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IF THE AIR FORCE KNEW WHAT IT ALREADY KNOWS ABOUT MANAGEMENT IMPROVEMENT: IMPLICATIONS FOR MANPOWER AND QUALITY MANAGEMENT

by

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The project, ?If the Air Force Knew What it Already Knows About Management Improvement: Implications for Manpower and Quality Management,? takes the reader on a decade-by-decade discovery of the service?s management improvement (MI) quest. The thesis asserts that if the Air Force knew what it already knows about management improvement (MI), then perhaps insights could be gleaned to tackle today?s challenges. Research methodology primarily consisted of reviewing the decades of service MI from 1947 until the present. The project focused on history relating to the manpower and quality (MQ) management career field, created in 1996 by the US Air Force chief of staff. Historical memoranda, letters, Air Force and defense publications, directives, guidance, reports, data, and other literature provided the building blocks of the project. The author set out to develop a sketch of the decades of manpower management, and then to analyze examples of what can be learned from the decades of experience. Finding and conclusions reveal historic MI intents, with leaders creating various inservice means to support their ideas. The history describes the budget climate and related factors, the key players, and an overview of MI tools and programs. The analysis reveals examples of what can be learned. First, it explores patterns in history. Next, we see the dilemma of making existing knowledge more corporate (accessible). Then, we find chronic MQ manning and training shortfalls. The author recommends the project be used by the MQ community as a springboard for further application and study.

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Preface

Air Force history reveals a deliberate quest for management improvement, assisted by in-service communities such as manpower and quality (MQ). Tapping the wealth of improvement efforts, strategy, and lessons learned—our corporate knowledge—is not always easy. Can we learn from our historic management improvement experience? This subject is of primary value to the MQ community, but harnessing Air Force corporate knowledge has broader application to the service as a whole. I took on this challenge because I found that often the issues we struggle with have already been addressed, yet we lack ready access to knowledge of previous efforts and outcomes. This situation may be a reflection upon our rapidly changing, ever-shrinking Air Force. Can we benefit from actively preserving and communicating our knowledge capital? My assertion is twofold: first, that we can reconstruct a rich management innovation past; and second, that we can tap into the past and present knowledge streams for further benefit. We must intentionally choose this path and set our minds upon it to make it happen. Our first step is to rediscover our history, the thrust of this project. Throughout my career, a long line of mentors have guided me in the business of management improvement. My sincere thanks to those dedicated professionals who came before me and to my research advisor, Colonel James M. Norris, who encouraged me to press on with tackling this project. Many thanks to Pam, Matthew, Scott, and Emily for your love and patience.

Abstract

The project, "If the Air Force Knew What it Already Knows About Management Improvement: Implications for Manpower and Quality Management," takes the reader on a decade-by-decade discovery of the service's management improvement (MI) quest. The thesis asserts that *if* the Air Force knew what it already knows about management improvement (MI), *then* perhaps insights could be gleaned to tackle today's challenges.

Research methodology primarily consisted of reviewing the decades of service MI from 1947 until the present. The project focused on history relating to the manpower and quality (MQ) management career field, created in 1996 by the US Air Force chief of staff. Historical memoranda, letters, Air Force and defense publications, directives, guidance, reports, data, and other literature provided the building blocks of the project. The author set out to develop a sketch of the decades of manpower management, and then to analyze examples of what can be learned from the decades of experience.

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Chapter 1

Back to the Future? An Introduction

The objective of the Management Improvement Program is to obtain the most effective Air Force possible with the resources made available. Emphasis is placed upon achieving improved quality, economy, and efficiency whenever such results will in fact increase the overall effectiveness of the Air Force.

—Air Force Regulation 25-2, 6 October 1953

We must do more and more with less and less until we can do everything with nothing.

—Anonymous

Background

Why did the Air Force create and invest heavily in the Air Force Management Engineering Agency, the Leadership and Management Development Center consultant program, and the Air Force Quality Center? What did these organizations have in common? How did they differ? What was the Air Force's *intent*? Why are all three of these units no longer in existence? Why have we now created and funded a new Air Force Center for Quality and Management Innovation? Each of these questions centers on a long-term, deliberate service quest for harnessing management improvement (MI). This research project alone does not provide the detail to answer all the questions we could ask regarding management improvement. Nevertheless, the effort can provide a

foundation and a catalyst for persuading the manpower and quality (MQ) career field to move forward in the deliberate enterprise of better employing our corporate knowledge.

This paper focuses on Air Force management improvement efforts from service inception in September 1947 until January 1998. By decade, it answers three questions: What were the general budget climate and related factors? Who were some of the key Air Force players? What were some of the Air Force tools and programs employed? To answer these questions, the author performed extensive historical research to piece together an overview of the service's history of deliberate management improvement efforts. Why construct such a history? To date, the newly integrated manpower and quality (MQ) functional community has had no central touchstone documenting the deliberate management improvement context that has led us to where we are today.[1] Although some individuals know a great deal of the story, many more in-service improvement practitioners are not aware of the sum of the parts: we simply don't teach this history to our people.[2] No central repository of in-service management improvement historical knowledge presently exists. Today, many MQ practitioners face "new" dilemmas and are enticed by "new" management concepts which actually have a much deeper historical context. This look into the past may therefore allow an appreciation of the present and provide clues toward solving challenges in the future. Establishing this historical foundation may ultimately produce a wealth of information for education, application, and a departure point for a more tailored pursuit of useful lessons.

Thesis

The overarching thesis is this: one may assert that *if* the Air Force knew what it already knows about management improvement, *then* it could use that knowledge to

provide significant insights towards understanding today's management improvement challenges. The thesis consists of two fundamental elements. First, we may assert that such a "corporate" history or knowledge base does not exist in one location, although it does exist in the collective works, minds and experiences of the MQ community. Thus, documenting a rough history, a framework, of Air Force management improvement is necessary to serve as a relevant source for targeting areas for learning and for providing a proper context to the present management innovation community—the new MQ career field. Second, given that we can reconstruct and show that this historical knowledge exists, added together with the present intellectual capital of MQ practitioners, we should consider developing a strategy to maximize the use of it, through actively combining these reservoirs of knowledge for profitable learning and application. Given increasing pressures to "work smarter," including force levels dropping to depths not seen since the late 1940s, top-driven reform initiatives, and increasingly tighter budget constraints, we are driven to maximize use of our knowledge base or suffer the consequences. This examination shows that the Air Force has consistently looked towards deliberate management improvement for solutions.

Constraints and Limitations

The Air Force inherently thrives upon innovation and improvement—exemplified by the flight of heavier than air vehicles and the quest to fly higher, faster, and further.[3] Due to research constraints, this paper cannot pretend to include all dimensions of Air Force management improvement and innovation. Instead, the effort focuses on several of the Air Force's internal, deliberate structures and means for fostering improvement. The paper examines some roots of the newly integrated manpower and quality career field,

beginning with the manpower and comptroller functional development. The history expands to examine later emerging players, such as the Leadership and Management Development Center and the Quality Air Force movement, among others. The work does not provide a comprehensive history of all manpower or quality related activities, but focuses primarily upon providing a sense of the deliberate pursuit of management improvement. Treatment excludes areas such as management improvement history within research and development, acquisition, operations, and individual or team innovations. Application of the lessons learned reveals implications for the manpower and quality career field, but it may also prove relevant to other functions throughout the Air Force.

Road Map

Chapters Two and Three explore the first portion of the thesis by constructing a historical framework of Air Force management innovation efforts and then making some observations regarding the knowledge potentially available to the manpower and quality career field. Chapter Two provides a management improvement overview by decade, highlighting budget climate and related contextual factors, the key Air Force management improvement players, and a sampling of related management tools and programs. Chapter Three asks the question, "What can we learn from this history?" Through an analysis of the historical information, it addresses three areas. First, we may discern patterns related to management improvement. Second, a mass of knowledge exists, but it is not always easy for practitioners to obtain. Third, despite the abundance of information, maintaining an in-service work force with this specific knowledge may be difficult. This path helps to answer the second element of the thesis, "Should we develop

a strategy to employ our existing MQ knowledge?" Chapter Four discusses why we should harvest our past and present knowledge: because at this stage, we see applications related to meeting our present challenges. Chapter Four reaches back into the information uncovered thus far to summarize what we can conclude and some examples of what we cannot conclude without more research. The chapter ends by postulating some recommendations for the MQ career field. Appendices show historical budget and force level data, which illuminate the contextual setting and reveal historical patterns.

Notes

[1] This point was confirmed by Headquarters Air Force, Manpower and Quality Plans Division (HQ AF/XPMX) as of January 1998.

[2] The author served as a co-facilitator for the Air Force Manpower and Quality Utilization and Training Workshop held in October 1996, as referenced in Message, 201228Z SEP 96, US Air Force deputy chief of staff for programs and evaluations to major command and special activity manpower and quality directors, 20 September 1996. During this workshop, representatives of the newly integrated career field reviewed all current training programs and established content for the revised training programs. To date, none of the instruction provided in the basic courses at Keesler Air Force Base (AFB), Miss., the Manpower and Quality Staff Course at Maxwell AFB, Ala., or within the career development courses presents this historical overview (as verified by the course directors). The author served as the first director of the Air Force professional manpower staff officer course (PMSOC) and the subsequent Air Force manpower and quality staff officer course (MQSC) at Air University, Maxwell AFB, Ala.

[3] Gen Ronald R. Fogleman, Air Force chief of staff, said, "We are reminded that the Air Force was born from the need to innovate and do things better…It is a legacy we are committed to uphold," in his address "Air Force Quality: On Course into the 21st Century," Air Force Quality Symposium Banquet, Montgomery, Ala., 17 October 1996.

Chapter 2

The Decades of Air Force Manpower and Quality History

> *Within the Air Force, and indeed in the world around us, be it government, industry, or politics, cries for better resource management are heard daily. These cries are for more economy, for more scientific progress and for more defense for the dollar; they represent the dominant theme of management.*
>
> —Major General Benjamin O. Davis, Jr., January 1965

This chapter, the heart of the research project, provides a "broad-brush" overview of the decades of the Air Force quest for management improvements. The relevance is in understanding that the Air Force has been actively engaged in seeking such improvements since its inception as a separate service. Since 1947, the Air Force has fielded a myriad of programs and efforts targeted at management improvement and has built a history rich with lessons and experience we may be able to harvest today. We can understand this more fully by looking back and at least discovering the context of each decade's activity. The following sections, arranged by decade, help us begin to learn from the past by answering three questions:

1. What were some fundamentals of the budget climate and related factors?
2. Who were some of the key management improvement players?
3. What were some of the major management improvement tools and programs?

We start the journey at the close of World War II and work our way towards the present.

From Birth Through the Fledgling Fifties

Budget Climate and Related Factors

The Air Force began as an organization seeking to employ all the latest in science, technology, and management theory. The service was created in 1947, in the midst of the significant drawdown following World War II. However, even before the inception of the Air Force as an independent service, we find evidence of the quest for improved business management procedures. Note these words from Robert A. Lovett, Assistant Secretary of War for Air, recorded 5 October 1945:

> Now that we have entered the cycle of sharp contraction, of reduction in expenditures, and of competition between the Services for the continuation of modern military establishments, it is becoming apparent that our machinery and our policy must reflect these conditions and be adapted to meet them. During the war one of the outstanding accomplishments of the Army Air Forces (AAF) staff was the adaptation of certain basic business principles to military needs and the handling of problems that are essentially those of a business enterprise…we must be sure that every dollar allocated goes to the most needed project and we must get a full dollar's worth out of every dollar expended. This calls for the best type of business management…economies should result from a better recognition of the relationship between AAF operations and costs…the Air Forces have led the other Services in progressive business-like practices.[1]

The post-war Hoover Commission pointed to numerous reforms necessary to make the whole defense establishment more accountable, but the Air Force was already quick to employ the very latest in management knowledge.[2] W. Stuart Symington, the first Secretary of the Air Force, embraced a deliberate management improvement strategy and even hired consultants to get things started right.[3] A wholesale demobilization was in progress, yet the services were tasked to retain worldwide presence while a new war brewed—the war to contain Communism.[4] With the Korean conflict in 1950 came a need to rebuild the right force for the job.[5] After signing of the cease-fire in 1953, total

military end strengths declined overall, but the Air Force actually grew again somewhat through the decade, as the free world and the Communist states settled into the long and terrifying Cold War.[6] The nation relied heavily upon the Air Force during this period as the mainstay for defense against possible air attack. Nuclear-armed US bombers stood on alert, providing a credible deterrence and ready to strike.[7] The Symington Commission highlighted Congressional concerns over whether the Air Force could rise to this challenge and what management initiatives the service employed to make best use of resources.[8] The decade ended with passage of the Defense Reorganization Act of 1958, a management reform which strengthened the office of the Secretary of Defense relative to the services, paving the way for more management improvement efforts to be driven from that level.[9]

Key Air Force Management Improvement Players

At Headquarters Air Force, the manpower and organization (M&O) function began service in alternating forms under the deputy chief of staff (DCS) for operations or the chief of staff. During most of the 1950s, the Air Force director of M&O (AFOMO) served under the DCS for operations.[10] Until the mid-1950s, management and force changes were primarily generated from the top down. Major commands (MAJCOMs) eventually had a manpower and organization function, with guidelines allowing any wing, base or comparable organizations to have up to six management engineering personnel for every three to four thousand persons serviced.[11] Although the Air Force permitted these staff levels, very few full-time management engineers existed throughout the service. In the comptroller realm, the directorate of management analysis guided a

parallel program that reached to the field, with the staff usually reporting to the wing commander.[12]

Management Tools and Programs

Although it appeared scattered, some management improvement capability existed throughout the Air Force. This capability normally resided in the AFOMO and comptroller organizations. Air Force Regulation (AFR) 25-3 formally described the fledgling management engineering capability.[13] The capability appeared to demonstrate a strong Taylorist approach to improvement.[14] The service established formal work measurement systems to provide data for justifying manpower requirements.[15] The Air Force took steps to reduce less essential support activities in order to apply maximum manpower directly to combat force requirements, using management actions such as project "Native Son" and "Home Front" (more use of civilians), reduction of organizational overhead, and vigorous programs to implement management improvements.[16] The comptroller's management analysis guidance emphasized effective and economic use of men, money, and materiel.[17] Comptroller instructions discussed planning, organizing, directing, coordinating, and controlling, and how commanders could make optimum use of their management analysis functions.[18] The comptroller could, for example, keep a unit's "instrument control panel" up-to-date, showing the commander where he was operating effectively and where his "red light" areas were.[19] The comptroller emphasized collecting, analyzing, and presenting data for commanders to review in order to make sound judgements.[20]

