Portfolio Management in the Air Force: Current Status and Opportunities

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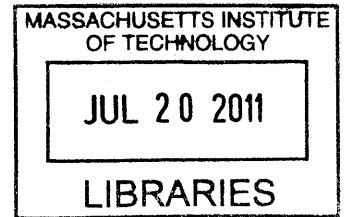**Master of Science in Engineering and Management**

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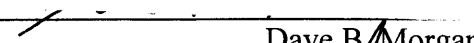
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Abstract

There are hundreds of weapons programs, under the management of the United States Air Force worth billions of dollars. These programs are being developed to fulfill a need in the U.S. defense strategy. Bringing these weapon systems to operational status is not an easy process. It takes communication and coordination of many stakeholders and development of state-of the-art technology. More often than not, weapons programs are developed with the final cost and schedule being much higher that forecasted.

Inherently weapons systems are expensive, however the costs of these systems continue to rise with no apparent end in sight. The Government Accountability Office, RAND, Congressional studies and the Defense Acquisition Performance Assessment have has criticized the Department of Defense for escalating costs. These studies point to poor requirement definition, errors in cost and scheduling forecasts, poor oversight, bad decisions by the government, and failure to adopt recommendations from reform policies as the main causes. One way ameliorate cost escalation is to employ portfolio management technique. The Air Force groups their weapon systems into 20 portfolios. Some form of portfolio management has been employed for the last decade. Portfolio management cannot solve the issues above but it can offer a solution that can potentially save millions and perhaps billions of dollars

This thesis examines the Air Force's current use of Portfolio Management theory and what opportunities we can do to improve it in the acquisition community. The thesis poses three research questions: 1) How can the Air Force better employ portfolio management to curb cost overruns and schedule delays in their weapon acquisition programs? 2) What can the Air Force do to empower portfolio managers for success? 3) What barriers can the Air Force eliminate or streamline to help portfolio managers execute their portfolios more effectively and efficiently.

Acquisition professionals were interviewed to glean their perspectives and opinions. More specifically acquisition personnel were asked how portfolio management was being executed and how can the Air Force improve this technique to better execute weapon systems programs.

From these interviews and the research conducted, the following recommendations were made: 1) Program Executive Officers should be given more authority with respect to utilizing funds and hiring of specialized personnel 2) The Air Force needs to streamline the process for reallocating funds and, 3) The Air Force needs to modify number of reporting requirements and policy changes to make the process more efficient and effective.

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Acronyms

AAC	Air Armament Command
ACAT	Acquisition Category
AFI	Air Force Instruction
AFMC	Air Force Material Command
ALC	Air Logistics Center
ASC	Aeronautical Systems Center
AT&L	Acquisition Technology & Logistics
CBO	Congressional Budget Office
DAES	Defense Acquisition Executive Summary
DAIP	Defense Acquisition Improvement Program
DMR	Defense Management Review
DoD	Department of Defense
ESC	Electronic Systems Command
FAR	Federal Acquisition Regulation
FM	Financial Management
GAO	Government Accountability Office
GWOT	Global War on Terrorism
IBR	Investment Budget Review
ISO	International Standards Organization
JRMB	Joint Requirements and Management Board
MAJCOM	Major Command
MAR	Monthly Acquisition Report
MDA	Milestone Decision Authority
OMB	Office of Management and Budget
OSD	Office of the Secretary of Defense
PCO	Procurement Contracting Officer
PEO	Program Executive Office
PM	Program Manager
PMT	Portfolio Management Theory
POM	Program Objective Memorandum
R&D	Research and Development
RDT&E	Research, Development, Test and Education
SAE	Service Acquisition Executive
SAF/AQ	Secretary of the Air Force / Acquisition Department
SAR	Selected Acquisition Reports
SMC	Space Missile Command
SPR	Spring Program Review
UCA	Undefinitized contract actions
UCR	Unit Cost Report
USAF	United States Air Force
USD	Under Secretary of Defense
WR-ALC	Warner Robins Air Logistics Center
WSARA	Weapons System Acquisition Reform Act

Chapter 1: Introduction

The United States Air Force (USAF) has awesome responsibilities. It is charged with securing the airspace of the United States protecting U.S and allied ground troops from air attack, and protecting U.S and allied military installations from air and space attack. Accomplishing these tasks encompasses a defense system that is mind boggling. It requires multiple types of aircraft including fighters, bombers, surveillance, transport, and refueling aircraft. It also requires systems that carry out command and control functions, sophisticated munitions, logistics systems, information systems, space systems, and many more that comprise the USAF Systems Enterprise. To acquire these systems the USAF contracts with defense contractors and their suppliers who develop design and manufacture these systems to certain requirements so the USAF can carry out their mission and the protect the nation's interests. These weapon systems allow the USAF to maintain its combat superiority and its ability to prosecute the war in the air better than any other air force in the world.

Currently the USAF has approximately 400 defense related programs worth over $40 billion dollars. The defense acquisition system is a unique system with hundreds of beneficiaries and stakeholders. It is safe to say that acquiring a major weapon system is definitely not an exact science and is most definitely an art. One cannot put a timetable on the maturity of technology. The funding of weapon systems is budgeted on a yearly basis and may be interrupted due to political or economic reasons. Security issues may change affecting a particular weapon system's development. Skilled and experienced engineers and program managers from the government as well as the defense contractors are a drivng force behind a weapon systems program success. All these and many more

factors that cannot be objectively measured make it difficult to manage and execute these programs. Hence, it is an art that requires extreme ingenuity and patience.

The defense acquisition system has been a watch list item for the United States Government Accountability Office (GAO) for quite some time. GAO-06-368 states, "Over the past 3 decades, the Department of Defense (DoD) acquisition environment has undergone many changes aimed at curbing cost, schedule and other problems." Recent GAO reports have criticized the DoD for poorly managing weapons acquisition programs leading to costly overruns upwards of 60 percent of the agreed upon baseline and schedule delays upwards to 24 months. In fact one GAO report released in 2009 indicated that only 20 percent of weapons programs were expected to deliver on time or ahead of schedule. Furthermore, the GAO stipulates weapon systems cost went from $1.2 trillion in 2003 to $1.6 trillion in 2008 (fiscal year 2009 dollars) (GAO-09-326SP).

Inherently weapons systems are expensive and it is difficult to put a price tag on national security. However, what continues to trouble acquisition stakeholders is the increase in costs of already tremendously expensive items. In just about all facets of weapon system acquisition process costs and schedule delays are rampant.

A wealth of research has been conducted to improve the acquisition process and help curb the escalating costs and delays. These include GAO and RAND studies, the House Armed Services Committee Panel on Defense Acquisition Reform, and the Defense Acquisition Performance Assessment. The conclusions of the studies accomplished on weapon systems acquisition can be summed up in these areas: 1) Poor requirements definition, 2) Errors in estimation and scheduling, 3) Decisions made by the

government, 4) Oversight issues, 5) Financial matters, and 6) Failure to adopt acquisition reform policies.

Acquisition reform is a huge endeavor. This thesis will not tackle all five categories; however in the last decade the acquisition leadership has embraced a technique that they believe will help reduce the cost and schedule overruns. Portfolio management theory or product portfolio is that tool. The Clinger-Cohen Act of 1996 mandates the use of Portfolio Management for all federal agencies acquiring information technology projects. Portfolio management is also used in many companies to bring products to the market efficiently, reduce risk and optimize resources. The USAF acquisition community has organized their weapon system programs in portfolios. In the summer of 2010 the Air Force changed their portfolio structure from six PEOs to twenty. This reduced the span of control of the PEOs with the intent to improve overall portfolio performance. It is unknown whether this new structure is indeed improving the execution of acquisition programs; however, this thesis will offer a subjective evaluation to determine whether the portfolio management methodology can produce results that can ameliorate the weapons acquisition process as it has done in other commercial organizations.

1.1 Research Questions, Approach, and Methods

The primary the questions this thesis addresses is: How can the Air Force better employ portfolio management to curb cost overruns and schedule delays in their weapon acquisition programs? A corollary question is: What can the Air Force do to empower portfolio managers for success? Yet another question is: What barriers can the Air Force

eliminate or streamline to help portfolio mangers execute their portfolio more effectively and efficiently?

In order to understand why portfolio management is a topic of interest, the author performed a comprehensive examination of acquisition reform over the last three decades. Then an investigation of the current environment with respect to DoD and Air Force acquisition was completed. Finally, the author interviewed acquisition professionals at different levels in the acquisition community from various geographic locations representing different portfolios.

The examination, investigation, interviews, and experience of the author led to the development of a model of how current portfolio management is executed and another model of how it could be accomplished in order to improve program execution, decrease cost and, reduce schedule delays.

1.2 Research Limitations

This paper is intended to start a discussion about the application and employment of portfolio management in the acquisition community and its ability to improve their processes. It is not intended to cast aspersions on the Air Force acquisition community or its personnel; especially the ones who have given their time to be interviewed. The Air Force acquisition process is extremely complex with political overtones in every program. Balancing the defense of the nation along with practicing good stewardship of the taxpayers' money is very difficult and worth a study of its own.

The bulk of the information for this research comes for the many discussion the author had with acquisition professionals who were promised anonymity. These discussions provided differing opinions. We have tried to represent these opinions as accurately as possible. The people who work in the acquisition career field are extremely intelligent, hard working, and proud. Most of the interviews come from on product center, ESC at Hanscom AFB. ESC is very unique as are the other product centers. However, since no one from Aeronautical Systems Center or Air Armament Center was interviewed, we must point out that there could be sampling bias. The author, with the help of some colleagues, developed a set of interview questions. (Appendix A). These questions were intended to be objective and solicit open feedback about portfolio management and the acquisition process. However, not all questions were answered by during the interview sessions because of time constraints or knowledge limitations. Also, some questions were added when the interviewee brought up a good point. Moreover, it would have been interesting to interview acquisition professionals in the Navy and Army to obtain a broader set of perspectives but time and access did not permit this to happen; hence this is an Air Force-centric version of portfolio management analysis.

It is the hope, of the author, that this thesis spurs further research that will produce policy that will help improve the way the acquisition community employs portfolio management through its processes and policies..

1.3 Thesis Outline

The following is a brief description of the thesis. Chapter 2 contains a review of the literature. Most of this chapter explains the history of acquisition reform over a 30-year span. Then, there is discussion on portfolio management and portfolio product management to include: execution, theories and applications with respect to product development.

Chapter 3 addresses the current environment on portfolio management with respect to the program managers, program executive officers and Air Force headquarters personnel. Their interactions are crucial to the effectiveness of portfolio management. The analysis of the interviews with acquisition professionals will be documented in this chapter. Also discussed in this chapter are the other key stakeholders that affect portfolio management operations.

Chapter 4 outlines the interviews that were conducted. Observations and analysis are documented with the current PEO structure, authority and personnel.

Chapter 5 discusses the other part of portfolio management, risk. Every program is required to have a risk management plan. The Air Force charged LAI to develop a risk index to help with portfolio management. This chapter introduces the work being accomplished by another colleague and how it may benefit the PEOs and PMs,

Chapter 6 details the authors recommendations he gleaned from the research and interviews conducted.

Chapter 7 summarizes the salient points of the thesis.

