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AN EXAMINATION OF THE ASSUMPTIONS  
BEHIND ATTEMPTS TO "CIVILIANIZE"  
DoD'S ACQUISITION PROCESS

THESIS

Rolland J. Gagnon, Captain, USAF

AFIT/GSM/LSR/91S-10

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Wright-Patterson Air Force Base, Ohio

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AN EXAMINATION OF THE ASSUMPTIONS BEHIND ATTEMPTS  
TO "CIVILIANIZE" DoD'S ACQUISITION PROCESS

THESIS

Presented to the Faculty of the School of Systems and Logistics  
of the Air Force Institute of Technology  
Air University  
In Partial Fulfillment of the  
Requirements for the Degree of  
Master of Science in Systems Management

Rolland J. Gagnon, B.S.

Captain, USAF

September 1991

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## Preface

The purpose of this study was to examine the assumptions underlying Congressional proposals to remove military personnel from the Department of Defense's procurement system. To this end, a literature review was performed and data were collected from military and civilian personnel to determine the validity of such proposals.

In the collection and collation of personnel data relating to tenure and rotation policies for military and civilian organizations, considerable assistance was provided by organizations located here at ASD, as well as at HQ AFSC and Air Staff. I would particularly like to thank the folks at all of the personnel offices in ASD who provided me with invaluable time and guidance (not to mention my data). In addition, without the guidance of my advisors, Lt Col Heberling and Dr. Steel, this paper would have been truly impossible to read.

Finally, and most importantly, I wish to thank my wife Lisa for her understanding, concern, and help on this project. Without her insight, I would have been lost (as always).

Rolland J. Gagnon

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Abstract

This study investigated the validity of a number of assumptions underlying Congressional proposals to form an elite civilian acquisition corps. Specific assumptions examined were a) civilian personnel in DoD procurement have longer average tenure in specific program positions than their military counterparts, b) a more centralized civilian acquisition agency (modeled after agencies found in Western European countries) would be more efficient and effective than DoD's current decentralized system, and c) tenure is positively correlated with organizational effectiveness.

A literature review of the latter two issues failed to support these assumptions. Tenure data collected from personnel assigned to Aeronautical Systems Division at Wright-Patterson AFB, OH did not support the study hypothesis that military and civilian personnel in similar career fields have equal tenure.

AN EXAMINATION OF THE ASSUMPTIONS BEHIND  
ATTEMPTS TO "CIVILIANIZE" DoD'S ACQUISITION PROCESS

I. Introduction

Background

In the last several years, revelations of procurement abuses by defense contractors and senior Pentagon officials have prompted a number of Congressional legislative initiatives designed to modify the defense acquisition process. These initiatives range from the creation of a separate Pentagon agency (headed by a civilian "Procurement Czar") responsible for conducting all contractual activities for DoD to the creation of an elite civilian procurement corps. This corps would be totally separated from the Department of Defense (DoD) and would also take over all contractual activities and project management that the services now perform. Proposals to shift oversight responsibility away from military control are partially based on two perceptions or beliefs of certain Congressional members. The first belief is that DoD's procurement agencies would be more effective and efficient if they were modeled after some of the highly centralized procurement agencies of Western Europe (Packard, 1988: pg 9). The advocates of such a shift to a centralized procurement agency argue that "it would

remove redundancies and inefficiencies resulting from each military service independently conducting its own acquisition activities (Gansler and Henning, 1988: pg 3)." In addition, "the expected outcome [of such a shift] would be lower costs and more effective weapon systems for the same defense dollars (Gansler and Henning, 1988: pg 3)." Senator William B. Roth, initiator of several such proposals, stated "although the evidence is inconclusive, there is reason to believe that civilian acquisition agencies in countries like Great Britain, Canada, and West Germany have worked well and could serve as models (Gansler and Henning, 1988: pg 4)."

The second perception leading Congressional Members to recommend a "civilianized" DoD procurement agency is that the tours of military officers in program offices are, on the average, shorter than those of their civilian counterparts. These shorter tours are believed to be dysfunctional because they result in inadequate job knowledge, poor decision making, and ultimately, program instability. (Towell, 1988: pg 1975)

### Problem Statement

Current perceptions of lawmakers in Washington D.C. concerning military personnel in DoD's acquisition process are leading them to propose legislation mandating the removal of military personnel from contract negotiations and defense acquisition management. According to former Under Secretary of Defense for Acquisition Robert Costello, "such

a system would block crossfertilization of the purchasing process with operational experience of the officers who would have to use the equipment in combat (Towell, 1988: pg 1814)." In other words, DoD personnel would be put into the position of fighting wars with weapon systems whose performance might be sacrificed for cost reduction without sufficient input into the decision making process. These trade-offs could quite possibly be to the detriment of combat capability.

#### Investigative Questions and Hypotheses

In order to examine Congressional assumptions concerning tenure of military and civilian personnel in DoD's procurement system, the following questions will be researched:

1. What is the average length of tenure for military officers in project management positions?
2. What is the average length of tenure for civilians in project management positions?
3. What are the primary factors affecting length of tenure on a given program for both military and civilian project managers?
4. What are considered the optimum tour lengths for military and civilian personnel in the various acquisition career fields?

Hypothesis 1. The average length of tenure on a project for military officers in acquisition career fields is

not significantly shorter than the average length of tenure of their civilian counterparts.

In the last two years, several members of Congress, and their staff members have been quoted in the press extolling the virtues of the professional procurement services of such Western European countries as Great Britain and France (Gansler and Henning, 1988: pg 4). The following investigative question will be addressed through a review of applicable literature dealing with the effectiveness and efficiency of these foreign agencies.

5. How do the various procurement agencies of Western European countries such as Great Britain, France, and Germany compare to DoD's procurement agencies with regard to the cost effectiveness of their R&D efforts or the performance of their weapon systems?

A major assumption on the part of Congress is that current average tour lengths of military personnel are so short that they adversely affect organizational effectiveness. Senator Roth (Rep-Del), author of one of the "civilianization" initiatives, claims high turnover is partially responsible for the current ills of the defense procurement industry (IMPACT, 1989: pg 1). In order to investigate assumptions linking high turnover or transfer rates to negative performance, the following investigative questions will be researched.

6. What correlations have been established between job tenure (or turnover) and organizational effectiveness in

applicable Government studies and current organizational-behavior literature (i.e., does short, or long, job length correlate to negative job performance)?

### Justification

In June of 1990, Rep. Nicholas Mavroules (Dem-Mass), introduced the Defense Acquisition Workforce Improvement Act as a rider to the Defense Appropriations Act of Fiscal Year 1991 (Weible, 1990: pg 25). This package called for stronger measures to enforce four year tours for acquisition managers. While this piece of legislation did not specifically call for removal of military personnel from the acquisition process, other legislators had proposed initiatives in this area that were narrowly defeated by the Mavroules package. In order to provide background data relative to Congressional proposals to remove military personnel from the acquisition process, an examination of the assumptions behind such initiatives is in order.

### Objective

The primary objective of the proposed research is to examine the validity of the assumptions behind Congressional initiatives to curtail the involvement of military personnel in the defense acquisition process. In addition, the study examines the advisability of shifting from the current decentralized procurement system to a centralized system. The data of this study will assist DoD in competently ad-

addressing the advantages and disadvantages of such proposals should future proposals along these lines occur.

### Scope

This study focuses specifically on legislative attempts to control the management of the defense acquisition process by mandating certain modifications to the personnel system. The organizational literature will be reviewed to assess the validity of assumptions underlying these legislative initiatives. Literature reviewed for this study includes Congressional records of Senate and House hearings found in the Congressional Quarterly Weekly Report; journals such as Administrative Sciences Quarterly, The Armed Forces Comptroller, Business Horizons, Harvard Business Review, Journal of Applied Psychology, Journal of Management, Journal of Organizational Behavior, Management Science, and R&D Management. In addition, a number of defense management overview books and Government studies and reports will be consulted. Research data will be collected from the personnel system for Aeronautical Systems Division (ASD/DPCDD) at Wright-Patterson AFB, the 2750th Air Base Wing's Consolidated Base Personnel Office (CBPO) military records system, the Program Directors Personnel Management Office for Head Quarters Air Force Systems Command (HQ AFSC/DPO, currently located at Andrews AFB), and also the Senior Executive Services' Program Management Personnel Office (HQ AFSC/DPC).

## Research Approach

The preliminary portion of this research is concerned with establishing and documenting the specific assumptions of Congressional legislators. Following this documentation, a literature review focusing on Congressional assumptions will be performed. Primary data will then be obtained in military and civilian personnel in acquisition career fields in order to answer outlined investigative questions. Interviews with key personnel resource managers will also be conducted. These interviews are for the purpose of determining what, if any, rotation policies are in place in ASD and what the motivation for these policies is.

Chapter II will address how the literature review and the data collection will be accomplished in order to support the research objectives, while Chapter III will detail the results of the literature review. Chapter IV will discuss the results of the data collection from military and civilian personnel assigned to the Aeronautical Systems Division (ASD), Wright-Patterson AFB. Conclusions drawn from the literature review in Chapter III and an analysis of the tenure data presented in Chapter IV will be found in Chapter V.

## II. Method

### Introduction

This chapter describes the methods that will be used in this research project in order to examine the various assumptions of Congressional lawmakers concerning the need to "civilianize" DoD's procurement system. This is an exploratory study consisting primarily of a literature review and a qualitative analysis. In addition, data were collected to evaluate assumptions about the lack of equivalence in average tenure between military and civilian personnel assigned to Aeronautical Systems Division engaged in acquisition activities.

### Organization of Literature Review

The literature review will be performed in three phases: first, a search of Congressional records, House and Senate hearings, and periodicals to document the assumptions of legislators endorsing a "civilianized" defense procurement system; second, a review of studies relating specifically to the Congressional assumptions (e.g. studies concerning the value of an elite civilian procurement corps, actual tenure lengths for military personnel, etc.); and finally, a review of applicable literature on the affects of tenure length and turnover on performance, with special emphasis placed on organizational effectiveness as a function of tenure and turnover.

### Sample Description

Data used in this study comes from two populations. Military officers assigned to Aeronautical Systems Division in any of the six primary acquisition related career fields make up the first population. These career fields, referred to as Air Force Specialty Codes (AFSC's), are scientists (26), program managers (27), engineers (28), contract managers (65), acquisition logistics managers (66), and finally business/financial managers (67). Sample size for military officers included in the study was 1343 and data were collected for the ranks of Lieutenant through General.

Justification for including data from all six career fields in the study is derived from recent legislative initiatives which have attempted to create an acquisition corps comprised entirely of civilian personnel (Towell, 1988: pg 1814). In other words, this legislation would affect not only military personnel involved in the program management of weapon systems, but also all those military functional specialist assigned to the weapon systems (i.e., engineer, contract managers, acquisition logisticians, etc).

The second population examined in this study was civilian personnel currently employed in acquisition related positions by Aeronautical Systems Division. Data were collected for 1053 civilians with grades of GS-5 through GM-15. Tenure data were only available from the engineering and business/financial organizations in ASD. The specialty

codes for personnel included in this study are identified in Table 1.

<u>Organization</u>	<u>GS Code</u>	<u>Title</u>
ASD/AC (Business/ Financial)	0501	General Accounting & Admin
	0510	Accounting
	0560	Budget Analyst
	0561	Budget Analyst Specialist
ASD/EN (Engineering)	0801	General Engineering
	0830	Mechanical Engineering
	0850	Electrical Engineering
	0855	Electronic Engineering
	0861	Aerospace Engineering

Table 1. GS Specialty Codes for Civilian Personnel in Engineering and Financial Career Fields, Source: DoD Instruction Manuals 1430.10-M-1&4, 1966

#### Variable Measurement

Two methods for estimating average tenure will be used in this study. The first of these methods operationalizes tenure as the time between job assignment and completion of job tour (this shall be referred to as the "upon replacement" methodology for the remainder of this paper). Tenure lengths for this method will only be collected for those personnel that have already retired or have been rotated out of their job position. This approach follows methodology employed in a Government Accounting Office (GAO) report to Congress, Strengthening Capabilities of Key Personnel in Systems Acquisition, (Government Accounting Office, 1986: pg 80). For example, the GAO study reported the average tenure

length for all military program managers who had been replaced between 1980 and 1982. Unfortunately, their report did not present comparable civilian tenure data. This research effort will focus on military and civilian tenure data for personnel replaced or transferred between 1989 and 1991.

The second method used in this study to collect tenure data operationalizes tenure as the average tour length of personnel who have not yet been replaced or rotated (hereafter referred to as the "running average" methodology). This statistic was also reported by the 1986 GAO report to Congress (Government Accounting Office, 1986: pg 80).

Both approaches are depicted in Figure 1. Cases A & B represent personnel who are still assigned to jobs at ASD. For example, the top bar in the graph (Case A) represents someone whose job began sometime before April 1989 and was still working in that same position at the time of data collection in April 1991. The tenure data for these cases (A and B) were used in computing the "running average" operationalization of tenure. Cases C and D represent personnel who completed their assignments between 1989 and 1991, and were either reassigned elsewhere in ASD, reassigned outside of ASD, or retired. Data for these cases will be used to compute the "upon replacement" operationalization of tenure.