The Surging Sixties

Budget Climate and Related Factors

With foundations laid at the turn of the decade, the management improvement quest began to show much stronger formal definition and progress. The Cold War was still in full swing, the space race had begun, but domestic concerns put pressure on the government to get the best value out of the defense dollar.[21] Given the new authority of the office, Secretary of Defense Robert S. McNamara actively sought means to infuse scientific management methods into the services and exercise program control.[22] The American resolve towards containing Communism drew us into a bumpy but upward climb in defense spending.[23] The nation's involvement in Vietnam escalated, while we maintained global presence and built strategic forces to ensure stability and deterrence. Total defense outlays as a share of gross domestic product (GDP) started at 8.0 percent in 1960, rose slightly through 1961 and 1962, then declined to 6.7 percent by 1965.[24] Defense outlays climbed in the following three years, then declined again through the end of the decade.[25] Air Force total personnel end strength peaked in 1968 at 1,227,511.[26]

Key Air Force Management Improvement Players

General Curtis LeMay's top-down emphasis establishing the manpower validation program (MVP) throughout the Air Force drove some increases in and standardization of management improvement functions.[27] General Benjamin O. Davis, Jr., serving as the AFOMO, took actions to create a fully developed Management Engineering Program (MEP).[28] By 1965, the Air Force had 1,438 people assigned to management engineering, with 147 teams worldwide.[29] Manpower management involvement in the effort solidified significantly, while comptroller functions continued to play a role as well.[30]

Management Tools and Programs

Management engineering and management analysis continued to mature. Guidance of the period emphasized improving operational efficiency in many ways, especially improving procedures on which valid standards could be based.[31] Directives contained many observations and lessons learned. Manuals for creating management improvement warned against substituting an "ideal" work process for actual achievement of results, pitfalls of poorly oriented surveys, the importance of leaders understanding the potential uses of management engineering services, and in studying problems, the need to compare "what is" to "what ought to be."[32] Air Force Manual (AFM) 25-5, 9 January 1961, formalized the MVP originally chartered by General Curtis LeMay on 6 January 1959.[33] The MVP provided MAJCOMs with a tool for improving distribution of available manpower resources by providing systematic procedures for accurately determining the manpower required to perform work at various workload volumes. The new AFM 25-5 noted that a typical MVP team would require five carefully selected individuals, with special emphasis on initial and continuing training and professional development. Program guidance and leadership encouraged team members to join professional groups such as the American Institute of Industrial Engineers (AIIE) and the American Management Association (AMA).[34] Another management improvement tool, the Cost Comparison Program, made its debut in 1967.[35] Cost comparisons studied certain activities to gain more economies from services within the Air Force or by contracting the function to an outside source.

The Slippery Seventies

Budget Climate and Related Factors

With the curtailment of US involvement in Vietnam through Nixon's 1973 "peace with honor," the fall of South Vietnam in 1975, Watergate, and an economy rocked by several "energy crises," the Air Force encountered another slippery downward slope.[36] Beginning in 1969, actual defense outlays had already begun a decline, and by the Nixon-Ford era had dropped 25 percent below pre-Vietnam levels.[37] From 1970 to 1979, Air Force personnel end strength plummeted from 1,097,672 to 793,704.[38] In 1979, Carter proposed a several percent real growth in defense, which Congress supported, particularly in light of the Soviet Union's incursion into Afghanistan.[39] General David C. Jones, US Air Force chief of staff, described some very familiar resource concerns:

> The Air Force has long recognized that, if we were to continue the modernization necessary to support the American position of free world leadership, a substantial part of the necessary resources would have to come from internal efficiencies and economy measures…Mr. Chairman…I wanted to take this opportunity to reinforce the confidence of this Committee that the Air Force's primary interest is to provide the Nation the best defense for the dollars appropriated. Our continuing goal is to maximize force capability by improving individual initiative, morale, and productivity.[40]

General Jones further related that the Fiscal Year (FY) 1976 Air Force budget, although $5.9 billion larger than the FY 1967 budget, represented 38 percent less purchasing power than 10 years earlier.[41] The all-volunteer force was instituted in the 1970s, creating a new set of considerations in maintaining a quality force.[42] Management improvement and resource saving measures were pursued *in extremis* to mitigate the impact of such dramatic changes.

Key Air Force Management Improvement Players

In the 1970s several existing in-service capabilities matured, while new players emerged. The manpower and organization structure was now very well established, from Headquarters Air Force, to MAJCOMs and most special activity organizations, down to the field Management Engineering Teams (MET). These MET detachments usually reported up a short command chain linking them to their respective major command deputy chief of staff for plans and programs.[43] Thus, METs were usually MAJCOM assets not under control of the local senior installation commander, but existed as tenant organizations on the bases they served. To provide more responsive service to Air Force functional managers, the service established "functional" METs (F-MET), beginning in October 1973.[44] By FY 1977, individual F-METs actively supported functional efforts in civil engineering, maintenance and supply, manpower and personnel, transportation, munitions, data automation, special staff, comptroller, medical, security police, and intelligence. Because of the vital need for an agency to centralize management and control over F-METs (since they did not report to MAJCOMs), provide technical guidance, and give central direction to the sprawling Management Engineering Program, Headquarters Air Force Management Engineering Agency (HQ AFMEA) was established on 1 November 1975.[45] Initially, the HQ USAF M&O also served as the HQ AFMEA commander, although the organization later began operating with a separate commander. Meanwhile, Air Force comptroller efforts continued at all levels in the service but began to wane somewhat as AFMEA, the MEP, and organizations such as the Logistics Management Agency began to play larger roles in resource management improvement that competed with the full spectrum definition of traditional comptroller functions.[46]

Another new player emerged, the Air Force Leadership and Management Development Center (LMDC), at Maxwell Air Force Base. LMDC initially provided leadership and management training, especially for career non-commissioned and commissioned officers. Later, the LMDC engaged in formal consulting for units Air Force-wide, advertised as "a new and interesting" service available for air force commanders.[47]

Management Tools and Programs

The MEP continued to provide an in-service management advisory capability to help Air Force managers increase effectiveness in achieving mission objectives.[48] AFM 25-5 outlined full details and asserted four keys to the improvement process: all organizations have to continually improve to survive; improvement can be measured in terms of cost, time, and quality parameters; improvement can be accomplished either sporadically or (better) systematically; and the improvement process can, and must, be managed if it is to have a lasting and meaningful effect.[49] Meanwhile, the Air Force was attempting to infuse several management improvement approaches, such as Management by Objectives (MBO), job enrichment, and zero-base budgeting, through multiple avenues, including increasing exposure to officers and airmen through Professional Military Education.[50] The Defense Integrated Management Engineering Program (DIMES) also supported improvement efforts, directing all Air Force managers to "use management and industrial engineering principles and techniques wherever possible."[51] In addition, the Air Force pursued means of cutting infrastructure while striving to maintain combat capability. The service launched a new series of outsourcing initiatives through the Cost Comparison Program, which would continue on a large scale through the early 1980s.[52] Field METs

usually performed cost studies, but the management analysis office would perform a quality control review. Management analysis continued to perform studies and cost analysis services.[53]

The Exciting Eighties

Budget Climate and Related Factors

The 1980s could easily be described as an exciting time for management improvement in the Air Force. The declining budget, decreased morale, and "hollow force" of the post-Vietnam era seemed to melt away as President Ronald Reagan set in motion the biggest peacetime defense spending initiative the country had ever seen.[54] The United States braced to win over the "Evil Empire" in a grand way, including establishment of cruise missile units in Europe and initial operational capability of the F-117A stealth fighter.[55] Automation and technology were prime for innovation and improvement; functions sought to integrate the newly affordable technology and desktop computers into all relevant aspects of their operations. Defense spending as a percentage of GDP climbed from 4.9 percent in 1980 to 6.1 percent by 1986.[56] Air Force personnel strength peaked in 1987, and once again competition for valuable resources increased as the budget began its decline.[57] The year 1989 spawned whole new implications for reducing the services as the Cold War began to melt away—the "Iron Curtain" was literally being torn down while Soviet troops vacated Eastern Block countries.[58]

Key Air Force Management Improvement Players

In 1979, manpower and personnel were "married" organizationally, impacting all organizational levels, but especially Headquarters Air Force, the Air Force Manpower

and Personnel Center, and the functional training at Maxwell and Keesler Air Force Bases.[59] By 1985 this arrangement was for the most part reversed.[60] The manpower community assumed responsibility and existing assets associated with the Air Force Suggestion Program, usually incorporating it at field level into the METs. Most command METs continued in "stovepipe" fashion to remain as tenants at locations they serviced and report to their respective MAJCOM manpower counterparts. In the late 1980s, Tactical Air Command transferred their teams to the ownership of the deputy chief of staff (DCS) for resource management (RM) at their bases. In many commands, the comptroller's management analysis branches continued to actively promote their management improvement services.[61] The LMDC at Air University continued to play a role through training and formal consultation services until budget and programming changes restricted their abilities.[62]

As the decade progressed, formal and informal Air Force interest in the Total Quality Management (TQM) movement exploded. No single Air Force strategy emerged, while industrial engineering, inspector general, manpower, training and newly created quality advisors and offices all began to proliferate the quality concepts. Some commands, such as Air Force Systems Command, even developed guidance and information that they shared Air Force-wide. Members of the Air Force Human Resource Laboratory, such as Dr Charles N. Weaver, began traveling to commands to share their methods for implementation.[63] Some units and functional communities nurtured this capability "out of hide" with no official movement of resources, while others created whole new, formal organizations and arrangements.[64]

Management Tools and Programs

The Air Force Management Engineering Program started out the decade in full stride, but it began struggling as functional communities became increasingly dissatisfied with the 18- to 24-month development times for many studies.[65] New Department of Defense Instructions (DODI) in the early 1980s mandated efficiency reviews as part of the manpower standards development and resource requirements determination process, so the service combined the old MEP with new guidance to create the Functional Review Process.[66] Guidance directed all services complete these Functional Reviews by 1992, and METs worked diligently with functional communities to meet the challenge. In addition to Functional Reviews, METs actively advertised their management advisory services, often seeming to compete with their local base management analysis capability.[67] At major units with a DCS/RM, Air Force resource management guidance encouraged Resource Management Team (RMT) visits to assist local units.[68] Quality Circles were introduced Air Force-wide around 1983, but many died as quickly as they came.[69] The Air Force Suggestion Program made major headway, along with the Model Installation Program (MIP), both of which tried to be responsive to the initiator and drive changes to Air Force guidance when improvements would dictate.[70] The Air Force created the Productivity Enhancement Program (PEP) to cover all existing productivity related programs, attempting to create synergy from 14 existing programs, including the MEP.[71] Traditional manpower tools such as work measurement techniques, flow process charting, layout analysis, shift profile charting, and others began to swim in a bigger sea, teeming with new generations of productivity tools and streams of total quality techniques.[72] A shift was underway from *expert* consultation, wherein a MET or set of management analysis experts came in and worked on a problem and offered solutions,

towards more *process* consultation, wherein workers themselves learned the tools and were facilitated through the problem solving process.[73]

The Nebulous Nineties

Budget Climate and Related Factors

The supernova effects of numerous changes, reforms, and budgetary reductions throughout the 1990s left the future of Air Force management improvement in a nebulous state of existence. Immediately after the world events beginning in 1989 set in motion the disintegration of the Warsaw Pact and former Soviet Union, pressures mounted in the United States to realize a "peace dividend" from the Cold War victory.[74] The Air Force closed bases and significantly reduced its presence overseas, while mandated base realignment and closure (BRAC) rounds reduced infrastructure in the continental United States.[75] Lawmakers began to focus on reducing the federal debt and balancing the budget.[76] Numerous top-driven management reforms, such as the National Performance Review (NPR) and Government Performance and Review Act (GPRA), had significant impact.[77] General Michael E. Ryan, US Air Force chief of staff, shared this on 16 October 1997:

> We in the Air Force have a force that has decreased by 38 percent in the last 10 years while operations tempo has increased. A budget that decreased 40 percent and a research and development budget cut in half. It is for that reason the Air Force launched on a quality journey several years ago. We were faced with the reality of shrinking resources and increasing tasks. We knew we had to find smarter ways to increase efficiency and productivity…not necessarily to work more but to work smarter.[78]

Key Air Force Management Improvement Players

Air Force players went through a series of organizational changes and evolutions during this decade. During General Merrill A. McPeak's tenure as Air Force chief of staff, the service endured organizational improvement initiatives to "streamline, de-layer, and flatten," including implementation of the objective wing structure at field levels.[79] Command METs were downsized significantly and realigned from MAJCOM or from local RM control to become wing staff elements.[80] Comptroller squadrons endured significant downsizing as accounting and finance functions transferred to Defense Finance and Accounting Service (DFAS) control, leaving smaller wing budget and management analysis functions. As Quality Air Force (QAF) initiatives took root in each command and special activity, individuals were placed in newly created quality advisor or quality improvement positions; some of these positions were formal, but many more at all organizational levels were not.[81] Some command inspector general functions performed significant quality missions.[82] Often, quality practitioners thrived completely independently of traditional manpower or comptroller management improvement efforts.[83] Commands and wings created quality improvement (QI) offices.

At Air University, the Air Force Quality Center was established, followed later by the Air Force Quality Institute (AFQI).[84] Meanwhile, the Air Force Management Engineering Agency (AFMEA) closed down the functional teams that had existed since the 1970s and withdrew from some of their traditional Air Force manpower management support roles, redirecting more effort towards providing direct consultant services to the Air Force functional community during their last 18 months of existence.[85] A comparison of AFMEA functions and services (during the last 18 months of the organization's existence) to those of AFQI would reveal several complementary or

similar functions.[86] With the mounting frustration in the Air Force leadership to "operationalize quality," the Air Force chief of staff and several Corona meetings led towards integration of the manpower and quality infrastructure at all Air Force levels, and the new manpower and quality career field was born in 1996.[87] This integration dissolved AFMEA and the AFQI effective March 1997, creating the new Air Force Center for Quality and Management Innovation (AFCQMI).[88] Quality advisors and the manpower offices merged at wing level. At major command level, a schism remained as the quality innovation and traditional manpower functions were usually realigned as two separate divisions, reporting to the DCS/plans and programs.[89]

Management Tools and Programs

The Air Force Functional Review Process, which was intended to improve, standardize and measure work processes, gave way to the Objective Flight Studies directed by General McPeak. These studies were to zero-base, that is, re-justify from a "clean sheet," many Air Force functions (those not covered by crew ratio or logistics composite modeling). Teams of manpower and functional experts performed objective flight studies with the intent to identify and prioritize major functional processes, improve processes where possible, and create new tools for sizing and redistributing resources. These studies forced more of a resource-based posture than the previous requirements-based system of managing. Many of the studies reduced manpower levels for Air Force functions but did not generate equitable reductions in tasked responsibilities or workload.

