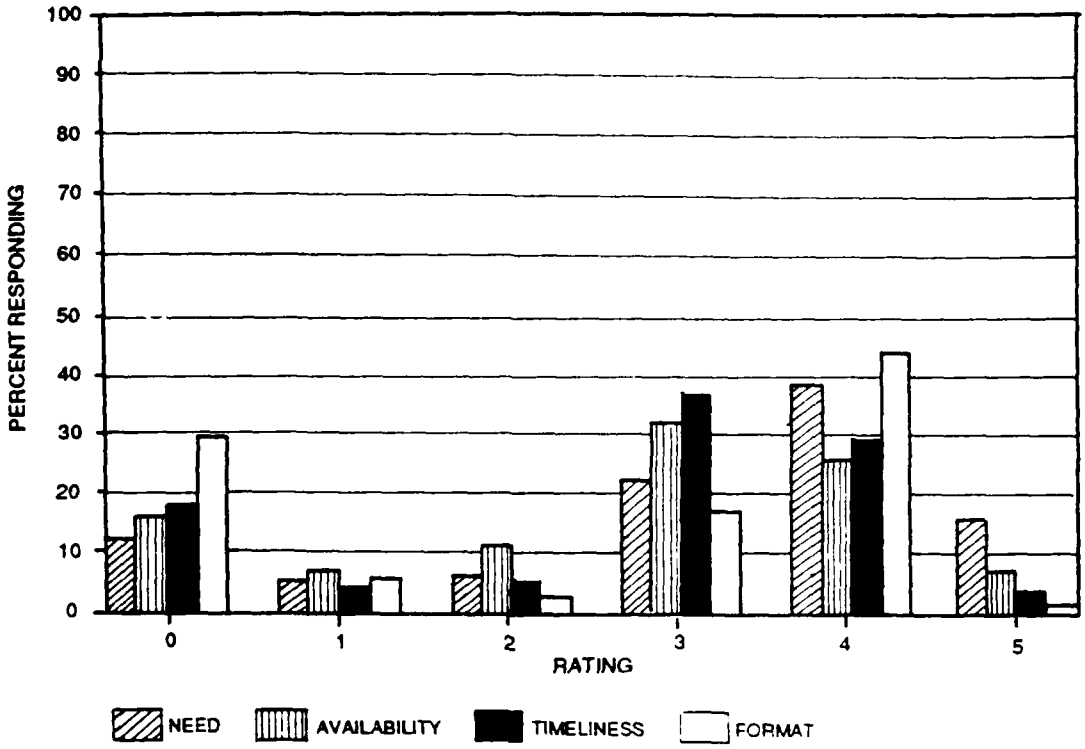

Figure 21. Audit Entity Information.

Research Question #21—How much (or how little) do you need information on audit nonconcurrences?

Nonconcurrences arise when a client disagrees with the contents of an audit report. If this occurs, both sides elevate the dispute to a higher level for adjudication. Therefore, knowing the status of nonconcurrences helps to resolve the matter faster. Slightly over 32 percent felt that information about nonconcurrences was very important to their jobs, and they were pleased with its availability (36 percent) and format (34 percent). Only 24 percent indicated that this information was timely (fig. 22).

Because a moderate number of respondents ranked this information as important to their audit mission, a centralized system is suggested. Also, because the only area of concern was timeliness, automated communication between the user and the centralized system is recommended. There is no need for the user to reformat the data.

Research Question #22—How much (or how little) do you need information about potential monetary benefits?

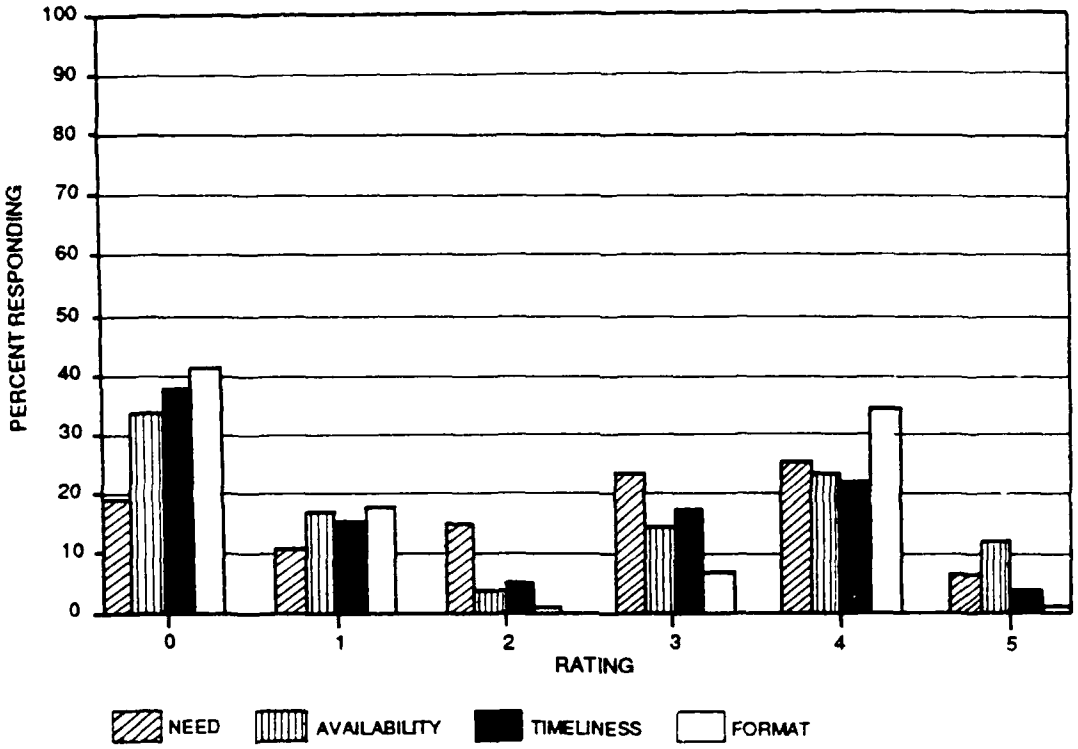

Figure 22. Audit Nonconcurrence Data.

When an audit uncovers opportunities to save resources, the auditor and the client estimate the possible savings and forward them as part of the report. Subsequently, auditors track these savings to determine if they were obtained and to verify the accuracy of the estimate. From the survey over 26 percent felt that this information was very important to their jobs; with 31 percent satisfied with its availability; and 32 percent with its format. As in question #21, timeliness (19 percent) was a problem (fig. 23).

Because a moderate number of respondents ranked this information as important to their job, a centralized system is needed. Because timeliness is obviously a problem, automated communication between the user and this system is recommended. However, the user will not need to reformat the data.

Research Questions #23–25—This section of the survey solicited input on requirements for administrative data. These questions referred to the need for certain nonaudit data essential for the administration of AFAA offices and directorates.

Research Question #23—How much (or how little) do you need access to information for civilian and military appraisals?

Supervisors require this information for writing periodic performance appraisals on their subordinates. Thus, slightly over 28 percent thought that such information was either important or critical. While they gave

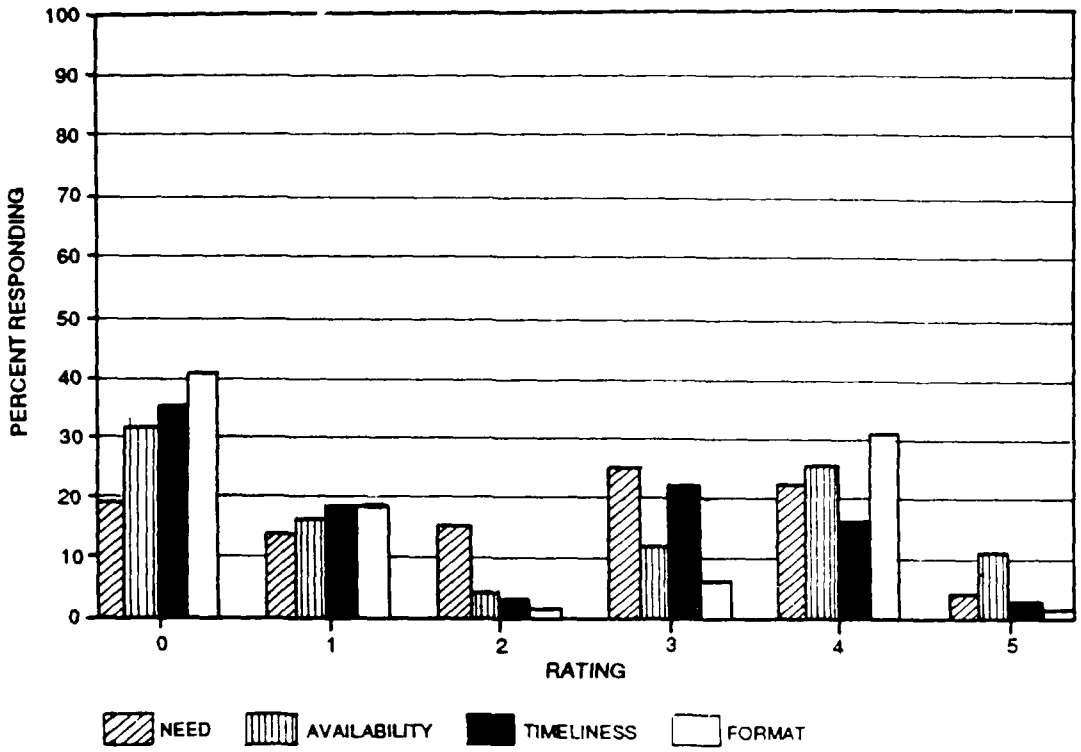

Figure 23. Potential Monetary Benefits Data.

higher marks for availability (31 percent), timeliness received 25 percent, and format 27 percent (fig. 24).