Figure 2 shows the difference in the operationalization of tenure of the two methods. If the "running average" method is used to calculate average tenure for personnel

### GAO Data Collection Methodology

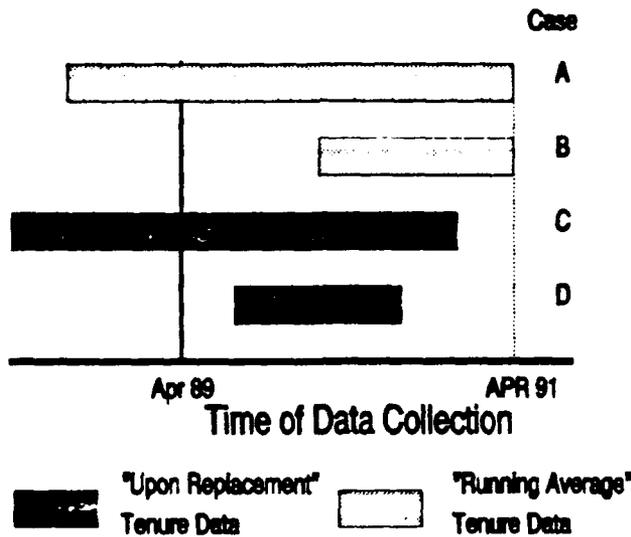


Figure 1. GAO Methodology, Source: Government Accounting Office, 1986: pg 80

still working at ASD at time T, the result would be less than that resulting from the "upon replacement" method. The "upon replacement" method would wait until time T', the time of completion for the last person still working, to calculate average tenure.

## Average Tenure Calculations

A Comparison of Running Average vs.  
Upon Replacement Methodology

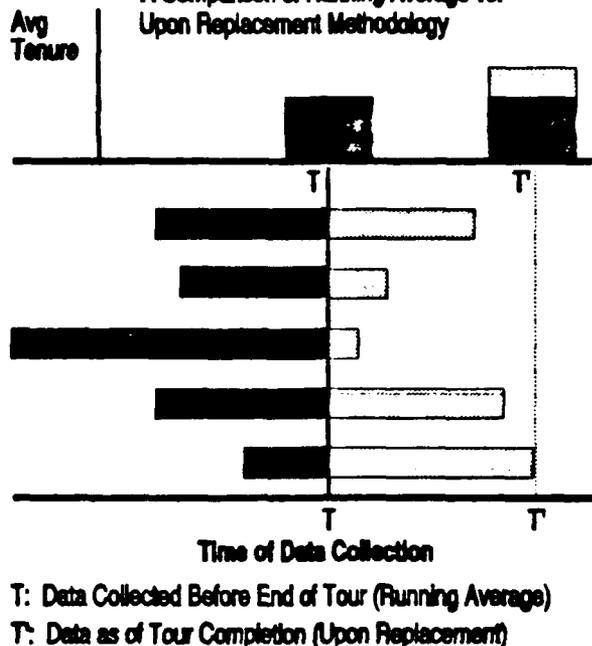


Figure 2. Calculations for Averaged Tenure Data

### Data Collection Procedures

The primary source of data for military personnel was the prior duty section of the Report on Individual Personnel (RIP), more commonly referred to as the "RIP sheet," for the personnel included in the study. This data was provided by the Consolidated Base Personnel Office attached to the 2750th Air Base Wing (ABW) located at Wright-Patterson Air Force Base (WPAFB). This office holds all records for military personnel currently assigned to WPAFB. A computerized list of military personnel was generated for all military officers currently assigned to WPAFB with one of the six primary Air Force Specialty Codes (AFSC's). A computer-

ized list of employee names was then transferred to HQ Air Force Systems Command (HQ AFSC) where prior duty information for each individual was generated from their RIP sheets. The specific data extracted from these job histories were the effective dates for current job assignments and the effective dates of any previous contiguous assignments at ASD. These dates were used to calculate an average tenure for current assignments (the "running average" method) and an average tenure for those individuals who had completed an assignment ("upon replacement" method) while assigned to ASD.

It should be noted that the hardcopy received from HQ AFSC included data records for personnel currently assigned to Aeronautical Systems Division (ASD), HQ Air Force Logistics Command (HQ AFLC), the 4950th Test Wing, the Wright Aeronautical Laboratories, as well as the Foreign Technologies Division. This study focused on data for personnel assigned to either ASD or the labs. The labs were included since they are directly affiliated with ASD.

Tenure for civilian personnel whose General Service (GS) job specialty codes correspond to the military career fields listed above was more difficult to obtain. Unfortunately, the organization responsible for maintaining civilian personnel records' for ASD, ASD/DPCDD, does not track moves of personnel as they transfer from one job to the next. This system was designed to keep track of promotion dates and career specialty codes only. Personnel moves are

tracked in the various functional staff organizations at ASD (Miller, 1991). For example, ASD/EN, the engineering directorate, maintains a computer database that records the date that an individual is assigned to a major program office (i.e., a two-letter organization such as the B-1 SPO or the F-16 SPO). ASD/AC, the directorate that controls business and financial personnel, also tracks effective dates for personnel assigned throughout ASD. Both of these organizations provided data for use in this study in the form of start dates for personnel assigned to various GS specialty codes (as previously identified by Table 1). Unfortunately, the remainder of the functional directorates at ASD do not track civilian personnel movement to the same level. ASD/-PK, the Directorate for Contracting, utilizes the same computer database as the base-level civilian personnel management system. As a result, they are unable to track how long their personnel have been assigned to specific jobs (Haynes, 1991).

Similarly, the acquisition logistics directorate, ASD/AL, does not now track length of stay in specific jobs. However, they are in the midst of drafting a personnel rotation policy for their organization. Part of this policy will call for the creation of a tracking system to support the new policy (Hillard, 1991).

ASD/CY, the program management directorate, is relatively new. It was created in 1990 and does not yet have a computer database capable of tracking personnel. They did,

however, suggest contacting HQ AFSC for the results of studies that are currently being conducted in response to Congressional direction. Unfortunately, HQ AFSC/DP, the personnel management organization, does not track tenure data for the majority of civilians. HQ AFSC/DPA, the Senior Executive Service (SES) personnel management office, however, does track this type of data. The Senior Executive Service includes civilian personnel whose government grades are equivalent to general officer rank. As a result, tenure data for the seven SES civilians in program management positions were obtained. Similarly, tenure data for general officers in program director positions were obtained for comparison with civilian SES tenure data. The military data is compiled regularly for reporting to Congress as a status check on compliance with current legislative requirements relating to military tenure.

#### Decision Rule

To test the study hypothesis that average acquisition tenure length is equal for military and civilians, an appropriate two sample t-test using an alpha (probability of type I error, rejecting the null hypothesis when it is really true) equal to .05 will be used. Since the STATISTIX 3.1 software that will be used to perform this test outputs p values, the test criteria will be the .05 alpha value. That is, if the p value resulting from the two sample t test is less than .05, then the null hypothesis must be rejected in

favor of the alternative hypothesis of inequality of tenure length for military and civilians.

### Limitations

Limitations of this research effort were:

1. Primary data will be collected for ASD only. As such, it can only be used to infer characteristics concerning the population of DoD acquisition career field specialist, as opposed to being able to state categorical claims for DoD. ASD is a good choice for study since it made up 58.6% of Air Force Systems Command's contractual obligations for fiscal year 1990 and 55% of the 1990 AFSC budget (Management Analysis Group, 1991; pg II-1). While the data may have good external validity when extended to the population of Air Force acquisition personnel, it will necessarily have less validity when extended to Army or Navy acquisition personnel.

A secondary problem was encountered in the collection of the tenure data for military personnel. This data was obtained from the 2750th CPBO military personnel records system for Wright-Patterson AFB. The system used in CBPO does not maintain records for personnel once they have left Wright-Patterson. The implication of this data loss for the study effort concerns those personnel who worked on only one job while assigned to ASD and then were rotated to another base. These people could not be included in the study because they had not yet completed their tour while they

worked at ASD. Hence, the tenure for their ASD job could not be included per the GAO methodology. Once the tour was completed (and these people rotated to another base), their data records would be flushed from the personnel system and lost to this data collection effort. The inability to include data for personnel who work in only one System Program Office (SPO) while assigned to ASD probably biases estimates of average tenure downward. For this reason, additional statistics will be calculated for personnel still currently assigned to ASD (before replacement).

2. Little research has been performed by organizational scholars attempting to relate job tenure to organizational effectiveness. As a result, the relation of interest will have to be inferred from other research which has been accomplished in the following areas: relating job performance and satisfaction to job tenure, relating job performance to job complexity as a function of tenure, etc. One of the major efforts in the literature review will be to find appropriate studies relating to organizational effectiveness and job tenure so that inferences about this relationship may be drawn.

3. Difficulties were encountered in trying to determine accurate tenure data for personnel who had changed positions within a specific System Program Office. The aim of this study is to document tenure lengths as personnel either PCS (Permanent Change of Station) or PCA (Permanent Change of Assignment). The latter involves a job change on

the same base. Current policy at Wright-Patterson AFB does not require the SPO's to notify ASD/PA when civilian personnel PCA within the SPO. This is only a concern when personnel change from one program to another while still in the same two-letter SPO (a major program office such as the B-1 or the F-15). Fortunately, the military data records normally indicate such a change of position with a change of duty title. The associated case where a person changes position within the same SPO, while remaining on the same program, would not be considered a change of position and the cumulative time for both jobs would be used in calculating tenure.

4. The final major limitation for this effort concerns the collection of tenure data for civilian personnel assigned to acquisition career fields at ASD. As previously noted, there is currently no single repository of personnel data that tracks job histories for civilian personnel at ASD (Miller, 1991).

This is all changing as a result of the recent "Mavroules Bill," the rider on the 1991 Defense Appropriations Act. This bill legislates certain minimum tenure figures for both military and civilian personnel, and ASD/DPCDD believes this will result in changes to their tracking requirements in the future to be able to ensure compliance with the legislation (Miller, 1991). This, of course, is several years in the future.

### III. Literature Review

#### Fallout from the 80's Procurement Scandals

"Our current military-service dominated acquisition process results in a confusing morass of different procurement organizations and practices...[It] uses improperly trained officers, allows high turnover of personnel in key acquisition positions, and affords no accountability for the success or failure of a weapons program (IMPACT, 1989: pg 1)." These are the words used by Senator William Roth (Rep-Del) to introduce legislation (S. 1202) which would create an elite civilian Defense Acquisition Procurement Agency where military personnel would be prohibited from serving as senior program managers or fulfilling supervisory functions in acquisition. This bill is similar to legislation which was proposed in 1988 (H.R. 2987) by Representative Dennis Hertel (Dem-Mich) which called for a "fully-staffed and functional Defense Acquisition Agency, a Defense Acquisition Corps, and a Defense Acquisition University within DoD (IMPACT, 1989: pg 1)." Both Sen. Roth's and Rep. Hertel's initiatives (H.R. 897 was repropoed in 1989 for consideration) were evaluated for action in hearings sponsored by the Senate's and House's Armed Services Committees.

These legislative initiatives, as well as the various Armed Services Committee hearings, were the result of revelations in June 1988 by the Justice Department of the results of its two year probe into suspected procurement

abuses at the Pentagon. The investigation revealed collusion between senior Pentagon officials and major government contractors in order to ensure these companies received lucrative defense contracts. As a result of this scandal, Congress began hearings looking into the matter and proposed a number of bills to try to remedy these abuses. In these hearings, Defense Secretary Carlucci stressed that Congress should "target causes, not symptoms (Towell, 1988: pg 19-75)." That is, Congress should take their time searching for solutions, and should be "suspicious of hasty or piecemeal reforms, which could do more harm than good (Towell, 1988: pg 1975)." Secretary Carlucci's cautious approach drew support from only a few of the other committee members. One of those, Congressman William L. Dickinson (Rep-Ala), emphasized that the violations discovered by the Justice Department involved clear violations of existing laws. "Every time there's a homicide," he said, "you don't need to pass a new law - you need to enforce the laws you've got (Towell, 1988: pg 1814)." Both Secretary Carlucci and Cong. Dickinson, as well as the special DoD procurement task force set up by Carlucci headed up by Under Secretary of Defense Robert Costello, drew fire from Congresswoman Barbara Boxer (Dem-Cal). Boxer, who in the past has attempted several pieces of legislation aimed at the radical reform of DoD's procurement system, denounced Costello's past opposition to her initiatives as well as the task forces' insistence that the system doesn't need any change. Many other committee

members, sympathetic to Congresswoman Boxer's position, felt that maintaining the status quo would send a "business as usual" signal to contractors. As a result, proposals were made to a) make the under secretary for defense a "true acquisition czar", b) create a Defense Procurement Agency within DoD, *manned entirely by an elite corps of civilian procurement specialists*, and c) *create a civilian Defense Procurement Agency completely separate from DoD*. In addition, Congressman Nicholas Mavroules (Dem-Mass) proposed that DoD cancel any contract found in the course of the inquiry to have been won improperly. This was partially complied with by the department. Carlucci stopped payments on several contracts worth a total of \$1 billion, on the basis of findings that had been made public to date (Towell, 1988: pg 1814).

The Congressional Quarterly Weekly Report, in their 1988 Almanac, dealt with the subject of Defense Acquisition Reforms that were proposed by Congress in 1988 as a result of the procurement scandals that came to light in June of 1988. The article also covered the current status of the investigation. To date the F.B.I. had served 42 warrants and 275 subpoenas. They estimated between 75 and 100 contracts were involved with a total value of upwards of \$10 billion dollars. Congress, however, was unable to get any of their proposals passed due to the late stage of the legislative cycle, and as a result, could not amass enough support for passage (Towell, 1989: pg 450).