Meanwhile, commands initiated myriad process improvement studies, often called process action teams, quality improvement teams, or process improvement teams.[90]

These teams normally involved representative customers, suppliers, and "process owners," who would use QAF tools and techniques to solve problems or make improvements. In addition to the team approach, myriad training programs abounded, aimed at all Air Force members and institutionalized in the QAF training architecture. Along with tools and techniques, quality leadership, facilitation, unit self assessment, benchmarking, strategic planning, action workout, and numerous other concepts were taught and deployed throughout the Air Force.[91]

As General Fogleman created the manpower and quality career field in 1996, manpower's use of traditional tools, plus functional process improvement (FPI), reengineering, modeling and simulation, activity based costing, and other methods were added to the quality tools to create a laundry list of "capabilities" for the new career field.[92] Wholesale QAF training of the Air Force population decreased and in some areas, such as strategic planning, nearly ground to a halt. Creation of the new career field drove a review of all training, internal and external, to identify essential service needs.

As the entire MI community endured changes, waves of management reform swept through DOD and the service, including the Defense Management Review, the Bottom-Up Review, the National Performance Review, the Quadrennial Defense Review, the National Defense Panel, the National Reform Initiative, and several other related blue-ribbon panels and commissions.[93] Competition, outsourcing and privatization again emerged as major themes, a juggernaut refueled within the above reform instruments.[94] Falling budgets and a host of changes provide the context for today's management challenges.

What can we learn by looking back at five decades of Air Force MI history? We explore a few examples of what we can learn in the next chapter.

Notes

[1] Robert A. Lovett, Assistant Secretary of War for Air, Memorandum for General Arnold, Subject: A. Need for Improved and Increased Business Management Procedures; B. Solution Through Establishment of Office of Air Comptroller General, 5 October 1945.

[2] Herbert Hoover, chairman, *The Hoover Commission on Organization of the Executive Branch of the Government*, 1947-1949 (New York: McGraw-Hill, 1949), 185-197.

[3] Robert A. Smith III, "Consultation Without Revelation," *Advanced Management Journal*, January 1965, 29, and Flint O. DuPre, *U.S. Air Force Biographical Dictionary*, (New York: Franklin Watts, Inc, 1965), 229-230. Also Walter J. Boyne, *Beyond the Wild Blue: A History of the United States Air Force, 1947-1997*, (New York: St Martin's Press, 1997), 36-37. Symington hired Eugene M. Zuckert as Assistant Secretary of the Air Force on September 26, 1947, just days after himself becoming the first Secretary. The connection here lies in the two men's commitment to educating leaders in the principles of sound business management. Symington had a strong business education, served as a highly successful businessman before his tenure as Assistant Secretary of War for Air, and introduced cost control measures into the service. While teaching at the Harvard School of Business Administration, Zuckert performed as a consultant to the Air Force, instructing over 3,000 officers in methods to develop statistical controls and heading the first advanced management course given to military leaders at Harvard. Zuckert became Secretary on January 24, 1961.

[4] The concept of containment is discussed within Dean Acheson's *Present at the Creation: My Years in the State Department* (New York: Norton), 1969, 151.

[5] Air Force personnel strength soared from 565,730 in 1950 to a peak of 1,288,506 in 1953, reference Appendix B-1 of this paper.

[6] See Appendix B-1.

[7] Mel Hunter, *Strategic Air Command* (Garden City, N.Y.: Doubleday and Co., 1961), 10-11.

[8] Symington maintained a great interest in the Air Force even after his election to Congress in 1952 (DuPre, 230). In 1956, the Symington Subcommittee Investigation was commissioned to "examine into the condition and progress of the Department of the Air Force to ascertain if present policies, legislative authority, and appropriations are adequate to maintain a force capable of carrying out its assigned mission," per Brig Gen Thomas C. Musgrave, Jr., USAF, Chief, Special Staff Group, in a Memorandum for Maj Gen Hobson, Director of Manpower and Organization, (HQ USAF, DCS/O), 14 March 1956. In General Hobson's 4 April 1956 reply, portions of his preparation discussed goals to be achieved through management improvement, civilianization, and other initiatives.

[9] Boyne, 124-127.

Notes

[10] L.J. Barnhill, "Manpower and Organization: A Separate Function," (master's thesis, University of Indiana, 1964), 45.

[11] Air Force Manual (AFM) 26-1, *Manpower: Policy and Criteria*, 1 June 1956 (Revised), section Manpower and Organization, Code 30000. The section defines manpower and organization as "activities relating to the development and administration of policies and procedures pertaining to organization, management engineering, manpower programming, and manpower utilization; programming and allocation of military and civilian personnel authorizations and the conduct of studies of manpower utilization and management improvement." The 20, 25, 26, and 150 series of Air Force publications contained applicable guidance of the period.

[12] From 1949 through 1964 the comptroller (including his management analysis staff) served the wing commander according to Maj Joseph A. Campione, "The Growth and Development of USAF Comptrollership," Air Command and Staff College Report 83-345, 49.

[13] Air Force Regulation (AFR) 25-3, *Management: Management Engineering Services*, 22 June 1953, later revised 26 October 1954.

[14] Frederick Taylor, known as "the father of scientific management," has also been associated with the Taylor system, functional management, shop management, and the quest for efficiency. Jack W. Duncan's book, *Great Ideas in Management: Lessons from the Founders and Foundations of Managerial Practice* (San Francisco: Jossey-Bass, Inc., 1989), is a good source for understanding Taylor and others who have shaped management thought.

[15] AFM 25-4, *USAF Work Measurement System,* 15 July 1953, 1. Prior to World War II and Congressional implementation of Hoover Commission recommendations, services had been banned by law from using tools such as time study.

[16] AFM 26-1, *Manpower: Policy and Criteria,* 8 October 1957, 1.

[17] AFM 170-2, *Management Analysis,* Sept 1954.

[18] Air Force management guidance openly incorporated these "five elements of management" and other foundational business principles as originally conceived by Henri Fayol in his work, *General and Administrative Management* (London: Pitman, 1916 and 1949), 43, 53, 97, 104, 109. The Air Force embraced many of Fayol's 14 principles of management, which he agreed were not an exhaustive list (19), including "unity of command." See also AFR 25-1, *Management: Management Philosophy and Policies of the Air Force,* 17 July 1953.

[19] AFM 170-2A, *Management Analysis,* 1 Nov 1958, illustrated a graph of factors such as combat effectiveness, programmed flying time, millions of dollars received for the fiscal year, dollars obligated, and more.

[20] AFM 26-1, *Manpower: Policy and Criteria,* Management Analysis, Code 19000, 1 May 1957 (Revised), defined Management Analysis as "Activities pertaining to developing and presenting integrated analysis and control data for management in terms of principle missions and/or organizational objectives; developing standards to evaluate performance; providing planning factors; isolating problem areas to facilitate command decisions; and furnishing analytical and advisory staff services to assist in the most effective and economical use of Air Force resources." Air Force policies for carrying out

the responsibilities of the Management Analysis function were contained in AFR 170-10, AFL 170-5, and AFM 170-2.

[21] President Lyndon B. Johnson sought all opportunities to transfer funds from defense to domestic programs "to grasp the opportunities of Great Society," putting pressure on the defense establishment to meet challenges as revealed in Dennis S. Ippolito, *Blunting of the Sword: Budget Policy and the Future of Defense* (Washington, D.C.; National Defense University, 1994), 17-19.

[22] Benjamin O. Davis, Jr., *Benjamin O. Davis, Jr., American: An Autobiography*, (Washington, D.C.: Smithsonian Institution Press, 1991), 264.

[23] Ippolito, 17-19.

[24] See Appendix A-2.

[25] William S. Cohen, Secretary of Defense, *Annual Report to the President and the Congress, April 1997* (Washington, D.C.: Government Printing Office, 1997), 245 and B-3.

[26] Appendix B-2.

[27] Gen Curtis E. LeMay, US Air Force vice chief of staff, Letter to All Major Air Commands, Subject: Manpower Validation Program, 6 January 1959.

[28] Davis, Jr., 269, 270.

[29] Ibid., 270.

[30] The Cost Center Performance Measurement System was among the aggressive new business practices inserted by the comptroller community. Robert F. Hale, Assistant Secretary of the Air Force, "Comptrollership—Service to Military Management," AFRP 65-1, *The Air Force Comptroller*, Volume 30, Number 3, 1 July 1996, 9.

[31] AFM 25-1, *USAF Management Process*, 15 October 1964, 25.

[32] Ibid., 25.

[33] AFM 25-5, *USAF Manpower Validation Program*, 9 January 1961, 1-2.

[34] Ibid, 4-5.

[35] AFR 25-3, *Management Engineering: Air Force Productivity Enhancement Program (PEP)*, 25 February 1982, Attachment 2, 11.

[36] Larry H. Addington, *The Patterns of War Since the Eighteenth Century* (Bloomington, Ind.: Indiana University Press, 1994), 298.

[37] Ippolito, 19.

[38] Appendix B-2.

[39] Ippolito, 22-23.

[40] Gen David Jones, "Fiscal Year 1976 Posture Statement," Supplement to Air Force Policy Letter for Commanders, Number 4-175, 10 February 1975, 23.

[41] Ibid., 22.

[42] Project Rand, *Military Manpower and the All-Volunteer Force* (Santa Monica, Calif.: RAND Corporation, 1977).

[43] PMPMC training briefing "Manpower's Role in the Air Force," prepared by the Air Force Human Resource School for the Professional Manpower and Personnel Management Course (PMPMC), Maxwell AFB, Ala., circa 1991.

[44] AFRP 38-1, *Manpower and Organization Newsletter*, Volume 28, Number 3, 2

[45] Ibid., 3.

Notes

[46] Lt Col Paul Hough, *Why The Comptroller Needs a Doctrine,* unpublished. n.p.

[47] Col Peter A. Land, "Contemporary Management Issues in the US Air Force," *Air War College Associate Programs, Volume I,* Military Environment and Decisionmaking, Chapter 16, Challenges to Leadership and Command, 1978-79. Colonel Land presents students in Air War College with a "new and interesting service available to Air Force commanders—Management Consultation," which primarily explains and showcases the consultation services of the Leadership and Management Development Center (LMDC). From the discussion, it is highly evident that the LMDC method was strongly from the organizational development approach, focusing on the human element and motivational aspects. He noted LMDC having consulted for 152 major organizations, encoding 8,040 validated perceptions in their database, conducting 1,959 4-hour educational seminars attended by over 88,000 supervisors, and the details of their Management Consultation Information System. He also mentions the 1975 CSAF-directed AF Management Improvement Group.

[48] AFM 25-5, *Management Engineering Policies and Procedures,* 8 August 1973, 2-1.

[49] Ibid., 2-1.

[50] Management By Objectives (MBO), originally introduced by Peter F. Drucker in the 1950s, saw several concept revisions. Although traces of MBO could be found in the Air Force earlier, the Air Force taught MBO in an expanded effort in the early to mid 1970s. The Lightner Board Report (United States Air Force, "Review of Air War College and Air Command and Staff College," Maxwell AFB, Ala., 1973, 88) pointed to a need for the service to infuse more modern management concepts in formal training. Some of the tenets of MBO have parallels with the strategic planning concepts introduced into the Air Force in the 1990s. For more information on MBO, references include: Anthony P. Raia, *Managing by Objectives,* (Glenview, Ill.: Scott, Foresman and Company, 1974); Dale D. McConkey, "Twenty Ways to Kill Management By Objectives," *Management Review,* Vol. 61, October 1972; Lt Col Darryl W. Freed, "Management By Objectives," *Air War College Associate Programs,* Vol. I, Military Environment and Decisionmaking, Chapter 16, Challenges to Leadership and Command, Tenth Edition, 1975-76.

[51] AFR 25-9, *Management: Air Force Participation in Defense Integrated Management Engineering System Program (DIMES),* 3 December 1993, 2.

[52] United States General Accounting Office, *OMB Circular A-76: Legislation Has Curbed Many Cost Studies in the Military Services,* GAO/GGD-91-100. Washington, D.C.: General Accounting Office, July 1991. Over time, legislation affected the service's A-76 activities. Public Law 100-180, 4 December 1987 (the Nichols Amendment) decentralized A-76 authority in the military services, giving individual military installation commanders the authority and responsibility to determine which activities at their installations would be studied.

[53] The management analysis function launched new emphasis to perform "special analysis including periodic analysis of the status of selected Air Force programs, specials studies and analysis of current management problems that cut across functional areas of responsibility and studies and analyses to reduce the emphasis on outside consultants,"

per the Directorate of Management Analysis History, 1 January – 30 June 1968, 1, which continued along into the 1970s as confirmed in the 1 January – 30 June 1972 report, 28.

[54] William W. Kaufmann, *A Reasonable Defense,* (Washington, D.C.: The Brookings Institution, 1986), 24-25.

[55] Thomas S. Arms, *Encyclopedia of the Cold War,* (New York: Facts on File, Inc., 1994), 478.

[56] See Appendix A.

[57] Appendix B-2 shows Air Force personnel strength peaking at 861,481 in 1987.

[58] Daniel S. Papp, *Contemporary International Relations: Frameworks for Understanding* (New York: Macmillan, 1994), 174-178.

[59] AFRP 38-1, *Manpower and Organization Newsletter,* Volume 28, No. 3, 3.

[60] Ibid., 3.

[61] Comptroller of the Air Force, *Management Abstracts and Special Studies*, Directorate of Management Analysis, 1975.