Chapter 2: Literature Review

This chapter contains the background and rationale for studying this problem through a close examination of the literature. To tell this story thoroughly we must examine several areas. First we take a look at the Department of Defense (DoD) budget and then narrow it down to the Air Force budget. Second, we examine some of the literature on acquisition reports from agencies such as General Accounting Office (GAO) and RAND Corporation. Third we explore some of the history of Acquisition Reform over the last 30 years. Finally, we analyze the literature on portfolio management and some of its applications in the commercial sector

.

2.1 DoD and Air Force Budget

The defense of the United States is a very expensive proposition. When we add the expense of conflicts such as Afghanistan and Iraq the costs are staggering. In 2009 the DoD's budget totaled more than $700 billion dollars (see Figure 2.1 below).
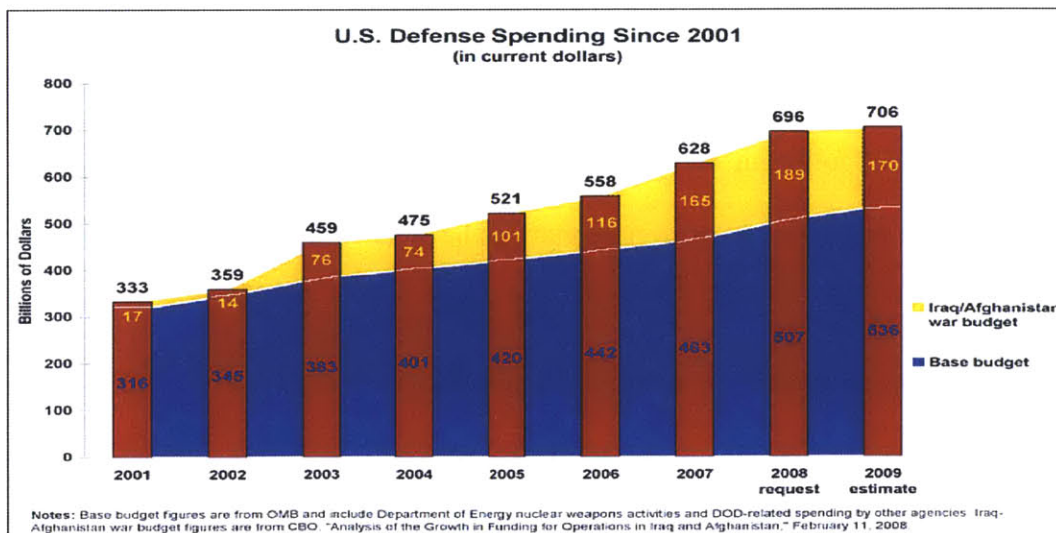
Figure 2.1: U.S Defense Spending Since 2001 (CBO, DoD, OMB)

In 2009, the DoD's budget (Figure 2.2) accounted for 23% of the United States federal budget and represents over 25% of the revenues collected from U.S. taxpayers. It accounts for close to 5% of the total Gross Domestic Product and over 50% of all discretionary spending. These figures have been on the steady rise for last several years.

Interest 187 5%
TARP 151 4%
Total $3,518 B
Defense 782 23%
Other Discretionary 437 12%
Other Mandatory 607 17%
Social Security 678 20%
Medicare & Medicaid 676 19%
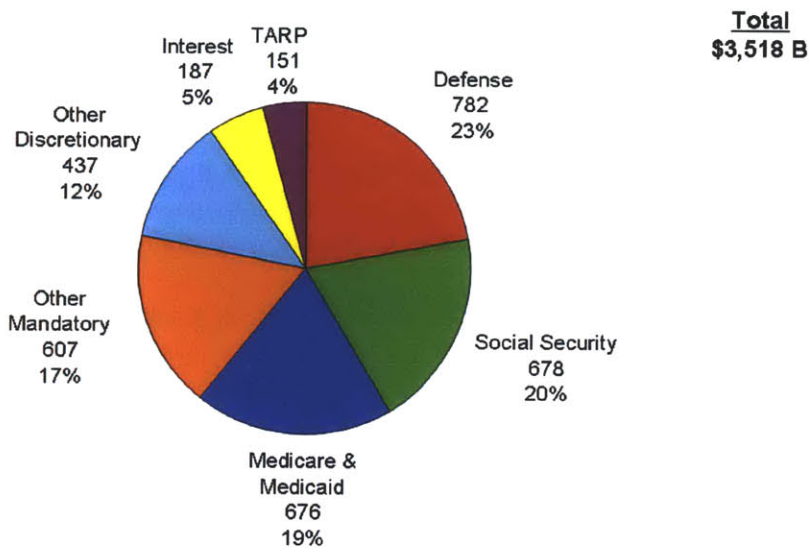
Source: OMB - 2011 Budget - Summary Table S-3

Figure 2.2. U.S Federal Spending – (OMB, 2009)

The U.S military outspends it nearest competitor, China, by nearly 6 to 1. In fact the U.S military budget is larger than the combined military budgets of the next 45 countries and accounts for over 40% of global arms spending (International Institute for Strategic Studies, 2008)

This huge spending gap and our current economic climate has many members in Congress and the American public demanding we curtail spending and even cut the military budget. Those in favor of reducing the military budget believe the military budget is endangering other domestic programs such as Medicare & Medicaid and Social

Security. They also argue that there is massive waste and overspending intertwined in the DoD and this must stop. These very claims are the main drivers of this thesis.

2.2 Acquisition History

"A billion here, a billion there, and pretty soon you're talking real money." This phrase about government expenditures, attributed to Senator Everett Dickerson from Illinois, some say erroneously, but its roots go back as far as 1917, has become a classic. Nevertheless it has become synonymous with DoD spending. I think it is necessary to give a little history of Acquisition Reform with respect to the improvement of cost, schedule and performance of weapons programs. This issue has been a well debated by government leaders for quite some time.

Defense acquisition reform has been going on for over 60 years, some argue much longer but for the sake of brevity we will only go back 30 years. General Accounting Office reports are an indictment on the acquisition process. GAO-06-368 states, "Changes made in DoD's acquisition policy over the past 5 years have not eliminated cost and schedule problems for major weapons development programs." GAO-08-467SP states "Since 2000 the DoD has roughly doubled its planned investment in new systems from $790 billion to $1.6 trillion in 2007 but acquisition outcomes in terms of cost and schedule have not improved. Nearly every report from the GAO dating back to the year 2000 reflects the same message of spiraling costs, late deliveries and slow adoption of recommend changes.

In March 2009 Committee Chairman Ike Shelton and Congressman John McHugh initiated the House Armed Services Committee Panel on Defense Acquisition Reform.

The Panel was established because of wide spread feelings of the committee that DoD acquisition was not responsive to current environment and were not being good stewards of the taxpayers money. The Panel used as evidence many GAO reports and findings. Although the Panel did assert there is not an objective way to discern how well the DoD acquisition is doing when delivering value to the warfighter; it did determine the acquisition system was in need of many changes to include its inability to provide accurate and timely financial information. The Panel concluded this alone was a major impediment to good management. The Panel's negative findings led to the Weapon Systems Acquisition Reform Act of 2009, which is briefly discussed later in this chapter.

Finally, the RAND Corporation has published more reports and studies for the government with respect to acquisition than any other organization. In fact most initiatives will cite the RAND Corporation in their research such as the previous panel. We will not list all the reports RAND has accomplished but it is very safe to say the RAND Corporation has also arrived at similar conclusions than many others with respect to cost and schedule delays of programs. They have cited errors in estimation and scheduling, decisions made by the government, financial matters, and requirements growth to name a few.

2.3 Acquisition Reform/Initiatives

In the 1980s the "Cold War" unleashed a great amount of fear and angst about the security of the United States. The DoD worked feverishly with defense contractors to expedite weapon systems for operational use. As a consequence the costs of these systems steeply increased. When costs increased many watch dog groups suspected

wrongdoings. Under the Reagan Administration many efforts were undertaken to address

fraud, waste and abuse. The most notable ones were 1) The Carlucci Initiatives, 2) the

Grace Commission, 3) the Packard Commission, 4) Goldwater-Nichols Act.

Carlucci Initiatives

In 1981 Deputy Secretary of Defense Frank Carlucci sought to eliminate program

turbulence, over-burdensome reporting, and poor cost estimating all in the hopes of

fielding viable weapon systems. In April 1981, he introduced 31 initiatives that would

improve the acquisition process; by 1984 the number grew to 33. These initiatives were

indoctrinated into the services as the Defense Acquisition Improvement Program (DAIP)

but were more colorfully known as the "Carlucci Initiatives." (See Table 1)

Table 1. Carlucci Initiatives (Carlucci, 1986)

These initiatives came "with the priorities of reducing cost, making the acquisition process more efficient, increasing the stability of the programs, and decreasing the acquisition time of military hardware."	
1. Reaffirm Acquisition Management Principles	18. Budget for Inflation
2. Increase Use of Preplanned Product Improvement	19. Forecast Business Base Conditions
3. Implement Multiyear Procurement	20. Improve Source Selection Process
4. Increase Program Stability and Support Systems	21. Develop and Use Standard Operation a
5. Encourage Capital Investments to Enhance Productivity	22. Provide More Appropriate Design-to-Cost Goal
6. Budget to Most Likely Costs	23. Implement Acquisition Process Decisions
7. Use Economical Production Rates	24. Reduce DSARC Milestones
8. Assure Appropriate Contract Type	25. Submit MENS with Service POM (MENS later called JMSNS)
9. Improve System Support and Readiness Executive	26. Revise DSARC Membership
10. Reduce Administrative Costs and Time	27. Retain USDR&E as Defense Acquisition
11. Budget for Technological Risk	28. Raise Dollar Thresholds for DSARC Review
12. Provide Front-End Funding for Test Hardware	29. Integrate DSARC and PPBS Process
13. Reduce Government Legislation Related to Acquisition	30. Increase PM Visibility of Support Resources
14. Reduce Number of DoD Directives	31. Improve Reliability and Support
15. Enhance Funding Flexibility	32. Increase Competition (added July 81)
16. Provide Contractor Incentives to Improve Reliability	33. Enhance the Defense Industrial Base (1984)
17. Decrease DSARC Briefing and Data Requirements	

Unfortunately the widespread reform Carlucci had hoped for did not materialize. The GAO reported, in1986, the initiatives were somewhat successful but were not being inculcated into the acquisition culture. Also the GAO did not find that senior leadership embraced the initiatives, which was crucial for success. Without leadership buy-in and commitment DAIP failed.

Grace Commission

In 1982 President Reagan directed the Private Sector Survey on Cost Control. It is most commonly known as the Grace Commission. It was named after Peter Grace, the co-Chairman of Citizens Against Government Waste, a non-profit organization. In 1984 the Grace Commission delivered a 21,000- page report to President Reagan. A total of 31 issues and over 100 recommendations were aimed at the DoD acquisition process. Thirteen of the key recommendations are in Table 2.