As predicted by Congressional watchers and noted in the introduction, Congress in 1989 again attempted to introduce legislation aimed at the reform of the DoD procurement system. These initiatives proposed sweeping changes to the system and were mostly aimed at removing military personnel from procurement activities in favor of an elite civilian cadre. These initiatives, like their predecessors in 1988, were similarly defeated due to a lack of support. It was not until 1990 that Congress was able to put together a package that was acceptable to the various interest groups due to its objectives which were much less sweeping. On 28 Jun 1990, The House Armed Services Subcommittee, led by Rep. Nicholas Mavroules (Dem-Mass), introduced revisions to the 1984 program manager tenure law in a bill entitled the Defense Acquisition Workforce Improvement Act. The 1984 law required that managers of major weapons programs keep their jobs for at least 48 months, but a report from the subcommittee found that "the services broke the law 89 percent of the time (Weible 1990: pg 25)." In fact, the average tenure fell from 25 months in 1984 to 21 months in 1990. The new act which was actually passed as a rider to the Department of Defense Appropriations Act for Fiscal Year 1991, requires tying the tour of duty for program managers to major milestones. It also calls for a minimum of two weeks overlap between outgoing and incoming program managers (Weible, 1990: pg 25). While this new bill did not call for the removal of all military personnel from the defense procure-

ment system, it does have provisions which "limits preference for military personnel in consideration of persons for acquisition positions (Cochrane, 1990: pg 4)." In other words, military personnel should not be given preference when selecting personnel for acquisition jobs. To this end the act calls for the Secretary of Defense to ensure that there is a "substantial increase in the proportion of civilians (as compared to military) serving in critical acquisition positions, to include PM [Program Manager] positions (Cochrane, 1990: pg 4)."

A review of recent literature chronicling the recent legislative attempts of Congress to reform the procurement process reveals a number of implicit and explicit assumptions on the part of Congress. The first implicit assumption can be inferred from Congressional members' statements made in the introduction of their legislative proposals. For example, Cong. Roth, in his introduction of S.1202, condemned the military procurement system for having too high of a turnover rate for military officers in system program offices (IMPACT, 1989: pg 1). Since Cong. Roth suggested as a solution a Defense Acquisition Agency in which military personnel would not be eligible to perform managerial or supervisory duties, he must be assuming that civilians in the acquisition process have longer tenure (as compared to their military counterparts) (IMPACT, 1989: pg 1). This would support the popular notion that civilians form the "corporate knowledge" of DoD's procurement process.

The second implicit assumption on the part of Congress again concerns tenure. Senator Roth stated his belief that the high turnover rates of military officers is at least partially responsible for the recent procurement abuses and inefficiencies (IMPACT, 1989: pg 1). This implicitly assumes that there is a positive correlation between the organizational effectiveness of DoD's procurement agencies and the tenure of its military acquisition officers. In other words, short tours and high rotation policies for military personnel necessarily harm the effectiveness of DoD's procurement process. The last assumption on the part of Congress, the explicit belief of several members of Congress that DoD should adopt procurement agencies modeled after Great Britain or some other Western European Countries, is well documented. David Packard, Chairman of the Board of Hewlett-Packard Company as well as the head of President Reagan's Blue Ribbon Commission on Defense Management, felt he had to comment on this issue in his address to the "Acquisition Leadership '88" Conference due to the number of times Congress had raised the issue of foreign procurement systems with him (Packard, 1988: pg 11).

The remainder of this literature review will focus on Government studies concerning the status of DoD's procurement system with regard to the above assumptions, as well as presenting the views of leading defense management authorities concerning the above assumptions (in order to address investigative questions five and six). In addition, the

final portion of the review will address literature associated with organizational behavior to determine what research has been completed to date that seeks to correlate organizational effectiveness with tenure (in order to address investigative question six).

## Military Personnel and the Defense Acquisition System

In September of 1984 (well before the revelation of the Justice Department's findings of defense procurement abuses in June of 1988) Senator William V. Roth (Rep-Del) wrote to the Comptroller General of the U. S. General Accounting Office requesting a review of DoD's development and implementation of the Defense Acquisition Improvement Program (DAIP) (Government Accounting Office, 1986: pg 1). This program, more popularly known as the "Carlucci Initiatives" (32 in number), had been in place for three years at the time, and the Senate Armed Services Committee, whom Sen. Roth was representing, felt it was time to evaluate the progress DoD had made toward their stated goals. In particular, Sen. Roth wanted to know if DoD had been successful at "...shortening the acquisition process, increasing readiness, providing cost savings and strengthening the industrial base (Government Accounting Office, 1986: pg 18)."

Charles A. Bowsher, then the Comptroller General of the GAO, initiated a study whose results were published in two reports in May and July of 1986. In the July report, DoD's Defense Acquisition Improvement Program: A Status Report, the GAO reported DoD had made very little progress toward stabilizing weapons acquisition programs. One factor "hindering" the stability of these programs was "frequent personnel changes at the program manager/deputy program manager level (General Accounting Office, 1986: pg 10)." Of seventy-eight program managers/deputy program managers surveyed,

roughly 31% (i.e. 24 responses) indicated "that their and their deputies' combined experience on the program in either of these positions did not cover the past two years (General Accounting Office, 1986: pg 11)."

As outlined in Table 2, program managers averaged only 27.4 months serving as either the program manager or the deputy program manager. Deputy Program managers averaged only 30.1 months in either position.

<u>Current Position</u>	<u>As Program Manager</u>	<u>As Deputy Program Manager</u>	<u>Combined Experience</u>
<u>Program Manager</u>			
Army	19.1	3.0	22.1
Navy	28.0	7.6	35.6
Air Force	19.3	3.8	23.1
Average	22.4	5.0	27.4
<u>Deputy FM</u>			
Army	1.6	40.8	42.4
Navy	0.5	27.0	27.5
Air Force	0.0	23.9	23.9
Average	0.6	29.5	30.1

Table 2. Average Number of Months of Program Manager Tenure, Source: Government Accounting Office, 1986: pg 11

GAO officials, commenting on these figures, noted:

These periods of experience are relatively short considering that typical weapon systems acquisition cycle spans 10 to fifteen years. According to the Assistant Secretary of Defense for Acquisition and Logistics, short tenures can lead managers to sacrifice quality of the weapon system for near-term results. (Government Accounting Office, 1986: pg 11)

In another report published in May of 1986 entitled "Strengthening Capabilities of Key Personnel in Systems Acquisition", the GAO cited tenure figures for program managers based on a case study of 17 major DoD programs. The data were reported in two ways; a) average tenure for program managers as they were replaced, and b) as an average of program managers currently assigned to the programs in the study. The length of time for program managers currently assigned to the study programs averaged 25 months for Army programs, 31 months for Air Force programs, and 26 months for Navy programs. The tenure of program managers who had been replaced from January 1982 to August 1984 averaged 3.1 years for the Army programs, 1.9 years for the Air Force programs, and 3.9 years for the Navy programs (Government Accounting Office, 1986: pg 80).

Senate hearings, debates, and reports concerning the effects of DoD's tenure policies on the procurement process are by no means unique to the 1980's. Congressional interest in this issue dates back to 1954, when the House Committee on Government Operations held hearings on DoD's organization and administration of R&D programs. Of particular interest were the Committee's findings concerning the high rate of turnover:

It appears clear to the subcommittee that military personnel career requirements are basically different from those of scientists and other technical personnel, and that rotation is understandably necessary in order that military officers might familiarize themselves with a variety of military operations. The subcommittee recog-

nizes the unique need for military rotation, but accelerated rotation programs which result in short tours of duty are both disturbing and harmful to the productivity of the research and development programs.

At the commanding-officer level, short tours of duty might not in themselves be harmful if the officer is primarily fulfilling a military need for his having a variety of experiences. Difficulties do appear when an officer, fresh from the field and with limited technical experience, enters a research center with a view to reorganization based on limited technical qualifications. (Fox, 1988: pg 178)

From that time to the present, length of military tenure in acquisition positions became a recurrent theme in numerous Congressional and independent studies. One of the prime concerns brought out in these studies focused on the motivation of the military program manager. These studies of the military rotation system argued that the military program manager knows he/she only has a few years to do something significant in order to "earn his star" or get a promotion. In the opinion of the authors of these studies, a chain of program managers of this type rotating every two years would produce program instability on complex weapons programs (Fox, 1988; pp 177-179).

Congress was not the only critic of the military rotation system and its affect on the defense procurement system. A panel of leading industry experts from the American Defense Preparedness Association (ADPA) joined its voice to that of other critics of the system in saying:

...qualified officers must spend enough time on the job to have their impact felt and to be accountable for the result. In spite of past efforts to ensure adequate tenure, the duration on

many programs is still less than two years, and the turnover is often higher one or two levels below the program manager. Tenure should be at least three years in a position and be based on or lead to other assignments within the same program. Assignments should also relate to logical milestones in the program rather than to a calendar time or promotional reassignment. (Fox, 1988: pg 180)

David C. Hendrickson, author of Reforming Defense, studied this issue of the military rotation system and its affects on the procurement system. In his opinion the problem of inordinate rotation among general officers is at least partially caused by the excessive number of general officers, for whom jobs must be found. He notes "from 1945 to 1983 the number of officers at the rank of colonel/Navy captain and above has declined only slightly, from 17,057 to 15,455, whereas in the same period the total number of men and women on active duty has dropped from 12,123,455 to 2,127,422 (Hendrickson, 1988: pg 73)." He does not feel the services' strategic rationale for this arrangement, preparation for a protracted conventional war with the Soviet Union, is convincing because it is not complied with by the rest of the military. That is, there are barely munitions sufficient for the first thirty days of such a conflict, let alone a protracted conventional war. He believes this overstaffing of leadership has "led to an overhead of disproportionate size and to paperwork of mindboggling dimensions (Hendrickson, 1988: pg 73)."

In defense of the Air Force's military rotation policy in procurement positions, General Lawrence Skanze, Commander of the Air Force Systems Command, appeared before a senate hearing in 1985 and reported his command's findings that program manager tenure averaged 29 months (Fox, 1988: pg 180). He defended the policy by stating that it "was long enough for a program manager to understand the complex program environment (Fox, 1988: pg 180)." He went on to emphasize:

I think the Air Force program managers are able to develop a sufficient understanding of their program in a matter of months. The 29 months average tenure reflects the current average length our program managers are assigned to major programs, it does not reflect their total previous acquisition experience. (U.S. Senate, 1985: pg 56-57)

As pointed out by General Skanze, the May 86 GAO study on personnel in the acquisition system reported that the median years of total acquisition experience for Air Force program managers was 13.0 years (as compared to 7.2 for the Army and 8.4 for the Navy). In addition, the study found 63.6 percent of the Air Force program managers had 8 years of total acquisition experience in the desired career path. However, only 54.5 percent of those same program managers had the 4 years of program office experience that was desired. (Government Accounting Office, 1986: pg 80)

Mr. Ronald J. Fox, a former Assistant Secretary of the Army as well as Deputy Assistant Secretary of the Air Force, has written numerous articles and several books on the

subject of defense acquisition. In a 1990 Armed Forces Comptroller article, Mr. Fox discusses perception of the role of an acquisition manager. The two prevalent roles being the 'liaison' manager and the 'active' manager. The job of the 'liaison' manager is limited to program advocacy, status reporting and briefing, dealing with other Government agencies, and interfacing between these agencies and the contractor. This type of manager believes the contractor is responsible for cost control and thus does not need years of training and experience in dealing with industry (and cost control). This view of the role of a program manager is close to the one General Skanze was defending in his testimony to the Senate hearings in 1985. Mr. Fox subscribes to the belief that a manager should be more 'active' in planning and making key decisions regarding program costs. As such, he advocates changes to the services' personnel systems to ensure that acquisition managers receive adequate training in carrying out their responsibilities, rather than "short training courses that cover only introductory subjects rather than important subjects in depth (Fox, 1990: pg 16)." Also, a career progression needs to be outlined that will attract high quality individuals without making them take short-term assignments in order to get promoted. (Fox, 1990: pg 13) To this end, Mr. Fox urges the establishment of stronger training programs for defense acquisition managers, consisting of formal training of at least a year, a more attractive career progression for these managers, and

enforcement of the laws which require lengthened tenure (of at least 48 months) of managers on defense programs. He recommends this enforcement since program managers average only two years on a given project with instability resulting in the management of these programs. He goes on to stress:

Lack of continuity is another problem in this field. Because military officers rotate job assignments frequently, turnover in government program offices is high; tenure is often less than two years. In contrast, project chiefs in the defense industry are trained and retrained through successive assignments to positions of progressively greater responsibility. Only after years of relevant experience are industry managers given the responsibility of directing large defense programs. (Fox, 1984: pg 69)

The end result of this thirty year cycle of studies into the rotation policies of DoD's procurement agencies, with the attendant DoD initiatives to try to lengthen program manager retention in management positions, was new legislation passed in 1984. This new law "required managers of major weapon programs to keep their jobs for 48 months, with a few exceptions (Weible, 1990: pg 25)." This law did not achieve its intended results. According to a study commissioned by a sub-committee from the House Armed Services Committee, average service time for program managers on major programs actually declined from 25 months in 1984 to 21 months in 1990. As noted by Rep. Nicholas Mavroules (Dem-Mass), Chairman of the subcommittee, "...the Pentagon was in compliance with the law only 11 percent of the time (Weible, 1990: pg 25)." These findings, coupled with the abuses uncovered by the Justice Department in June of 1988,

led to the enactment of the Defense Acquisition Workforce Improvement Act, as previously discussed (Weible, 1990: pg 25).

It is interesting to note, even with the heightened interest in the late 1980's in the effects of military rotation policies on procurement, very little has been published on length of tenure of civilian program managers or even contract managers in these same studies. For the most part, these studies have noted that DoD has had problems establishing viable civilian programs. The May 1986 GAO report to Congress on personnel in systems acquisition related the following difficulties in setting up such programs:

- The civil service system is considerably less flexible than the military system, making it difficult to control or influence the career path of civilians.
- Civilians are narrowly developed in a functional specialty because of the difficulty involved in assigning them to positions outside their functional specialty.
- It is considerably more difficult to remove a civilian from a program due to performance problems than a military officer, and it is also difficult to geographically relocate civilians.
- The services prefer military program managers. (Government Accounting Office, 1986: pg 103)

In spite of these problems and a lack of data on whether or not civil service members in acquisition have longer tenure, members of Congress persist in their efforts to completely "civilianize" DoD's procurement system. Even the latest legislation concerning acquisition requires the Secretary of Defense to "substantially increase the propor-

tion of civilians (as opposed to military) serving in critical acquisition positions, to include PM positions (Cochrane, 1990: pg 4)." At this point, the literature review will examine arguments for and against the "civilianization" of DoD's procurement system.