Users felt that current methods were satisfactory. Increased effort in this area is not recommended at this time.

Research Question #24—How much (or how little) do you need access to leave and timekeeping information?

Supervisors use this information to ensure the accuracy and integrity of the leave and timekeeping systems. Nearly 28 percent of the respondents felt that this information was important. Most indicated that availability (40 percent), timeliness (40 percent), and format (46 percent) were proportional to the value of the information (fig. 25).

Current methods are meeting agency needs. Additional effort in this area is unwarranted.

Research Question #25—How much (or how little) do you need access to employee training information?

Over 39 percent felt that access to this information was very valuable. Nearly 40 percent liked its availability, 36 percent its timeliness, and 41 percent its format (fig. 26).

Current methods of tracking and obtaining employee training data are effective. No additional effort is necessary.

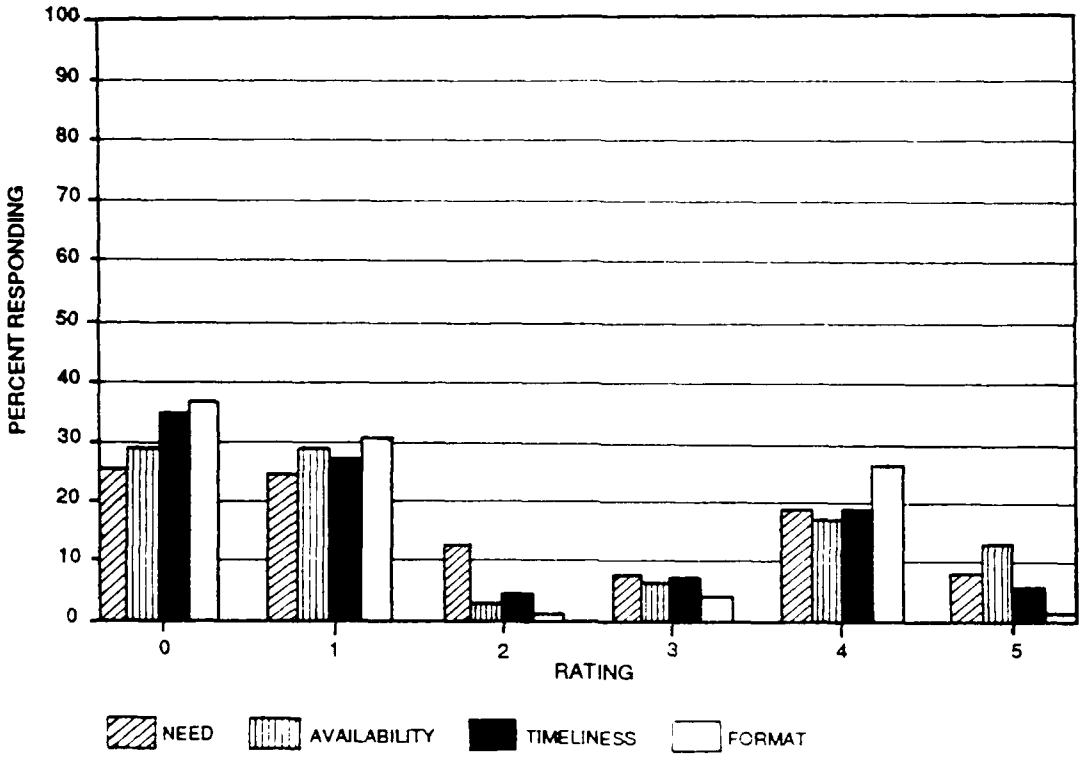

Figure 24. Civilian and Military Appraisal Information.

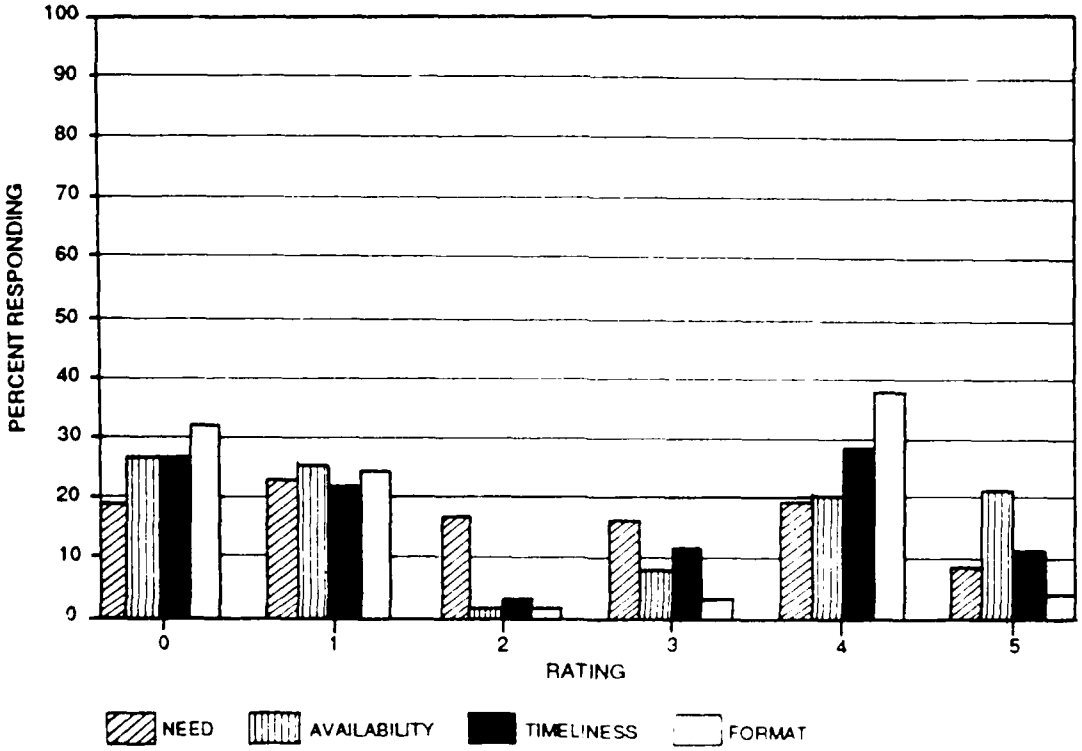

Figure 25. Timekeeping Data

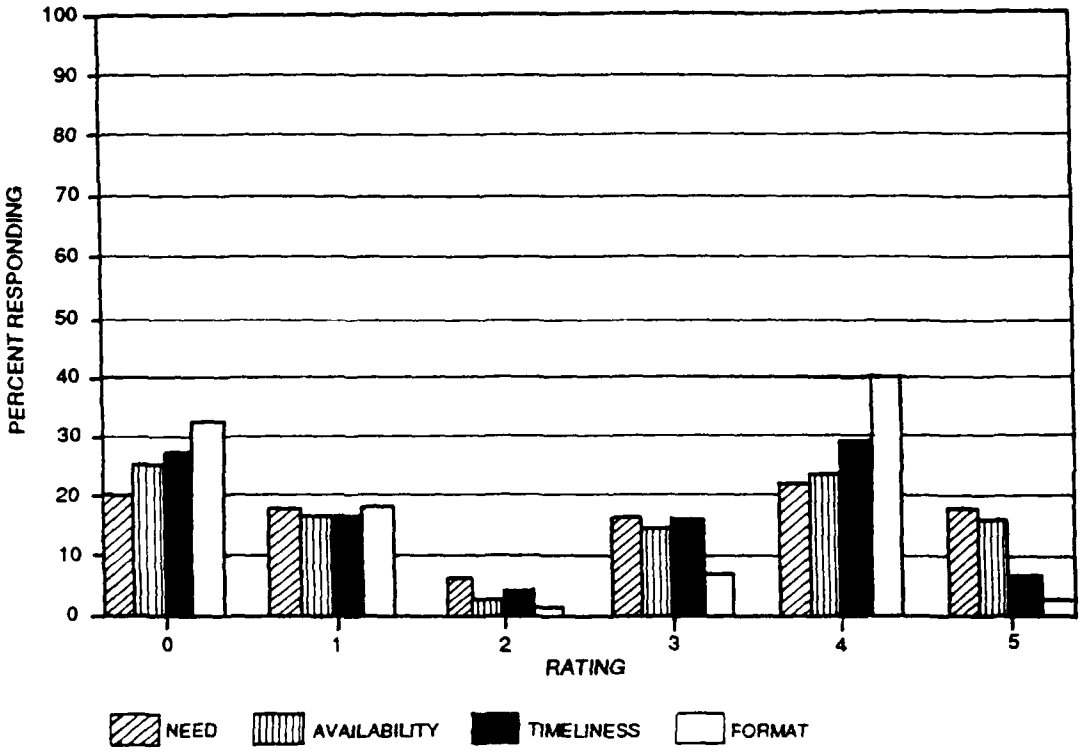

Figure 26. Employee Training Information.

Summary

This chapter provided the results of an Air Force Audit Agency survey about access to audit-related information and its current availability, timeliness, and format. For the most part, the current mixture of centralized and decentralized information systems is providing agency personnel with the information they need. Also, the agency is not expending needless effort and resources in providing information that only a few people desire. Where appropriate, I recommended specific areas in which better access to information is needed.