[62] AFR 25-1, *Management Engineering: The Air Force Leadership and Management Development Center (LMDC), Management Consultation Program,* 28 Dec 1982. This document established the responsibilities for the AF LMDC management consultation program, explained the process, and provided guidelines for requesting the service. It acknowledged that consultation "takes different form in various AF agencies." The consultation was available "to all commanders to enhance combat effectiveness and productivity of Air Force units and members" with a program goal to "increase unit readiness and operational capability." It also noted that HQ USAF/MPX would convene a conference once per year to "bring together personnel who are active in leadership or management education, management consultation, PME curricula design, training, and behavioral science...to exchange ideas, learn new concepts, evaluate state of the art consulting strategies, implement new program modifications as required, and develop action plans to meet future program objectives."

[63] I first met Dr. Weaver as he visited my office within the manpower and organization directorate at Headquarters Military Airlift Command back in 1991. Dr Weaver had published *TQM: A Step by Step Guide to Implementation,* Quality Press, Milwaukee, Wisconsin, 1991, and with L.T. Hooper had crafted the "Methodology for Generating Efficiency and Effectiveness Measures (MGEEM): A Guide for Development and Aggregation of Mission Effectiveness Charts," (AFHRL-TP-89-7, AD-A208 353), May 1989, Brooks AFB, Texas, Manpower and Personnel Division, Air Force Human Resource Laboratory. Software for MGEEM was created under the name Performance Measures Tracking System (PMTS) and delivered to the field by METs. In 1992, Weaver co-authored a series of guidance on implementing total quality management, released through Armstrong Laboratory, using a "Blue Team/Gold Team" concept which he promoted throughout the service

[64] Capt Kenneth R. Theriot, in his article "Is QAF Destined for Failure?" as found in the *Proceedings, Quality Air Force Symposium 1993*, October 1993, Air Force Quality Center, Maxwell AFB, Ala., 227, explains the usual Air Force policy on the growing number of quality advisor positions cropping up in all organizations, "take them out of hide." In other words, these new positions were not to be funded and established at the

expense of other functional positions. Later, this policy eroded as some major commands stepped up to providing some funding, and eventually the Air Force allowed funding a quality advisor for wing commanders, if desired. I was serving as both wing quality advisor and the wing manpower officer at the time and can confirm this, but I could not obtain the original source memoranda or Air Force Quality Council minutes for confirmation of specific dates and policies.

[65] Functional communities needed more responsiveness in order to justify new requirement submissions in the budgeting process. AFRP 38-1, *Manpower and Organization Newsletter*, Volume 28, No. 3, 3.

[66] Functional Reviews were directed to "enhance productivity in functions throughout the Air Force," per AFR 25-5, *Air Force Management Engineering Program*, Volume I, Change 1, 7 August 1984, 16-1.

[67] The author learned this first-hand while serving at Detachment 2, 1600 Management Engineering Squadron, (MACMET 2), Travis AFB. During my 1984-1987 tour, I actively promoted our Management Advisory Study (MAS) services, only to find myself in open competition and later cooperation with the 60th Military Airlift Wing management analysis staff.

[68] Ibid.; the wing RM would assemble resource experts from comptroller, supply, personnel, and the local MET. The RMT would visit a local unit and meet with them to identify and resolve any resource issues or identify potential areas for improvement.

[69] Col James F. Cashman, "Analysis of Quality Circles from a USAF Perspective," Research Report no. AU-AWC-0522-85-037 (Maxwell AFB, Ala.: Air War College, 1985). Col Cashman provides a balanced overview of the Air Force Quality Circles program, including leadership support (23-24) and a solid bibliography (37-39).

[70] Donald C. Trowbridge, "Suggestion Program and Model Installation Program—Duplication of Effort?" Air Command and Staff College Student Report, Maxwell AFB, Ala., April 1988. In the 1990s, Colonel Trowbridge was appointed as key panel member on a team to upgrade the Suggestion Program, the new concept renamed "IDEA."

[71] AFR 25-3, *Air Force Productivity Enhancement Program (PEP)*, Attachment 2, 25 February 1982, 11.

[72] One example source of many such reference tools is Michael Brassard's *The Memory Jogger: A Pocket Guide of Tools for Continuous Improvement*, (Methuen, Mass.: Goal/QPC, 1985) purchased and distributed widely throughout the Air Force. Anything written by Philip B. Crosby, W. Edwards Deming, J. Juran, and Kaoru Ishikawa became highly in vogue during this period and into the 1990s.

[73] Early management engineering efforts often centered on classical approaches taken by Fayol, Taylor, and Gantt, which often relied upon experts to study a problem and offer potential solutions; hence, "expert consultation," although the function evolved beyond this in many instances. The quality movement, although including statistical process control, tended to assert an organization development approach (examples: Kurt Lewin, William Ouchi, and National Training Laboratory), emphasizing the "people" and "team" aspect of organizations, leading to "process consultation," whereby practitioners served as guides in the process of facilitating teams towards their own solutions. See

Notes

Stephen P. Waring's *Taylorism Transformed: Scientific Management Theory Since 1945* (Chapel Hill, N.C.: University of North Carolina Press, 1991), 187-189.

[74] Gordon Adams and Conrad Schmidt, *The Elusive Peace Dividend* (Washington, D.C.: Defense Budget Project, 1992), 1-9. Also note Ippolito, 152-154.

[75] Base Realignment and Closure (BRAC) processes reduced or closed defense bases and activities in 1988, 1991, 1993, and 1995. See William S. Cohen, *Annual Report to the President and the Congress, April 1997* (Washington, D.C.: Government Printing Office, 1997), 90.

[76] The quest for a balanced budget actually began in the 1980s with the Gramm-Rudman-Hollings Bills of 1985 and 1987 (Ippolito, 29-30). Balanced budget actions from these bills, plus follow-on legislation, did not make large impacts until 1989 and beyond. Follow-on legislation included the 1990 Budget Enforcement Act (BEA), as extended by the 1993 Omnibus Budget Reconciliation Act, through 1998, noted in Steven M. Kosiak, *Analysis of the Fiscal Year 1998 Defense Budget Request* (Washington, D.C.: Center for Strategic and Budgetary Assessments, 1997), 12.

[77] Vice President Al Gore, *From Red Tape to Results: Creating a Government That Works Better and Costs Less, Report of the National Performance Review* (Washington, D.C.: Government Printing Office, 7 September 1992), 1-159.

[78] General Michael E. Ryan, Air Force chief of staff, "Tomorrow's Air Force—A Quality Force," delivered at the Air Force Quality Symposium, Maxwell AFB, Alabama, October 16, 1997.

[79] Merrill A. McPeak, "Tomorrow's Air Force" Video Briefing, November 1991.

[80] Ibid.

[81] See earlier note regarding Theriot's article.

[82] Inspector General functions often became involved in the Unit Self Assessment (USA) and Quality Air Force Assessment (QAFA) aspects of the quality revolution. See Air Force Handbook (AFH) 90-502, *Command Policy: The Quality Approach*, 1 Aug 1996, 57.

[83] See General Fogleman's address, QAF Symposium 1996.

[84] Col Hank Fiumara, Air Force Quality Institute commander, "Continuing the Tradition of Excellence," *Q Vision*, AFRP 38-2, Volume 4, Number 4, Winter 1996, 3.

[85] AFRP 38-1, *Manpower and Organization Newsletter*, Volume 28, Number 3, 3.

[86] Simple examples included each organization's Air Force benchmarking and metrics development staffs, along with consultant teams.

[87] Reference General Fogleman's address at the QAF Symposium, October 1996. (Corona is the Air Force language for a meeting of Air Force senior level leadership, a "four-star" conference held periodically.) General Fogleman explained that during the week prior to the symposium, he held the fall Corona, where leaders confirmed a need to "operationalize quality" and establish the merged MQ function to "provide leaders the experts in management innovation necessary to help them make the right decisions on tough resource issues that face us today and in the future."

[88] Col Hank Fiumara. *Q Vision.*

Notes

[89] Dr Gerald Kauvar, Air Force deputy director of plans and evaluations, "Operationalizing Quality," lecture delivered to the Air Force manpower and quality staff course, Maxwell AFB, Alabama, Fall 1996.

[90] A process action team (PAT) is defined as "a chartered team made up of members with a vested interest in improving a process whose scope and duration are clearly defined by the process owner," per Air Force Handbook 90-502, *The Quality Approach,* 1 Aug 1996, 150. While PAT is the current official terminology, various bases and commands used different names, according to the quality management literature they initially applied.

[91] Ibid., note that AFH 90-502, *The Quality Approach,* 1 August 1996 superceded two earlier versions, 1993 and September 1994.

[92] Dr Gerald Kauvar.

[93] This long listing of major "top-down" driven management reforms of the decade shaped the landscape for Air Force leaders and their in-service management improvement activities for the decade. Dick Cheney, Secretary of Defense, Office of the Secretary of Defense, *Defense Management Report to the President* (Washington, D.C.: Department of Defense, 1989). Merrill A. McPeak, *Selected Works:1990-1994* (Maxwell AFB, Ala.: Air University Press, 1995), 297-298. Al Gore, (previously noted), *Report of the National Performance Review*. William S. Cohen, Secretary of Defense, *Report of the Quadrennial Defense Review (QDR),* May 1997. Page 15 of the QDR describes plans to exploit the "Revolution in Business Affairs" by focusing on reengineering infrastructure and business practices. National Defense Panel, *National Defense Panel Assessment of the May 1997 Quadrennial Defense Review* (Arlington, Va.: National Defense Panel, 1997). William S. Cohen, *Defense Reform Initiative,* November 1997, n.p.; on-line, Internet, 6 March 1998, available from http://www.defenselink.mil/pubs/dodreform/slides/index.html, The NRI presentation by Secretary Cohen to Vice President Gore, General Henry H. Shelton, chairman of the joint chiefs of staff, and others, concludes with these bullets: that business reform is essential; times mandate comprehensive change; new technologies open new opportunities; the best in American business must be emulated; and that fat can be cut while muscle must be saved. Meanwhile, the service engaged other panels of outside experts, for example, the Blue Ribbon Panel on Awards, Inspections, and Assessments (Corsi, MQSC lecture).

[94] William S. Cohen, Secretary of Defense, *Annual Report to the President and the Congress* (Washington, D.C.: Government Printing Office, 1998), 151, 174, 209-210.

Chapter 3

What Can We Learn?

> *Knowledge is sight. Ignorance is blindness…Knowledge of past events is valuable principally for its usefulness in shaping future events. The future is the consequence of present and past causes and of the visions and decisions of men who exert power. If past and present causes are understood, future effects can be foreseen. Necessary adjustments can be made or prepared in advance. This knowledge of inevitable future events has value, even if those events cannot be controlled, shaped, or prevented.*
>
> —Continental Air Command Manual 50-8, 1 February 1950

Given that the Air Force has flown through five decades of seeking management improvements, what can be learned? Using the previous chapter's overview of management improvement history, we may be able to mine some applications for the future. In this chapter, we examine three general areas for examples where we can learn lessons to assist us in the present. First, through looking back, patterns often emerge. Many patterns may be categorized as constants, cycles, or trends. For anyone just entering the MQ business, reviewing these decades should generate a realization that the Air Force may have used different approaches, but the management improvement quest itself is not new. Second, information would suggest that along the way, we have accumulated a mass of experience—of corporate knowledge—regarding management improvement. Can we quickly access the information for application today? Third, the service has turned to an in-service community many times over the years. Today is our experienced MQ talent becoming increasingly perishable and harder to maintain? Or

perhaps does history show we've had more of a chronic struggle, particularly in manning and training? In the end, simply discovering where our corporate knowledge exists and acknowledging that we can learn from it is positive step.

We Can See Patterns

Constants

This research effort suggests that overall management improvement purposes have not changed dramatically; the Air Force has shown a traditional and persistent intent to strive for the best use of resources to accomplish the mission. From our review of the decades, we can see numerous changes in programs, pressures, spending and strength levels, tools, and players in the improvement process. Despite these changes, we witness a steady and continuing acknowledgement of the need to balance resource stewardship with mission requirements. Echoing through the guidance, management literature, and words of notable leaders of the decades, we often could cite the service's MI *intent* as applicable to any period.[1] Often, leaders proclaim their era as bringing "new challenges," while employing management intents and means they tout as "novel."[2] Why? Perhaps they have not observed certain cycles.

Cycles

Looking across the decades of management improvement, some recurring patterns, or cycles, emerge that are not always easy to discern without a longer-term perspective. Wartime buildups, a noticeable "ramp-up" or "spike" of increased defense spending and force levels, clearly occurred for Korea, Vietnam, and the Reagan era of the Cold War.[3] Each of these buildups were clearly followed by periods of postwar decline, generating

series of efforts dealing with how to best achieve the appropriate post-war levels while retaining forces adequate to meet the evolving defense needs.[4] Through these distinctly observable cycles of growth and decline, cycles of management reform exist, often related to changes in senior-level leadership or the painful resource decisions associated with the periods of decline. Management reviews and reforms may be found to have similar intents and recommendations, often related to the perceived need to insert the latest management practices into the military.[5] Mandated management reforms, management strategies, and programs are often introduced with strong top-down emphasis, bringing some initial buy-in and results, followed by some combination of mainstream adaptation, growing apathy, or outright rejection until the next major idea is launched and the cycle begins anew.[6] For example, in the manpower and management studies arena, the Manpower Validation Program launched by General LeMay in 1959 gave way to the Management Engineering Program of the 1960s and 1970s. The Functional Review Program revitalized the MEP by incorporating new DOD guidance in the 1980s, and it later provided the foundation for the Objective Flight Studies of the 1990s. At higher levels, the Hoover Commission, Symington Commission, McNamara reforms, Defense Management Review, Bottom-Up Review, National Performance Review, and Quadrennial Defense Review offer a sampling of prominent management initiatives creating a "reform cycle" impact on the service's MI landscape.[7] As observed in the history chapter, cost comparisons swept the service in cycles: first in 1967-1968, later in 1978-1984, and again in the past three years.[8] Exploring cycles yields insights, but we can also study another set of patterns from history.