## The "Civilianization" Argument

In the late 1980's many Congressional members, as well as several Department of Defense officials, espoused the idea that DoD's procurement system should be "civilianized." That is, military personnel should be taken out of the system and replaced by an elite civilian acquisition corps. This position was embraced by such influential members of Congress as Senator Alan Dixon (Dem-Ill), Senator William Roth (Rep-Del), and Representative John Dingell (Dem-Mich); all of whom introduced legislation in the late 1980's designed to achieve this goal (Gansler, 1988: pg 2-3). In 1985, the Assistant Secretary of Defense, James Wade, voiced an opinion that DoD lacked "a cadre of seasoned, well-rounded, technically oriented acquisition professionals (Fox, 1988: pg 263)." This cadre of dedicated professionals was, in his view, a necessity, and management of this cadre "must be by civilians rather than military personnel who rotate out after a number of years (Fox, 1988: pg 263)."

The GAO, in their report to Congress on key personnel in the acquisition system, conducted a survey of current and former government officials concerning their views on civilianizing the procurement process. The result was a collection of advantages and disadvantages that could be attributed to such a move:

### Potential Advantages

- Create a better trained corps of acquisition professional. Reduce the acquisition work force and administrative layering.

- Reduce unnecessary turnover in rotational assignments of key personnel, thereby providing continuity to a weapons program.
- Reduce the logistics and supportability requirements by promoting the development of more common weapons systems and components.
- Increase the early coordination and collaboration among the services in the requirements formulation phase of a weapon program.
- Improve relations with Congress by providing a single organization that could foster more uniformity and accountability.

#### Potential Disadvantages

- Reduce the military's influence in providing their perspective on combat tactics and operations.
- Create difficulties in finding sufficient numbers of technically knowledgeable personnel at the government pay rates.
- Make it more difficult to dismiss or reassign marginally qualified civilians in leadership positions [i.e., by substituting civil servant for military officers].
- Complicate and delay decision making rather than streamline the process by adding another layer of review.
- Leave unresolved the (1) problem of what weapon systems to buy, which can be a more difficult question than how to buy; and (2) problems associated with program funding instabilities.
- Increase the number of government personnel because the services may have to retain a variety of staff to monitor the agency.
- Create a management challenge because of the large size of the agency. (Fox, 1988: pg 264)

The GAO also conducted a survey of 46 industry program managers concerning their preferences for the composition of DoD's program manager work force. As depicted in Table 3,

the survey showed that a majority (71.7%) preferred at least half of all program managers to be military, while only 4.3% of the respondents felt they should all be civilians.

(n=46)	
	Percent
All or almost all should be military	21.7
The majority should be military	26.1
Roughly an equal mixture of military and civilian	23.9
The majority should be civilian	23.9
All or almost all should be civilians	4.3

Table 3. Military/Civilian Composition of Program Manager Work Force: Responses of Industry Program Managers, Source: GAO/NSIAD-86-45, 1986: pg 76

President Reagan's Blue Ribbon Commission on Defense Management performed a similar survey of the Department of Defense acquisition workforce. This survey questioned civilians and military concerning: *is it in the Government's best interest to have civilians responsible for all DoD contracting?* These results, depicted in Table 4, show that the civilian work force is split on this issue, while the military strongly disagree.

At roughly the same time Dr. Wade was making his proposals concerning a civilian acquisition corps, the U.S. House of Representative's Armed Services Committee was holding hearings on the subject. Donna Martin, a Congressional staff member, in testimony before the committee, stated:

We think it would be fair to allow and encourage a civilian procurement corps to continue their careers until retirement while the military tackles the tasks for which it was designed. Again, the military should define the mission and the need for a weapon; the civilian procurement corps, trained in business practices and management, would translate those military needs into principles for negotiation with the contractor to produce the desired equipment. A civilian procurement specialist who is recognized and rewarded for exercising sound business judgment, getting the best product at the lowest price and who could remain in his position until normal retirement age, would have less incentive for getting cozy with contractor than the military officer who is not trained to deal with sophisticated tactics of the corporation representative. That military official is now subject to the pressure of having to find employment when he is forced out of the military at peak of his productive years. At that point, his major concern is to keep that weapon program going and its budget funded with a minimum of fuss. (Fox, 1988: pg 266)

	(n=6000)	Percent
Civilian Workforce Response - Yes		35
Civilian Workforce Response - No		40
Civilian Workforce Response - Undecided		25
Military Workforce Response - Yes		6
Military Workforce Response - No		94

Table 4. Should Civilians be in charge of all DoD contracting? Source: Market Opinion Research, 1986: pg 167

Mr. Ronald Fox, in his book The Defense Management Challenge, reviewed the issues surrounding the initiatives to "civilianize" DoD's procurement system (Fox, 1988: pg 266). He analyzed Ms. Martin's arguments and felt they were "persuasive," but he did not feel that Ms. Martin had given

due consideration to drawbacks of the Government's civil service system.

...although the civil service contains a number of highly motivated people, it also has many employees who perform on a marginal level. In my view, Ms. Martin's proposal may give too little consideration to the difficulties of motivating the average civil servant to apply the time and effort comparable to that applied by military officers. Unless the civilian acquisition corps employs a radically improved civil service without tenure rights, any benefits from establishing such a corps are likely to be far outweighed by the problems of removing marginally effective performers. As senior civilians and military officers in the Defense Department are quick to note, once you experience the pain of trying to remove a marginally capable civil servant, you never try again. (Fox, 1988: pg 266)

Mr. Fox, after reviewing the pros and cons of such a civilian acquisition corps, concluded the disadvantages of such a system were too great. "Regardless of the disadvantages in the current military and civilian controlled acquisition process, military participation brings a sense of esprit and dedication to long hours and hard work that is essential to retain (Fox, 1988: pg 267)."

In the late 1980's, Jacques Gansler, a former Deputy Assistant Secretary of Defense and currently the Senior Vice President of The Analytic Sciences Corporation (TASC), also wished to examine the issues of 'civilianization' and 'centralization'. These ideas had recently been touted as possible remedies for the problems of the defense acquisition process, and are said to be exemplified in the European acquisition systems (Gansler, 89: pg 301). In his book, Affording Defense, he examined the French, British, Swedish,

and West German acquisition systems and compared their 'centralized' systems to the U.S. system in terms of schedule, cost, performance, and performance per unit of cost. His goal in this study was to determine the strengths and weaknesses in the approaches of the European countries in order "...to see if there are some lessons that the United States may be able to adapt to its own unique and desirable form of government and economic system (Gansler, 1989: pg 300)." He found four "critical" areas where the European countries and the United States procurement system differed "dramatically." In addition, these countries all differed in the same way from the U.S. system so that Mr. Gansler was able to create a "European model" that could easily be contrasted to DoD's policies. The four "critical" areas outlined in the study included the budget planning activities for acquisition, the weapon-system requirements process, the organization and processes of the acquisition systems, and finally the defense industries in the various countries (Gansler, 1989: pg 300).

The first major difference between the "European" and "American" models, one those on Capitol Hill often fail to recognize, concerns the relative roles of the legislative body on the defense-procurement process. Gansler, in explaining the different emphases of legislative bodies, related:

... In contrast with the annual, detailed, line-by-line review by the U.S. Congress of the DoD's budget, the European parliaments focus on a

long-range (usually a five-year) fiscal plan. The intent of this is to make the defense ministries live within the "top lines" of these long-term budgets, but to leave the distribution of the dollars up to the defense ministries. Major weapon-system decisions, in which the parliament again plays a significant role, are the exceptions to the rule. (Gansler, 1989: pg 301)

While European parliaments do still have annual debates on fiscal budgets, they are usually arguing what amount will be needed in the sixth year of the budget. In order for the U.S. to make use of such a multi-year budgeting system, much of the flexibility would have to be given up by the executive and legislative branches. In addition, Mr. Gansler feels this would add a requirement for much more "realism" in the cost estimates of out-year programs. All of these things would lead to greater efficiency and effectiveness. One final positive aspect of the "European" model concerns the length of most of their fiscal plans. In many cases they extend well beyond the five-year period which "...allows them to see the financial impact of a future production program when a new development decision is made (Gansler, 1989: pg 301)." This, of course, allows for greater stability in resource planning and weapons requirements (Gansler, 1989: pg 301).

The second major difference in the two models, the weapon-system requirements process, concerns the responsibilities of the acquisition agencies in developing requirements. The European agencies receive specifications of required "mission" (performance) requirements rather than

"weapon" design) requirements. In addition, as Gansler relates, "the European central acquisition agencies have responsibilities that cover multiple service efforts (Gansler, 1989: pg 309)." Thus they are able to avoid service "parochialism" by being able to look at all the various approaches to solving the military needs. Another major difference in the requirements processes, in Gansler's opinion, is the greater emphasis placed on cost as a design requirement by the Europeans. This emphasis on affordability allows the "European" model to make cost-benefit tradeoffs in the preliminary design phase. This, as previously mentioned, requires realistic cost figures, which currently are difficult to obtain in the U.S system since there are built-in incentives to "underestimate costs and to focus primarily on technical questions (Gansler, 1989: pg 309)."

The next "critical" difference discussed by Gansler concerns the highly centralized nature of the European systems, and more specifically, the organization and processes that make up the "European" model. For the most part, these countries have a single buying agency responsible for all military procurement for that country that is "relatively independent (organizationally) of the military services (Gansler, 1989: pg 303)." This trend toward centralization began in the 1960's as an attempt to correct a number of perceived deficiencies in their procurement systems. These perceived deficiencies included duplication of effort in acquisition activities, a lack of control over

long-range planning and budgeting across services and missions, and a need for a more "professional" acquisition corps. Mr. Gansler's concern over such a single agency for the U.S. concerns the "staggering" size that a single agency for procurement would have to be. He estimates it would be at least ten times the size of the largest European agency and questions "whether an organization so large could achieve the same benefits that the Europeans derive from centralization (Gansler, 1989: pg 304)."

The final difference between the "European" and "American" models focuses on the defense industries in the various countries and how they are viewed by the government. Gansler reports the European approach "recognizes the value - both to the national security and to the national economy - of a healthy, innovative, and responsive industrial base (Gansler, 1989: pg 302)." This is in stark contrast with the traditional "laissez faire" approach to the defense industry in the U.S. Gansler explains:

The Europeans accept the fact that, owing to the characteristics of defense work (small quantities and high specialization), there can be only a few firms in each segment of the defense industry (perhaps only one or two in some small countries). Yet they recognize that labor stability, R&D funding, lower-tier support, effective profits, and even international competitiveness must be maintained for these firms. Thus, each West European country has a government organization responsible for ensuring the oversight of, and the competitiveness of, its defense industry. Essentially, they each have a "defense industrial strategy." (Gansler, 1989: pg 302)

Mr. Gansler emphasizes that if a country such as Sweden, with its small share of exports, can produce an effective industrial strategy, than "...certainly the United States, with its huge market, should be able to accomplish the same (Gansler, 1989: pg 302)."

Figure 3 depicts the average number of months for weapon system development during full-scale development and initial production, or in Gansler's view, the "large dollar value periods" of development (Gansler, 1989: pg 305). This figure contains two sets of data, one from a Rand Corporation report, and the other from a Jane's Aircraft report. The Rand data uses a definition of initiation of "Design Start," which represents the time when a decision has been made to build a system, but before selection of the final design. "Design Selection" represents time of formal announcement of the selection of a prime weapon system contractor. In general the data from this figure shows that, "on average, the U.S. progresses from development initiation decision through initial production approximately two years faster than the Europeans do (Gansler, 1988: pg 9)."

Figure 4 shows the results of comparing aircraft schedule and costs for systems that became operational between 1950 and 1980 developed by the U.S., by single nations in Europe, and by multinational European Efforts. As expected, the U.S.'s emphasis on higher performance and shorter acquisition times is reflected in higher investments in R&D. Data analysis revealed the United States developed its

aircraft systems in two years less time, on average than the Europeans. The study also looked at cost growth for modification of aircraft systems for the U.S. This revealed a cost growth equal to first-of-series programs, but with smaller original cost (as reflected in Figure 4). In general, there is agreement that for any given time, "European weapon systems have consistently cost less (Gansler, 1989: pg 306)." Gansler believes this can be explained by the emphasis the U.S. places on attempts to push the "state of the art" in weapon-systems development (Gansler, 1989: pg 306).