The final chapter provides a management approach for the development of the information system. Also, it identifies the next step in this process.

Chapter 6

Recommendations and Concluding Remarks

The current MIS capabilities of AFAA consist of a combination of centralized systems that run on the Wang mainframe system at Norton AFB and independently developed decentralized systems that run on personal computers at various directorates, divisions, and offices. Although there are technical experts at the AFAA Small Computer Technical Center, AFAA/DOT, and AFAA/SI, there is no central manager to oversee the agency's development of its information system.

Recommendations

To provide a central direction for agency MIS efforts, I recommend the following actions:

1. Establish a position for an information system manager. This individual would monitor and oversee the development, maintenance, and use of agency information systems. The position should be at a civilian grade high enough to ensure agencywide compliance in the development of an integrated MIS, consisting of both centralized and decentralized systems. The individual should be a professional auditor who has headquarters and field experience.

2. Direct the information system manager to perform several functions. First, define those areas of automation that individuals can develop on their own. These "individual applications" would be onetime, short-duration computer projects that meet a nonrecurring requirement. For example, an auditor who needs to construct a spreadsheet or small data base for a single audit project would not be required to consult this manager.

Second, advise decentralized system users on interfacing, software, and downloading. Thus, the information system manager should establish standards for the identification of MIS requirements, the design of systems to meet those requirements, the required documentation for the proposed systems, and the requirements to maintain a system once it is established. The goal here is not to discourage decentralized development of these systems, but to ensure that they can interface with other agency systems, use standard software, and are adequately documented. Third, with the Defense Data Network (DDN) becoming available in the near future, the

information system manager should oversee the use of DDN capabilities (plus any other methodology) to interconnect AFAA offices and directorates throughout the world.

3. Establish a position for a computer specialist. This individual would advise the information manager in directing information systems' efforts. Also, this person should possess sufficient grade and experience to interact with AFAA personnel at all levels.

4. Direct the computer specialist to develop an AFAA-wide data dictionary. It would describe the format of each data item maintained in the agency's information systems. This dictionary would also designate offices of primary responsibility (OPR) for each data item. When practical, offices or personnel who wanted to develop an additional decentralized system could access and use data from the OPR's system, rather than duplicating information which is already available.

Concluding Remarks

AFAA has already made good progress in ensuring that its personnel have access to the information required to do their jobs. In fact, audit personnel at all levels are, with few exceptions, pleased with its availability, timeliness, and format. With centralized management and unit cooperation, this MIS effort will provide better service to the user, resulting in improved audit products.

APPENDIX A

Air Force Audit Agency Hardware

DATE REVISED 08-Mar-88 AIR FORCE AUDIT AGENCY (AFAA) ADPE FILE NAME: AFAAADPE

LOCATION	Z-248 Hard Disk	Z-248	Z-184 Laptops	Z120 Hard Disk	Z120	Tempest Micros	Other Portable Computers	Other WP	Total Computers	# of Auth Pers	Pers per Computer	Number of Z-248 and Laptops IBM Compat	Pers per Compat
PENTAGON	5	0	0	0	2	0	0	0	7	8	1.14	5	1.60

Air Force Audit Agency Hardware

DATE REVISED 08-Mar-88 AIR FORCE AUDIT AGENCY (AFAA) ADPE FILE NAME: AFAAADPE

LOCATION	Z-248 Hard Disk	Z-248	Z-184 Laptops	Z120 Hard Disk	Z120	Tempest Micros	Other Portable Computers	Other WP	Total Computers	# of Auth Pers	Pers per Computer	Number of Z-248 and Laptops IBM Compat	Pers per Compat
Director's Office	0	0	0	0	1	0	0	0	1	1	1.00	0	0.00
Budget	0	0	0	0	1	0	0	0	1	3	3.00	0	0.00
Admin	1	0	0	0	1	0	0	0	2	7	3.50	1	7.00
Training	1	0	2	1	0	0	0	0	4	8	2.00	3	2.67
Civilian Personnel	1	0	0	0	1	0	0	0	2	9	4.50	1	9.00
Military Personnel	1	0	0	0	0	0	0	0	1	3	3.00	1	3.00
Supply	0	0	0	0	1	0	0	0	1	1	1.00	0	0.00
Small Computer Technical Center	11	0	1	0	2	0	0	0	14	0	0.00	12	0.00
Information Systems Division	5	0	1	0	0	0	0	0	6	12	2.00	6	2.00
Directorate of Resource Management TOTAL	20	0	4	1	7	0	0	0	32	44	1.38	24	1.83

Air Force Audit Agency Hardware

DATE REVISED 08-Mar-88 AIR FORCE AUDIT AGENCY (AFAA) ADPE FILE NAME: AFAAADPE

LOCATION	Z-248 Hard Disk	Z-248	Z-184 Laptops	Z120 Hard Disk	Z120	Tempest Micros	Other Portable Computers	Other WP	Total Computers	# of Auth Pers	Pers per Computer	Number of Z-248 and Laptops IBM Compat	Pers per Compat
Director and Staff	4	0	3	0	0	0	0	0	7	5	0.71	7	0.71
Automated Systems Division	7	0	15	0	0	0	4	0	26	23	0.88	26	0.88
Comptroller Audits Division	4	0	16	0	0	0	0	0	20	23	1.15	20	1.15
Personnel Audits Division	5	0	13	0	0	0	1	0	19	18	0.95	19	0.95
Support Services Division	2	0	13	0	0	2	1	0	18	18	1.00	18	1.00
HQ FS TOTAL (Headquarters)	22	0	60	0	0	2	6	0	90	87	0.97	90	0.97
Training Audit Division													
(Randolph AFB, TX)	0	0	1	0	0	0	0	0	1	3	3.00	1	3.00
Gunter AFB, AL	3	0	5	1	2	0	0	0	11	17	1.55	8	2.13
Keesler AFB, MS	2	0	1	0	1	0	0	0	4	6	1.50	3	2.00
Lowry AFB, CO	3	0	1	1	1	0	1	0	7	19	2.71	5	3.80
Mather AFB, CA	1	0	0	0	1	0	0	0	2	6	3.00	1	6.00
Randolph AFB, TX	4	0	1	0	2	0	0	0	7	18	2.57	5	3.60
Sheppard AFB, TX	1	0	1	0	1	0	0	0	3	6	2.00	2	3.00
FST TOTAL (Field Units)	14	0	10	2	8	0	1	0	35	75	2.14	25	3.00
Finance and Support Directorate TOTAL	36	0	70	2	8	2	7	0	125	162	1.30	115	1.41

Air Force Audit Agency Hardware

DATE REVISED 08-Mar-88 AIR FORCE AUDIT AGENCY (AFAA) ADPE FILE NAME: AFAAADPE

LOCATION	Z-248 Hard Disk	Z-248	Z-184 Laptops	Z120 Hard Disk	Z120	Tempest Micros	Other Portable Computers	Other WP	Total Computers	# of Auth Pers	Pers per Computer	Number of Z-248 and Laptops IBM Compat	Pers per Compat
Director and Staff	15	2	42	0	5	2	3	0	69	100	1.45	64	1.56
Logistics Audits													
(Wright-Patterson AFB, OH)	0	0	0	0	0	0	0	0	0	4	0.00	0	0.00
Hill AFB, UT	3	0	5	1	0	0	0	0	9	21	2.33	8	2.63
Kelly AFB, TX	3	0	6	1	2	0	0	0	12	22	1.83	9	2.44
McClellan AFB, CA	3	0	5	1	4	0	0	0	13	20	1.54	8	2.50
Robins AFB, GA	5	1	8	1	1	0	0	0	16	22	1.38	14	1.57
Tinker AFB, OK	4	0	7	0	2	0	0	0	13	20	1.54	11	1.82
Wright-Patterson AFB, OH	5	0	2	0	3	1	0	1	12	7	0.58	8	0.88
OLL TOTAL													
(Logistics Division)	23	1	33	4	12	1	0	1	75	116	1.55	58	2.00
Acquisition Audits													
(Andrews AFB, MD)	2	0	1	1	1	0	0	0	5	5	1.00	3	1.67
Andrews AFB, MD	2	1	3	0	2	0	0	0	8	14	1.75	6	2.33
ASD Wright-Patterson, OH	0	0	5	0	0	0	0	0	5	22	4.40	5	4.40
Edwards AFB, CA	1	0	1	0	2	0	0	1	5	6	1.20	2	3.00
Eglin AFB, FL	1	3	2	2	1	0	0	1	10	21	2.10	6	3.50
Kirtland AFB, NM	2	0	2	0	1	0	0	0	5	6	1.20	4	1.50
BMO/Norton AFB, CA	0	0	2	0	0	0	0	0	2	16	8.00	2	8.00
Hanscom AFB, MA	2	0	4	2	0	0	0	0	8	15	1.88	6	2.50
Patrick AFB, FL	1	0	2	0	4	0	0	0	7	7	1.00	3	2.33
Vandenberg AFB, CA	1	1	1	1	0	0	0	0	4	6	1.50	3	2.00
OLO TOTAL													
(Acquisition Div)	12	5	23	6	11	0	0	2	59	118	2.00	40	2.95
Acquisition and Logistics Directorate TOTAL	50	8	98	10	28	3	3	3	203	334	1.65	162	2.06