Table 2. Grace Commission Recommendations (House Rep Hearings, 1985)

1. Greater use of multiyear contracting to improve program stability
2. Prioritize all weapons programs
3. Streamline and strengthen the contract selection process
4. Upgrade cost estimating
5. Enhance the role, responsibility, authority and accountability of the PM
6. Increase the use of dual sources throughout the life of the program
7. Increase emphasis on the Spare Parts Breakout Program to identify and obtain spare parts from sources other than the prime contractor.
8. Consolidate responsibility for contract administration activity at the level of the OSD9. Simplify / streamline the 30,000 pages of regulation related to Defense procurement
10. Mandate use of common components, subsystems and equipment by all services.
11. Eliminate the use of unnecessary military specifications
12. Outsource commercial functions
13. Incentivize government employees

The Grace Commission criticized Congress for impeding efficient acquisition operations, micromanagement, and adding pork barrel projects (pork barrel projects are projects added in by Congressmen and Senators that the military leadership deems unnecessary. These projects are almost always in the Congressman's district and the Senators home state. The politicians justify these projects under the banner of national defense against the wishes of the DoD) unwanted by the military. The GAO and the OMB embraced many of the recommendations of the Grace Commission. However, the Carlucci Initiatives and DAIP were underway concurrently during this time. Hence, the DoD leadership saw many overlapping areas with the Grace Commission and the Carlucci Initiative. Both these efforts in essence became one gigantic current reform and as stated before the Carlucci initiatives did not fully take hold in the acquisition culture and thus the Grace Commission, which was tied to Carlucci did not take root as well.

Packard Commission

In 1985, President Reagan established the Blue Ribbon Commission on Defense, which became known as the Packard Commission. This effort was put into motion because of scandalous media reports of exorbitant overspending of material and increasing schedule delays. In the late 1970s, David Packard issued a 7-page memo which later developed into DoD 5000.1 and DoD 5000.2, which are the foundation of the defense acquisition system. Now in his second foray into acquisition reform, the commission Packard headed looked at successful acquisition organizations and identified what made them successful (Table 3) and a "Formula for Action" (Figure 2.3).

Table 3: Successful Characteristics of Acquisition Organizations

1. Clear Command Channels

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2. Stability
3. Limited Reporting Requirements
4. Small, high-quality staffs
5. Communications with users
6. Prototyping and testing
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Figure 2.3. Packard Commission Formula for Action

A Formula for Action

A. Streamline Acquisition Organization and Procedures
- Create new position of Under Secretary of Defense (Acquisition) (USD(A))
  -- manages defense acquisition full-time
  -- becomes the new Defense Acquisition Executive (DAE)
- Each service should establish a comparable Service Acquisition Executive (SAE)
- Each SAE should appoint a number of Program Executive Officers (PEOs).
- Program managers would report directly to the PEOs.
- Incorporating the above, substantially reduce the number of acquisition personnel
- Recodify federal laws into a single, greatly simplified statute

B. Use Technology to Reduce Cost
- Emphasize building and testing prototypes to demonstrate new technology
- Operational testing, using prototypes, should begin early in development
- Prototypes can also provide a basis for improved cost estimating

C. Balance Cost and Performance
- Restructure the Joint Requirements and Management Board (JRMB) to be co- chaired by the USD (A) and the Vice Chairman of the Joint Chiefs of Staff.
- The JRMB should define weapon requirements for development, thereby providing an early trade-off between cost and performance.

D. Stabilize Programs
- By "baselining" programs and by multi-year funding

E. Expand the Use of Commercial Products.
- Don't rely on military specifications
- Use Off-the-shelf products as much as possible

F. Increase the Use of Competition
- Focus on more effective competition, modeled after commercial practices
- Emphasize quality and past performance as well as price

G. Enhance the Quality of Acquisition Personnel.
- Allow Secretary of Defense to establish flexible personnel management policies
- Recommend an alternative personnel management system for senior acquisition personnel, contracting officers, scientists and engineers

The Packard Commission chief success was the 1986 Goldwater Nichols Act, which is arguably the most significant defense reorganization act since the 1940s. In terms of acquisition, it created an Under Secretary for Acquisition and Acquisition Executive positions for each military (a political appointee) and the Vice Chairman of the Joint Chief of Staff. All this was directed at streamlining the military acquisition structure.

The establishment of the Under Secretary of Acquisition helped the recommendations of the Packard Commission and multiyear contracting and purchasing did seem to help program stability but enhancing the quality of the acquisition personnel did not fare as well because of lack of Congressional action or input.

Defense Management Report

In 1989, President Bush directed Defense Secretary Dick Cheney to look at initiatives to improve the DoD's processes. In July 1989 the Defense Management Report (DMR) was published and recommended streamlining operations, in particular Finance, Procurement and Contract Management. It is ironic the DMR recommendations led to consolidation of contracting under the Defense Logistics Agency, a recommendation made by the Grace Commission. Another irony of the DMR was its harsh criticism of the acquisition community for being undisciplined and plagued by numerous regulations (which was heaped on them by other commissions and studies). DoD responded to the criticism by adding a third volume of DoD 5000.1. The third volume incorporated many DoD directives and policies that were issued over the last decade.

1990s

The Defense management Report ushered a new era of deregulation of the acquisition process. This was done to lower costs, simplify and streamline the process. As stated above reducing burdensome regulations was key to the DMR's recommendations. Senior leaders also wanted to reduce government overhead. To that end the Air Force merged Air Force Systems Command and Air Force Logistics Command to become Air Force Material Command. However this drastically reduced the number of seasoned and experienced acquisition professionals.

In 1994 Secretary of Defense William Perry, responding to criticism of too many standards, which imposed unnecessary restrictions and increased costs to contractors issued what we now call the Perry Memo. At the time there were over 30,000 standards with many contradicting one another. The Perry Memo, which was issued in1994, cancelled many standards and encouraged the use of industry standards such as ISO 9000 series for quality assurance. Weapons systems were required to use "performance specifications" that described the desired features of the weapon, as opposed to requiring a large number of defense standards.

2000 - Present

The present decade has seen the military budget increase from $333B to over $700B. Of course there are reasons for this; chief being "911." Later in 2001 the war in Afghanistan began and in 2003 military operations in Iraq commenced. Also during this time we still saw weapon systems cost continue to increase. The GAO submitted reports criticizing the major weapon system acquisitions:

"Total acquisitions costs for major defense programs in the fiscal year 2007 portfolio have increased 26 percent from first estimates, compared with 6 percent in 2000. Programs have also often failed to deliver capabilities when promised." (GAO-08-467SP)

"...Of the 96 weapons programs the auditors at the GAO reviewed 64 percent had reported cost increases and only 28 percent were expected to be delivered on time or ahead of schedule..." (GAO-09-326SP)

"A number of defense programs have entered the systems development phase with immature technologies and then moved into the systems demonstration period with low levels of design stability..." (GAO-09-326SP)

In response to the Pentagon's troubled procurement process; President Obama signed the Weapon Systems Acquisition Reform Act (WSARA) in Dec 2009. Already critics say WSARA can exacerbate some of the problems it was passed to fix (Ervin, 2010). Others say WSARA duplicates existing policies and regulations and creates more bureaucracy and unnecessary complexity (Erwin, 2010). The WSARA is only one year old and it already seems headed to the same fate as the acquisition reform initiatives that came before it.

However, as stated earlier, the size of the defense budget has come under more scrutiny than ever before. In the summer of 2010, just as many of his predecessors such as Carlucci and Perry, Secretary Gates delivered his own memo. The Secretary of Defense's memo calls for slashing $100 billion over the next 5 years from the defense

budget from all available sources. Ashton Carter, the Under Secretary of Defense for the

Acquisition Technology & Logistics followed Secretary Gates memo with two memos

(Sep and Nov 2010 Memos) where he called for "Better management of acquisition

programs, more accurate forecasts, better cost/schedule control and the possible

elimination of programs." (Carter, Appendix D). Ashton Carter's memos were clearly a

precursor to what many believe is a movement to reduce and eliminate the many weapons

programs throughout the DoD. The Air Force, which prides itself with technological

savvy programs, which cost billions of dollars, is clearly a target of the initiatives in the

memos.

Below is the DoD budget for fiscal year 2009 in Figure 2.4.
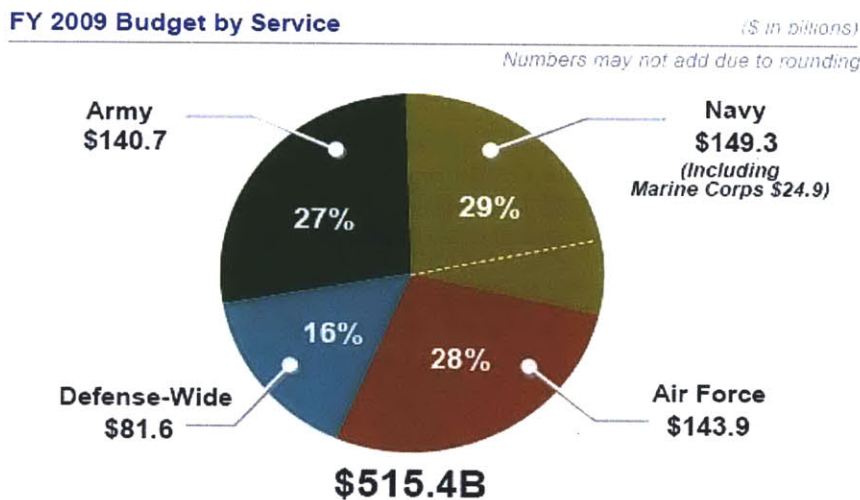
Figure 2.4 FY 2009 Budget by Service (DoD, 2009)

Thirty-two percent of the Air Force's $170 billion budget is earmarked for Research

Development Test and Evaluation (RDT&E) and Procurement programs. It is clear a

good portion of the $100 billion savings over the next five years will come for weapon

systems programs across all services. The Air Force will either have to eliminate some

programs, live with fewer items or apply better management techniques to curb costly overruns. **Portfolio Management may be able to help**.

2.4 Portfolio Management Theory (PMT)

Dr Harry Markowitz, Noble Prize winner, was the first to describe modern portfolio management theory (Markowitz, 1952). His theory was so revolutionary that it prompted Milton Friedman, another prominent economist, to question whether it was even economics (Markowitz, 1990). Markowitz major contribution was his concept of an optimal portfolio whose objective is to maximize return and minimize risk by carefully choosing different assets.
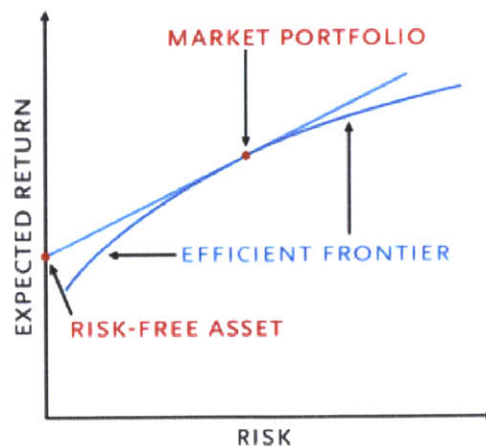
Figure 2.5 Modern Portfolio Theory Example

Markowitz theory, although close to 60 years old, still continues to the foundation of millions of portfolios with respect to stocks and bonds in the marketplace. For his work Dr. Markowitz received the Nobel Prize in Economics in 1990. Dr. Markowitz theory is now widely applied in corporation management philosophy.