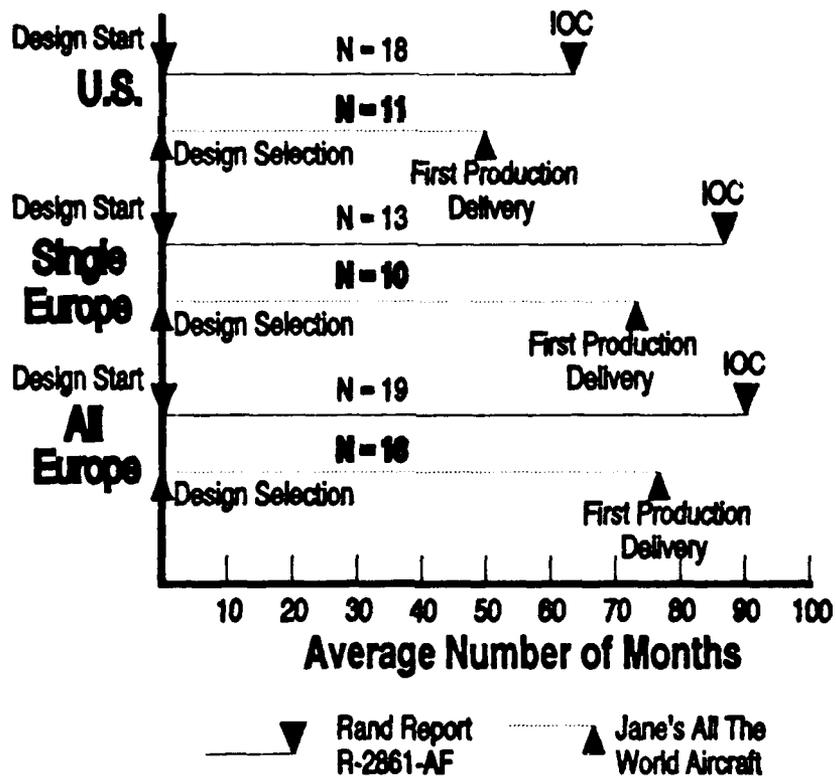


Figure 3. Schedule Comparison of U.S. and European Fighter and Attack Aircraft, Source: Gansler and Hennning, 1988; pg 8

Figure 5 depicts a comparison of the performance potential of U.S. and European fighter and attack aircraft that became operational between 1950 and 1980. The emphasis on performance by the U.S. is reflected in the dramatic difference in the data in the figure. (Gansler, 1989: pg 307)

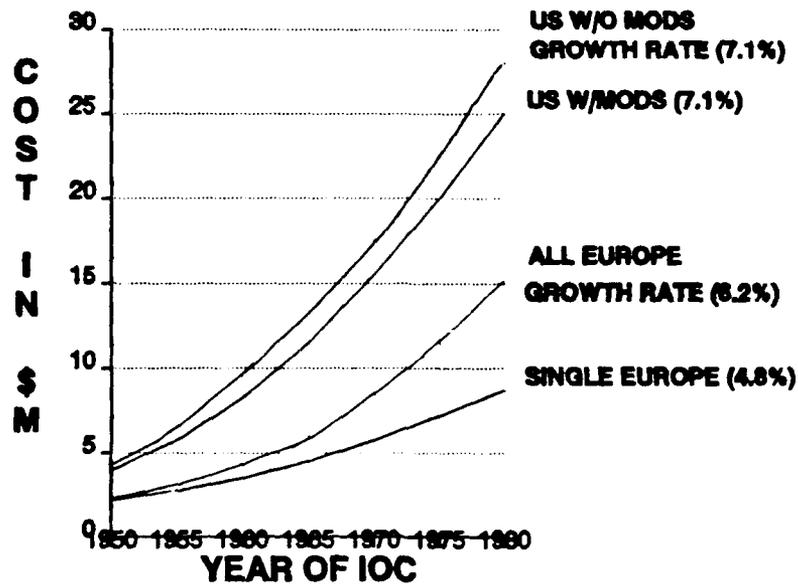


Figure 4. Cost Comparison of U.S. and European Fighter and Attack Aircraft (1950-80), Source Gansler, 1989: pg 307

The study found, that while the European systems achieve their objectives of lower cost weapons systems, they do it at the expense of significantly lower weapons performance and longer delivery schedules. The U.S. system was found to produce systems faster, while still achieving the overall goal of technological superiority (required to counter Soviet numerical superiority). Overall, Mr. Gansler

felt there was no basis in maintaining the European 'centralized' and 'civilianized' systems were more cost effective or efficient when the goal of technological superiority is kept in mind. He stressed that the fact both systems (European and U.S.) "achieve comparable performance per unit cost while stressing very different things probably means that each has some advantages and disadvantages (Gansler, 1989: pg 308)."

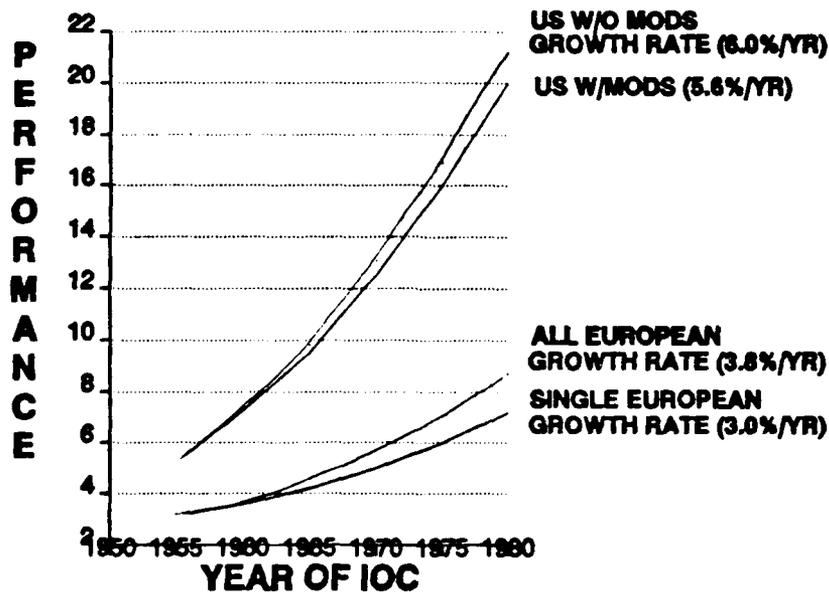


Figure 5. Performance Comparison of U.S. and European Fighter and Attack Aircraft (1950-80), Source: Gansler, 1989: pg 16

Mr. David Packard, Chairman of President Reagan's Blue Ribbon Commission on Defense Management, largely shares the views of Mr. Gansler. In his address to the Defense Acquisition Leadership '88 Conference, Mr. Packard focused on

what he felt were the major causes of the current ills of the defense acquisition process. He places most of the blame on Congress, whom he feels has not come to terms with what their responsibility in acquisition should be. Mr. Packard accuses Congress of espousing the ideal that industry should be "guided by the principles of enterprise, capitalism and competition which has shaped this country," and then turning around and micro-managing the system with so much legislation and regulation that it is "utterly impossible" (in Packard's view) to follow these principles (Packard, 1988: pg 7).

Mr. Packard also discussed recent initiatives to 'civilianize' the system, making it resemble systems currently used by Great Britain and France. He mentions that the commission spent time looking at this proposal and felt "it was not viable (Packard, 1988: pg 11)." They believed the U.S. civil service system would find it too difficult to attract and keep the quality personnel required to staff an "elite civilian procurement service (Packard, 1988: pg 11)." This constraining factor was also noted by the 1986 GAO report on acquisition personnel (General Accounting Office, 1986: pg 103). President Reagan's Commission also felt that Great Britain's system "wasn't working that well anyway (Packard, 1988: pg 11)." In Packard's opinion, this was "absolutely the wrong way to go," and "...the involvement of military people in the acquisition process is absolutely essential (Packard, 1988: pg 9)." Mr. Packard felt, howev-

er, that the military personnel who are involved in this process "must be officers who have opted for a career in procurement (Packard, 1988: pg 10)." He is completely dissatisfied with the service's practice of having programs managed by "military non-careerist who will be rotated to other, unrelated assignments as often as every two years (Packard, 1988: pg 10)."

In a related vein, Lawrence J. Korb, a former Assistant Secretary of Defense, and Thomas L. McNaugher, a senior fellow in the Brookings' Foreign Policy Studies program, share their views on allegations of procurement abuses which came to light in June of 1988 in an edited transcript of an interview for The b kings Review. Overall, they did not feel this was "symptomatic of any greater systemic malaise (Korb and McNaugher, 1988: pg 3)." Nevertheless, they proceed to describe what they believe is currently wrong with the defense acquisition system; Congressional intervention and the services' unwillingness to accept product improvements rather than new weapon systems (Korb and McNaugher, 1988: pg 3).

Korb and McNaugher discussed the problems of the current acquisition personnel system and suggested remedies. They agreed that it needs to be professionalized, but they have differing views on how that should be accomplished. Korb contends that military personnel should not manage large acquisition systems, but recommends that they be involved in the design of the system. However, Korb feels

the current civilian acquisition career specialty is so unprofessional that it is the last place a bright young civil servant would want to be (Korb and McNaugher, 1988: pg 9).

McNaugher disagrees with Korb arguing that an elite civilian corps would be unresponsive to operational inputs from military members. He also notes that the Army had a professional acquisition corps, the Ordnance Department, from 1812 to 1962, which was hated by infantrymen, armor officers, and everyone else because operational personnel felt "it was totally unresponsive to the actual needs they had derived from their combat experience (Korb and McNaugher, 1988: pg 9)." For these reasons, it was finally disestablished by Robert McNamara in 1962 (Korb and McNaugher, 1988: pg 9).

McNaugher goes on to discuss the problems of an all-civilian procurement corps by adding:

...First of all, the problem of responsiveness has to be addressed. How do you prevent this elite group of civilian managers from going off on its own and doing what it wants to do? A professional will understand contractual instruments and can negotiate contracts. That's fine. But what about war? Who tells the manager that a particular tradeoff on a weapon design doesn't make sense in terms of the war that is likely to be fought? (Korb and McNaugher, 1988: pg 9)

McNaugher also expressed his opinion that what a program manager needs most is "a keen political skill" in order to deal with various Congressional and Pentagon "cost cutters" so that his project has a chance to survive, let alone

get started. He likens a program manager to a president of a college; "He's less worried about the campus curriculum than about fund-raising (Korb and McNaugher, 1988: pg 9)." In McNaugher's view, the project outcome will be determined as much by this "mishmash of politics and bureaucracy and politics" as it is by his skill in contractual and technical matters (Korb and McNaugher, 1988: pg 9).

At a more basic level, the relationship between program manager tenure and organizational performance still needs to be addressed. More specifically, does the current research literature support Congress's assumption that there is a correlation between managerial tenure and organizational effectiveness? The next portion of this review focuses on this issue.

## Tenure and Organizational Effectiveness

As was previously noted, initiatives designed to reform DoD's rotation policies have been justified by attributing decreased organizational effectiveness to short job tenure and frequent personnel turnover. Congress, the Government Accounting Office, and numerous Department of Defense officials have all gone on record supporting this view (as documented in the previous section). Unfortunately, these proposals are usually short on evidence showing that tenure effects organizational effectiveness. For example, in the Government Accounting Office report to Congress, DoD's Defense Acquisition Improvement Program: A Status Report, frequent turnover of program managers is cited as a factor which the GAO "believe indirectly hinders [program] stability (Government Accounting Office, 1986: pg 10)." The only supporting data for this position are the results of a survey of program managers and deputy program managers showing average time in management positions. No statistical evidence was provided linking short tenure to program instability.

In an effort to determine whether tenure length or frequent turnover affects organizational effectiveness, research literature was reviewed.

There is a popular notion that employee turnover is "inherently detrimental to an organization" and should therefore be minimized (Werbel and Bedeian, 1989: pg 275). To this end organizations have commonly sought to develop

strategies to retain employees. Recent studies, however, are challenging this belief. James D. Werbel and Arthur G. Bedeian of Louisiana State University described this trend:

An organization that loses predominantly poorer performers may have less cause for concern than one that loses a disproportionately higher number of its better performers. That is to say, the significance of turnover to an organization is likely to be dependent upon the effectiveness (i.e. job performance) of those who stay compared with those who leave. In addition to providing an opportunity to hire more effective replacements, the turnover of poorer performers may offer other benefits. New employees can stimulate management by offering innovative ideas. Furthermore, they can provide skill better-suited to an organization's future growth. At the same time, turnover can actually improve the morale of remaining employees by creating opportunities for internal advancement. To paraphrase Mobley (Mobley, 1979: pg 42), organizational consequences of turnover are clearly dependent on *who* leaves and *who* stays. (Werbel and Bedeian, 1989: pg 275)

This thinking formed the basis for a study performed by McEvoy and Cascio in 1987. The purpose of their study was to "determine quantitatively the present state of knowledge about the relationship between turnover and employees' performance (McEvoy and Cascio, 1987: pg 746)." McEvoy and Cascio were concerned about the equivocal theories in the current literature attempting to relate turnover and performance. They therefore sought evidence to determine whether good performers tend to move more often (as suggested by Martin et al., 1981) or the converse, poor performers move more often (as suggested by Keller, 1984; and Sheridan, 1985). McEvoy and Cascio performed a meta-analysis using data collected from 24 studies reporting performance -

turnover correlations. The analysis produced in a mean correlation coefficient of -0.22 summarizing the relationships between performance and turnover (McEvoy and Cascio, 1987: pg 749). In other words, the study found "good performers are significantly less likely to leave an organization than are poor performers (McEvoy and Cascio, 1987: pg 758)."

These findings bear on the issue of tenure - performance relationships. Since McEvoy and Cascio note that "turnover is a dichotomization of the continuous variable called tenure", it follows that their findings suggest positive relationships between tenure and performance (McEvoy and Cascio, 1987: pg 750). While numerous theories abound concerning the theoretical nature of this relation, "empirical evidence is scant (McEnrue, 1988: pg 175)." To further complicate this problem, the data to date are contradictory. Studies examining nonmanagerial employees often obtain a positive correlation between experience on the job and supervisory ratings (McEnrue, 1988: pg 176). Other studies focusing on managerial personnel have reported negative correlations (e.g., Fiedler, 1970), zero-order correlations (e.g., Medoff and Abraham, 1980), or even a positive correlation (Terborg & Ungson, 1985) between experience and performance (McEnrue, 1988: pg 175). Mary Pat McEnrue of California State University notes these inconsistent findings are not surprising because "researchers have measured managers' experience in terms of their time with an organi-

zation, time in a position, and time in a current location, and have occasionally averaged the organizational tenure of several managers (McEnrue, 1988: pg 176)." In an effort to resolve these inconsistencies, McEnrue conducted a study of eighty-nine restaurant managers in an international restaurant company. Correlation coefficients were calculated for these managers between achieved job performance (measured by increases in profit) and three measures of job experience. These measures were: length of time with the organization, length of time working as a restaurant manager, and length of time managing the current unit. McEnrue concluded that:

This study yielded evidence of a strong, positive relationship between the length of job experience among early-career managers and their performance. Those with longer tenure in the role of restaurant manager achieved higher sales and realized larger profits. The relationship between performance and experience apparently depends on the dimension of experience considered. Managerial experience predicted greater sales and profits. *However, the amount of time an individual had managed a particular restaurant or worked with the organization were not significant predictors compared to length of time as a manager.* (McEnrue, 1988: pg 181)

The results of McEnrue's study have important implications for managers in DoD's procurement system. More specifically, the study suggests that the overall amount of experience as a manager is more important to performance in a specific job than the length of tenure in that specific position. As such, emphasis on extending tenure in a specific job for such career specialties as program management, logistics management, contract management may be misplaced.