Trends

Along with constants and cycles, time may reveal longer term trends. For example, from 1950 till 1997, manpower levels overall tended to ramp down to a point approximating levels not seen since the 1947 post-World War II demobilization, despite the growth and decline cycles we saw above.[9] Defense spending has trended downward, viewed as a percentage of gross domestic product and in terms of constant-year dollars, while domestic spending has trended upward.[10] Force structure (in terms of wings and numbers of aircraft) has dramatically declined.[11] We have experienced a trend towards more expensive (per unit cost), higher technological-level force structure as well.[12] We have seen many decision and action cycles get shorter as process completion times have been reduced.[13] Technological support structure has expanded and improved, and accessibility to the world through communication systems and transportation has increased.[14] For each generation observed in Chapter 2, historical documentation reveals that leaders showed real concerns regarding changes in the contextual environment, especially technology development and application.[15] Trends along these lines have been summed up in the work of management consultant Tom Peters, who argues that the rapidity of change, even to a point of increasing environmental instability, places management leaders in a position of "a world turned upside down" where they must learn to "thrive on chaos."[16] Finally, the management improvement and resource management business has seen a trend towards "management by gurus." This increasingly rapid stream of complementary and contradictory management "how to" philosophies has left many organizations, including the Air Force, struggling with where to turn for the next set of answers.[17] One could argue that this situation is actually a constant, since today

could parallel situations from past decades. In 1961, Harold Koontz described the numerous management theories of the day as a "management theory jungle."[18]

Anticipation and Outcomes

Given the evidence of patterns and related programs and reforms, perhaps MQ experts can both learn to anticipate certain challenges and study the specific outcomes possible.[19] We can learn lessons through examining not only the observable patterns, but by targeting specific areas of interest as well.[20] For example:

- What have been the best tools for making resource allocation decisions?
- Given the Air Force vigorously pursued outsourcing and privatization (O&P) in the years 1978-84, can previous lessons help us to apply O&P more effectively in the latest round to save the Air Force money and yet preserve capability?
- What management improvements have worked and what have not? Why?

The answers in and of themselves to these questions are beyond the scope of this research, but the point is that historical evidence and personal working knowledge exists which could address these questions and assist MQ experts in shaping the future. The "decades of improvement" outlined in Chapter Two provide a reference point.

We Discover Corporate Knowledge Isn't So Corporate

Previous discussions indicate existence of a significant mass of MQ knowledge somewhere in the Air Force, but it may just as well not exist if today's MQ corporate body finds immediate access difficult or impossible.[21] Studies, reports, surveys, correspondence, briefings, training material, whether in written or recorded media from yesterday or years ago (those that survive), rest as silent witnesses, scattered throughout the MQ community or staged in some forgotten archives. Living sources of knowledge, the MQ professionals themselves, busily work, focused on their own field, headquarters,

or special activity niches in the Air Force workplace. How does one find the information and expertise needed to rapidly deal with a complex management innovation issue to bring this tremendous corporate knowledge to bear? Although we may swim in a sea of data, availability of *relevant* information from other MQ sources could turn seeming corporate ignorance and poverty into true corporate knowledge and wealth.[22] Thus, without means to rapidly access the service's accumulated knowledge, the knowledge is not really so corporate.[23] Two simple, hypothetical cases illustrate this concept.

Case 1. Given that significant manpower reductions occurred during the post-Vietnam drawdown and later as a result of the end of Cold War "peace dividend," where can the project officer tasked to lead and staff a headquarters reduction drill turn to for a start?[24] Who would know the series of previous headquarters reduction drills, subsequent consequences (good or bad), and potential factors to consider in working a new effort? In this case, it may be that action officers who worked the previous reduction are gone, the previous effort was filed in several obscure places, and the consequences and subsequent fallout and corrective actions were handled piecemeal. Since most organizations do not mandate after-action reports on such matters, it is most likely nobody ever identified lessons learned.[25] If located, other MQ officers who dealt with a past reduction drill may recall specific lessons learned from their experience.

Case 2. The current outsourcing and privatization emphasis has spawned numerous independent A-76 cost comparison studies.[26] Local wings, led by MQ experts, must build a most efficient and cost effective in-house organization (MEO) for each local work center being reviewed, along with a comprehensive performance work statement (PWS), a detailed document describing all work to be done by the newly reviewed in-house team

or by potential contractors.[27] If other bases have already cost-compared the same function, how can another base learn and benefit from these experiences? Knowledge exists, but how much synergy does it achieve when base X doesn't even know base Y has completed a study? Why not share any breakthroughs in quality, efficiency, and effectiveness with other bases? The major command headquarters MQ may possess courtesy file copies of cost study documents from the past five years, but how does that benefit the base just beginning a new study?

In both cases above, corporate knowledge exists, but it doesn't necessarily reside within the specific part of the "corporate body" who could stand to gain great advantage from it. Perhaps the cost of getting the knowledge to where it could be used would be prohibitive; perhaps the project may even be handled well without any other input. Still, the question asked is that of availability—is there an immediate option of accessing the "knowledge stream" that has already been created?[28]

In addition to struggling to make MQ functional knowledge more corporate, the service allows management innovation knowledge to remain hidden across functional walls. Senior manpower professionals grappled with this issue in 1994 and 1995, meeting to anticipate Air Force leadership's needs for the year 2000.[29] The meetings resulted in the creation of a draft Manpower Strategic Plan. This plan recommended that the Air Force pursue an integrated concept of resource management and improvement, including the possibility of merging the career field with comptroller, personnel, or existing quality functions. Each of these entities at that time seemed to offer independent means towards the same end—management improvement—with some understanding of resource dynamics (people, materiel, and dollars) and recognition of the relationship

between cost and performance.[30] In 1996, the walls between manpower professionals and the Air Force quality movement came tumbling down with the integration of the career fields.[31] But the comptroller function continues to tackle resource issues independently, with neither community actively engaged in formal study of potential synergies from integrating MQ and comptroller in the near future.[32] Thus, walls remain between the traditional communities providing management improvement services, including barriers to even sharing lessons and knowledge which otherwise could provide mutual benefit.

We Can Debate: Is Our Historical and Experiential Knowledge Becoming Harder to Find?

Management improvement knowledge may seem hard to find today, but perhaps there is a historic perspective on that as well. Maintaining knowledge levels in a small career field, a field relying on familiarity with industrial engineering or management oriented skill sets, may actually prove to be a chronic challenge, as seen in three cases. In each case, career field manning and training issues are blamed for why historical and experiential knowledge appears so perishable. First, we examine comments of the 1960s, then the 1980s, and finally, a few concerns on today's manning and training.

In an *Air University Review* article from 1966, Colonel Peter J. Hoke described the manning and training struggles of the 1950s and 1960s.

> Because the Air Force was creating a whole new function where none had existed before, problems of procurement, training, and retention of personnel strength were great. Moreover, the procedures and techniques used, although accepted by progressive industry, were not generally known to Air Force commanders. Continuing education and program image building were required. Despite these obstacles, the MVP established itself as a needed and useful arm of major command manpower management.[33]

Colonel Hoke went so far as to state later in his article that

> The biggest single remaining problem is retention of field-grade officers who have the necessary technical capabilities to exploit the potential of the teams. Many veteran MVP officers, with their wide variety of skill backgrounds, have returned to other functional areas. Others, discovering the industrial demand for this type of experience, have been lured into early retirement from the Air Force. In a few commands, field-grade MEP officers are almost non-existent. Correction of this condition is a priority project of the Director of Manpower and Organization, HQ USAF.[34]

Two decades later, Major Jack D. Martin, in his *Handbook for Strategic Air Command Management Engineering Officers*, noted that the majority (379 out of 565) manpower management officers were captains and lieutenants, with an average company-grade experience level of 4.12 years.[35] The gap in experience levels was made more severe by reducing the rated supplement in the late 1970s and early 1980s, and the majority of new manpower management officers coming in were through direct accession of second lieutenants.[36] Air Force Utilization and Training Conferences were held in February and May of 1984, but Air Training Command did not respond favorably to the requests for additional training, suggesting instead that the career field pursue more on-the-job training.[37] Officers and enlisted technicians both received identical training, both had insufficient experience, and on-the-job training began to resemble "the blind leading the blind," especially in Strategic Air Command, where management engineering officers had less than 1.85 average years of experience.[38]

During 1989 to 1992, a new trimming down of the manpower management career field began. Prior to the objective wing reorganization efforts promulgated by General McPeak, Air Force functional managers for the career field offered up over 650 positions for reduction.[39] As the objective wing studies were being completed, the Air Force embarked upon a wholesale dismantling of its primary functional review development

capability. By June 1995, this included elimination of the last functional team (F-MET).[40] As the organic manpower management knowledge base dwindled significantly, the manpower senior functional manager noted these concerns about training:

> We had sufficient depth and the time to gradually bring new graduates up to acceptable proficiency levels. Given the downsizing in our career field over the last several years, we neither have the depth nor the time to gradually train individuals. We need highly targeted and very select training for our entire career field.[41]

The comptroller community was also forced to slim down, with part of its inherent functions absorbed by the Defense Accounting Service (DFAS), and the remaining cost and budget Air Force specialties merged.[42] Meanwhile, a new legion of management improvement expertise emerged, associated with the rising Quality Air Force movement. With the 1996 move to "operationalize quality," the struggling manpower career field absorbed over 400 new positions, although many of the individuals filling the quality jobs returned to prior career fields.[43] Training efforts to establish the new integrated manpower and quality career field began a new chapter in developing the Air Force's in-service management improvement function. Manpower practitioners were directed to special training to learn essential aspects of the quality construct of management innovation, while quality practitioners flowing into the integrated career field were required to attend manpower courses. Meanwhile, this new MQ community strove to create a whole new training system.[44]

Summarizing this chapter, we examined three examples of how we can learn from history. First, we can study patterns. Second, we can discover the dilemma of how to make knowledge truly corporate. Finally, we may believe that the training and manning challenges are significant today, but the in-service community has faced such challenges in the past. As we move forward, Chapter Four distills the conclusions we can harvest

thus far, discusses what we cannot conclude without more study, and provides some recommendations for the future.

Notes

[1] For one example among many, note Maj Gen Benjamin O. Davis: "Within the Air Force, and indeed in the world around us, be it government, industry, or politics, cries for better resource management are heard daily. These cries are for more economy, for more scientific progress and for more defense for the dollar; they represent the dominant theme of management," from speech delivered at the Air Force Management Engineering Conference, Washington, D.C., January 1965. A review of the material contained in the bibliography reveals a constant return to words such as economy, efficiency, effectiveness, and support of the mission.

[2] Col Dennis Drew (ret.), "Counterpoint on the Revolution in Military Affairs," lecture delivered to Air Command and Staff College, Maxwell AFB, Ala., March 1998. Colonel Drew described the extreme end of this point in another way, what he terms "the arrogance of the present." By this, he asserts that each generation is likely to say that what is happening: 1) never happened before; 2) is more important than what has happened in the past; and 3) must be correct because we have the facts and figures.

[3] During these five decades, defense spending peaked in 1953, 1968, and near 1986 associated with three wars—Korea, Vietnam, and Reagan's Cold War. For Reagan's era, national defense budget authority crested in 1985 at $376.2 billion but actual outlays crested in 1987 at $339.4 billion. See Ippolito, 1-33.

[4] Ibid.

[5] "Every incoming defense administration believes it is duty-bound to show that it has a new approach, one that will be vastly superior to the old ways, more conducive to economy, efficiency, and responsibility," per Claude Witz, "A Package Tied in Blue Ribbon," *Air Force Magazine*, September 1970, 27, in an article discussing the Blue Ribbon Defense Panel assembled by President Nixon in 1969.

[6] Dr Gerald Kauvar and Lt Col Paul Hough, teaching interview presented quarterly to the Defense Comptroller School, Air University, during the 1996 fiscal year.

[7] Cohen, 1998, 149-153.

[8] Cohen, 1998, 174, 209.

[9] Reference Appendix B, along with appropriate discussions in Chapter 2.

[10] Cohen, 1998, B-3. Also Ippolito, 1-33, and statements of Dr John Hamre, Department of Defense Appropriations for Fiscal Year 1997, to U.S. Senate Subcommittee of the Committee on Appropriations, 6 March 1996, contained in *Department of Defense Appropriations for Fiscal Year 1997* (Washington, D.C.: Government Printing Office, 1997) 1-11.

[11] The Air Force expanded from 7,500 aircraft to 14,000 aircraft pre- and post-Korea, per Addington, 278. In 1977, the Total Air Force (including Guard and Reserve units) had 9,256 aircraft, dropping to 7,642 in 1992 and 6,609 by 1995, per Assistant Secretary of the Air Force, *United States Air Force Statistical Digest, FY 1995* (Washington, D.C.: Assistant Secretary of the Air Force, 1995), 95. From the Reagan era, Total Air Force

strength in terms of fighter wing equivalents has dropped from 36 to the current 20, per Cohen, 26.

[12] Katherine McIntire Peters, "Overkill: An Obsession with Expensive Weapons Systems is Robbing the Nation of a Chance to Recast its Defense Strategy," *Government Executive*, December 1997, 12-19.

[13] Verna Allee, *The Knowledge Evolution: Expanding Organizational Intelligence* (Boston: Butterworth-Heineman, 1997), 1-3.

[14] Ibid., 4.

[15] See discussion on earlier comments from Colonel Drew. Nevertheless, technology has evolved, as seen in the transition from an Air Force focus on piston engine aircraft to jet aircraft and on to space. Another example would be electronics, with the progressive development of computer processor speed and memory capacity. John L. Peterson, *The Road to 2025: Profiles of the Future* (Corte Madera, Calif,: Waite Group Press, 1994), 27-32, 55-56, 67, 70.

[16] Tom Peters, *Thriving on Chaos* (New York: Harper & Row, 1987), xiii, xiv.

[17] Douglas L. Keil, *Managing Chaos and Complexity in Government: A New Paradigm for Managing Change, Innovation, and Organizational Renewal* (San Francisco: Josey-Bass Publishers, 1994)

[18] Harold Koontz, "The Management Theory Jungle," *Journal of the Academy of Management*, 1961, Volume 4, Number 3, 174-188.

[19] See chapter epigraph from Continental Air Command (ConAC) Manual 50-1, *USAF Comptrollership*, Volume 1, Continental Air Command, 1 February 1950, 1-3. The idea to anticipate and shape the future might best be captured by the comment of Wayne Gretzky, the National Hockey League's leading scorer a age 28, when asked why he was so successful. He replied, "because I go where the puck is *going* to be, not where it *is*." Quoted from Michael Hammer and James Champy, *Reengineering the Corporation: A Manifesto for Business Revolution* (New York: Harper Collins Publishers, 1993), 100.