James L. Farrell Jr states, in his book *Guide to Portfolio Management Theory (1983)*, "Portfolio management consists of three major activities: (1) asset allocation, (2) weighting shifts across major asset classes, and (3) security selection within asset classes. Asset allocation can best be characterized as the blending together of major asset classes"

Christine Brentani in her book *Portfolio Management in Practice (2004)* as well as *Modern Portfolio Theory The Principles of Investment Management (1988)* by Andrew Rudd and Henry K. Cashing, Jr. hammers home the point that the effective management of risk is the key issue with PMT. In point of fact all the literature on PMT emphasizes risk. In truth the basic premise of PMT from all the literature does not differ and if we did a statistical analysis we would fine the basic definition of PMT, from all authors, has a standard deviation of .00001. However, weapons systems are not securities and cannot be managed as such. There are two major differences, 1) they are not liquid assets that can be traded and 2) they are not divisible into small units like stocks. True, they do have an enormous amount of risk, which must be managed by the program manager. Therefore we turn to the literature that discusses PMT of products.

Portfolio Management for New Products (1998) by Robert Cooper, Scott Edgett, and Elko Kleinschmidt provide a framework that is most appropriate for the application of PMT to Air Force weapons systems. These authors assert the PMT, in a firm, revolves around product prioritization and resource allocation. The following description sums up PMT with respect to new products and weapon systems: "Portfolio management for new

products is a dynamic decision process wherein the list of active new products and R&D projects is constantly revised. In this process, new projects are evaluated, selected, and prioritized. Existing projects may be accelerated, killed or deprioritized and resources are allocated and reallocated to the active projects. The portfolio decision process is characterized by uncertain and changing information, dynamic opportunities, multiple goals and strategic considerations, interdependence among projects, and multiple decision makers and locations." The authors go on to say this is an iterative process, which includes continuous decisions from multiple stakeholders and a continuous reallocation of resources. This is the model that will be used. In Chapter 3 will examine the "As-is" portfolio management process in the Air Force.

2.5 Summary of Literature Review – Key Takeaways

This chapter showed a brief history of the budget increases and the acquisition changes that has occurred. We do this to show (1) the budget is a major concern for the American taxpayer and thus the politicians (2) reforming acquisition has been an ongoing effort for decades. Improving management of weapons system acquisition in order to reduce costs and provide on-time weapon systems to the warfighter is paramount to all stakeholders in Congress and DoD. The literature discussed in the chapter depicts how PMT can be used for product development and portfolio management is one technique used to manage Air Force weapon systems. The following chapter will examine how portfolio management is used or is it a tool in name only as so many suggested techniques have been in the last 30 years.

Chapter 3: USAF Portfolio Management Today

The Air Force has determined that one of best way to manage their weapon systems is by using portfolio management. Portfolio management has been utilized for many years but is becoming more prominent since the establishment of the PEO Structure in early part of this decade. There are many different portfolios in the Air Force such as the Senior Acquisition Executive's portfolio consists of all the weapon programs in the Air Force. Staff agencies such as AQX and AQC claim the all the weapon programs as their portfolio as well. However at the tactical level, the PEO and by the Program Manager (PM) are responsible for portfolio management. The PEO and PM's roles and responsibilities are governed by Air Force Instruction 63-101: *Acquisition and Sustainment Life Cycle Management* (Air Force, 2010); their main responsibility is program execution. (Appendix B).

In order to determine the true state of portfolio management in the Air Force, interviews were conducted with acquisition professionals. We know that primarily PEOs and PMs/SPMs perform tactical portfolio management; therefore most of the interviews conducted were with these professionals. However to get a complete picture, interviews were performed with contracting and finance personnel as well as acquisition professionals in SAF/AQ. We interviewed both military and civilians personnel as well as retired acquisition professionals. Interviews were conducted at the Pentagon, AFMC bases and tactical Air Force bases.

The interview format was semi-structured. A basic set of questions were developed for PEOs and SPMs but occasionally developed into an open conversation.

All interviewees were afforded anonymity to allow the interviewee to give their unbiased and uncensored opinions. In chapter 4, I will further aggregate their comments.

To give PEOs more flexibility; the Air Force modified its structure in summer 2010. The previous PEO structure had only **6 PEOs (**See Figure 3.1). This hampered the PEO's program execution, ability because he/she could not devote enough time to the weapon programs in their portfolio.
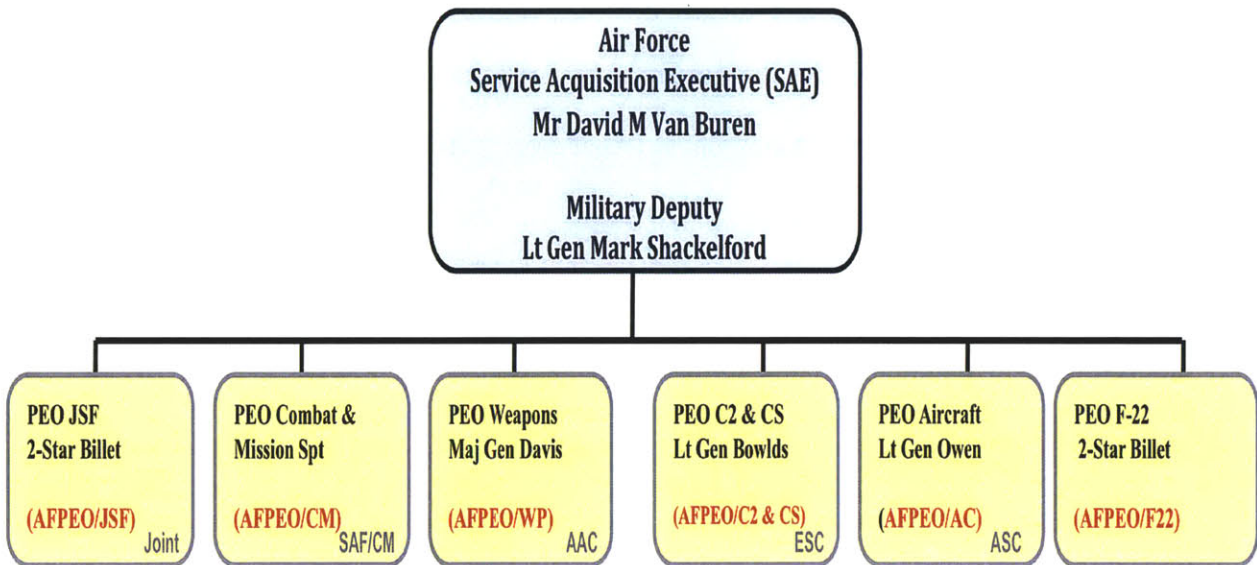
Figure 3.1 PEO Structure Pre-Summer 2010 (Source: SAF/AQ)

The current PEO structure has **20 PEOs** with far less programs in each PEO (See Fig 3.2)
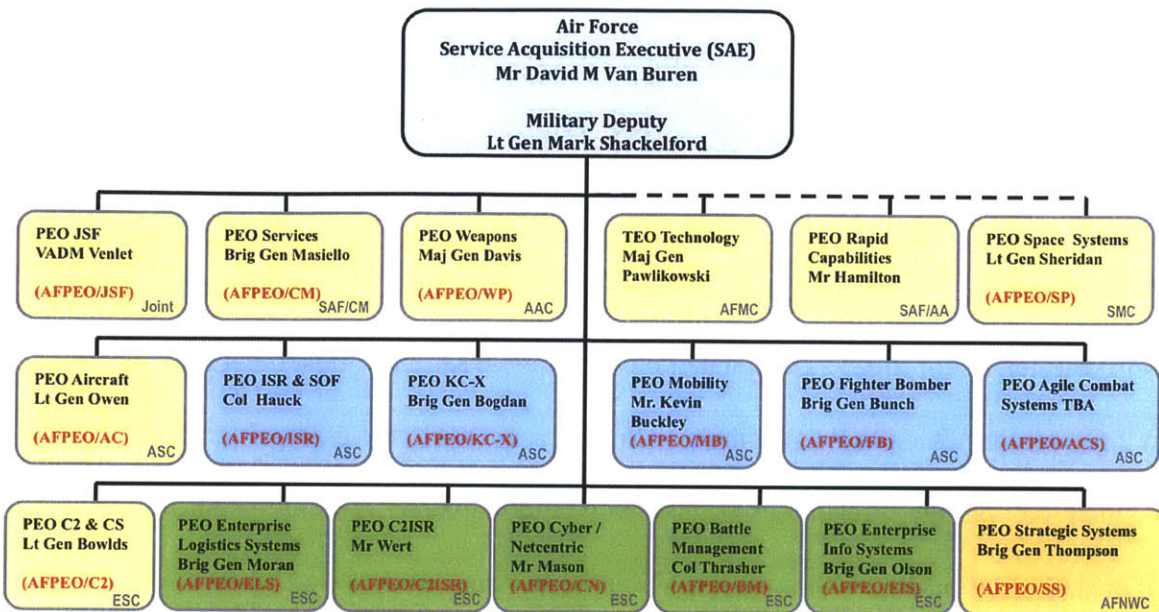
Figure 3.2 Current PEO Structure (Source: SAF/AQ)

As stated in Chapter 2, the PMT we are utilizing is based on Cooper et al(Copper, 2001). In chapter 3 will try and decipher if portfolio management is occurring at the PEO and at the PM organizational level. We will fist conduct a stakeholder analysis to determine the key players with respect to portfolio management and the PEO. Second we will look at the monetary flow and personnel allocation. Third, we look at the As-Is state and model a future state with respect to portfolio management process. Finally we synthesize the information we received from our interviews.

3.1 Stakeholders

Stakeholders are very important because in effect they are critical the PEOs/PMs execution of the portfolio and their ability to use portfolio management theory correctly. There are a myriad of definitions of a stakeholder offered by academia and industry. Freeman et al (1984) define a stakeholder "any group our individual who can affect or is affected by the achievement of the organization's objectives" Another definition comes from Murman et al (2002). Here stakeholder potential saliency must meet three criteria: (1) the extent to which they contribute valuable resources to the enterprise; (2) the extent to which they put these resources at risk and would realize costs were the enterprise to fail or their relationship with the enterprise to terminate; (3) the power they have over the enterprise. If a stakeholder meets all three criteria the stakeholder is deemed definitive. Finally, the Air Force definition of a stakeholder as it is stipulated in AFI 63-101 (Appendix C) is "an individual or organizational entities (users, developers, acquirers, technologists, testers, budgeters, sustainers, and industry) that are, or will be, associated with implementing and supporting the associated subsystem, or end-item capability requirements." Without exaggeration the acquisition system an enterprise can literally have hundreds of stakeholders such as Congress, OMB, OSD, SAF/AQ, SF/FM, MAJCOM with each of these agencies having smaller agencies within claiming some sort authority with little accountability. In order to give brevity and clarity we narrow down our stakeholders to the ones that most directly affect the PEO's portfolio, which in figure below is deemed the enterprise. Figure 3.3 shows the Enterprise stakeholders.