This does not, however, address such technically complex career fields as the engineering and scientific career fields.

A 1986 study performed by Steve W. J. Kozlowski and Brian M. Hulst of Michigan State University partially addresses the issue of the importance of specific job tenure's impact on the job performance of engineers. The purpose of their study was to investigate the traditional theory that the task complexity-job performance relation is positive. They hypothesized that both work context and job tenure could moderate this relation. They authors collected data from 483 engineers in various staff and R&D positions. The complexity-performance relation was found to be moderately stable for engineers working in staff organizations across varying amounts of job tenure, while the relation varied radically for engineers working in R&D positions during the same spans of time. In other words, tenure was not found to be an important variable in affecting the job performance-complexity relationship in the staff organizations where the technical requirements of the job are assumed to be less than those found in the line engineering jobs. This suggests that in the DoD procurement arena, tenure in a specific job may be more important for career specialists such as engineers and scientists than for program managers.

A significant amount of the literature reviewed concerning tenure focused on the affects of extended tenure on such variables as job performance, attitudes and motivation.

For example, Richard M. Steers and Richard T. Mowday, in their book Employee-Organization Linkages, describe some of the possible impacts of extended tenure by saying:

...there also can be costs to the organization of having individuals too strongly linked to it. For one thing, marginally effective performers may persist in staying with the organization and thus reduce its overall effectiveness. Membership links would be strong for this group (who are not performing so poorly that they can be dismissed), but such linkages may impede the organization in bringing new employees of higher performance capabilities. (Mowday, 1982: pg 4)

This view is shared by many authorities in the defense management arena. As was previously noted, Mr. Ronald J. Fox, former Deputy Assistant Secretary of the Air Force, considers an all civilian procurement agency unadvisable partially because of the problems of dealing with marginally effective performers in Government civil service (Fox, 1988: pg 267).

In 1987, Torsten J. Gerpott and Michel Domsch of the University of the German Federal Armed Forces performed a study focusing on the affects of extended tenure on performance. Their study analyzed the reactions of 618 research and development professionals in 11 large West German firms to long job tenure (an operationalization of job plateaus). Their findings showed:

...there are significant differences between plateaued R&D professionals (i.e. respondents with at least 10 years of job tenure) and a non-plateaued comparison group (i.e. respondents with not more than 6 years of job tenure) controlling for age as a potential confounding influence. Specifically, plateaued R&D professionals indicate less working hours, to be less satisfied with their

career and their work, to be less involved in their work, and they tend to produce less publications and patents per year of company tenure. (Gerpott and Domsch, 1987: pg 103)

This concept of the consequences of extended job tenure on job performance and organizational effectiveness has serious implications for DoD's procurement system. James Kitfield, in his article When 'Arm's Length' Fails, described the procurement abuses that took place at Bell Helicopter's Fort Worth plant over the last twenty years which were partially attributed to the affects of extended job tenure (Kitfield, 1988: pg 48-52). The Defense Contract Audit Agency (DCAA) discovered Bell was overcharging the Army "by as much as \$150 million (Kitfield, 1988: pg 48)." Investigators in the case concluded a lack of rotation on the part of the Army Plant Representatives Office (ARPRO) was at least partially responsible. Congress had acknowledged this issue in 1986 when they passed legislation mandating rotation cycles of five years for Principal Administrative Contract Officers and Corporate Administrative Contract Officers. Unfortunately, this law was largely ineffective in the ARPRO's case. Officials reported only two or three positions in the ARPRO were affected by the Army's interpretation of this law, and that "...there were a number of civilians at that particular ARPRO that had been on line at that plant for some 20 years (Kitfield, 1988: pg 50)." Gary Tull, team chief of the DCAA investigative force looking at the ARPRO, noted that in many cases key manage-

rial personnel held more sway with the ARPRO staff than did the uniformed commanders. "You can rotate the commander as often as you want, but if the administrative contracting officer is there forever, he could be giving the farm away," he added (Kitfield, 1988: pg 50). Kitfield noted that while there was no sign of overt illegal activities, there were still serious problems:

...there were plenty of indications that no one was watching the barn door at Bell. When Justice Department investigators began their investigations in 1984, they discovered that the paper trail had been trampled by the ARPRO's apparent disregard for a number of defense acquisition regulations... Perhaps more significantly, they found that most of the Army's contracts with Bell had not been closed out, even seven years after completion. Because the Army is entitled to residual, or leftover, parts that can only be accounted for when a contract is officially closed out, that residual inventory was not available to the Army. (Kitfield, 1988: pg 50)

The list of ignored regulations and abuses continued, but the point was clear. As time passed and no one rotated out, the ARPRO personnel became too close to the contractors they were charged with watching. Alfred Volkman, director of contract policy and administrator for the Office of the Secretary of Defense, relates "the success of the contractor becomes so wrapped up in the representatives' own well being that they come to identify with him...That's human nature. And Contractors sort of play on that," he says (Kitfield, 1988: pg 50).

Most of the literature reviewed to this point has dealt with the affect of length of tenure on micro-level variables

such as job performance. More specifically, how does length of tenure affect the performance of an individual? The remainder of the studies addressed in this review focus on the macro-level variable of organizational effectiveness and how length of tenure of organizational members affects an organization's performance.

Allen, Katz and Slavin (1988) explored this issue in a study of the effect of tenure in R&D organizations on their performance. The tenure examined was that of the organization itself. That is, the length of time the organization had existed. The authors reviewed three previous studies which found a "curvilinear relationship between performance and tenure (Allen et.al., 1988: pg 295)." These studies had described the phenomenon of "group aging." As the mean tenure of an organization increases, performance rises, peaks, and then begins a gradual decline over the life of the organization. This "curvilinear" relationship was attributed by Katz and Allen (1982) to the 'not-invented-here' syndrome. According to this theory, "groups gradually define themselves into a narrow field of specialization and convince themselves that they have a monopoly on knowledge in their area of specialty (Allen et.al.: pg 296)." These groups, as a result, expose themselves to less "critical sources of external contact and information (Allen et.al.: pg 296)." Katz and Allen attribute the decline in organizational performance to this isolation and tunnel-vision.

The results of Allen et al.'s study contradicted earlier findings. Their data led them to conclude that "there was no evidence whatever for the previously reported curvilinear relationship between performance and tenure (Allen et.al., 1988: pg 295)." Their study went beyond the earlier studies by grouping organizations into three categories; research projects, development projects, and technical projects. The relation between tenure and performance differed among project categories. There were cycles of increasing and decreasing performance throughout the life of the organizations. The authors went on to speculate on the critical roles of project and functional managers for those organizations that managed to maintain organizational performance. They determined the role of the project manager is to "maintain connection between the team and institutional objectives" while the role of the functional manager is to "nurture individual researchers, especially in ensuring that they keep abreast of progress in relevant areas of expertise (Allen et.al., 1988: pg 295)." The authors still attributed the cyclical decrease in performance exhibited in the study data to the "not-invented-here" syndrome (Allen et.al., 1988: pg 295).

With the exception of Allen et al.'s examination of the effects of group tenure on the performance of the organization, very little of the current research literature elaborates on the relationship between tenure and the performance of that organization. This can, in part, be ex-

plained by the confused state which this area of research currently finds itself in. Raymond F. Zammuto, writing on the theory and research that has been done on organizational effectiveness, notes:

Interest in this topic can be traced back to early writing in the field, such as Barnard's Functions of the Executive, and extends to the present as witnessed by the growing numbers of articles, books, and professional meetings devoted to the topic. Much of this effort has been directed toward creating and validating a universal framework applicable to all organizations. Given the amount of attention the concept has received, it might be expected that considerable progress has been made toward this end. Unfortunately, the evidence suggests that the opposite is true. (Zammuto, 1982: pg 21)

John P. Campbell, in a study performed for the Navy Personnel Research and Development Center, exhaustively reviewed published literature on this subject through 1973 in order to develop a model of organizational effectiveness for the Navy (Campbell et al., 1974: pg 38). His study found twenty-five different dependent variables that have all been related to organizational effectiveness. These variables were used in twenty different models to operationalize the concept of organizational effectiveness. These models were based on a number of differing definitions of this concept which range from overall effectiveness to stability, flexibility, and growth. Campbell et al. concluded:

Organizational effectiveness as it has been defined and measured in the literature is an extremely untidy construct. When twenty-five separate variables can be identified [as proxies for effectiveness] and most of these variables have

several different operational forms, life becomes somewhat difficult. (Campbell et al, 1974: pg 131)

Richard M. Steers, in a 1974 study similar to Campbell's, reviewed 17 multivariate models of organizational effectiveness. As was the case in the Navy study, little consistency was found in the variables used as parameters in these models. As Table 5 indicates, 15 different evaluation criteria were used in the 17 models.

Evaluation Criteria	No. of times mentioned (N = 17)
Adaptability-Flexibility	10
Productivity	6
Satisfaction	5
Profitability	3
Resource Acquisition	3
Absence of Strain	2
Control Over Environment	2
Development	2
Efficiency	2
Employee Retention	2
Growth	2
Integration	2
Open Communications	2
Survival	2
All Other Criteria	1

Table 5. Frequency of Occurrence of Evaluation Criteria in 17 Models of Organizational Effectiveness, Source: Steers, Richard M. "Problems in the Measurement of Organizational Effectiveness," Administrative Science Quarterly, 20:549 (Dec 1975)

Steers uses the data from his study to question the usefulness of univariate effectiveness models. That is, he disagrees with attempts to measure effectiveness "in terms

of some 'ultimate criterion'; such as productivity, net profit, mission accomplishment, etc. (Steers, 1975: pg 546)." He goes on to say:

The usefulness of the univariate models for the study of organizational effectiveness can be questioned on several grounds. First, while univariate measurement techniques continue to be popular among researchers, it is difficult to defend the use of certain of the variables by themselves as comprehensive or even adequate measures of organizational effectiveness. While turnover, for example, may represent an important variable in the effectiveness construct, there is little reason to equate it with effectiveness as has been done. (Steers, 1975: pg 547)

Studies such as those performed by Campbell and Steers led to a call for a moratorium on traditional studies of organizational effectiveness in 1983 by Goodman, Atkin, and Schoorman (1983). They argued that the literature to date was inadequate in furthering the understanding of the construct of organizational effectiveness and that a new approach to researching this area was needed. This view was shared by many authors in the early 1980's, with some going so far as to call for "an abolishment of effectiveness research in the organizational sciences (Cameron, 1986: pg 87)."

Kim S. Cameron of the University of Michigan agrees with this assessment of organizational effectiveness and states "confusion and ambiguity still characterize scholarly writing on the subject (Cameron, 1986: pg 87)." However, Cameron argues that there is at least a partial explanation for this state of affairs. In his opinion, the problems of

criterion dissonance arise due to the paradoxical nature of organizational effectiveness.

...problems of criteria dissonance are precisely those that the competing values model of effectiveness helps address (Quinn and Rohrbaugh, 1981). An advantage of that model is that it helps analysts think of criteria as competing rather than as compatible and congruent. This thinking highlights an important attribute of effectiveness that helps explain why the literature has remained so chaotic and confusing regarding what effectiveness is and how to measure it. The attribute can be characterized as follows: *Organizational effectiveness is inherently paradoxical. To be effective, an organization must possess attributes that are simultaneously contradictory, even mutually exclusive...Paradox involves contradictory, mutually exclusive elements that are present and operate equally at the same time...Both contradictions are accepted and present. Both operate simultaneously.* (Cameron, 1986: pg 544)

Cameron believes that in the 1990's, successful firms will be those that are able to adapt and survive in the very turbulent conditions currently being prophesied by Drucker and other writers. He feels that in order for these firms to be successful at adapting, they will need to possess paradoxical attributes such as "loose-coupling" (decentralization), which allows for innovation and functional autonomy, as well as "tight-coupling" (centralization), which encourages quick implementation of new innovations and functional reciprocity (Cameron, 1986: pg 545).

Cameron performed a study in 1985 of 334 four-year colleges and universities throughout the United States. The study examined schools with a focus on what enabled certain institutions to maintain and improve organizational effec-

tiveness over time. One of the major conclusions from this study was:

Institutions that improve in effectiveness over time have an infusion of new leaders at the top as well as maintain continuity and stability among top administrators. The necessity for both new ideas and fresh perspectives exists simultaneously with the requirement for an enduring sense of history among the institution's leadership. (Cameron, 1986: pg 547)

Cameron therefore concludes "extremity in any criterion of effectiveness creates linearity and dysfunction (Cameron, 1986: pg 549)." The two elements of any paradoxical attribute must be kept in balance lest one element becomes too large and leads to extremism. In the example of the leadership of the Universities in the study, this could be represented by a lack of infusion of new leaders with their fresh insights or the infusion of current trends; or conversely the lack of a stable administration, where traditions go by the wayside and long-term planning is sacrificed for the sake of short-term goals (Cameron, 1986: pg 549).