[20] Richard E. Neustadt and Ernest R. May, *Thinking in Time* (New York: Macmillan, Inc., 1986) present some superb strategies, targeted at "bureaucrats," regarding how to benefit from history. Pages 273-275 contain a concise summary of their methods.

[21] Tom Brown, "Ringing Up Intellectual Capital," *Management Review*, January 1998, 48. He discusses a 1994 survey of 80 organizations which revealed that 57 percent reported "costly mistakes because critical information wasn't accessible when it was desperately needed to run the business."

[22] James B. Quinn, Philip Anderson, and Sydney Finklestein, "Managing Professional Intellect: Making the Most from the Best," *Harvard Business Review*, March-April 1996, 71-80. Quinn, et al. explore the worth of organizational intellectual capital and ways to develop this asset.

[23] Keith Cerny, "Making Local Knowledge Global," *Harvard Business Review*, May-June 1996, 22-38 discusses the case of Lexington Labs managers learning to share what they know, noting the company's decentralized structure provided barriers to sharing valuable information in timely and useful manner, but that a deliberate approach could make it work.

Notes

[24] Over the years, many management reforms have mandated or become the driver for reductions in the number of personnel assigned to headquarters functions in the name of streamlining or better management of resources. These top-down driven reductions may be referred to as reduction "drills" or "cut drills." An example of dramatic cuts in headquarters staffs occurred in Secretary of Defense James Schlesinger's 1973 order to decrease headquarters staffing. The Air Force response included cutbacks at some numbered headquarters of over 50 percent, per Robert Frank Futrell, *Ideas, Concepts, Doctrine: Basic Thinking in the United States Air Force, 1961-1984* (Maxwell AFB, Ala.: Air University Press, 1989), 603. In more recent times, Secretary Cheney's Defense Management Review and General McPeak's objective streamlining programs drove significant headquarters reductions. I served as an action officer for both of these projects while at Headquarters Military Airlift Command (1989-1991). The current Defense Reform Initiative again targets headquarters staffs for reduction.

[25] Staffing processes and requirements vary by location, but the added twist of performing staffing and coordination by electronic mail has to my experience left even less of an "audit trail" than the days of performing all vital coordination via the written staff summary method.

[26] Cohen, 1998, 209.

[27] Air Force Pamphlet 26-12, *Guidelines for Implementing the Air Force Commercial Activities Program,* 25 April 1992, 82.

[28] For reductions, we can offer an initial success story, although much more can be done to assist action officers in reviewing strategies for staffing various issues. The Air Force Manpower and Quality Staff Course, Maxwell AFB, Ala., practices a method for sharing corporate knowledge. The school conducts a six-hour, three-part arbitrary manpower reduction exercise, wherein students divide into teams and create plans to address a significant manpower reduction at air staff, major command, and wing levels, using documentation and reviewing lessons learned from an actual situation. The lesson is improved with each iteration, as student insights are added to the next use.

[29] Col Bob Corsi, "Posturing for the Future," AFRP 38-1, *Manpower and Organization Newsletter,* Volume 27, Number 4, Fourth Quarter 1994, 1-2.

[30] Ibid, 2.

[31] General Fogleman, QAF Symposium 1996.

[32] Verified by HQ AF/XPM as of November 1997, although the current emphasis on outsourcing and privatization invokes some cooperation.

[33] Col Peter J. Hoke, "The USAF Management Engineering Program: A New Attack on an Old Problem," *Air University Review,* Vol. XVII (January-February 1966): 66-70.

[34] Ibid., 70.

[35] Maj Jack D. Martin, *Handbook for Strategic Air Command Management Engineering Officers,* Air Command and Staff College Student Report #85-1735, xi.

[36] Ibid., xi.

[37] Ibid., xi.

[38] Ibid., xii.

[39] Depending on the command and the time period, manpower career field reductions during the objective flight study era equated to at least 650 to upwards of 750+

throughout the Air Force, as verified by Unit Authorization File data maintained by Headquarters Air Force, Manpower Programs Division (AF/XPMP). As an example of the decline in manpower specialists, manpower management officers assigned dropped from 567 in Fiscal Year (FY) 1987 down to 447 in FY 1991, and then to 304 by FY 1994, per Assistant Secretary of the Air Force, *United States Air Force Statistical Digest, FY 1991 and FY 1995* (Washington, D.C.: Assistant Secretary of the Air Force, 1991 and 1995), 71 and 69, respectively.

[40]AFRP 38-1, *Manpower and Organization Newsletter,* Volume 28, Number 3, Third Quarter 1995, 3.

[41] Col Bob Corsi, "Posturing for the Future," 3.

[42] See related comments in the previous chapter.

[43] Col Bob Corsi, *Career Field Senior Perspective*, lecture delivered to the Manpower and Quality Staff Course, Maxwell AFB, Ala., March 1997.

[44] Message, 201228Z SEP 96, US Air Force deputy chief of staff for programs and evaluation to all key major command and special activity manpower and quality staff, 20 September 1996.

Chapter 4

Conclusions and Recommendations

> *You heard about effective strategies for meeting the challenges of increased operations tempo, reduced staffing and outsourcing and privatization. These are real challenges we must overcome with creativity and drive. We must continue to learn; we have no choice. As the father of quality, Edward Deming, said, "Learning is not compulsory, neither is survival."*
>
> —General Michael S. Ryan, CSAF, 16 October, 1997

The thrust of this paper has been to build a historical overview of MI in the Air Force. By decade, we answered three questions: What were the general budget climate and related factors? Who were some of the major Air Force players? What were some of the Air Force programs and methods employed? From this historical overview, we moved on to examples of lessons we can learn. First, we identified patterns, including apparent constants, cycles, and trends. Second, we discussed the dilemma of seemingly corporate knowledge not truly manifesting itself in a corporate sense. Finally, we showed examples where in three different decades, MQ leaders thought this knowledge increasingly harder to find, and in each case, we tied this concern to manning and training issues. These avenues all link back to our original thesis: If the Air Force only knew what it already knows about management improvement…then what? Then perhaps indeed the Air Force could and would benefit from sharing and harvesting the accumulated knowledge…but that is an intentional choice, yet to be made.

Conclusions

What We Can Conclude

We started with several assumptions and questions in Chapter One. From these, we explored the evidence and performed initial analysis for some selected areas in Chapters Two and Three. From these efforts, supported by the mass of historical data, we can safely draw several conclusions. These conclusions may seem basic, but understanding them may provide a vital first step towards applying past knowledge to today's problems.[1]

The Air Force's past 50 years indicate:

1. Leaders in the service and the government have orchestrated numerous defense reforms, with recommendations often directing use of current business practices.
2. Leaders have perceived pressures and challenges of their own era as significant.
3. Leaders have turned to or touted some type of in-service capability to assist commanders in orchestrating management improvements.
4. Overall defense budgets (in constant dollars and in terms of defense spending as a percentage of GDP) have trended downward from Korean War levels, despite cycles.
5. Service personnel strengths have declined in real terms over the last fifty years, despite evident cycles.
6. We can observe similarities in management innovation challenges and attempted solutions throughout the decades.
7. The service appears to have made an ongoing effort to embrace many passing management innovations and ideas.
8. Air Force management improvement *intents* have centered upon providing means to live within budget constraints and to enhance mission performance.
9. The service has redefined, renamed or reinvented its in-service management improvement strategy or *means* several times.

What We Cannot Conclude

Beyond the above conclusions, each of which seems solidly rooted in the macro-level history presented in previous chapters, it may be relevant to note what we *cannot* conclude.[2] We must be cautious in leaping to answers in any of these areas. This sampling of what we *cannot* conclude at this stage may naturally lead us to seek specific

information that could assist us today. Ironically, many issues concern quantitative or qualitative judgements (efficiency/effectiveness factors) surrounding the service quest for management innovation. For example, without further information and analysis, we ***cannot*** conclude:

1. That the Air Force today is any better or worse at pursuing management improvement compared to past years.
2. How much of an impact or difference the in-service capability has made.
3. That leaders know how to use their in-service management improvement capability.
4. That we are better off having initiated or suspended specific management improvement programs.
5. That we are trained, manned, and able to perform management improvement tasks in any better or worse way than before.

Recommendations

Can the goal of harnessing MQ historical and current knowledge be better performed by intentional pursuit? If indeed this paper convinces the MQ community that knowledge, from history and from present sources (including people), is available and has application for today, then will we find new ways to employ it? Can the manpower and quality community, or any other entity, actually learn better institutionally and make learning easier? Perhaps so, through an ever-continuing process of: 1) capturing the knowledge; 2) evaluating it; 3) communicating it, and 4) fostering sharing communities.[3]

We've covered the decades of management improvement, some analysis of what we can learn, and some specific conclusions. Past history can to some degree be reconstructed, added to present experience, and may potentially provide value in deliberate application to future challenges. For this MQ knowledge to be relevant, perhaps we could use this project for the nucleus of a more refined and targeted effort. Thus, the major recommendation is for the MQ community to review the project for

incorporation and application of the history, the concepts, and the bibliography into further efforts to enhance our posture for the future.

The knowledge creating and sharing process has become deeply fragmented because the core activities are typically carried out by specialized, disconnected, and often antagonistic institutions: universities, consulting firms, and businesses.[4] Institutions and society need to thus rekindle the ability to honor and integrate theory, personal development, and practical results.[5] For the Air Force alone, this would translate into a need to rethink our links between and development of commanders and aspiring leaders, the in-service consultant community, and the sprawling Air Force educational system.

Based on an extrapolation of our possibilities, the Air Force MQ Community should:

1. Teach its newcomers and old-timers the history, precedent, context, and relevance of our in-service MI capability.
2. Use this paper's bibliography to complement the quality bibliography that Air University and AFCQMI has already placed on the Internet.
3. Use the project and the research bibliography as a springboard for further discussion, study and critical analysis in the MQ community.
4. Prioritize key areas of interest and improvement, and then selectively explore the past for clues on how to move forward.
5. Investigate avenues and logic for providing an extensive, MQ-specific historical and practical library available anytime, anywhere for MQ professionals.
6. As a corollary to number five, increase access to project files, methodologies, reports, and other documents to be used as templates or models while working current issues (for example, cost studies, reduction drills, or improvement projects).
7. Establish enhanced linkages and directories, perhaps even biographical or expertise-oriented, between members within the MQ community.
8. Study, determine, and employ ways to increase corporate availability of knowledge.
9. Educate customers, to include deliberate insertion into Professional Military Education curriculum. Educated customers (commanders, functional communities) can best apply their in-house management innovation tools if they know the capabilities and limitations.
10. Give customers direct access to our knowledge systems. For example, we should continue development of best practice databases.

If we fail to learn what the Air Force already knows and can yet know about management improvement, will we drift or find ourselves caught in repetition?[6] As a

counter, perhaps we must be cautious not to create an obsession with the past, wherein we forget how to grow new ideas and find ourselves in a dogmatic rut. We must embrace new management improvement breakthroughs, but with the discernment of placing them in their historical context.[7] We should continually assess the possible costs, benefits, and long-term impacts. In the beginning, the Air Force Management Improvement Program entailed "a continual search for, and application of, the best practices for the utilization of our basic resources—manpower, materiel, money, facilities, and time."[8] We have an opportunity to learn from and build upon what we already know—will we embrace that opportunity?

Notes

[1] "History is useful only as it helps us to look ahead. This is the truth which underlies all Air Force tradition," from James H. Straubel, "Airpower's Past is Prologue," *Air Force and Space Digest*, September 1965, 10.

[2] "History leads to understanding and wisdom. It is a road beset with pitfalls for the untutored and unwary," as pointed out by Wood Gray, *A Key to the Study and Writing of History* (Boston: Houghton-Mifflin, 1964), 1. He warns of limitations and fallacies in the review of history.

[3] This proposal is solely the opinion of the author and is not of itself fully explored within the historical review, although lessons from our analysis in Chapter Three would point towards this route as a potential solution. The not-so-new concept of knowledge management or information management would elaborate upon this view.

[4] Peter M. Senge, "Communities of Leaders and Learners," *Harvard Business Review*, September-October 1997, 32.

[5] Senge, 32.

[6] "When experience is not retained…infancy is perpetual. Those who cannot remember the past are condemned to repeat it," by the philosopher George Santayana, as noted in Gray, 6.

[7] "Man's unique ability to incorporate into his own corporate experience that of other men and women, not only of his own time but of previous generations, is a true second sight that sets him above other species and allows him better to understand the present in order to prepare himself to face the problems of the future," Gray, 6.

[8] AFR 25-2, *Management: Management Improvement Program*, 6 October 1953.

Appendix A

DOD Budget Data and Trends

This appendix contains two charts *from The Annual Report to the President and Congress, 1998*, submitted by William S. Cohen, Secretary of Defense. The first table (A-1) is from Appendix B, page B-2, and the second (A-2) is from Appendix B, page B-3 of the original report. The first chart (A-1) displays budget authority from 1991 through 1999. Note the reduced spending in real and constant dollars. The second chart (A-2) displays federal budget trends. Note the column "DOD outlays as a percent of gross domestic product" which as of 1996 was down to 3.4 percent. Also note the column "DOD outlays as a percent of net public spending," which had declined to 10.1 percent.