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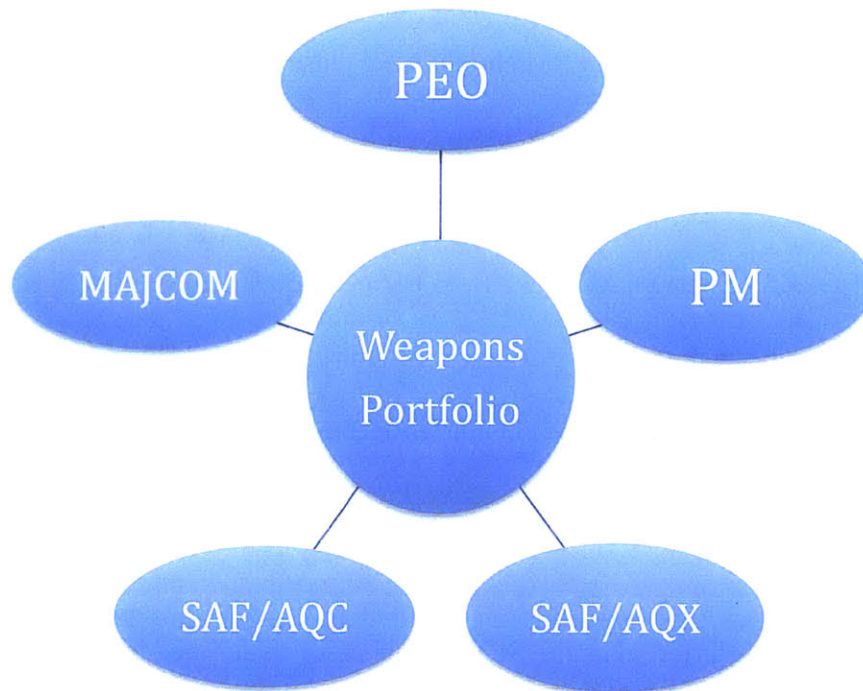
Figure 3.3 Portfolio Stakeholders

The simplified stakeholder model is sufficient to examine the functionality of PMT at the tactical level. Let us further define this figure and these stakeholders in order to be comprehensive:

Weapons Portfolio: A collections of programs however what we do want to point out is a portfolio may have programs which are in full scale production some that are early stages of research, development, test and evaluation. This is important because these different phases of the program use different type of funding which is significant in Air Force portfolio management.

The MAJCOMs in this case is the user or customer. The system is developed for their operational use. The PEO and PM should have close work relationship with the user to ensure requirements are stable or discuss a significant change. (Appendix B &C)

The PEO, as defined by AFI 63-101, is the individual dedicated to executive management and supervision of a portfolio of mission-related ACAT and selected programs. The PEO shall be chartered by and is accountable to Service Acquisition Executive (SAE). (See Appendix B)

The PM (also referred to as the SPM in this case), as defined by AFI 63-101, is the Air Force designated individual with responsibility for and authority to accomplish system objectives for development, production, and sustainment to meet the users' operational needs. For systems in acquisition, the PM/SPM is accountable for credible cost, schedule, performance, and materiel readiness to the MDA. ACAT I, ACAT IA, and ACAT II PMs/SPMs will be chartered by the SAE and the PEO. (See Appendix C for detailed definitions)

SAF/AQX chief role that affects PEO portfolio management operations is its authority to issue Program Authorizations documents, execution-year adjustments to program funding, to include release/withhold of funds, below threshold reprogramming actions, and subprogram level of funding realignments. (Appendix B)
SAF/AQC as spelled out in AFI 63-101, is responsible to exercise and further delegate (1) the authority to enter into, approve, terminate, and take all appropriate actions with

respect to contracts and agreements (grants, cooperative agreements, and other transactions), and (2) the authority to issue, modify, or rescind Air Force contracting regulations under the system of the Federal Acquisition Regulations (FAR). SAF/AQC also has the responsibility of allocating and transferring contraction personnel to System Program Office. (Appendix B).

To summarize, the PEO with a tremendous amount of help from the PM/SPMs, is responsible to the customer (MAJCOM) and SAE to execute and deliver weapon systems to satisfy a national security requirement/mission. The PEO is given the authority to execute by said SAE via the PMT. The other major requirement a PEO will need to exercise good portfolio management performance is authority in the way of controlling and allocating resources. The chief resources we speak of are funding and personnel. The SAE has delegated authority of funding to SAF/AQX and major personnel authority to SAF/AQC. **Hence we see PEO is accountable but does not have full authority. This is a critical theme and one we will revisit in later chapters.**

3.2 Budgetary Flow

Continuing with the resources theme; we must examine the process of monetary resource. This is the lifeblood of acquisition programs because whoever controls the money wields enormous influence and authority. The distribution process and stakeholders are depicted in Figure 3.4.

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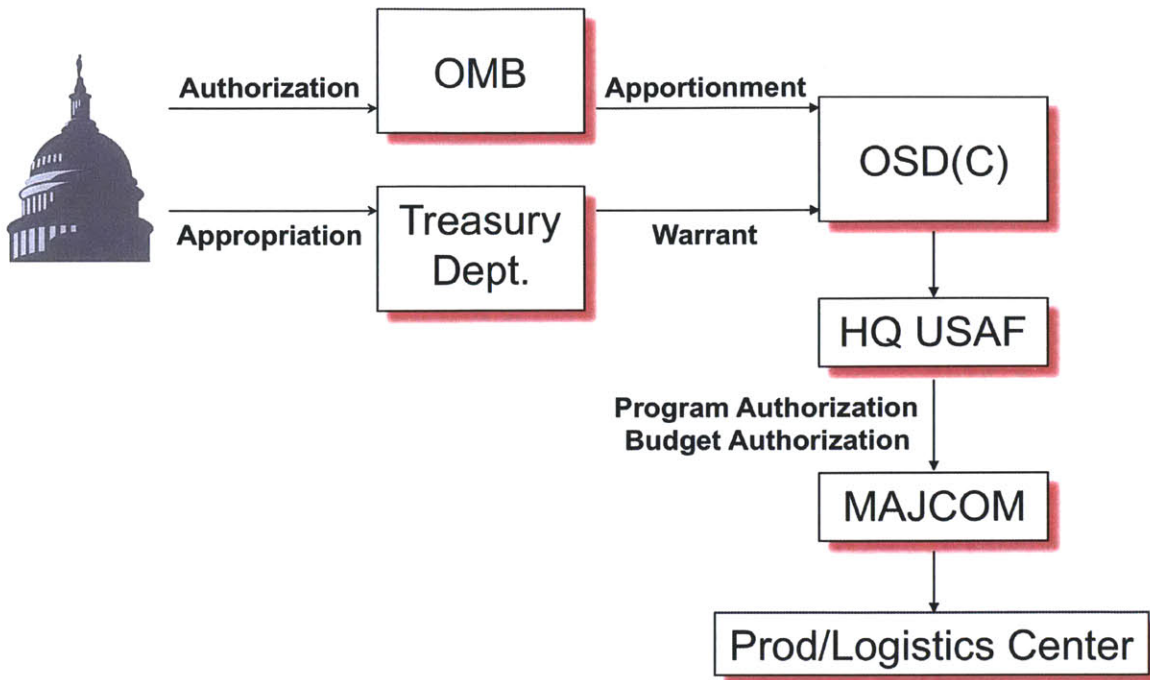
Figure 3.4 Budget Process Flow (Source – SAF/USAM)

In Figure 3.4 flow starts with Congress, then to OMB, to the Treasury Department, next to DoD, followed by the Air Force and then to the Air Force Agencies SAF/FM, SAF/AQ etc. Figure 3.4 provides a high-level budget process however I think it is important we go over the budget flow comprehensively. After painstaking debate and much haggling and deal making, Congress will pass authorization and appropriation bills for the defense discretionary spending in the upcoming fiscal year. The appropriation bills give the authority for funds to be drawn from the U.S. Treasury Department. The Treasury Department establishes the amount of cash that is available using official documents called warrants. The warrants are sent to OMB who reviews the warrants for accuracy and completeness. OMB then issues apportionment documents, which specifies the amount of funds each agency (see Fig.2.2 in Chapter 2) may use by time period, program or activity. When DoD receives their budget authority via OMB, they delegate the OSD

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Comptroller to review the documentation sends the respective services agencies their

fiscal year budget. The Air Force budget is sent to SAF/FM, who is essentially the

comptroller for the Air Force, where program authorizations and budget authorization

documents are prepared. SAF/FM will send funds to the MAJCOM and other Air Force

agencies in the following categories: 1) Operations and Maintenance, 2) Military

Personnel, 3) Procurement, 4) RDT&E, 5) Military Construction, and 6) Family Housing.

The functional manager for RDT&E and Procurement budgets is delegated to SAF/AQ.

SAF/AQ delegates the distribution of funding to the acquisition programs to SAF/AQX

who transfers the money AFMC and its various product and logistics centers: AAC,

ASC, ESC, SMC, WR-ALC, Hill ALC and Tinker ALC. At the centers, the respective

FM branches transfers the money to proper weapons acquisition program.

Note, of the stakeholders identified in section 3.1 only SAF/AQX and the

MAJCOMs are part of the funding distribution process. However what is glaring obvious

is the PEO is not involved. Which means they would have to ask permission to move

money around inside of their portfolio. This seems to go against the overriding tenet and

definition of PMT and counterproductive to efficient portfolio management.

3.3 Portfolio Management: Current View

As was stated before, portfolio management is exercised at various levels in DoD and the Air Force. We are chiefly concerned with the portfolio management and that the tactical level. Hence, we must examine how portfolio management is accomplished at that level or very close to it. Since the PEO and the PM as the chief portfolio managers use their two chief resources, personnel and money, to execute their portfolios and programs. Of the two, money is the key constraint so it is watched closely thru the obligation and expenditure reviews. The PEO tracks obligations and expenditures thru their monthly reviews and submits the results in the MAR to SAF/AQ. These monthly reviews focus on the identification of monetary issues and providing quick corrective action. Potential issues are classified as a shortfall of funding or excessive funding at a particular time. It should be clearly noted here that if these issues are current and the PEO wants to move money then she has to ask permission from SAF/AQ. SAF/AQ delegates the authority of this function to SAF/AQX. This process does not have a set time because every request is different. However, suffice to say it is not a deliberate or quick process and the leaders at the SAF/AQ level have different monetary priorities than the PEO.

Nevertheless, the next step in the current process is the Spring Program Review (SPR) and the Investment Budget Review (IBR). These reviews address the cost, schedule and current issues of the Air Force portfolio. Here PMs deliver presentations on the current health of their programs and discuss issues they may need SAF/AQ to help them overcome. The other goal of these reviews, which occur during the April-May timeframes every year, is to find sources of funding to reprogram into other Air Force

programs and priorities. Coincidently the OSD Comptroller is concurrently their mid-year review of the entire DoD fiscal year budget.