Air Force Audit Agency Hardware

DATE REVISED 08-Mar-88 AIR FORCE AUDIT AGENCY (AFAA) ADPE FILE NAME: AFAAADPE

LOCATION	Z-248 Hard Disk	Z-248	Z-184 Laptops	Z120 Hard Disk	Z120	Tempest Micros	Other Portable Computers	Other WP	Total Computers	# of Auth Pers	Pers per Computer
Division and Staff	0	0	0	0	1	0	0	0	1	1	1.00
Reports and Projects Branch	2	0	0	0	1	0	0	0	3	5	1.67
CDA Management Branch	2	0	2	0	0	0	0	0	4	6	1.50
Technical Services Division	4	0	0	1	6	0	1	0	12	12	1.00
Standardization Division	1	0	0	0	1	0	0	0	2	6	3.00
Directorate of Operations TOTAL	9	0	2	1	9	0	1	0	22	30	1.36

Air Force Audit Agency Hardware

DATE REVISED 08-Mar-88 AIR FORCE AUDIT AGENCY (AFAA) ADPE FILE NAME: AFAAADPE

LOCATION	Z-248 Hard Disk	Z-248	Z-184 Laptops	Z120 Hard Disk	Z120	Tempest Micros	Other Portable Computers	Other WP	Total Computers	# of Auth Pers	Pers per Computer	Number of Z-248 and Laptops IBM Compat	Pers per Compat
Division and Staff	1	0	7	1	0	0	0	0	9	5	0.56	8	0.63
MAC Bases													
(Scott AFB, IL)	1	0	2	1	2	0	0	1	7	3	0.43	3	1.00
Charleston AFB, SC	1	0	1	0	2	0	0	0	4	6	1.50	2	3.00
Little Rock AFB, AR	1	0	1	0	1	0	0	0	3	7	2.33	2	3.50
McChord AFB, WA	1	0	1	0	1	0	0	0	3	6	2.00	2	3.00
McGuire AFB, NJ	1	0	1	0	1	0	0	0	3	6	2.00	2	3.00
Norton AFB, CA	3	0	2	0	3	0	1	0	9	6	0.67	6	1.00
Scott AFB, IL	2	0	1	0	2	0	0	0	5	15	3.00	3	5.00
Travis AFB, CA	1	0	0	0	1	0	0	0	2	6	3.00	1	6.00
TOTAL	11	0	9	1	13	0	1	1	36	55	1.53	21	2.62
PACAF Bases													
(Hickam AFB, HI)	0	0	0	0	0	0	0	0	0	2	0.00	0	0.00
Clark AB, PI	2	0	1	1	0	0	0	0	4	7	1.75	3	2.33
Hickam AFB, HI	1	1	1	0	1	0	0	0	4	8	2.00	3	2.67
Kadena AB, JA	2	0	7	2	0	0	1	0	12	15	1.25	10	1.50
Misawa AB, JA	1	0	1	1	0	0	0	0	3	6	2.00	2	3.00
Osan AB, KO	2	0	4	0	2	0	1	0	9	16	1.78	7	2.29
TOTAL	8	1	14	4	3	0	2	0	32	54	1.69	25	2.16
SAC Bases													
(Offutt AFB, NE)	2	0	1	1	1	0	0	0	5	4	0.80	3	1.33
Barksdale AFB, LA	1	0	1	0	1	0	0	0	3	6	2.00	2	3.00
Castle AFB, CA	1	0	1	0	1	0	0	0	3	6	2.00	2	3.00
Dyess AFB, TX	1	0	1	0	1	0	0	0	3	6	2.00	2	3.00
Ellsworth AFB, SD	1	0	1	0	1	0	0	0	3	6	2.00	2	3.00
Fairchild AFB, WA	1	0	1	0	1	0	0	0	3	6	2.00	2	3.00
Grand Forks AFB, ND	1	0	1	0	1	0	0	0	3	6	2.00	2	3.00
Griffiss AFB, NY	1	0	1	0	1	0	0	0	3	7	2.33	2	3.50
K.I. Sawyer AFB, MI	1	0	2	0	2	0	0	0	5	7	1.40	3	2.33
McConnell AFB, KS	1	0	1	0	1	0	0	0	3	6	2.00	2	3.00
Minot AFB, ND	1	0	1	0	1	0	0	0	3	6	2.00	2	3.00
Offutt AFB, NE	2	0	1	0	2	0	0	0	5	15	3.00	3	5.00
Pease AFB, NH	1	0	1	0	2	0	0	0	4	7	1.75	2	3.50
Wurtsmith AFB, MI	1	0	1	0	2	0	0	0	4	6	1.50	2	3.00
TOTAL	16	0	15	1	18	0	0	0	50	94	1.88	31	3.03

Air Force Audit Agency Hardware

DATE REVISED 08-Mar-88 AIR FORCE AUDIT AGENCY (AFAA) ADPE FILE NAME: AFAAADPE

LOCATION	Z-248 Hard Disk	Z-248	Z-184 Laptops	Z120 Hard Disk	Z120	Tempest Micros	Other Portable Computers	Other WP	Total Computers	# of Auth Pers	Pers per Computer	Number of Z-248 and Laptops IBM Compat	Pers per Compat
TAC Bases													
(Langley AFB, VA)	2	0	1	0	0	0	0	0	3	4	1.33	3	1.33
Bergstrom AFB, TX	1	0	1	0	2	0	0	0	4	7	1.75	2	3.50
Cannon AFB, NM	1	0	1	0	1	0	0	0	3	7	2.33	2	3.50
Davis-Monthan AFB, AZ	1	0	0	0	1	0	0	0	2	7	3.50	1	7.00
George AFB, CA	1	0	1	0	1	0	0	0	3	6	2.00	2	3.00
Holloman AFB, NM	1	0	1	0	1	0	0	0	3	6	2.00	2	3.00
Langley AFB, VA	3	1	1	0	2	0	0	0	7	15	2.14	5	3.00
Luke AFB, AZ	1	0	1	0	1	0	0	0	3	6	2.00	2	3.00
MacDill AFB, FL	2	0	2	0	2	0	0	0	6	7	1.17	4	1.75
Mountain Home AFB, ID	1	1	1	0	1	0	0	0	4	6	1.50	3	2.00
Nellis AFB, NV	2	0	2	0	1	0	0	0	5	7	1.40	4	1.75
Seymour Johnson AFB, NC	1	0	1	0	1	0	0	0	3	7	2.33	2	3.50
Shaw AFB, SC	1	0	1	0	1	0	0	1	4	7	1.75	2	3.50
TOTAL	18	2	14	0	15	0	0	1	50	92	1.84	34	2.71
USAFE													
(Ramstein AB, GE)	1	0	1	1	1	0	0	0	4	4	1.00	2	2.00
RAF Alconbury, UK	1	0	1	0	1	0	0	0	3	6	2.00	2	3.00
RAF Bentwaters, UK	1	0	1	0	1	0	0	0	3	6	2.00	2	3.00
Bitburg AB, GE	2	0	1	0	2	0	0	0	5	7	1.40	3	2.33
RAF Greenham Common, UK	1	0	0	0	1	0	0	0	2	6	3.00	1	6.00
Hahn AB, GE	1	1	1	0	1	0	0	0	4	6	1.50	3	2.00
RAF Lakenheath, UK	1	0	1	0	1	0	0	0	3	6	2.00	2	3.00
Ramstein AB, GE	1	0	4	0	3	0	0	1	9	22	2.44	5	4.40
Torrejon AB, SP	1	0	1	0	1	0	0	0	3	7	2.33	2	3.50
RAF Upper Heyford, UK	1	0	1	0	1	0	0	0	3	6	2.00	2	3.00
TOTAL	11	1	12	1	13	0	0	1	39	76	1.95	24	3.17
SPACECOM													
Peterson AFB, CO	1	0	1	0	1	0	0	0	3	8	2.67	2	4.00
Alaskan Air Command													
Elmendorf AFB, AK	2	0	1	3	2	1	0	1	10	7	0.70	4	1.75
Field Activities Directorate TOTAL	50	2	59	11	50	1	3	3	179	391	2.18	115	3.40

Air Force Audit Agency Hardware

DATE REVISED 08-Mar-88 AIR FORCE AUDIT AGENCY (AFAA) ADPE FILE NAME: AFAAADPE

LOCATION	Z-248 Hard Disk	Z-248	Z-184 Laptops	Z120 Hard Disk	Z120	Tempest Micros	Other Portable Computers	Other WP	Total Computers	# of Auth Pers	Pers per Computer	Number of Z-248 and Laptops IBM Compat	Pers per Compat
HEADQUARTERS TOTAL	32	0	69	2	9	2	7	0	121	166	1.37	110	1.51
GRAND TOTAL	145	10	229	24	95	6	14	6	529	882	1.67	404	2.18

APPENDIX B

INFORMATION REQUIREMENTS SURVEY

Instructions

As you may already know, I have been assigned to Air University to identify AFAA information requirements at all levels. The ultimate goal is to incorporate these requirements into the AFAA MIS. This survey is the first step toward identifying these requirements.

Needless to say, this is your opportunity to input your needs, wants, and desires into the agency's MIS. I am actively soliciting the opinions of every AFAA-assigned person in every directorate. Please take some time to fill out the survey as completely as you can.

Before you start, however, there are a few points I need to emphasize:

1. The survey asks for some personal data. I need this information to help me understand your requirements and to ask for future clarification.

2. Please identify all your requirements in terms of the information or capabilities you need to do your job. Avoid the temptation to ask for particular pieces of hardware or software. For example, if you need to be able to sort, analyze, and perform computations on up to 30,000 records of up to 500 characters per record, then say, "I need to sort, analyze, and so forth." Avoid saying, "I need DBase III and a hard disk."