## IV. Results

### Introduction

In this chapter the tenure of military and civilian personnel working in acquisition related career fields is compared. Presentation of the study's results is organized into two parts. First, the results of the data collection from the various personnel management organizations are presented in graphical and tabular form. Second, t-tests comparing military and civilian tenure for various career field are performed in order to answer the investigative questions outlined in chapter I.

Investigative Question One, which dealt with the average length of tenure for military personnel in acquisition, was answered by collating the tenure data provided by HQ AFSC. Investigative Question Two, which deals with average tenure data for civilian personnel in acquisition, was answered by collating data provided by the various ASD functional directorates previously mentioned. Hypothesis #1 was tested by performing statistical comparisons between civilian and military tenure data for both the engineering and business/financial career fields. Investigative Questions 3 and 4, dealing with factors affecting length of tenure and rotation policies, were answered by conducting interviews with the applicable personnel management organization.

## Distributional Statistics

### Investigative Question 1:

*What is the average length of tenure for military officers in acquisition career fields?*

This question was answered in two ways. First, an average time for personnel currently assigned to acquisition jobs at ASD was calculated. This value was found by computing the average number of months an individual occupied an acquisition job at ASD. Means for each career field, and for all military personnel assigned to ASD (in acquisition positions) are shown in Figure 4.2 as the average tenure under the column headed Previous Job. A second tenure estimate was based on the GAO methodology of defining tenure in terms of completed tours. This value represented the average time in months for personnel completing assignments to ASD prior to reassignment to another position at Wright-Patterson AFB. The column headed Current Job in Table 7 contains the values corresponding to this second estimate of average tenure. The sample size (N) reflects the number of military personnel currently assigned to ASD in each Air Force Specialty Code.

Figure 6 depicts the frequency distribution for the tenure of military personnel who have completed tours while assigned to ASD. For example, in Figure 4.3, the first bar shows that of the 376 completed tours examined in this study, 66 were between 0 and 16.28 months long.

AFSC	Title	Average Tenure (in Months)	
		Prev Job (N)	Current Job (N)
26	Scientists	34.37 (18)	32.28 (87)
27	Program Managers	29.75 (142)	24.21 (533)
28	Engineers	35.85 (88)	28.48 (404)
65	Contract Managers	25.54 (67)	21.89 (167)
66	Acq Logistics Managers	18.92 (12)	17.15 (41)
67	Business/Financial Managers	30.54 (49)	21.12 (111)
All AFSC's		30.41 (376)	25.26 (1343)

(N = Sample Size)

Table 6. Average Tenure for Military Personnel Assigned to Aeronautical Systems Division (ASD)

### Tenure Frequency Distribution Completed Tours of Military Personnel

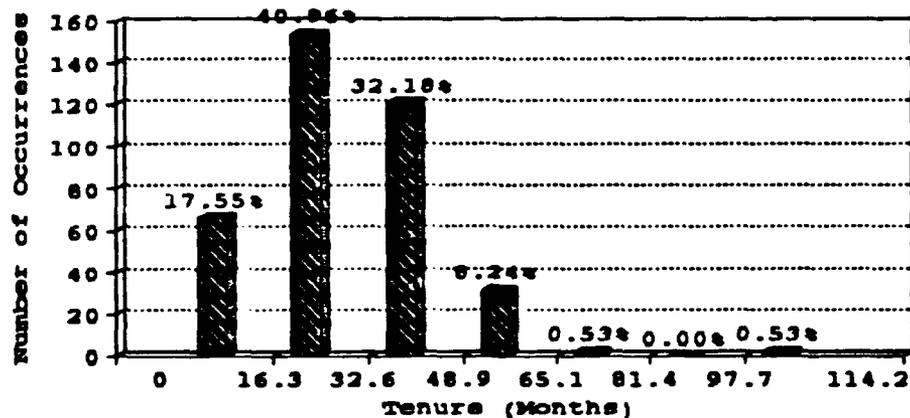


Figure 6. Frequency Distribution of Average Military Tenure Using "Upon Replacement" Methodology

Figures 7 depicts the frequency distribution for the tenure of military personnel who still occupy acquisition

positions at ASD. Like Figure 6, Figure 7 shows how long the 1343 personnel have been assigned to their current jobs (i.e., 617 people had been in their jobs between 0 and 20.28 months).

### Tenure Frequency Distribution Current Assignments for Military

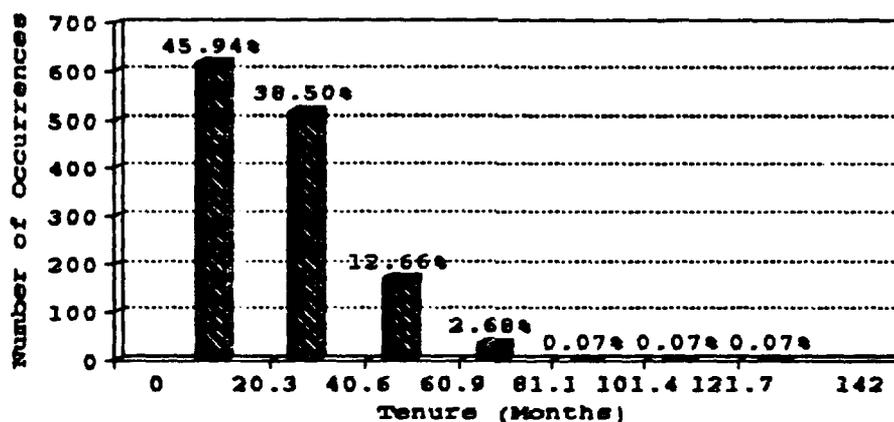


Figure 7. Frequency Distribution of Average Military Tenure Using "Running Average" Methodology

As was previously mentioned, additional tenure data were obtained from HQ AFSC/DPO for military program directors. This data showed that the average tenure of completed tours among program directors was 29 months. Figure 8 shows the average tenure for currently assigned program directors calculated monthly from Aug 1990 to Apr 1991. It was steadily increasing.

## Avg Program Director Tenure Major Programs

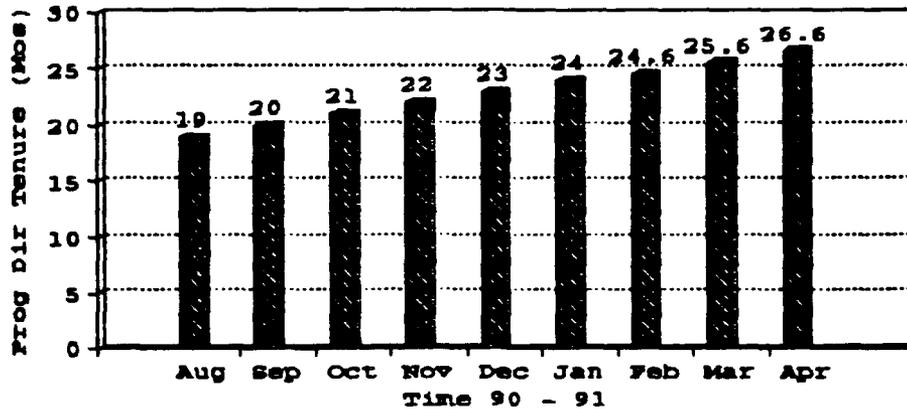


Figure 8. Average Program Director Tenure for 34 Major Air Force System Command Programs (HQ AFSC/DPO, 1991)

### Investigative Question 1:

*What is the average length of tenure for civilians in acquisition career fields?*

Due to data constraints, only average tenure for currently assigned personnel could be calculated. Average time in current assignments was calculated for both engineering and business/financial personnel (since these are the only functional directorates that maintain such records). The data are summarized in Table 7.

Figure 9 is a frequency distribution for civilian personnel. The figure shows the distribution of tenure for civilians currently assigned to positions at ASD in the engineering and business/financial directorates. For comparison purposes, a frequency distribution for military engineering and financial personnel is presented in Figure 10.

<u>Series</u>	<u>Title</u>	<u>Avg Tenure (Months)</u>	
		<u>Current Job (N)</u>	
AC - 0501	General Accounting & Admin	35.30	(259)
AC - 0510	Accounting	93.57	(43)
AC - 0560	Budget Analyst	57.15	(43)
AC - 0561	Budget Analyst Specialist	41.54	(50)
All AC Series		44.81	(395)
EN - 0801	General Engineering	38.44	(171)
EN - 0830	Mechanical Engineering	31.87	(33)
EN - 0850	Electrical Engineering	13.00	(9)
EN - 0855	Electronic Engineering	32.47	(268)
EN - 0861	Aerospace Engineering	30.03	(186)
All EN Series		33.31	(658)
All AC & EN Series		37.62	(1053)

(N = Sample Size)

Table 7. Average Tenure for Civilian Personnel Currently Assigned to Aeronautical Systems Division (ASD)

### Tenure Frequency Distribution Civilian Engineering/Business Personnel

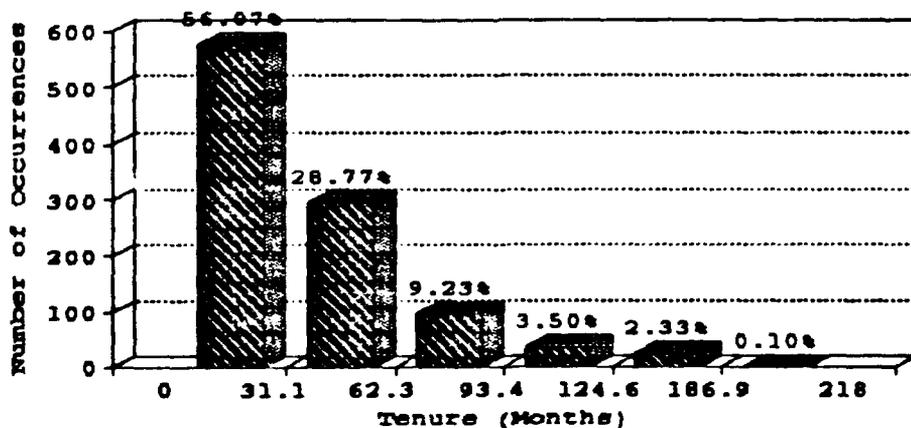


Figure 9. Frequency Distribution of Current Assignment Tenure for Civilian Personnel in ASD/AC and ASD/EN

Tenure data were obtained from the Senior Executive Service (SES) personnel management office at Andrews AFB (HQ)

AFSC/DPK) for SES's assigned to program management positions. The average job tenure for these personnel upon obtaining the Senior Executive Service rank was 23.9 months (using the "upon replacement" methodology) (HQ AFSC/DPK, 1991). In contrast, the average tenure for the military counterparts of these SES's (general officer program directors) was 29 months. This is significant because program director tenure is closely monitored by Congress. They regard the tenure of military program directors as far too short.

### Tenure Frequency Distribution Military Engineering/Business Personnel

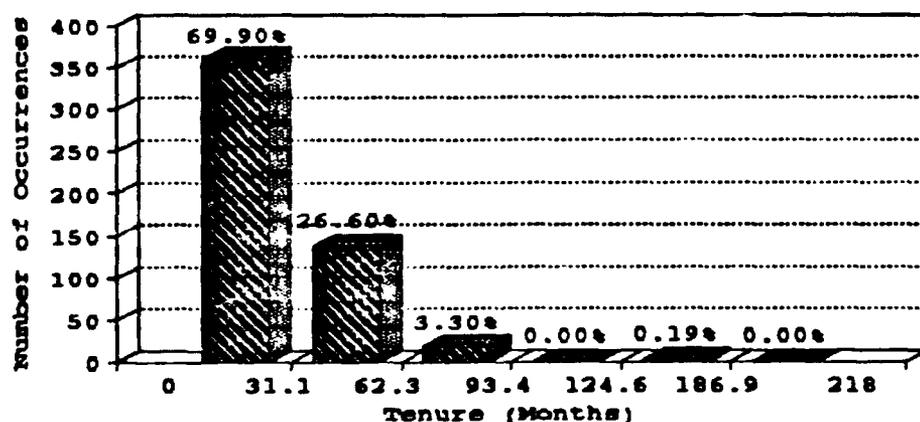


Figure 10. Frequency Distribution of Current Assignment Tenure for Military Personnel in Engineering and Financial/Business Career Fields

Investigative Questions 3 & 4:

*What are the primary factors affecting length of tenure on a given program and what are considered the optimum tour*

*lengths for military and civilian personnel in various acquisition career fields?*

For military personnel assigned to ASD, there are two primary factors affecting length of tenure in acquisition positions. The first factor, length of tour set by career monitors at the Manpower Personnel Center (MPC) at Randolph AFB, serves as an upper limit on job tenure in specific positions (Sanford, 1991). Air Force Regulation 36-20 directs a minimum tour length of 3 years for all AFSC personnel assigned to an Air Force Base in the Continental United States (Sanford, 1991). In recent years, 1987 through 1989, there was a shortfall of funds required to move personnel from one base to another. As a result, personnel were kept on station for four to five years and the three year minimum never came into play. This last year (1990), however, no funding shortfalls were experienced. HQ AFSC, in conjunction with MPC, therefore sought to move personnel who had been on station for more than five years. They rapidly took care of these people and were able to move personnel with as little as the minimum three years required by regulation (Cummings, 1991).

The second factor affecting length of assignment for military personnel is the rotation policy set by the functional organization to which an officer is assigned. These rotation policies often center around the professional development requirements of the individual career fields.

These policies will be discussed below for each functional organization.

For civilian personnel assigned to Aeronautical Systems Division, the primary factor affecting length of tenure is the rotational policies of the individual organizations; when they exist (Miller, 1991).