In this current scenario if a PEO wanted to move some funds into another program in their portfolio, which is what we have referred to above as reprogramming, they would have to convince and get permission from SAF/AQX to do so. Then they would have to negotiate with their contracting officer, who must get permission thru their channels (sometimes all the way up to SAF/AQC) to put the money on a contracting vehicle. If this process seems tedious, complex and time-consuming…well it is. There isn't a set standard time to muddle through this process but the results of interviews puts the time from weeks to as long as 2 months. Figure 3.5 and 3.6 shows the weapons portfolio process using casual loop diagram technique of systems dynamics.
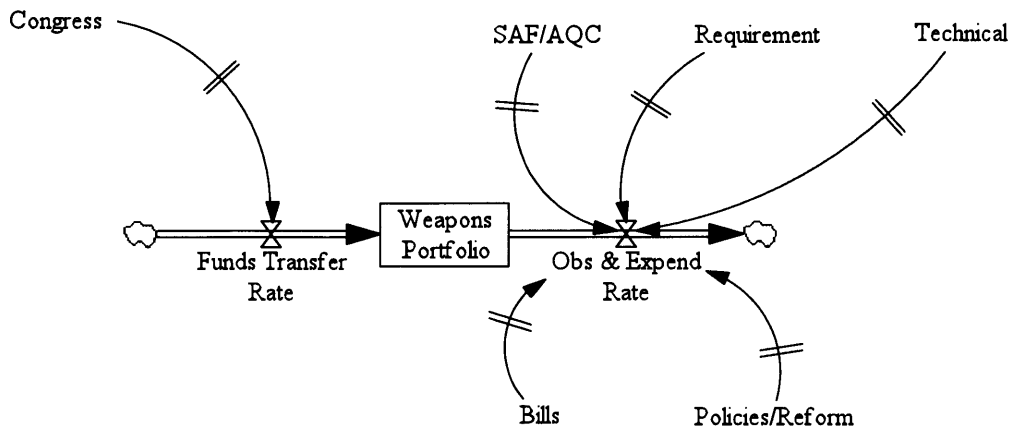
Figure 3.5 Weapons Portfolio Funding Process

Figure 3.5 uses system dynamics to illustrate the weapons portfolio dynamic with respect to funding. If the system is in equilibrium then the "Funds Transfer Rate" would equal the "Obs & Expend Rate" which means all the money given to the portfolio is spend by

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the portfolio. However, this rarely happens and the reasons are shown in the model.

First the money rarely gets to the program on time. Programs are usually operating under a continuing resolution authority, CRA (CRA gives the programs a percentage of previous year's funding to carry out minimum operations until the President's Budget is signed) well into January or February of that fiscal year. The fiscal year is 12 months, starting on 1 October of the previous year and ending 30 September of the current year i.e fiscal year 2011 begins 1 Oct 2010 and ends 30 September 2011.

The variable "Congress" with the double dash on the loop depicts a delay of funding to the portfolio. Once the money does get to the programs there are a myriad of reasons why the funds may not get obligated and expended in that fiscal year. In the model the reasons could be 1) SAF/AQC, which represents contracting, may have difficulty putting the money and the correct contract vehicle or the process may take too long and then the funds or in jeopardy to expire so they are taken away; 2) Requirements may change so this may involve new negotiations and reworking of the verbiage of the contract; 3) The defense contractor may run into a technical obstacle stalling the next step, which the current funds are designated; 4) Many times the DoD will have a higher priority project that must be funded so funds are cut from programs. An example would be the funding of the GWOT. 5) New policies or acquisition reforms may come down which may interrupt the process depending how fast they must be enacted; WSARA and Gates Memo are examples. These are just a few reasons that a particular program in a portfolio may not be able to use their funds or just lose their funds all together.

So when a program cannot use their funds and the PEO wants to use these funds

for another program they have to go through a process that may be lengthy. Figure 3.6

illustrates the process.
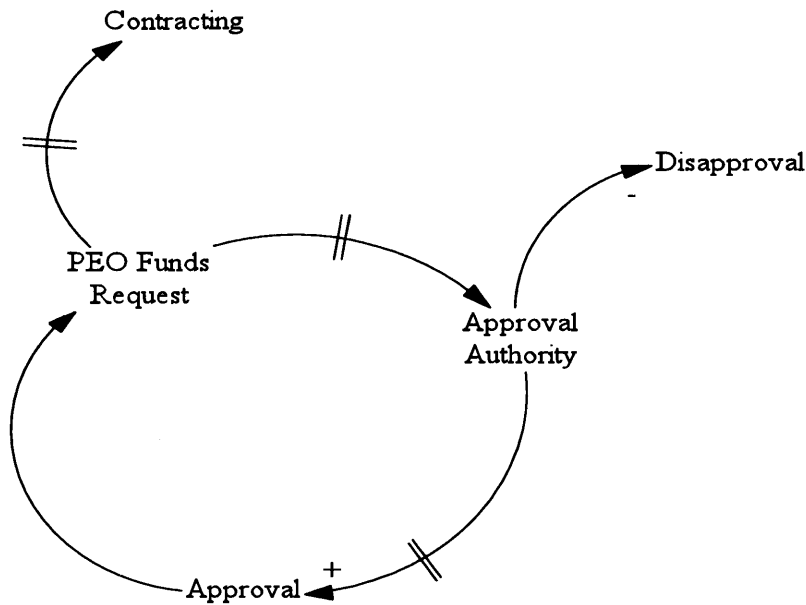
Figure 3.6 Fund Transfer Request Process

If a PEO wants to move funds from one of his or her programs to another

(assuming same type of funds) then the PEO first must get approval for SAF/AQ and this

function has been delegated to SAF/AQX. This process is fraught with delays and can be

very time consuming. Firs the PEO may have to vet this with his center commander.

Once that is complete it is sent to SAF/AQX for approval or disapproval. This process

may take weeks or months because many senior level staffers may have to give it their

blessing. If it is approved it will have to be put on contract by the PEO or program PCO

which entails another delay. Please keep in mind that time is a major factor and most

programs do not receive funds until late winter or early spring and must have most of

their funds obligated by the June timeframe. This knowledge, and the fact most requests

are denied, deters the PEO from making these requests frequently although these requests

seem to be a wise business decisions. The process depicted in figure 3.7 is the one the

Air Force has been using for the last 25 years.
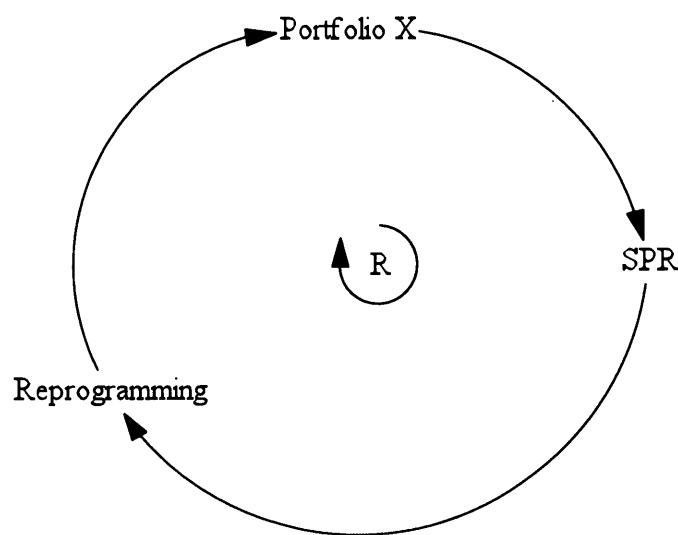
Figure 3.7 Current Funds Transfer Process

In system Dynamics the Air Force weapons acquisition fund transfer process

would be defined as a positive or self-reinforcing loop. The R with the clockwise circle

depicts this casual loop diagrams as reinforcing. Positive loops tend to reinforce or

amplify whatever is happening in the system (Sterman, 2000). Hence, programs and

portfolios get funds late in the fiscal in the year, the complexity of the acquisition process

and nature of the systems drives delays and makes it difficult to spend money as

forecasts, so these funds are taken away and put to use on some other Air Force program or priority. This ultimately leads to schedule delays, which leads to cost overruns.

3.4 Portfolio Management: Future View

Dealing with complexity is an inefficient and unnecessary waste of time, attention and mental energy. There is never any justification for things being complex when they could be simple.   *Edward de Bono*

The acquisition system is as complex a system as there is and simplifying it, over the last 40 years, has proven to be very difficult. However, in the world of tactical portfolio management, it is not so difficult. Murman et al (2002) identify one of the seven wastes as "waiting time." The current process imposes a significant waiting time that hampers a PEO's ability to execute and reprogram funds within her portfolio. So how can we eliminate this waste? By delegating or giving the PEO the authority to move like funds within her portfolio. Now that we have reduced waiting time then the funds can be put on contract faster and ensure operations are not discontinued. This ultimately will lead to increased on-time delivery. Figure 3.8 illustrates this process.
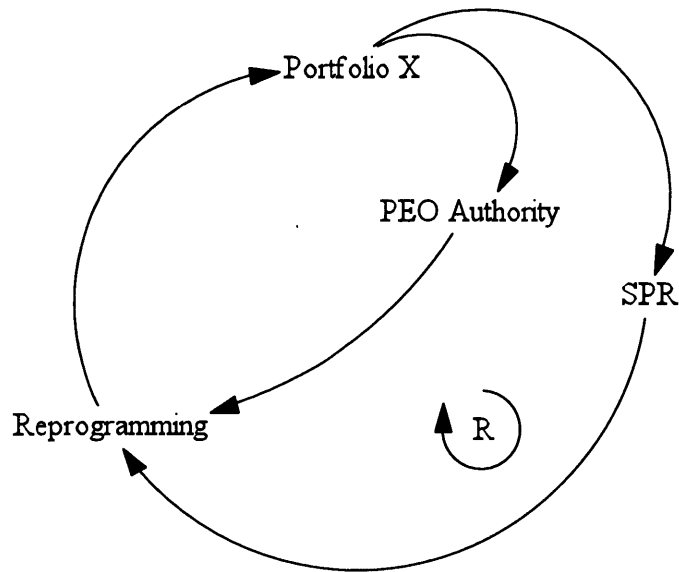
Figure 3.8 Proposed Funds Transfer Process

The new process does not eliminate the current process but gives it more

flexibility and robustness. This system will require senior leaders at SAF/AQ to apply a

different mental model with respect to decision-making, delegation of authority and trust

in their PEOs. The PEOs will now have to return this trust by ensuring they make good

decisions based on empirical facts, risk assessment and technological maturity. As stated

earlier acquisition is not a science but an art. There are many facets to consider and there

will be unforeseen errors even after comprehensive examination of facts and all the

evidence. Many decisions will be subjective and the SAF/AQ leadership must not return

to the old way of business because a PEO makes a mistake. This will only prove to make

PEOs hesitant and overly cautious, which leads to decisions made for the wrong reasons.

Chapter 4: What the People Say: Observations and Analysis

The term "Portfolio or Portfolio Management" is used frequently in the Air Force. At its simplest definition, a portfolio is simply a collection of items and this case programs brought together with a common characteristic. In the commercial world this is more often true. In the Air Force this is not. Many times the weapons programs share some characteristics but often times they do not. However, it is the governing of portfolios at the operational and tactical, which is of interest. This chapter will reflect on the interviews that were conducted throughout this research project. It contains observations, analysis (the status of portfolio management in the Air Force) and recommendations. Many themes emerged from the interviews. These themes were: the portfolio structure, portfolio manager's frustration and angst, lack of authority, ownership of personnel resources and time-consuming efforts. It is often said just because something is complex does not always necessarily mean it is complicated, however several of the acquisition professionals found many of the acquisition processes vexing and complicated and were an anathema to good portfolio management.