Appendix A-1

DEPARTMENT OF DEFENSE — BUDGET AUTHORITY BY APPROPRIATION[a,c] (DOLLARS IN MILLIONS)								
	FY 1992[b]	FY 1993	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999
Current Dollars								
Military Personnel	81,221	75,974	71,365	71,557	69,775	70,338	69,669	70,777
O&M	93,791	89,172	88,341	93,751	93,658	92,353	94,385	94,801
Procurement	62,952	52,789	44,141	43,572	42,420	42,932	44,823	48,706
RDT&E	36,623	37,971	34,567	34,522	34,972	36,404	36,600	36,079
Military Construction	5,254	4,554	6,009	5,426	6,893	5,715	5,089	4,301
Family Housing	3,738	3,941	3,501	3,393	4,250	4,131	3,807	3,477
Defense-wide Contingency								1
Revolving & Management Funds	4,587	4,503	4,354	5,260	3,061	7,534	1,892	400
Trust & Receipts	-5,733	-435	-809	-1,548	-331	-1,260	-1,214	-1,120
Deduct, Intragovernment Receipt	-550	-1,069	-104	-180	-291	-186	-141	-164
Total, Current $	**281,883**	**267,402**	**251,364**	**255,652**	**254,417**	**257,971**	**254,909**	**257,258**
Constant FY 1998 Dollars								
Military Personnel	93,824	88,595	81,199	79,462	75,754	74,247	71,667	70,777
O&M	109,807	101,674	98,400	102,352	99,988	96,467	96,078	94,801
Procurement	71,028	58,389	47,925	46,473	44,490	44,326	45,571	48,706
RDT&E	41,646	42,311	37,751	36,981	36,761	37,612	37,217	36,079
Military Construction	5,957	5,060	6,545	5,807	7,249	5,914	5,181	4,301
Family Housing	4,241	4,375	3,807	3,626	4,465	4,261	3,866	3,477
Defense-wide Contingency								1
Revolving & Management Funds	5,261	5,030	4,4592	5,552	3,245	7,783	1,935	400
Trust & Receipts	-6,521	-483	-881	-1,761	-347	-1,287	-1,232	-1,120
Deduct, Intragovernment Receipt	-626	-1,186	-114	-192	-305	-191	-143	-164
Total, Constant $	**329,815**	**303,763**	**279,090**	**278,429**	**271,301**	**269,133**	**260,139**	**257,258**
% Real Growth								
Military Personnel	-6.2	-10.4	-8.4	-2.1	-4.7	-2.0	-3.5	-1.3
O&M	-20.3	-7.4	-3.2	4.0	-2.3	-3.5	-0.4	-1.3
Procurement	-14.2	-17.8	-17.9	-3.0	-4.3	-0.4	2.8	6.9
RDT&E	-1.4	1.6	-10.8	-2.1	-0.6	2.3	-1.1	-3.1
Military Construction	-1.1	-15.1	29.3	-11.3	24.8	-18.4	-12.4	-17.0
Family Housing	10.9	3.1	-13.0	-4.8	23.2	-4.6	-9.3	-10.1
Total	**0.1**	**-7.9**	**-8.1**	**-0.2**	**-2.6**	**-0.8**	**-3.4**	**-1.1**

Notes from the original report:

a Numbers may not add to total due to rounding. Entries for the three military departments include Retired Pay accrual.

b FY 1990–93 data for the three departments and defense agencies includes Gulf War incremental costs, FY 1991–93 defense–wide entries include appropriations that made available allied cash contributions to offset these incremental costs.

c In FY 1992, $9.1 billion was shifted from the Services to defense agencies/OSD for the new Defense Health Program (DHP). In FY 1993, the DHP began being reflected in the defense–wide line.

d In FY 1991-92, abrupt increases in budget authority, especially O&M, were due to the incremental costs of Operation Desert Shield/Storm. The FY 1991-92 sharp rise in receipts reflects offsetting allied contributions.

e Table A-1 shows the total DoD budget, which consists of both discretionary spending and direct spending. These terms were defined by the Balanced Budget and Emergency Deficit Control Act of 1985 (commonly known as the Gramm-Rudman-Hollings Act), which was extended and amended extensively by the Budget Enforcement Act of 1990 and the Omnibus Budget Reconciliation Act of 1993. Discretionary spending is controlled through annual appropriations acts. Direct spending (sometimes called mandatory spending) occurs as a result of permanent laws. For DoD, mandatory spending consists of offsetting receipts, totaling nearly $1.4 billion in FY 1998. The 1997 Balanced Budget Act included dollar limits (caps) on discretionary spending by the federal government.

APPENDIX A-2

TABLE A-2, FEDERAL BUDGET TRENDS (DOLLARS IN MILLIONS)						
Fiscal Year	Federal Outlays as a % of GNP	DoD Outlays as a % of Federal Outlays	DoD Outlays as a % of GDP	Non–DoD Outlays as a % of Federal Outlays	Non–DoD Outlays as a % of GDP	DoD Outlays as a % of Net Public Spending[a]
1950	15.6	27.4	4.3	72.6	11.3	18.5
1955	17.3	51.4	8.9	48.6	8.4	35.5
1960	17.8	45.0	8.0	55.0	9.8	30.3
1965	17.2	38.8	6.7	61.2	10.5	25.2
1970	19.4	39.4	7.6	60.6	11.7	25.4
1971	19.5	35.4	6.9	64.6	12.6	22.4
1972	19.6	32.5	6.4	67.5	13.2	20.6
1973	18.8	29.8	5.6	70.2	13.2	19.0
1974	18.7	28.8	5.4	71.2	13.3	18.2
1975	21.4	25.5	5.5	74.5	15.9	16.5
1976	21.5	23.6	5.1	76.4	16.4	15.4
1977	20.8	23.4	4.8	76.6	15.9	15.5
1978	20.7	22.5	4.7	77.5	16.1	15.2
1979	20.2	22.8	4.6	77.2	15.6	15.4
1980	21.7	22.5	4.9	77.5	16.8	15.3
1981	22.2	23.0	5.1	77.0	17.1	15.8
1982	23.2	24.7	5.7	75.3	17.5	16.9
1983	23.6	25.4	6.0	74.6	17.6	17.3
1984	22.3	25.9	5.8	74.1	16.6	17.5
1985	23.1	25.9	6.0	74.1	17.1	17.6
1986	22.6	26.8	6.1	73.2	16.6	17.9
1987	21.8	27.3	6.0	72.7	15.9	17.6
1988	21.5	26.5	5.7	73.5	15.8	17.0
1989	21.4	25.8	5.5	74.2	15.9	16.5
1990	22.0	23.1	5.1	76.9	16.9	14.8
1991	22.6	19.8	4.5	80.2	18.1	12.6
1992	22.5	20.7	4.7	79.3	17.8	13.1
1993	21.8	19.8	4.3	80.2	17.5	12.4
1994	21.4	18.4	3.9	81.6	17.5	11.6
1995	21.1	17.2	3.6	82.8	17.5	10.8
1996	20.8	16.2	3.4	83.8	17.5	10.1

[a]Federal, state, and local net spending excluding government enterprises (such as the postal service and public utilities) except for any support these activities receive from tax funds.

Appendix B

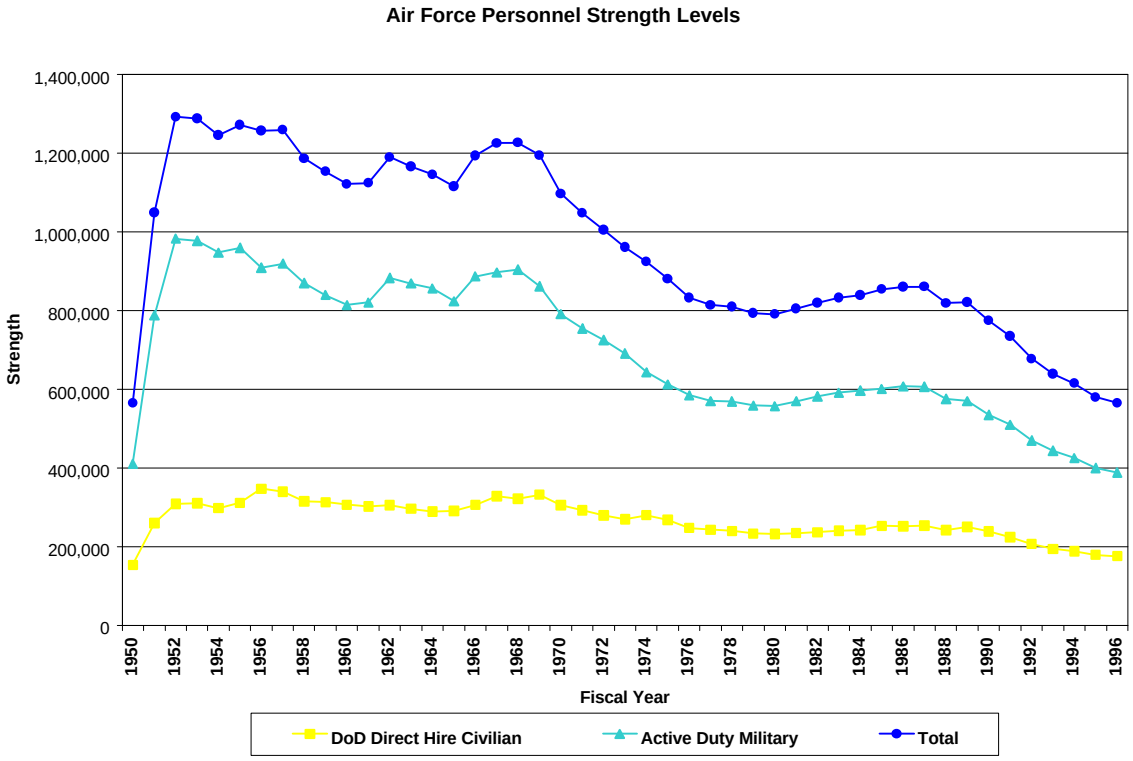
Air Force Historical Personnel Strengths

Raw data obtained directly from the Air Force Personnel Center (AFPC) in January 1998, then graphed using Microsoft Excel software. This data can be also be found in the Personnel Tables sections of the series of *Secretary of Defense Annual Reports to the President*, within the *Airman Magazine* annual guide to the Air Force, (usually produced in January), and the *Air Force Magazine* "Air Force Almanac" edition, usually published in May. Another source for this information is the Department of Defense Statistical Service, available on-line at http://web1.whs.osd.mil/mmid/. The primary source is the same: AFPC. The table at B-1 shows the Air Force active duty military, civilian and total personnel by year. The chart at B-2 presents the same information graphically.

Appendix B-1, Air Force Personnel Strength Levels by Type and Year

Fiscal Year	DoD Direct Hire Civilian	Active Duty Military	Total
1950	154,453	411,277	565,730
1951	260,728	788,381	1,049,109
1952	309,663	983,261	1,292,924
1953	310,913	977,593	1,288,506
1954	298,592	947,918	1,246,510
1955	312,076	959,946	1,272,022
1956	348,230	909,958	1,258,188
1957	340,326	919,835	1,260,161
1958	315,806	871,156	1,186,962
1959	313,466	840,435	1,153,901
1960	307,449	814,752	1,122,201
1961	303,376	821,151	1,124,527
1962	306,181	884,025	1,190,206
1963	296,982	869,431	1,166,413
1964	289,724	856,798	1,146,522
1965	291,500	824,662	1,116,162
1966	306,915	887,353	1,194,268
1967	328,711	897,494	1,226,205
1968	322,661	904,850	1,227,511
1969	332,865	862,353	1,195,218
1970	306,323	791,349	1,097,672
1971	293,141	755,300	1,048,441
1972	279,897	725,838	1,005,735
1973	270,488	691,182	961,670
1974	280,812	643,970	924,782
1975	268,466	612,751	881,217
1976	248,225	585,416	833,641
1977	243,810	570,695	814,505
1978	240,182	569,712	809,894
1979	234,249	559,455	793,704
1980	233,132	557,969	791,101
1981	235,014	570,302	805,316
1982	236,996	582,845	819,841
1983	240,977	592,044	833,021
1984	242,622	597,125	839,747
1985	253,333	601,515	854,848
1986	252,127	608,199	860,326
1987	254,446	607,035	861,481
1988	243,110	576,446	819,556
1989	250,840	570,880	821,720
1990	239,820	535,233	775,053
1991	225,001	510,432	735,433
1992	207,633	470,315	677,948
1993	195,034	444,351	639,385
1994	189,588	426,327	615,915
1995	180,148	400,409	580,557
1996	177,024	389,001	566,025
1997	172,343	381,100	553,443

Appendix B-2 Air Force Personnel Strength Levels



Glossary

ACSC	Air Command and Staff College
AFCQMI	Air Force Center for Quality and Management Innovation
AFMEA	Air Force Management Engineering Agency
AFOMO	Air Force Office of Manpower and Organization
AFQI	Air Force Quality Institute
AIIE	American Institute for Industrial Engineers
AMA	American Management Association
AU	Air University
AWC	Air War College
BRAC	Base Realignment and Closure
CSAF	United States Air Force Chief of Staff
DCS	Deputy Chief of Staff
DFAS	Defense Finance and Accounting Service
DIMES	Defense Integrated Management Engineering Program
DOD	Department of Defense
DODI	Department of Defense Instruction
DRI	Defense Reform Initiative
F-MET	Functional Management Engineering Team
FPI	Functional Process Improvement
FRP	Functional Review Process
FY	Fiscal Year
GDP	Gross Domestic Product
GPRA	Government Performance and Review Act
KM	Knowledge Management
MA	Management Analysis
MAJCOM	Major (Air) Command
MAS	Management Advisory Services or Study
MBO	Management by Objectives
MEO	Most Effective and Efficient In-House Organization or Management Engineering Officer
MEP	Management Engineering Program

MET	Management Engineering Team
MI	Management Improvement
MIP	Management Improvement Program or Model Installation Program
MO	Manpower Office
M&O	Manpower and Organization
MQ	Manpower and Quality
MVP	Manpower Validation Program
NCO	Non-Commissioned Officer
NPR	National Performance Review
O&P	Outsourcing and Privatization
OSD	Office of the Secretary of Defense
PAT	Process Action Team
PEP	Productivity Enhancement Program
PIT	Process Improvement Team
PMTS	Performance Measures Tracking System
PWS	Performance Work Statement
QAF	Quality Air Force
QI	Quality Improvement
QDR	Quadrennial Defense Review
RM	Resource Management
RMT	Resource Management Team
TQM	Total Quality Management
USAF	United States Air Force

Bibliography

Adams, Gordon, and Conrad Schmidt. *The Elusive Peace Dividend*. Washington, D.C.: Defense Budget Project, 1992.

Addington, Larry H. *The Patterns of War Since the Eighteenth Century*. Bloomington, Ind.: Indiana University Press, 1994.

Acheson, Dean. *Present at the Creation: My Years in the State Department.* New York: Norton, 1969.

Air Force Handbook (AFH) 90-502. *Command Policy: The Quality Approach,* 1 August 1996.

Air Force Manual (AFM) 170-2. *Management Analysis,* September 1954.

AFM 25-1. *USAF Management Process,* 2 August 1965 (updated reprint of original 15 October 1964).

AFM 25-4. *Management: USAF Work Measurement System,* 15 July 1953.

AFM 25-5. *Management Engineering: Management Engineering Policies and Procedures,* 8 August 1973.