3. Where appropriate, please include any reference or supporting document for your requirement(s). An information requirement that is mandated by law or regulation is easier to defend later on.

4. Think as creatively and as imaginatively as you can. If there is any information or capability that can help you do a better job, include it! (Please understand, however, that certain requirements may prove too costly or labor-intensive to fulfill.)

This is a rare opportunity for each and every one of you to help shape the future of the AFAA. Thanks in advance for your assistance.

CHARLES A. HOBBS, Major, USAF
AU Research Fellow

SECTION 1—PERSONAL INFORMATION

PURPOSE: This section will provide us with data about you and your audit experience. We will use this information to draw conclusions about information requirements for various classes of AFAA personnel. Personal data such as your name are requested to facilitate future contact.

PLEASE PROVIDE THE FOLLOWING:

NAME _____

GRADE _____

OFFICE _____ AUTOVON # _____

DIRECTORATE _____

YEARS OF FEDERAL SVC _____ YEARS IN AFAA _____

CURRENT POSITION (AIC, OC, AM, etc.) _____

PRIOR AFAA EXPERIENCE _____

_____

_____

_____

_____

_____

_____

SECTION 2—ASSESSMENT OF INFORMATION NEEDS

PURPOSE: This section elicits your opinion as to the need for various types of information. After each statement, please circle the response which best describes your opinion. Use the following guide to determine your response.

0—*No opinion.* Circle the number "0" if you are not familiar with the information described.

1—*This information is not needed at all.* Circle the number "1" if you feel the information described is not necessary to the accomplishment of the audit mission.

2—*This information is of nominal value.* Circle the number "2" if you feel that the information described has some negligible value in accomplishing the audit mission; however, failure to have it would not impair audit effectiveness.

3—*Nice to have information.* Circle the number "3" if you feel that the information described would be of some measurable benefit in accomplishing the audit mission. The lack of the information would make mission accomplishment more difficult, but the job would still get done.

4—*Important information.* Circle the number "4" if you feel that the information described plays an important role in the audit mission. Failure to have this information would make the audit mission difficult to accomplish.

5—*Critical information.* Circle the number "5" if you feel that the information described is indispensable. In other words, without this information the audit mission could not be accomplished.

Needless to say, the list of information requirements is far from all-inclusive. It is possible that many important topics have been left out. The blank spaces at the end of the section are provided for your suggestions. Please be as imaginative as you can. Your new and innovative ideas will be incorporated into the latter stages of this project.

PLEASE PROVIDE YOUR OPINION AS TO HOW MUCH (OR HOW LITTLE) THE AFAA NEEDS THE FOLLOWING:

1. Access to current regulations and directives (AFRs, DODIs, AARs, etc.).

Circle ONE response.

0 - No opinion expressed
1 - No value at all
2 - Some negligible value
3 - Nice to have
4 - Important
5 - Critical

2. Access to obsolete regulations and directives.

Circle ONE response.

0 - No opinion expressed
1 - No value at all
2 - Some negligible value
3 - Nice to have
4 - Important
5 - Critical

3. Access to technical orders (TOs).

Circle ONE response.

0 - No opinion expressed
1 - No value at all
2 - Some negligible value
3 - Nice to have
4 - Important
5 - Critical

4. Access to legal references (public laws, CG decisions, etc.).

Circle ONE response.

0 - No opinion expressed
1 - No value at all
2 - Some negligible value
3 - Nice to have
4 - Important
5 - Critical

5. Access to "library-type" references (textbooks, articles, etc.).

Circle ONE response.

0 – No opinion expressed
1 – No value at all
2 – Some negligible value
3 – Nice to have
4 – Important
5 – Critical

6. Access to AFAA audit guides.

Circle ONE response.

0 – No opinion expressed
1 – No value at all
2 – Some negligible value
3 – Nice to have
4 – Important
5 – Critical

7. Access to AFAA–produced audit programs (including CDAPs).

Circle ONE response.

0 – No opinion expressed
1 – No value at all
2 – Some negligible value
3 – Nice to have
4 – Important
5 – Critical

8. Access to the complete text of AFAA local audit reports.

Circle ONE response.

0 – No opinion expressed
1 – No value at all
2 – Some negligible value
3 – Nice to have
4 – Important
5 – Critical

9. Access to the text of AFAA "blue-book" reports.

Circle ONE response.

0 - No opinion expressed
1 - No value at all
2 - Some negligible value
3 - Nice to have
4 - Important
5 - Critical

10. Access to data related to AFAA audit reports (includes such information as number of findings, report title, report number, etc.).

Circle ONE response.

0 - No opinion expressed
1 - No value at all
2 - Some negligible value
3 - Nice to have
4 - Important
5 - Critical

11. Access to non-AFAA audit guides, programs, and so forth (i.e., DODIG, GAO, and AAA).

Circle ONE response.

0 - No opinion expressed
1 - No value at all
2 - Some negligible value
3 - Nice to have
4 - Important
5 - Critical

12. Access to non-AFAA reports of audit.

Circle ONE response.

0 - No opinion expressed
1 - No value at all
2 - Some negligible value
3 - Nice to have
4 - Important
5 - Critical

13. Access to data related to non-AFAA audits (report titles, number of findings, etc.).

Circle ONE response.

0 - No opinion expressed
1 - No value at all
2 - Some negligible value
3 - Nice to have
4 - Important
5 - Critical

14. Access to non-AFAA information systems.

Circle ONE response.

0 - No opinion expressed
1 - No value at all
2 - Some negligible value
3 - Nice to have
4 - Important
5 - Critical

If you answered "3," "4," or "5" to question #14 and know of any non-AFAA systems that you feel auditors need access to, please list them here and give a brief synopsis of the value of accessing the system. Use additional sheets if necessary.

_____

_____

_____

_____

_____

_____

_____

_____

_____

15. Access to classified information (consider both the need to access AFAA-generated classified information [i.e., classified audit reports or workpapers] and classified information belonging to third parties or audit clients).

Circle ONE response.

0 - No opinion expressed
1 - No value at all
2 - Some negligible value
3 - Nice to have
4 - Important
5 - Critical

Questions 16–22 refer to your need for data during project management. Your role in "project management" may be as an auditor, audit manager, supervisor, executive, or audit clerk. Evaluate your need for the following types of information.

16. Access to information about ongoing audit projects (i.e., date started, man-days invested to date, etc.).

Circle ONE response.

0 - No opinion expressed
1 - No value at all
2 - Some negligible value
3 - Nice to have
4 - Important
5 - Critical

17. Access to information about planned projects (i.e., projected start date, planned hours, etc.).

Circle ONE response.

0 - No opinion expressed
1 - No value at all
2 - Some negligible value
3 - Nice to have
4 - Important
5 - Critical

18. Access to summary data (i.e., data that is "rolled up" or summarized by a particular office, branch, region, etc.).

Circle ONE response.

0 - No opinion expressed
1 - No value at all
2 - Some negligible value
3 - Nice to have
4 - Important
5 - Critical

19. Access to productivity trends (i.e., audit starts per quarter, direct time percentages, PMBs, and so on) in each office, branch, or section.

Circle ONE response.

0 - No opinion expressed
1 - No value at all
2 - Some negligible value
3 - Nice to have
4 - Important
5 - Critical

20. Access to information about the area to be audited (size, mission, when last audited, relative importance of the area, etc.).

Circle ONE response.

0 - No opinion expressed
1 - No value at all
2 - Some negligible value
3 - Nice to have
4 - Important
5 - Critical

21. Access to information about nonconcurrences (status, date of report, management OPR, etc.).

Circle ONE response.

0 - No opinion expressed
1 - No value at all
2 - Some negligible value
3 - Nice to have
4 - Important
5 - Critical

22. Access to information about potential monetary benefits (date, amount, amount agreed to by management, etc.).

Circle ONE response.

0 - No opinion expressed
1 - No value at all
2 - Some negligible value
3 - Nice to have
4 - Important
5 - Critical

Questions 23–25 refer to your need for certain types of nonaudit information. (Keep in mind, however, that Privacy Act information is carefully controlled and that AFAA cannot set up any unauthorized systems of records.)

23. Access to information needed for civilian or military appraisals (position description, date due, employee's accomplishments during the appraisal period, etc.).

Circle ONE response.

0 - No opinion expressed
1 - No value at all
2 - Some negligible value
3 - Nice to have
4 - Important
5 - Critical

24. Access to leave and other timekeeping information.

Circle ONE response.

0 - No opinion expressed
1 - No value at all
2 - Some negligible value
3 - Nice to have
4 - Important
5 - Critical

25. Access to employee training information (dates and types of training or education, professional certifications, etc.).

Circle ONE response.

0 - No opinion expressed
1 - No value at all
2 - Some negligible value
3 - Nice to have
4 - Important
5 - Critical

This section obviously cannot identify all of the many types of information that agency personnel need to do their jobs. It is provided so that you can identify information requirements that you feel are important. Just a reminder, however, we are trying to identify requirements for information, not computers. Please try to phrase your needs in terms of information needed (i.e., "I need to know what suspenses are due this week.") and not in terms of hardware/software (i.e., "I need a faster modem and a WATS line."). The hardware and software required to meet your information needs will be evaluated later.