4.1 PEO Structure

When the number of weapons portfolios went from six to two most acquisition professionals I spoke with thought it was move in the right direction. One PEO stated, "The old structure gave the PEOs too much span of control and consequently they had little time to devote to their programs. Now most PEOs have a smaller number of

programs to oversee so they can devote more time to them." Still the amount of

programs a PEO has is still rather large. One of the PEOs the author interviewed had

over 50 programs under his command. This PEO said he devoted time to each program

every week. However, after further investigation it was discovered that most of his

programs were ACAT II and IIIs and there was only one ACAT I program. ACAT I

programs have far more visibility and more stakeholders so if a PEO had several ACAT I

programs most of their time would be spent dealing with that program's issues and

stakeholder concerns. Although, the portfolios are still large, the new structure seems to

be an improvement in portfolio management efficiency. The biggest beneficiary of this

structure is the PM. When once a PM's time with his PEO was limited, now there is a

closer relationship because of smaller portfolios. This allows for more sharing of ideas

and strategies, which potentially leads to more positive programmatic outcomes.

Examination of the programs in portfolio led me to ask the question to several

PEOs of "How is your portfolio set up?" Most said it was a by-product of the past. When

asked, "Were there like characteristics, such as based on mission i.e fighter aircraft or

dependence such as armament for an aircraft, that led to set up of the portfolios?" The

answer was "yes" and "no". Many of the programs did share a common mission or

characteristic, but still some programs in a certain portfolio was more like a "fish out of

water." In chapter 2 we discussed the rational for a portfolio, which is the maximize

profit or performance and reduce risk. A weapons portfolio does not do this in a

collective sense. Some programs may have an effect on another but for the most part the

performance and risk of each program is insular. This gives a very odd definition to

portfolio measurement since each program is so individual, hence measurement of

portfolio or its success is difficult. However, the new structure does allow the PEO to act more like a portfolio manager rather than a "Super PM." Since the PEO is closer to the programs and the PMs, they can easily discern what a program needs with respect to resources and make better-informed decisions and recommendations.

4.2 Roles/Responsibilities

I asked several PMs "What is your primary job?" They all answered "Program Execution." Several days later I asked a PEO what was his primary role? The answer I received was "Program Execution." One PEO revised his answer to "…assisting with program execution." This is a prevailing problem to some in the acquisition community. There isn't an issue if the PEO believes program execution is his/her responsibility but allows/PMs to do the tactical execution but it becomes an issue when they truly believe they are responsible for day-to-day decision. For the most part, PMs believe PEOs should help them with the running of their program by handling externalities. This means weighing on issues that the Air Staff or the MAJCOM levy on the program. Issues such as requirements creep, education of outside agencies of the program's value to the Air Force, fighting for their program's funding profile and strategic planning. The PM/PEO relationship, in many cases, is tenuous. One PM opined, "The PEO shop is sometimes another layer of management." This sentiment was echoed by other PMs. Many PMs believe the PEO's staff levies too many reporting requirements when many of these requirements could be handled at their level. These requirements stop key personnel from performing key program execution functions and consume far too many "man-hours." However, there were many PMs who saw the value of their PEOs and

found them more helpful than not. The PEOs on the other hand had very few negative things of note to report about the PM and their staffs. I believe this to be a function of PEOs understanding of the amount of issues that are being handled at the PM level and the fact most PEOs were, at one time, PMs. In any relationship there will always be disagreements but there is one thing PEOs and PMs do agree on and that is authority. Both the PEO and PM wish the PEO had more authority and believe it to be long overdue.

4.3 Authority

Money:

"We are not passing down authority and accountability together" lamented an acquisition professional, in the PEO shop, with over 40 years of experience. "We must harmonize accountability and authority," said another acquisition professional. "I wish my PEO had the authority to move money," one PM exclaimed. At the PEO and PM level there is incredible consternation over this issue. The theory behind is sound, "how can you honestly hold the PEO fully accountable when she has limited authority." The two issues that immediately come up is money and personnel. The following question was asked to every PM and PEO "If the PEOs had the authority to move money around in their portfolios would that help reduce cost overruns and schedule delays?" The answers were 1) "Yes", 2) "I don't see why it wouldn't" and 3) "If PEOs had the authority to move resources we would run things more efficiently." It was almost unanimous and even some acquisition personnel at the Air Staff, at the risk of ex-communication, believed this to be true. The overwhelming issue is speed. PEOs

believe they are more than competent to move money around, within their portfolios, to other programs in need. This gives, these programs, the life-blood it they need to continue with scheduled milestones and deliver the weapon system to the warfighter on time. Does this mean the other program will suffer schedule delays and increased cost? Possibly, but that reality was going to happen and in this case one program, not two, suffers this fate. Critics fire back and say there is already a process in place for a PEO to transfer funds from one program to another. However, in chapter 3 we detailed this process, figure 3.7 depicts the process. It is time-consuming process and the probability of success to get funds transferred is not high. But in all fairness, I did talk to one PEO who said the current process worked well for him. He also said the reason it worked so well was the fact the programs he dealt with were ACAT II and IIIs. I also spoke to a PEM on the Air Staff who believes the process works fine. The PEM blames bad planning on the PEO shop. She decries, "They want me to move money to their PE but they don't tell where the money is coming from nor do they give a plan of how it affects the program who are losing the funds." So there is some disagreement in the acquisition community.

The PEO and his staff are adamant that portfolio management cannot happen without this authority. In order for this to happen, SAF/AQ would have to delegate this responsibility to the PEO. This means giving up some power. The problem, one PEO said, "SAF/AQX does not want to give up that authority because they believe we don't have the big picture perspective." Whether it is about power or trust, the current system continues to produce undesirable results and the PEO cannot be a true a portfolio

manager unless they are given some authority over the monetary resource. The current system does not allow that, hence the PEO is a portfolio manager in name only.

Personnel

Institutions are by nature large and inflexible beasts with fiefdoms that must be protected and rules that must not be broken.

Stephen Levitt and Steven Dubner

The other major issue with respect to "lack of authority" is personnel. One PM said, "I can fire people, but I have no authority to hire them?" All of the personnel belong to functional managers and they make the decisions where they work. There is a high level of angst with respect to the current system. The career field that received the most criticism was the contracting field. This is not a new phenomenon. Contracting personnel are the only ones that can officially commit resources from the government to an outside organization. They are vital in any Air Force purchase. They are bestowed warrants, which is an amount of money they have been authorized to negotiate on behalf of the government. Nothing happens in acquisition until the contract is let and the contractor can start working because he can now pay his people. "They decide on a month by month basis what contracting vehicle will use. One month it is no UCAs the next month it's fixed price," decried one high-ranking individual in the PEO shop. "Multiyear procurements should be used but SAF/AQC will not allow it," lamented another PEO. He went on the say "It might be the fault of Congress but it's it does not seem to be a willingness on their (Contracting) part. One PM incredulously said, "Every time I get approval to move money, I go to my PCO and before I get in the door, I hear no." The same PM said, "In order for me to get something done I try to use an existing vehicle because I don't have the time to wait for contracting to get it done...if I go

through them I will lose the money." The frustrating of PEOs and PMs is very high but not ubiquitous. One PM, who was formerly stationed at the same center where many these comments were elicited, had a different point of view. They understand the PEO and PMs frustration but they also must understand the PCO's position and not accept no for answer too easily. She when on the say unfortunately many of the issues in acquisition are personality driven and many times a personality conflict occurs and some folks are not professional enough to work out their differences and get past the disagreement.

As stated earlier in the research limitations, the sample size was small and this is information from one product center. This thesis is not trying to cast aspersions on the Contracting career field or it personnel. This is a possible issue and one that this thesis did conduct profound analysis. The bottom-line is the PEOs interviewed would like to have more influence on the hiring of the contracting personnel.

The other career field that seem to draw the ire of the PEOs and PMs and many consider an impediment to efficient operations is the financial career field or FM. As with contracting the functional agency controls these individuals. The frustrating here was aptly summed up by one PEO, "FM should be advising me and the PM on funding issues as it relates to the current laws but many times it seems like they just watch and report obligations and expenditures." As with the contracting personnel the same argument is true of the financial career field.

The other issue that came up time and time again was the quantity and experience of personnel in particular in these two career fields. Many of the experienced acquisition professionals are retiring and there was not a concerted effort to replace these individuals.

This creates an even worse relationship between PEO and PM shops and the functional managers that control these key career fields. A contracting or a financial professional can work on a program 1-2 years at this time they have gained valuable knowledge of that program and build rapport with the PEOs and PMs. Often times this is when these individuals would be told to rotate by their functional boss under the guise of training. Another person will replace them but sometimes it may take a long time and even more painful is the learning curve of the new individual. So there is a widening chasm that will affect the acquisition community and efficient operations the PEO and PM organizations.

Chapter 5: Portfolio Management and Risk

In the chapter 2, I stated the optimal portfolio's objective is to maximize return and minimize risk. The focus of this thesis has been on maximizing return via the identification of organizational and policy issues that can help or hinder the application of portfolio management. Risk is inherent in managing portfolios and is an important part of the decision-making process. All weapons programs are inherently risky because the military pushes the envelope with respect to state-of-the-art technology. A major part of the PEO and PM's job is assessing risk. PEOs and PMs are mandated to develop a risk management plan. They use many techniques to identify, analyze, predict, allocate, diversify and manage risk for weapons programs.

In today's world powerful computer software have allowed the development of many risk-solving techniques to include Monte Carlo simulations, real options and stochastic forecasting. Some of these techniques may be applicable and may be included in a program's risk management plan. These tools can be very helpful but a weapons program can be very complex and more tools may be needed with respect to program risk and portfolio risk.

One of the objectives of this Air Force project was to produce a risk index via simulation and or user input. Hassan Bukhari, a research assistant at MIT, is charged with developing a portfolio risk index. Bukhari (Bukhari, MIT working paper) is leveraging the works of Markowitz, Garvey, Cooper, Edgett and the RAND Corporation to develop this index. This index could help provide the PEO and senior decision-makers with risk information on projects within a portfolio, risk for a given portfolio and possible risk comparison of portfolios.

As stated above PEOs and PMs must develop a risk management plans. The risk index will then become a tool in the integrated risk management plan. It can be used alone but it will more likely become another tool the acquisition manager can use in the risk management process. This process includes:

1. Choosing list of programs and their respective strategies that are to be evaluated
2. Program predictions and forecasting
3. Development and evaluation of financial models and reports
4. Risk analysis and mitigation. This includes use of tools, methods, techniques and software applications
5. Presentation of reports
6. Decision-making

This process is continually being refined. The risk index comes under risk analysis and mitigation headings.

Technology has increasingly given us better ways to measure risk in a more quantifiable manner. The risk index' goal should give us a quantifiable way to measure risk. Acquisition managers can use this to their advantage to help then make decisions based on a more analytical approach to help with portfolio decisions. I am sure many programs have useful risk assessment tools in their plan and adding more tools only improves the fidelity of the manager's decisions.