AFM 25-5. *Management: USAF Manpower Validation Program,* 9 January 1961.

AFM 26-1. *Manpower: Policy and Criteria,* 1 October 1955.

AFM 26-1. *Manpower: Policy and Criteria,* 1 February 1956.

AFM 170-2A. *Management Analysis,* 1 Nov 1958

Air Force Pamphlet (AFP) 178-2. *Management Analysis,* 18 November 1970.

Air Force Recurring Pamphlet (AFRP) 38-1. *Manpower and Organization Newsletter,* Volume 28, No. 3.

Air Force Regulation (AFR) 20-11. *Organization—General: Manpower Planning Tables,* 6 October 1952.

AFR 25-1. *Management Engineering: The Air Force Leadership and Management Development Center (LMDC), Management Consultation Program,* 28 Dec 1982.

AFR 25-1. *Management Engineering: USAF Management Engineering Program,* 7 Jun 1968.

AFR 25-1. *Management: Management Philosophy and Policies of the Air Force,* 17 July 1953.

AFR 25-2. *Management: Management Improvement Program,* 6 October 1953.

AFR 25-2. *Management: Management Improvement Program,* 2 April 1959.

AFR 25-3. *Management: Management Engineering Services,* 22 June 1953.

AFR 25-3. *Management: Management Engineering Services,* 26 October 1954.

AFR 25-3. *Management Engineering: Management Engineering Capability,* 23 October 1961.

AFR 25-3. *Management: Development of a Management Engineering Capability,* 31 May 1956.

AFR 25-3. *Management: Development, Maintenance, and Use of a Management Engineering Capability*, 25 June 1957.

AFR 25-3. *Management Engineering: Air Force Productivity Enhancement Program (PEP)*, 25 February 1982.

AFR 25-5, vol. I. *Management Engineering: Air Force Management Engineering Program (MEP): Policy, Responsibilities, and Requirements*, 1 April 1982.

AFR 25-5, vol. I. *Management Engineering: Management Engineering Program (MEP): Policy, Responsibilities, and General Program Management*, 7 November 1977.

AFR 25-5, vol. II. *Management Engineering: Air Force Management Engineering Program (MEP): Techniques and Procedures*, 1 April 1982.

AFR 25-5, vol. III. *Management Engineering: Air Force Management Engineering Program (MEP): Management Advisory Services*, 7 November 1977.

AFR 25-5. *Management: Work Measurement Systems*, 8 May 1957.

AFR 25-9. *Management: Air Force Participation in Defense Integrated Management Engineering System Program (DIMES)*, 3 December 1993.

Air University. "Manpower's Role in the Air Force." Training briefing prepared by the Air Force Human Resource School for the Professional Manpower and Personnel Management Course (PMPMC), Maxwell AFB, Ala., circa 1991.

Air University. *The Lightner Board Report*. United States Air Force, "Review of Air War College and Air Command and Staff College," Maxwell AFB, Ala., 1973.

Air University Leadership and Management Development Center. *Leadership and Management Development Center Five-Year Objective Plan.* Maxwell Air Force Base, Ala., 1977.

Allee, Verna. *The Knowledge Evolution: Expanding Organizational Intelligence.* Boston: Butterworth-Heineman, 1997.

Arms, Thomas S. *Encyclopedia of the Cold War.* New York: Facts on File, Inc., 1994.

Barnhill, L.J. "Manpower and Organization: A Separate Function." Master's thesis. University of Indiana, 1964.

Boyne, Walter J. *Beyond the Wild Blue: A History of the United States Air Force, 1947-1997.* New York: St. Martin's Press, 1997.

Brassard Michael. *The Memory Jogger: A Pocket Guide of Tools for Continuous Improvement.* Methuen, Mass.: Goal/QPC, 1985.

Brown, Tom. "Ringing up Intellectual Capital." *Management Review*, January 1998, 47-51.

Campione, Maj Joseph A. "The Growth and Development of USAF Comptrollership," Maxwell AFB, Ala., Air Command and Staff College Report Number 83-345, 1983.

Cashman, Col James F. "Analysis of Quality Circles from a USAF Perspective," Research Report no. AU-AWC-0522-85-037, Air War College, 1985, Maxwell AFB, Ala.

Cerny, Keith. "Making Local Knowledge Global." *Harvard Business Review*, May-June 1996, 22-38.

Cheney, Dick, Secretary of Defense. *Defense Management Report to the President*. Washington, D.C.: Department of Defense, 1989.

Cohen, William S., Secretary of Defense. *Defense Reform Initiative*. November 1997, n.p. On-line, Internet, 6 March 1998, available at http://www.defenselink.mil/pubs/dodreform/slides.

Cohen, William S., Secretary of Defense. *Report of the Secretary of Defense to the President and the Congress, April 1997.* Washington, D.C.: Government Printing Office, 1997.

Cohen, William S., Secretary of Defense. *Report of the Secretary of Defense to the President and the Congress, 1998.* Washington, D.C.: Government Printing Office, 1998.

Cohen, William S., Secretary of Defense. *Report of the Quadrennial Defense Review (QDR*). Washington, D.C.: Department of Defense, May 1997.

Comptroller of the Air Force. *Management Abstracts and Special Studies*. Directorate of Management Analysis, 1975.

Continental Air Command (ConAC) Manual 50-1. *Organization of the US Air Force*, April 1950.

ConAC Manual 50-8, vol. I. *Air Force Comptrollership*, February 1950.

Davis, Benjamin O., Jr. Address. Air Force Management Engineering Conference, Washington, D.C., January 1965.

Davis, Benjamin O., Jr. *Benjamin O. Davis, Jr., American: An Autobiography*. Washington, D.C.: Smithsonian Institution Press, 1991.

Duncan, W. Jack. *Great Ideas in Management: Lessons from the Foundations of Management Practice.* San Francisco: Jossey-Bass Publishers, 1989.

DuPre, Flint O. *U.S. Air Force Biographical Dictionary.* New York: Franklin Watts, Inc, 1965.

Fayol, Henri. *General and Administrative Management*. London: Pitman, 1916 and 1949.

Fiumara, Col Hank, commander, Air Force Quality Institute. "Continuing the Tradition of Excellence," *Q Vision*, AFRP 38-2, Volume 4, Number 4, Winter 1996.

Fogleman, Gen Ronald R., chief of staff, US Air Force. "Air Force Quality: On Course into the 21st Century." Address. Air Force Quality Symposium Banquet, Montgomery, Ala., 17 October 1996.

Freed, Darryl W., Lt Col. "Management By Objectives," *Air War College Associate Programs,* Vol. I, Military Environment and Decision Making, Chapter 16, Challenges to Leadership and Command, Tenth Edition, 1975-76.

George, Claude S., Jr. *The History of Management Thought.* New Jersey: Prentice-Hall, Inc., 1968.

Gore, Al, Vice President of the United States. *From Red Tape to Results: Creating a Government That Works Better and Costs Less, Report of the National Performance Review*. Washington, D.C.: Government Printing Office, 7 September 1992.

Gray, Wood. *A Key to the Study and Writing of History*. Boston: Houghton-Mifflin, 1964.

Hale, Robert F., Assistant Secretary of the Air Force. "Comptrollership—Service to Military Management." Article. AFRP 65-1, *The Air Force Comptroller*, Volume 30, Number 3, 1 July 1996.

Hobson, Maj Gen Kenneth B., Director of Manpower and Organization, DCS Operations, Headquarters United States Air Force, memorandum to Brig Gen Thomas C. Musgrave, Jr., Chief, Special Staff Group. Subject: Preparation for the Symington Investigation, 4 Apr 56.

Hoke, Col Peter J., "The USAF Management Engineering Program: A New Attack on an Old Problem," *Air University Review*, Vol. XVII (January-February 1966): 66-70.

Hoover, Herbert, chairman. *The Hoover Commission on Organization of the Executive Branch of the Government, 1947-1949*. New York: McGraw-Hill, 1949.

Hough, Lt Col Paul G. "Why the Air Force Comptroller Needs a Doctrine." Draft paper, College for Professional Development, Maxwell Air Force Base, Ala., n.d.

Hunter, Mel. *Strategic Air Command.* Garden City, N.Y.: Doubleday and Co., 1961.

Ippolito, Dennis S. *Blunting of the Sword: Budget Policy and the Future of Defense*. Washington, D.C.; National Defense University, 1994.

Jones, Gen David C., chief of staff, US Air Force. "Fiscal Year 1976 Posture Statement." *Supplement to Air Force Policy Letter for Commanders*, Number 4-175, 10 February 1975.

Kaufmann, William W. *A Reasonable Defense.* Washington, D.C.: The Brookings Institution, 1986.

Kauvar, Dr Gerald, Air Force deputy director of plans and evaluations. "Operationalizing Quality." Lecture. Air Force manpower and quality staff course, Maxwell AFB, Ala., Fall 1996.

Kiel, L. Douglas. *Managing Chaos and Complexity in Government: A New Paradigm for Managing Change, Innovation, and Organizational Renewal.* San Francisco: Josey-Bass Publishers, 1994.

Kosiak, Steven M. *Analysis of the Fiscal Year 1998 Defense Budget Request*. Washington, D.C.: Center for Strategic and Budgetary Assessments, 1997.

Land, Peter A., Col. "Contemporary Management Issues in the US Air Force," *Air War College Associate Programs*, Volume I, Military Environment and Decision Making, Chapter 16, Challenges to Leadership and Command, 1978-79.

Lehrer, Robert N. *The Management of Improvement: Concepts, Organization, and Strategy.* New York: Reinhold Publishing Corporation, 1965.

LeMay, Gen Curtis E., vice chief of staff, US Air Force, to All Major Air Commands, Letter. Subject: Manpower Validation Program, 6 January 1959.

Lovett, Robert A. Assistant Secretary of War for Air. Memorandum. For General Arnold. Subject: A. Need for Improved and Increased Business Management Procedures; B. Solution Through Establishment of Office of Air Comptroller General, 5 October 1945.

Manganelli, Raymond L., and Mark M. Klein. *The Reengineering Handbook: A Step-by-Step Guide to Business Transformation.* New York: American Management Association, 1994.

Martin, Maj Jack D. *Handbook for Strategic Air Command (SAC) Management Engineering Officers (MEOs).* Maxwell AFB, Ala., April 1985.

McConkey, Dale D. "Twenty Ways to Kill Management By Objectives," *Management Review*, Vol. 61, October 1972.

McPeak,, Gen Merrill A., US Air Force chief of staff. "Tomorrow's Air Force," Video briefing to all US Air Force personnel, November 1991.

McPeak, Gen Merrill A. *Selected Works:1990-1994*. Maxwell AFB, Ala.: Air University Press, 1995.

Musgrave, Brig Gen Thomas C., Jr., USAF, Chief, Special Staff Group. Memorandum. To Maj Gen Hobson, Director of Manpower and Organization, (HQ USAF, DCS/O). Subject: Preparation for the Symington Commission, 14 March 1956.

National Defense Panel. *National Defense Panel Assessment of the May 1997 Quadrennial Defense Review.* Arlington, Va.: National Defense Panel, 1997.

Neustadt, Richard E., and May, Ernest R. *Thinking in Time: The Uses for History for Decision Makers.* Free Press, New York, 1986.

Papp, Daniel S. *Contemporary International Relations: Frameworks for Understanding.* New York: Macmillan, 1994.

Peters, Katherine McIntire. "Overkill: An Obsession with Expensive Weapons Systems is Robbing the Nation of a Chance to Recast its Defense Strategy." *Government Executive,* December 1997, 12-19.

Peters, Tom. *Thriving on Chaos*. New York: Excel/A California Limited Partnership, 1987.

Pollard, Harold R. *Developments in Management Thought.* New York: Crane, Russak and Company, Inc., 1974.

Project Rand. *Military Manpower and the All-Volunteer Force*. Santa Monica, Calif.: Rand Corporation, 1977.

Quinn, James B., Philip Anderson, and Sydney Finkelstein. "Managing Professional Intellect: Making the Most of the Best." *Harvard Business Review,* March-April 1996, 71-80.

Raia, Anthony P. *Managing by Objectives.* Glenview, Ill.: Scott, Foresman and Company, 1974.

Ryan, Gen Michael E. chief of staff, US Air Force. Address. Air Force Quality Symposium, Maxwell Air Force Base, Alabama, 16 October 1997.

Senge, Peter M. "Communities of Leaders and Learners." *Harvard Business Review*, September-October 1997, 30-32.

Senge, Peter M. *The Fifth Discipline: The Art and Practice of a Learning Organization.* New York: Currency Doubleday, 1994.

Smith, Robert A., III, "Consultation Without Revelation." *Advanced Management Journal*, January 1965.

Straubel, James H. "Airpower's Past is Prologue," *Air Force and Space Digest*, September 1965, 10.

Theriot, Capt Kenneth R. "Is QAF Destined for Failure?" *Proceedings, Quality Air Force Symposium 1993*, Air Force Quality Center, Maxwell AFB, Ala., October 1993.

Thurow, Lester C. "Needed: A New System of Intellectual Property Rights." *Harvard Business Review,* September-October 1997, 95-97.

Trowbridge, Donald C. "Suggestion Program and Model Installation Program—Duplication of Effort?" Air Command and Staff College Student Report, Maxwell AFB, Ala., April 1988.

United States Air Force. *Directorate of Management Analysis History, 1 January – 30 June 1968.*

United States Air Force. *Directorate of Management Analysis History, January – 30 June 1972*.

United States General Accounting Office. *OMB Circular A-76: Legislation Has Curbed Many Cost Studies in the Military Services.* Report Number GAO/GGD-91-100. Washington, D.C.: General Accounting Office, July 1991.

Waring, Stephen P. *Taylorism Transformed: Scientific Management Theory Since 1945.* Chapel Hill: The University of North Carolina Press, 1991.

Weaver, Dr. Charles. *TQM: A Step by Step guide to Implementation.* Milwaukee, Wisc.: Quality Press, 1991.

Weaver, Dr. Charles, and L.T. Hooper. *Methodology for Generating Efficiency and Effectiveness Measures (MGEEM): A Guide for Development and Aggregation of Mission Effectiveness Charts.* AFHRL-TP-89-7, AD-A208 353 Manpower and Personnel Division, Air Force Human Resource Laboratory, Brooks AFB, Texas May 1989.

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