Information Required	Importance
a. _____	0 1 2 3 4 5
_____	
_____	
b. _____	0 1 2 3 4 5
_____	
_____	

Information Required	Importance
c. _____	0 1 2 3 4 5
d. _____	0 1 2 3 4 5
e. _____	0 1 2 3 4 5
f. _____	0 1 2 3 4 5
g. _____	0 1 2 3 4 5
h.	0 1 2 3 4 5
i. _____	0 1 2 3 4 5

Information Required	Importance
j. _____	0 1 2 3 4 5
k. _____	0 1 2 3 4 5
l. _____	0 1 2 3 4 5
m. _____	0 1 2 3 4 5
n. _____	0 1 2 3 4 5
o. _____	0 1 2 3 4 5
p. _____	0 1 2 3 4 5

SECTION 3—ASSESSMENT OF INFORMATION AVAILABILITY

PURPOSE: Section 2 identified the kinds of information that you feel are needed to do your job. In this section you will evaluate how well these information needs are being met. After each statement, please circle the response which best describes your opinion. Use the following guide to determine your response:

0—*No opinion.* Circle the number "0" if you are not familiar with the information described. If you selected response "0" to the corresponding question in section 2, you should also answer "0" here.

1—*This information is not needed at all.* Circle the number "1" if you feel the information described is not necessary to the accomplishment of the audit mission. If you selected response "1" to the corresponding question in section 2, you should also answer "1" here.

2—*This information is almost impossible to get.* In other words, it would require much more effort than the information is worth.

3—*This information is available, but it takes a lot of effort.* You may have to go outside your work area to another office or even to another base. You may also need to task or request others to assist in the effort. When you are finished, you still might not have exactly what you want.

4—*This information is available with a reasonable amount of effort.* You may have to call around a bit, but you will get what you want without placing an unreasonable burden on anyone else.

5—*This information is readily available.* However, it may not be exactly in the format you want.

6—*This information is nearly perfect.* It is in the exact format and amount of detail that you want.

The blank spaces at the end of this section correspond to your suggestions from section 2. Evaluate how well each of your requirements is currently being met. If you wish, you can number each of your suggestions and use the number rather than recopying the entire input. If you elect to do this, however, please ensure that the numbers match the right suggestions.

PLEASE PROVIDE YOUR OPINION AS TO HOW WELL (OR HOW POORLY) EACH OF THE FOLLOWING INFORMATION REQUIREMENTS IS BEING MET.

1. Access to current regulations and directives (AFRs, DODIs, AARs, etc.).

Circle ONE response.

0 - No opinion expressed
1 - Not needed at all
2 - Almost impossible to get
3 - Available, but takes a lot of effort
4 - Available with a reasonable amount of effort
5 - Readily available
6 - Nearly perfect

2. Access to obsolete regulations and directives.

Circle ONE response.

0 - No opinion expressed
1 - Not needed at all
2 - Almost impossible to get
3 - Available, but takes a lot of effort
4 - Available with a reasonable amount of effort
5 - Readily available
6 - Nearly perfect

3. Access to technical orders (TOs).

Circle ONE response.

0 - No opinion expressed
1 - Not needed at all
2 - Almost impossible to get
3 - Available, but takes a lot of effort
4 - Available with a reasonable amount of effort
5 - Readily available
6 - Nearly perfect

4. Access to legal references (public laws, CG decisions, etc.).

Circle ONE response.

0 – No opinion expressed
1 – Not needed at all
2 – Almost impossible to get
3 – Available, but takes a lot of effort
4 – Available with a reasonable amount of effort
5 – Readily available
6 – Nearly perfect

5. Access to "library-type" references (textbooks, articles, etc.).

Circle ONE response.

0 – No opinion expressed
1 – Not needed at all
2 – Almost impossible to get
3 – Available, but takes a lot of effort
4 – Available with a reasonable amount of effort
5 – Readily available
6 – Nearly perfect

6. Access to AFAA audit guides.

Circle ONE response.

0 – No opinion expressed
1 – Not needed at all
2 – Almost impossible to get
3 – Available, but takes a lot of effort
4 – Available with a reasonable amount of effort
5 – Readily available
6 – Nearly perfect

7. Access to AFAA-produced audit programs (including CDAPs).

Circle ONE response.

0 - No opinion expressed
1 - Not needed at all
2 - Almost impossible to get
3 - Available, but takes a lot of effort
4 - Available with a reasonable amount of effort
5 - Readily available
6 - Nearly perfect

8. Access to the complete text of AFAA local audit reports.

Circle ONE response.

0 - No opinion expressed
1 - Not needed at all
2 - Almost impossible to get
3 - Available, but takes a lot of effort
4 - Available with a reasonable amount of effort
5 - Readily available
6 - Nearly perfect

9. Access to the text of AFAA "blue-book" reports.

Circle ONE response.

0 - No opinion expressed
1 - Not needed at all
2 - Almost impossible to get
3 - Available, but takes a lot of effort
4 - Available with a reasonable amount of effort
5 - Readily available
6 - Nearly perfect

10. Access to data related to AFAA audit reports (includes such information as number of findings, report title, report number, etc.).

Circle ONE response.

0 – No opinion expressed
1 – Not needed at all
2 – Almost impossible to get
3 – Available, but takes a lot of effort
4 – Available with a reasonable amount of effort
5 – Readily available
6 – Nearly perfect

11. Access to non–AFAA audit guides, programs, and so forth (i e., DODIG, GAO, and AAA).

Circle ONE response.

0 – No opinion expressed
1 – Not needed at all
2 – Almost impossible to get
3 – Available, but takes a lot of effort
4 – Available with a reasonable amount of effort
5 – Readily available
6 – Nearly perfect

12. Access to non–AFAA reports of audit.

Circle ONE response.

0 – No opinion expressed
1 – Not needed at all
2 – Almost impossible to get
3 – Available, but takes a lot of effort
4 – Available with a reasonable amount of effort
5 – Readily available
6 – Nearly perfect

13. Access to data related to non-AFAA audits (report titles, number of findings, etc.).

Circle ONE response.

0 - No opinion expressed
1 - Not needed at all
2 - Almost impossible to get
3 - Available, but takes a lot of effort
4 - Available with a reasonable amount of effort
5 - Readily available
6 - Nearly perfect

14. Access to non-AFAA information systems.

Circle ONE response.

0 - No opinion expressed
1 - Not needed at all
2 - Almost impossible to get
3 - Available, but takes a lot of effort
4 - Available with a reasonable amount of effort
5 - Readily available
6 - Nearly perfect

If you provided some responses to the fill-in-the-blank part of section 2 (non-AFAA systems that you felt auditors need access to), please give a brief synopsis of the ability to access these systems.

_____

_____

_____

_____

_____

_____

_____

_____

15. Access to classified information.

Circle ONE response.

0 - No opinion expressed
1 - Not needed at all
2 - Almost impossible to get
3 - Available, but takes a lot of effort
4 - Available with a reasonable amount of effort
5 - Readily available
6 - Nearly perfect

16. Access to information about ongoing projects (i.e., date started, man-days invested to date, etc.).

Circle ONE response.

0 - No opinion expressed
1 - Not needed at all
2 - Almost impossible to get
3 - Available, but takes a lot of effort
4 - Available with a reasonable amount of effort
5 - Readily available
6 - Nearly perfect

17. Access to information about planned projects (i.e., projected start date, planned hours, etc.).

Circle ONE response.

0 - No opinion expressed
1 - Not needed at all
2 - Almost impossible to get
3 - Available, but takes a lot of effort
4 - Available with a reasonable amount of effort
5 - Readily available
6 - Nearly perfect

18. Access to summary data (i.e., data that is "rolled up" by office, branch, region, etc.).

Circle ONE response.

0 - No opinion expressed
1 - Not needed at all
2 - Almost impossible to get
3 - Available, but takes a lot of effort
4 - Available with a reasonable amount of effort
5 - Readily available
6 - Nearly perfect

19. Access to trends in each office, branch, or section.

Circle ONE response.

0 - No opinion expressed
1 - Not needed at all
2 - Almost impossible to get
3 - Available, but takes a lot of effort
4 - Available with a reasonable amount of effort
5 - Readily available
6 - Nearly perfect

20. Access to information about the area to be audited (size, mission, when last audited, relative importance of the area, etc.).

Circle ONE response.

0 - No opinion expressed
1 - Not needed at all
2 - Almost impossible to get
3 - Available, but takes a lot of effort
4 - Available with a reasonable amount of effort
5 - Readily available
6 - Nearly perfect

21. Access to information about nonconcurrences (status, date of report, management OPR, etc.).

Circle ONE response.

0 - No opinion expressed
1 - Not needed at all
2 - Almost impossible to get
3 - Available, but takes a lot of effort
4 - Available with a reasonable amount of effort
5 - Readily available
6 - Nearly perfect

22. Access to information about potential monetary benefits (date, amount, amount agreed to by management, etc.).

Circle ONE response.

0 - No opinion expressed
1 - Not needed at all
2 - Almost impossible to get
3 - Available, but takes a lot of effort
4 - Available with a reasonable amount of effort
5 - Readily available
6 - Nearly perfect

Questions 23–25 refer to your need for certain types of "nonaudit" information.

23. Access to information needed for civilian or military appraisals (position description, date due, employee's accomplishments during the appraisal period, etc.).

Circle ONE response.

0 - No opinion expressed
1 - Not needed at all
2 - Almost impossible to get
3 - Available, but takes a lot of effort
4 - Available with a reasonable amount of effort
5 - Readily available
6 - Nearly perfect

24. Access to leave and other timekeeping information.

Circle ONE response.

0 - No opinion expressed
1 - Not needed at all
2 - Almost impossible to get
3 - Available, but takes a lot of effort
4 - Available with a reasonable amount of effort
5 - Readily available
6 - Nearly perfect

25. Access to employee training information (dates and types of training or education, professional certifications, etc.).