As previously mentioned, the Acquisition Logistics Directorate (ASD/AL) is in the midst of drafting a personnel rotation policy for their organization. This policy will cover both military and civilian personnel. The policy will recommend three year tours with an emphasis on experience in three types of positions; staff, basket SPO's, and super SPO's. A basket SPO has a number of individual programs assigned under one umbrella, while a super SPO usually is dedicated to a single major weapons program, such as the B-1 bomber. The motivation for implementing such a rotation policy, according to AL, is the Acquisition Professional Development Program, which mandates similar career progression for acquisition logistics managers. The personnel management office that is drafting this policy estimates that personnel have been in their current assignments between five and six years on average, but they have no hard data to substantiate their beliefs (Hillard, 1991).

The rotation policy that AL is drafting is similar to an unofficial policy currently being used in the Directorate of Program Control (ASD/AC). This policy, used for civilians, recommends rotation of personnel after they have been

in the same position at least two years. They have an additional rotation policy for civilian trainees that calls for movement every 15 months for the individual to learn a variety of skills. This policy remains in effect until the individual reaches the GS-12 level (Nichols, 1991). For military personnel, AC tries to rotate company grade officers somewhere between 18 and 30 months to ensure development of professional skills. There is no set rotation policy for field grade officers. Their movement is determined by program and organizational needs (Wolosz, 1991).

In contrast, the Directorate for Engineering (ASD/EN) has no rotation policy for either military or civilian personnel. Movement of engineering personnel is driven by either program requirements or personal requests on the part of an engineer (Moretz, 1991).

According to the personnel management office for the Directorate for Contracting (ASD/PK), no rotation policy currently exist for civilian personnel. This same office noted that military personnel assigned to PK have a rotation policy of 2 years. This policy is workable because data are tracked at the base level (Haynes, 1991). The lack of a rotation policy for civilians has begun to receive attention in recent years. PK has begun to track personnel actions (i.e., transfers, new hires, losses) as the result of a customer satisfaction survey that was conducted in 1990. Data obtained by PK showed 358 civilian personnel transfers between ASD organizations from November of 1988 to Apr of

1991 (Haynes, 1991). When the current number of civilians employed at PK is taken into account (N = 501), a ratio of .714 transfers per person results. From the same time period, 89 military personnel transfers occurred for 129 total military personnel assigned to PK. This results in .685 transfers per person.

The Program Management Directorate, ASD/CY, will not be officially functional until Oct 1991. They are in the process, however, of drafting rotation policies for both the military and civilian personnel assigned to the organization (Vought, 1991).

#### Hypothesis Testing

*Hypothesis 1. The average length of tenure on a project for military officers in acquisition career fields is not significantly different from the average length of tenure of their civilian counterparts.*

This hypothesis was tested using a two-sample t-test comparing the length of current assignment for civilian personnel with the current length of assignments of military personnel. Civilian data were provided by the directorates for engineering and business/financial personnel, ASD/EN and ASD/AC, respectively. These data were compared to the average tenure of military personnel assigned to ASD with comparable AFSC's. That is, a test was run comparing military officers holding the 28 AFSC (engineering) and the 26 AFSC (scientists) to civilian engineers to test the hypothe-

sis that the population means for these two samples are the same. The civilian engineers include scientific personnel in the 0855 career series. Thus, military personnel with the 26 AFSC (i.e., scientists) could be included in the test. An additional test was run comparing military officers with the 67 AFSC (business/financial managers) to their civilian counterparts. Table 8 shows the results of both the engineering personnel t-test and the business/financial personnel t-test. The two-sample t-tests tested for differences between the means of two independent samples.

Tables 8 shows that there was a significant difference between the sample mean tenure length of military and civilian personnel. More specifically, the average tenure for civilian personnel in both engineering and business career fields appeared to be longer (as estimated by average time in position - the "running average").

<u>Results of Engineering T-Test</u>				
<u>VARIABLE</u>	<u>MEAN</u>	<u>SAMPLE SIZE</u>	<u>S.D.</u>	<u>T</u>
CIVILIANS	33.03	667	29.48	2.62 <sup>†</sup>
MILITARY	29.15	491	16.61	
<u>Results of Business/Financial T-Test</u>				
<u>VARIABLE</u>	<u>MEAN</u>	<u>SAMPLE SIZE</u>	<u>S.D.</u>	<u>T</u>
CIVILIANS	39.51	363	37.41	5.06 <sup>†</sup>
MILITARY	21.12	111	14.72	

<sup>†</sup> p<.01

Table 8. Results of T-Test Comparing Military and Civilian Current Assignment ("Running Average") Tenure

## V. Conclusions

As we can see from the background articles discussed in the literature review, there is considerable interest on the part of Congressional Legislators in modifying the current Department of Defense (DoD) procurement process. Numerous bills have been proposed by Congressional members which entail the removal of military personnel from this process, with "an elite civilian corps" taking over contractual and managerial oversight responsibility. Proponents of these initiatives feel military personnel are unable to stay in a single job long enough to provide program stability. Civilians on the other hand, with their "corporate knowledge", would be much better suited to managing the procurement process. In addition, a number of these initiatives recommend that a civilian acquisition corps should be centralized, along the lines of European procurement agencies. They assume that centralization would make the corps more cost effective and efficient. I will now discuss the findings of the data analysis and the literature review and attempt to draw implications for proposals to "civilianize" and "centralize" weapons acquisition.

There were three primary sources of comparable tenure data. First, tenure length (as operationalized by length of current assignment) for civilian personnel assigned to engineering positions at Aeronautical Systems Division (Wright-Patterson AFB) was found to be significantly longer than

that of their military counterparts. Second, the same observation held true for civilian personnel assigned to business/financial positions. And third, tenure length (as operationalized by length of completed assignments) for civilian Senior Executive Service personnel assigned in program management positions was shorter than that of their military counterparts (i.e., general officers assigned to program director positions).<sup>1</sup> While completed assignment tenure data ("upon replacement" operationalization) were available for military personnel, comparable data were not available for civilian personnel (with the exception of the SES's). This data suggested that at lower grades civilian personnel stay in positions longer, but as they rise in grade, the differential in length of tenure between civilians and military personnel diminished. These trends may be short lived, however. As previously noted, the civilian personnel directorates in Aeronautical Systems Division are in the process of drafting rotation policies that stress shorter tenure length (in the two to three year range). The motivation for these policies is to support the professionalization of these personnel (Hillard, 1991; Vought, 1991; Nichols, 1991).

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<sup>1</sup> It is important to note tenure data provided by the SES personnel management office was in the form of a mean statistic and sample size and could not support a t-test comparing General officer tenure with SES personnel tenure. As such, we cannot say that the means of the two groups are significantly different.

It was interesting to note that during the data collection, tenure for civilian personnel was extremely difficult to obtain. The only data that was available was kept by functional organizations (engineering or the comptroller's office) and higher level organizations had no access to this type of data. In short, this data is not tracked by the Air Force currently and outside organizations such as Congress and the Government Accounting Office would be in no position to know what the actual length of tenure for civilian personnel actually is. While data collected in this study does partially support the assumption of longer civilian tenure, this data has not been collected and reported in the past. As such, previous Congressional initiatives to replace military acquisition personnel with civilians on the basis of length of tenure must have been based on the popular notion that civilians are the "corporate knowledge" of DoD's procurement system and not on empirical evidence.

A review of literature concerning the advantages and disadvantages of centralizing DoD's procurement system revealed that for the most part, senior Industry and Defense Department leaders believe that "centralization" would be counterproductive. Mr. Gansler pointed out that, while this type of system is effectively used in Europe, those countries are willing to put up with longer delivery times and significantly reduced technological performance. Mr. David Packard, Chairman of President Reagan's Blue Ribbon Panel on DoD's Procurement System, noted that these European systems

do not work that well in the first place (Packard, 1988: pg 11).

On the issue of the "civilianization" of the procurement system, no clear consensus was noted in applicable literature. Senior Industry and DoD officials, such as Mr. David Packard and Mr. Ronald Fox, are against "civilianization" due to problems with the Government's civilian personnel system. They also believe the dedication and operational insight brought into the system by military personnel is vital to the success of the system. Another major point against this "civilianization" process was brought up by Mr. McNaugher in his discussion of the U.S. Army's old professional acquisition corps, the Ordnance Corps. This organization had to be disbanded in 1962 because of its non-responsiveness to operational inputs. Other weapons acquisition experts, such as Mr. Lawrence Korb of the Brookings Institute, disagree. They acknowledge that while military personnel should be involved in the design of major weapons systems, their turnover is "too high to maintain coherency" and therefore they should not be involved in the management of such systems (Korb and McNaugher, 1988: pg 9). All the literature reviewed which discussed DoD's procurement system were unanimous in voicing discontent with the current training of military and civilian managers in the procurement system. In addition, the authors felt much stronger career progression paths must be created for both military and

civilian managers if DoD hopes to attract and keep high quality personnel.

The popular belief (e.g., Korb and McNaugher, 1988) that high turnover and short tenure is related to lowered organizational effectiveness was explored in the literature review. McEvoy and Cascio's study (1987) of the relationship between turnover and employee performance showed that there was a negative correlation between these two variables (McEvoy and Cascio, 1987: pg 745). In other words, their study suggested that poor performers are more likely to leave an organization than are good performers. In the DoD procurement context, this suggests that emphasis on reducing turnover for military or civilian personnel may be misplaced. Since the personnel that are more likely to move are the poorer performers, policies that enforce longer tenure for these individuals could have a deleterious impact on the organization to which they belong.

McEnrue (1988) investigated the relationships between length of tenure and job performance for management personnel and found the correlation between the two variables is dependent on the definition of job tenure (McEnrue, 1988: pg 176). Her data suggested that a strong positive correlation existed between performance and length of job experience as a manager. Two other definitions of tenure, length of time managing at a current job and the length of time working with a particular organization, were found to be less significant predictors "when compared to length of time as a

manager (McEnrue, 1988: pg 181)." This suggests that the amount of experience in procurement management is much more important to the performance of DoD acquisition management personnel than the time spent in a particular job or in a particular organization.

Research attempting to model organizational effectiveness using one or more micro-level variables (e.g. tenure, job satisfaction, etc.) have been largely contradictory to date. Cameron (1986) believes this confusion is due to the inherently paradoxical nature of organizational effectiveness. That is, he believes that for an organization to be effective, it "...must possess attributes that are simultaneously contradictory, even mutually exclusive (Cameron, 1986. pg 545)." Of particular interest are the results of Cameron's 1986 study of four year colleges and universities throughout the United States. The study showed that those institutions that continued to improve in effectiveness exhibited the paradoxical attributes of both short and long tenure of management. More specifically, these organizations had infusions of new leadership as well as continuity in the top administrative positions. The new leadership facilitated the introduction of fresh perspectives and ideas into the organizations while stability in administrative positions facilitated long-term planning and institutional memory (Cameron, 1986: pg 545). These findings suggest that length of tenure for top DoD acquisition managers should be dependent on the duties of that position. The tenure of

program directors, for example, should therefore be shorter than that of their administrative deputies.

Significant limitations experienced in collection of tenure data should be noted. For civilian personnel, two limitations may have introduced bias into the results. First, tenure data could only be collected for engineering and business/financial personnel. Therefore, inferences drawn from this data may not generalize to military and civilian tenure in other career specialties (i.e., program management, contract management, etc.). The second limitation experienced in collecting civilian data was the inability to collect any completed tour tenure data in support of the "upon replacement" methodology. As such, no real comparison of how long personnel stay in a position (a complete tour) could be made between military and civilian personnel.

Only one limitation was experienced in collecting tenure data for military personnel. This concerned the loss of tenure data once personnel had left Aeronautical Systems Division. Since the local personnel office does not maintain the records of personnel after they have departed, the data collected for the "upon replacement" methodology reflected tenure data only for those personnel who had completed assignments at ASD and were subsequently reassigned to ASD. As such, this data is probably biased low since it does not reflect those personnel who were assigned to only one position at ASD before being reassigned to another base.

The affects of this bias were ameliorated by the fact that no comparable data was obtained for civilian personnel.

### Summary

This study examined several key assumptions behind legislative attempts to "centralize" and "civilianize" DoD's procurement process. These assumptions were: tenure of civilian personnel in acquisition positions is longer than that of their military counterparts, shorter tenure is correlated to decreased organizational effectiveness, and centralization along the lines of European procurement agencies would make DoD's procurement process more cost effective and efficient.

The data collected tended to support the Congressional assumption concerning length of tenure for civilian and military personnel. Tenure data for lower grade civilian and military personnel in engineering and business/financial career fields supported the assumption of longer civilian tenure. The tenure data of higher grade personnel in the program management career field, on the other hand, could not be tested for significance. While the simple pattern of military and civilian mean differences for this group appeared to favor slightly larger military tenure, the absence of a confirming statistical test prohibited any firm conclusions about this difference.

Review of research literature suggested there is a relationship between job experience as a manager and perfor-

mance as a manager. Job tenure in a specific management position, however, was not significantly correlated with performance in that position. These findings did not hold true for engineering and other technically complex career fields. Research literature indicated tenure in a specific position was correlated with performance in that position for technically complex jobs.

The final Congressional assumption concerning the advantages of centralizing DoD's procurement system was not supported by the literature review.

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## Vita

Captain Rolland J. Gagnon was born on 24 Nov 1962 on Eglin AFB, Florida. He graduated from Chowctawhatchee High School in Ft Walton Beach, Florida in 1980, and attended Auburn University, graduating with a Bachelor of Sciences in Electrical Engineering in December 1984. Upon graduation, he received a reserve commission in the USAF and served his first tour of duty at Wright-Patterson AFB, Ohio. He began as a software/flight test manager on the Precision Location Strike System at ASD/RW, and then became the Acquisition Manager for the TR-1 Ground Station (TRIGS) in 1987. In this position he was responsible for the contract management of the TRIGS program, which entailed ensuring contract performance of the prime contractor for the development of the \$700M tactical reconnaissance system. He remained in this position until May of 1990 when he entered the School of Systems and Logistics, Air Force Institute of Technology.

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# REPORT DOCUMENTATION PAGE

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