Circle ONE response.

0 - No opinion expressed
1 - Not needed at all
2 - Almost impossible to get
3 - Available, but takes a lot of effort
4 - Available with a reasonable amount of effort
5 - Readily available
6 - Nearly perfect

If you provided any additional requirements at the end of section 2, please assess the availability of each requirement. Use the same 0–6 scale that you used previously to fill in this section. You need not recopy every entry, but please be certain that the reference numbers agree.

Information	Availability
a. _____	0 1 2 3 4 5 6
_____	
_____	
b. _____	0 1 2 3 4 5 6
_____	
_____	

Information	Availbility
c. _____	0 1 2 3 4 5 6
d. _____	0 1 2 3 4 5 6
e. _____	0 1 2 3 4 5 6
f. _____	0 1 2 3 4 5 6
g. _____	0 1 2 3 4 5 6
h. _____	0 1 2 3 4 5 6
i. _____	0 1 2 3 4 5 6

Information	Availability
j. _____	0 1 2 3 4 5 6
k. _____	0 1 2 3 4 5 6
l. _____	0 1 2 3 4 5 6
m. _____	0 1 2 3 4 5 6
n. _____	0 1 2 3 4 5 6
o. _____	0 1 2 3 4 5 6
p. _____	0 1 2 3 4 5 6

SECTION 4—ASSESSMENT OF INFORMATION TIMELINESS

PURPOSE: Section 2 identified the kinds of information that you felt were needed to do your job and section 3 indicated its availability. In this section you will evaluate the timeliness of the information. After each statement, please circle the response which best describes your opinion. Use the following guide to determine your response.

0—*No opinion.* Circle the number "0" if you are not familiar with the information described. If you selected response "0 to the corresponding questions in sections 2 and 3, you should also answer "0" in this section.

1—*This information is not needed at all.* Circle the number "1" if you feel the information described is not necessary to the accomplishment of the audit mission. If you selected response "1" to the corresponding questions in sections 2 and 3, you should also answer "1" in this section.

2—*This information is available but useless.* By the time I receive the information, it is so old that it is useless to me.

3—*This information is available and has some value.* By the time I receive the information, however, it is somewhat dated and of limited value.

4—*This information is generally current and timely.* By the time I receive the information, however, it has lost some of its value.

5—*This information is current and on time.*

The blank spaces at the end of this section correspond to your suggestions from section 2. Evaluate how well each of your requirements is currently being met. If you wish, you can number each of your suggestions instead of recopying the entire input. If you elect to do this, however, please ensure that the numbers match your suggestions.

PLEASE PROVIDE YOUR OPINION AS TO THE TIMELINESS WITH WHICH EACH OF THE FOLLOWING INFORMATION REQUIREMENTS IS BEING MET.

1. Access to current regulations and directives (AFRs, DODIs, AARs, etc.).

Circle ONE response.

0 - No opinion expressed
1 - Not needed at all
2 - Available but useless
3 - Available and has some value
4 - Generally current and timely
5 - Current and on time

2. Access to obsolete regulations and directives.

Circle ONE response.

0 - No opinion expressed
1 - Not needed at all
2 - Available but useless
3 - Available and has some value
4 - Generally current and timely
5 - Current and on time

3. Access to technical orders (TOs).

Circle ONE response.

0 - No opinion expressed
1 - Not needed at all
2 - Available but useless
3 - Available and has some value
4 - Generally current and timely
5 - Current and on time

4. Access to legal references (public laws, CG decisions, etc.).

Circle ONE response.

0 - No opinion expressed
1 - Not needed at all
2 - Available but useless
3 - Available and has some value
4 - Generally current and timely
5 - Current and on time

5. Access to "library-type" references (textbooks, articles, etc.).

Circle ONE response.

0 - No opinion expressed
1 - Not needed at all
2 - Available but useless
3 - Available and has some value
4 - Generally current and timely
5 - Current and on time

6. Access to AFAA audit guides.

Circle ONE response.

0 - No opinion expressed
1 - Not needed at all
2 - Available but useless
3 - Available and has some value
4 - Generally current and timely
5 - Current and on time

7. Access to AFAA-produced audit programs (including CDAPs).

Circle ONE response.

0 - No opinion expressed
1 - Not needed at all
2 - Available but useless
3 - Available and has some value
4 - Generally current and timely
5 - Current and on time

8. Access to the complete text of AFAA local audit reports.

Circle ONE response.

0 - No opinion expressed
1 - Not needed at all
2 - Available but useless
3 - Available and has some value
4 - Generally current and timely
5 - Current and on time

9. Access to the text of AFAA "blue-book" reports.

Circle ONE response.

0 - No opinion expressed
1 - Not needed at all
2 - Available but useless
3 - Available and has some value
4 - Generally current and timely
5 - Current and on time

10. Access to data related to AFAA audit reports (includes such information as number of findings, report title, report number, etc.).

Circle ONE response.

0 - No opinion expressed
1 - Not needed at all
2 - Available but useless
3 - Available and has some value
4 - Generally current and timely
5 - Current and on time

11. Access to non-AFAA audit guides, programs, and so forth (i.e., DODIG, GAO, and AAA).

Circle ONE response.

0 - No opinion expressed
1 - Not needed at all
2 - Available but useless
3 - Available and has some value
4 - Generally current and timely
5 - Current and on time

12. Access to non-AFAA reports of audit.

Circle ONE response.

0 - No opinion expressed
1 - Not needed at all
2 - Available but useless
3 - Available and has some value
4 - Generally current and timely
5 - Current and on time

13. Access to data related to non–AFAA audits (report titles, number of findings, etc.).

Circle ONE response.

0 – No opinion expressed
1 – Not needed at all
2 – Available but useless
3 – Available and has some value
4 – Generally current and timely
5 – Current and on time

14. Access to non–AFAA information systems.

Circle ONE response.

0 – No opinion expressed
1 – Not needed at all
2 – Available but useless
3 – Available and has some value
4 – Generally current and timely
5 – Current and on time

If you provided a response to the fill-in-the-blank part of section 2 (any non-AFAA systems that you felt auditors need access to), please give a brief synopsis of the ability to access the system in a timely manner. Consider the entire time frame, including any preliminary coordination and so forth.

SYSTEM NAME	TIMELINESS (Rate on 0–5 Scale)

15. Access to classified information.

Circle ONE response.

0 – No opinion expressed
1 – Not needed at all
2 – Available but useless
3 – Available and has some value
4 – Generally current and timely
5 – Current and on time

16. Access to information about ongoing projects (i.e., date started, man-days invested to date, etc.).

Circle ONE response.

0 - No opinion expressed
1 - Not needed at all
2 - Available but useless
3 - Available and has some value
4 - Generally current and timely
5 - Current and on time

17. Access to information about planned projects (i.e., projected start date, planned hours, etc.).

Circle ONE response.

0 - No opinion expressed
1 - Not needed at all
2 - Available but useless
3 - Available and has some value
4 - Generally current and timely
5 - Current and on time

18. Access to summary data (i.e., data that is "rolled up" by office, branch, region, or section).

Circle ONE response.

0 - No opinion expressed
1 - Not needed at all
2 - Available but useless
3 - Available and has some value
4 - Generally current and timely
5 - Current and on time

19. Access to trends in each office, branch, or section.

Circle ONE response.

0 - No opinion expressed
1 - Not needed at all
2 - Available but useless
3 - Available and has some value
4 - Generally current and timely
5 - Current and on time

20. Access to information about the area to be audited (size, mission, when last audited, relative importance of the area, etc.).

Circle ONE response.

0 - No opinion expressed
1 - Not needed at all
2 - Available but useless
3 - Available and has some value
4 - Generally current and timely
5 - Current and on time

21. Access to information about audit nonconcurrences (status, date of report, management OPR, etc.).

Circle ONE response.

0 - No opinion expressed
1 - Not needed at all
2 - Available but useless
3 - Available and has some value
4 - Generally current and timely
5 - Current and on time

22. Access to information about potential monetary benefits (date, amount, amount agreed to by management, etc.).

Circle ONE response.

0 - No opinion expressed
1 - Not needed at all
2 - Available but useless
3 - Available and has some value
4 - Generally current and timely
5 - Current and on time

23. Access to information for civilian or military appraisals (position description, date due, employee's accomplishments during the appraisal period, etc.).

Circle ONE response.

0 - No opinion expressed
1 - Not needed at all
2 - Available but useless
3 - Available and has some value
4 - Generally current and timely
5 - Current and on time

24. Access to leave and other timekeeping information.

Circle ONE response.

0 - No opinion expressed
1 - Not needed at all
2 - Available but useless
3 - Available and has some value
4 - Generally current and timely
5 - Current and on time

25. Access to employee training information (dates and types of training or education, professional certifications, etc.).

Circle ONE response.

0 - No opinion expressed
1 - Not needed at all
2 - Available but useless
3 - Available and has some value
4 - Generally current and timely
5 - Current and on time

If you provided any additional requirements at the end of section 2, please assess the timeliness of each requirement. Use the same 0–5 scale that you used previously for this section. You need not recopy every entry, but please be certain that the reference numbers agree.

Information	Timeliness
a. _____	0 1 2 3 4 5
_____	
_____	
b. _____	0 1 2 3 4 5
_____	
_____	

Information	Timeliness
c. _____	0 1 2 3 4 5
d. _____	0 1 2 3 4 5
e. _____	0 1 2 3 4 5
f. _____	0 1 2 3 4 5
g. _____	0 1 2 3 4 5
h. _____	0 1 2 3 4 5
i. _____	0 1 2 3 4 5

Information	Timeliness
j. _____	0 1 2 3 4 5
k. _____	0 1 2 3 4 5
l. _____	0 1 2 3 4 5
m. _____	0 1 2 3 4 5
n. _____	0 1 2 3 4 5
o. _____	0 1 2 3 4 5
p. _____	0 1 2 3 4 5

SECTION 5—ASSESSMENT OF INFORMATION FORMAT

PURPOSE: To be most beneficial, information should be in a format that is easy to use and understand. In this section you will evaluate the format of the information. After each statement, please circle the response which best describes your opinion. Use the following guide to determine your response.

0—*No opinion.* Circle the number "0" if you are not familiar with the information described. If you selected response "0" to the corresponding questions in sections 2, 3, or 4, you should also answer "0" in this section.

1—*This information is not needed at all.* Circle the number "1" if you feel the information described is not necessary to the accomplishment of the audit mission. If you selected response "1" to the corresponding questions in sections 2, 3, and 4, you should also answer "1" in this section.

2—*This information is not decipherable.* I receive the information in a form that is so hard to understand it is useless to me.

3—*This information is hard to comprehend or use.* I receive the information in a format that is hard to use. I must expend a great deal of time and effort to put the information into an understandable form.

4—*This information is clear and easy to understand.*

5—*This information is in the exact format I want.* If I decide to change the format, I can do so.

The blank spaces at the end of this section correspond to your suggestions from section 2. Evaluate the format for each of your requirements. If you wish, you can number each of your suggestions instead of recopying the entire input. If you elect to do this, however, please ensure that the numbers match your suggestions.

PLEASE PROVIDE YOUR OPINION ON THE FORMAT OF EACH OF THE FOLLOWING INFORMATION REQUIREMENTS.

1. Access to current regulations and directives (AFRs, DODIs, AARs, etc.).

Circle ONE response.

0 - No opinion expressed
1 - Not needed at all
2 - Cannot decipher
3 - Hard to comprehend or use
4 - Clear, easy to understand
5 - Exactly the format I want

2. Access to obsolete regulations and directives.

Circle ONE response.

0 - No opinion expressed
1 - Not needed at all
2 - Cannot decipher
3 - Hard to comprehend or use
4 - Clear, easy to understand
5 - Exactly the format I want

3. Access to technical orders (TOs).

Circle ONE response.

0 - No opinion expressed
1 - Not needed at all
2 - Cannot decipher
3 - Hard to comprehend or use
4 - Clear, easy to understand
5 - Exactly the format I want

4. Access to legal references (public laws, CG decisions, etc.).

Circle ONE response.

0 - No opinion expressed
1 - Not needed at all
2 - Cannot decipher
3 - Hard to comprehend or use
4 - Clear, easy to understand
5 - Exactly the format I want

5. Access to "library-type" references (textbooks, articles, etc.).

Circle ONE response.

0 – No opinion expressed
1 – Not needed at all
2 – Cannot decipher
3 – Hard to comprehend or use
4 – Clear, easy to understand
5 – Exactly the format I want

6. Access to AFAA audit guides.

Circle ONE response.

0 – No opinion expressed
1 – Not needed at all
2 – Cannot decipher
3 – Hard to comprehend or use
4 – Clear, easy to understand
5 – Exactly the format I want

7. Access to AFAA–produced audit programs (inclu

Circle ONE response.

0 – No opinion expressed
1 – Not needed at all
2 – Cannot decipher
3 – Hard to comprehend or use
4 – Clear, easy to understand
5 – Exactly the format I want

8. Access to the complete text of AFA

Circle ONE response.

0 – No opinion expressed
1 – Not needed at all
2 – Cannot decipher
3 – Hard to comprehe
4 – Clear, easy to und
5 – Exactly the form

9. Access to the text of AFAA "blue-book" reports.

Circle ONE response.

0 - No opinion expressed
1 - Not needed at all
2 - Cannot decipher
3 - Hard to comprehend or use
4 - Clear, easy to understand
5 - Exactly the format I want

10. Access to data related to AFAA audit reports (includes such information as number of findings, report title, report number, etc.).

Circle ONE response.

0 - No opinion expressed
1 - Not needed at all
2 - Cannot decipher
3 - Hard to comprehend or use
4 - Clear, easy to understand
5 - Exactly the format I want

11. Access to non-AFAA audit guides, programs, and so forth (i.e., DODIG, GAO, and AAA).

Circle ONE response.

0 - No opinion expressed
1 - Not needed at all
2 - Cannot decipher
3 - Hard to comprehend or use
4 - Clear, easy to understand
5 - Exactly the format I want

12. Access to non-AFAA reports of audit.

Circle ONE response.

0 - No opinion expressed
1 - Not needed at all
2 - Cannot decipher
3 - Hard to comprehend or use
4 - Clear, easy to understand
5 - Exactly the format I want

13. Access to data related to non–AFAA audits (report titles, number of findings, etc.).

Circle ONE response.

0 – No opinion expressed
1 – Not needed at all
2 – Cannot decipher
3 – Hard to comprehend or use
4 – Clear, easy to understand
5 – Exactly the format I want

14. Access to non–AFAA information systems.

Circle ONE response.

0 – No opinion expressed
1 – Not needed at all
2 – Cannot decipher
3 – Hard to comprehend or use
4 – Clear, easy to understand
5 – Exactly the format I want

If you answered the fill-in-the-blank part in section 2 (any non-AFAA systems that you felt auditors need access to), please describe the format of the data you receive.

SYSTEM NAME	FORMAT (Rate on 0–5 Scale)

15. Access to classified information.

Circle ONE response.

0 - No opinion expressed
1 - Not needed at all
2 - Cannot decipher
3 - Hard to comprehend or use
4 - Clear, easy to understand
5 - Exactly the format I want

16. Access to information about ongoing projects (i.e., date started, man-days invested to date, etc.).

Circle ONE response.

0 - No opinion expressed
1 - Not needed at all
2 - Cannot decipher
3 - Hard to comprehend or use
4 - Clear, easy to understand
5 - Exactly the format I want

17. Access to information about planned projects (i.e., projected start date, planned hours, etc.).

Circle ONE response.

0 - No opinion expressed
1 - Not needed at all
2 - Cannot decipher
3 - Hard to comprehend or use
4 - Clear, easy to understand
5 - Exactly the format I want

18. Access to summary data (i.e., data that is "rolled up" by office, branch, region, etc.).

Circle ONE response.

0 - No opinion expressed
1 - Not needed at all
2 - Cannot decipher
3 - Hard to comprehend or use
4 - Clear, easy to understand
5 - Exactly the format I want

19. Access to trends in each office, branch, or section.

Circle ONE response.

0 - No opinion expressed
1 - Not needed at all
2 - Cannot decipher
3 - Hard to comprehend or use
4 - Clear, easy to understand
5 - Exactly the format I want

20. Access to information about the area to be audited (size, mission, when last audited, relative importance of the area, etc.).

Circle ONE response.

0 - No opinion expressed
1 - Not needed at all
2 - Cannot decipher
3 - Hard to comprehend or use
4 - Clear, easy to understand
5 - Exactly the format I want

21. Access to information about nonconcurrences (status, date of report, management OPR, etc.).

Circle ONE response.

0 - No opinion expressed
1 - Not needed at all
2 - Cannot decipher
3 - Hard to comprehend or use
4 - Clear, easy to understand
5 - Exactly the format I want

22. Access to information about potential monetary benefits (date, amount, amount agreed to by management, etc.).

Circle ONE response.

0 - No opinion expressed
1 - Not needed at all
2 - Cannot decipher
3 - Hard to comprehend or use
4 - Clear, easy to understand
5 - Exactly the format I want

23. Access to information needed for civilian or military appraisals (position description, date due, employee's accomplishments during the appraisal period, etc.).

Circle ONE response.

0 - No opinion expressed
1 - Not needed at all
2 - Cannot decipher
3 - Hard to comprehend or use
4 - Clear, easy to understand
5 - Exactly the format I want

24. Access to leave and other timekeeping information.

Circle ONE response.

0 - No opinion expressed
1 - Not needed at all
2 - Cannot decipher
3 - Hard to comprehend or use
4 - Clear, easy to understand
5 - Exactly the format I want

25. Access to employee training information (dates and types of training or education, professional certifications, etc.).

Circle ONE response.

0 - No opinion expressed
1 - Not needed at all
2 - Cannot decipher
3 - Hard to comprehend or use
4 - Clear, easy to understand
5 - Exactly the format I want

If you provided any additional requirements at the end of section 2, please assess the format of each requirement. Use the same 0–5 scale that you used previously for this section. You need not recopy every entry, but please be certain that the reference numbers agree.

Information	Format
a. _____	0 1 2 3 4 5
b. _____	0 1 2 3 4 5
c. _____	0 1 2 3 4 5
d. _____	0 1 2 3 4 5
e. _____	0 1 2 3 4 5

Information	Format
f. _____	0 1 2 3 4 5
g. _____	0 1 2 3 4 5
h. _____	0 1 2 3 4 5
i. _____	0 1 2 3 4 5
j. _____	0 1 2 3 4 5
k. _____	0 1 2 3 4 5

Information	Format
l. _____	0 1 2 3 4 5
m. _____	0 1 2 3 4 5
n. _____	0 1 2 3 4 5
o. _____	0 1 2 3 4 5
p. _____	0 1 2 3 4 5

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