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Chapter 6: Recommendations

Napoleon Bonaparte once said, *"Power is my mistress, I have worked too hard at her conquest to allow anyone to take her away from me."* This quote illustrates the key component of improving portfolio management at the operational level. Other people have the authority and power needed for portfolio management to work more efficiently at the operational level. The bulk of control or power of funding and personnel rests at the Air Force level. SAF/AQ can give the PEOs more authority over funding issues. The contracting and personnel directorates can also allow the PEOs more authority in personnel placement. However, many senior level managers are unwilling to cede this power. Nevertheless this thesis' first recommendation is "**More authority must be given to the PEO to utilize and reallocate resources.** " This recommendation answers the first two thesis questions posed in chapter 1: **How can the Air Force better employ portfolio management to curb cost overruns and schedule delays in their weapon acquisition programs? But more importantly in answers: What can the Air Force do to empower portfolio managers for success?** At the strategic level of management, leaders (SAF/AQ) are given wide latitude to do whatever is necessary to ensure the success of the Air Force portfolio. At the tactical level of management, Program Managers, leaders are given a good amount of latitude to ensure program success. Moving money within a PE has a process and it can happen relatively quickly. At the operational level of management, leaders (PEOs) are not afforded this wide latitude to ensure portfolio success. This is because he lacks the authority to do so. OSD, SAF/AQ, and FM hold all the authority with respect to financial matters. Everyone interviewed, whether they were worked on the staff or at a center, agree that giving a PEO the

authority and ability to move money around in his portfolio is a positive step to reducing cost overruns, schedule delays, and produce beneficial results. If the SAF/AQ leadership is serious about portfolio management then they cannot expect the PEO to be held fully accountable but only possess limited authority..

Given the PEO is competent and knows his job well, the PEO is in the best position to decide if and when program should reprogram their funds and if another program can benefit from it. If this is the case the PEO should be able to unilaterally do so. This authority eliminates possible months of an approval process and contributes to the efficient operations of a program. The Air Force loses millions each year on acquisition programs due to the time it takes to put things on contract. Giving the PEO authority saves time, which translates into saving millions possibly billions.

Authority over personnel is also needed. The functional way of doing business is hampering the efficiency of operations. The key personnel in question are contracting and financial officers. SAF/AQC and SAF/FM have complete control over these resources. They decided which individual goes where and when that individual will leave an organization. The PEO and PM should own these resources and if not at the PM level then at the PEO level. Once again if the PEO is going to take the blame for the failures of his portfolio then he should own the resources and then the oneness is on his skill.

The final piece of authority, which is difficult at best, is the authority to eliminate programs. Most people interviewed believe there are too many programs that are currently being funded. A cursory glance would reveal redundant programs. A deep probe into the acquisition programs would find the redundancy to be quite significant.

Cancellation of a major program is difficult and is not the job of the PEO although his opinion should be taking into account. However, smaller programs do not have the same visibility and these are the ones the PEO should be given some guidelines to prune. One program manager told a story of cancelling a program once but it took over five months to finally get permission. During this time the program was generating costs and fees that have to be paid by the government. The pain and the time involved to do this process serves as a deterrent for PMs and PEOs to involve themselves in efforts like this.

The second recommendation is part and parcel of the first. We need to streamline the approval process to move funds from program to program under a PEO's purview. The recommendation also answers the first two thesis questions: **How can the Air Force better employ portfolio management to curb cost overruns and schedule delays in their weapon acquisition programs? What can the Air Force do to empower portfolio managers for success?** One of the interviewees in OSD told a story of waiting on one signature. The agency's staffing took several weeks to get the signature at the cost of $1M per day to government. Whether or not the agency knew of this cost it unknown and the $1M cost came from one source, but this long process was recounted on more than one occasion. If the PEO wants to optimize her portfolio then she has to weather this process. By the time she has approval and the time it may take to get through the contracting process, the opportunity in all likelihood is lost and the money will go to another program outside her portfolio. Streamlining the process is easier said that done. It requires an analysis to determine who currently must give their permission and then determine what organization if any can be eliminated from the process. Then there is the time each organization is allowed to review and sign the staff package. This

allotted time is often not adhered to with any repercussions. Hence the length of time to get the needed approval is prolonged with detrimental outcomes with respect to resources wasted. The streamlining of the approval process allows the PEOs to use their budgets more efficiently. If money is spent more efficiently then we are in heading down the path of cost reduction and that's a start.

The third recommendation is the reduction of the number of reporting requirements and the acquisition policy changes that occur each year. This recommendation starts to answer the third thesis question, **"What can the Air Force do to eliminate or streamline to aid portfolio managers execute their portfolios more effectively and efficiently?"**

In chapter 2 a number of acquisition reform policies were detailed to show how the government has tried to deal with acquisition improvement. Most of these policies did not fare well for a plethora of reasons; nevertheless we continue bombard the acquisition community with more policies, regulations and reporting requirements. Each year between Congress, DoD and the Air Force, a program's funding profile is changed with respect to the forecast. The funding forecast may have been inaccurate but is there any wonder why cost overruns occur when there isn't sufficient funds for the current fiscal year and managers are forced to pay for services in the following year; inflation alone cost weapon program's millions.

PEOs and more specifically PMs are inundated with program status reports. Program status reports such as the SAR, DAES and UCR contain redundant information that increases the reporting burden (Drezner, 2006). In the last year alone we have seen WSARA, which many in the acquisition world see as duplicating existing regulations as

well as increasing the level of bureaucracy in an already bureaucratic-laden system (Erwin, 2010). After WSARA, we had the Gates Memo and the two Carter memos (Appendix D); all which levy requirements on the PM and PEO organizations. One of the major problems is the high levels of oversight the programs and their leaders must endure. What this does, is ensure the PEO and PM spend an inordinate amount of time complying to a plethora of oversight reports, some redundant, than executing their programs.

Chapter 7: Conclusion

Billions of dollars are appropriated towards the development and procurement of weapon systems in the Air Force. The escalating cost of these systems are taxing an already overburdened U.S. budget. Decisions to change quantity, requirements, and schedule changes account for over 40 percent of the cost growth (Bolton, 2008). Many studies have been conducted with numerous recommendations documented to quell this problem. However, despite numerous acquisition reforms and other DoD and Congressional initiatives over the years, cost growth continues to spiral.

The main challenge for the Air Force acquisition system is to execute acquisition programs without major schedule delays and cost overruns. The Air Force is trying to use portfolio management as a technique to reduce or control costs, reduce schedule escalation and deliver systems to the warfighter quicker. Portfolio management has been in effect at the strategic, operational, tactical level for some time. However, the overall state of portfolio management in the Air Force at the operational level has not reached its potential. At the strategic level managers are empowered to make decisions to balance projects to generate the best possible outcomes. However, at the operational (PEO) and tactical (PM) levels, these managers are not given the requisite authority along with the accountability they are charged with for execution.

In order for PEOs to succeed in the using portfolio management SAF/AQ will have to delegate some authority over the chief resource "money." Control of the budget still rests in the hands of senior managers at the SAF/AQ. Giving the PEOs more authority over the funds allows them to use it quicker and more efficiently. This has great potential of reducing cost overruns. Figure 3.7 depicts the Air Force current funds

transfer process. This process has been in effect for over 20 years. It is cumbersome and slow. Figure 3.8 is a proposed funds transfer process. This allows the PEO more active involvement and quicker obligation and authorization of funds to the programs. Ceding more authority to the PEOs helps him better employ the theory behind portfolio management and empowers the PEO for success, which leads to a better chance of individual program and portfolio success. One of the sayings the author has heard over his 20 year plus career is "One of the definition of insanity is doing the same thing over and over again and achieving the same result." It is clear we continue to get the same results. The acquisition community must find ways to energize the PEO position and vesting more authority is one way of doing just that.

One of the headings in Aston Carter's Nov 2010 memo (Appendix D) is "Eliminate redundancy within Warfighting portfolios." This heading only targeted ACAT II and III programs. Nevertheless, this heading is in line with the third thesis question: What can the Air Force do to eliminate and streamline to help managers execute their portfolios more effectively and efficiently? Many program status reports are redundant and cause duplication of effort, which wastes time. This sentiment has been echoed before most notably in the Defense Management Report in 1989.

Ceding authority is not an easy thing to do in the halls of Pentagon but business as usual will not bring slow cost overruns and schedule delays. This is a new process and mind set. Senior acquisition leaders cannot sit and watch like predators in the night waiting for PEOs to make mistakes then strip them of their new authority. Like all changes, it will take time to mature as PEOs develop the requisite skill set for current and new portfolio managers.

Still another interesting note is that the Air Force does not measure in portfolios. Portfolio measurement is based on the successes or failures of programs, which is not actual portfolio measurement nor is it a measurement of portfolio risk. In Chapter 5 a risk index was discussed. This risk index is a tool that can aid the PEOs and PMs with risk management. This risk index being is another tool in the portfolio management tool kit.

Portfolio management at the operational level is still in the infancy stage. This thesis is a mere beginning to start the process of examining how we could better employ this technique. Additional research should include the development of models, simulation, and experiments to determine portfolio management's efficacy with respect to acquisition weapons programs.

The finding and the recommendations, in this thesis, are not conclusive by any means. As stated in the introduction, the execution of weapons programs is an art, not an exact science. This thesis is the beginning of exploring the usefulness of portfolio management and hopefully it will stir more dialogue and further research. Section 1.2 discussed the limitations of this thesis. One further research subject is a survey or interview process other PEOs, PMs, and other acquisition professionals in different product centers feel about the current system. It would be interesting to compare that research to this thesis.

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Appendix A – Sample Questions used in Personnel Interviews

The interviews were compromised of acquisition professionals who are all responsible for some facet of portfolio management. Currently the personnel worked on the SAF/AQ, in the contracting field, the financial field, were PEO, program managers or former program managers. The interview is designed to discern the member's perspective on how portfolio management is currently performed and how it could be or should be done. The interviewee is assured anonymity and that there is no correct or wrong answer.

Questions for a Portfolio Manager
1. What is the name of the portfolio?
2. What programs comprise the portfolio?
3. What is the dollar amount of the portfolio?
4. How long have you been a portfolio manager?
5. What are your duties as a portfolio manager?
6. Do you have all the tools needed to carry out your duties?
7. What can be done to help you in carrying out your duties?
8. What are the impediments that limit your responsibilities?
9. Do you feel you are given the authority to carry out portfolio management?
10. What would you change if you could?

Questions for a Program Manager
1. What is the name of your program?
2. How long have you been in your current position?
3. What is the ACAT?
4. What stage is it in?
5. How many Program Elements do you manage?
6. What is your primary responsibility?
7. What do you believe is the PEOs primary responsibility?
8. Do you believe you can exercise portfolio management over your program?
9. Do you believe you have all the tools necessary to carry out your duties?
10. Do you believe you have the authority to carry out your primary duty?

General questions
1. How do you measure success?
2. What degree of control do you have over your portfolio?
3. Are you in control of the resources in your portfolio?
4. How is your relationship with capability directorates?

Questions for Contracting, Finance, and Staff Personnel
1. What is your primary role?
2. How do you aid the portfolio managers?
3. Do you think you should work for the portfolio managers?
4. What is the major disagreement with portfolio managers?
5. How do you settle disagreements with the portfolio manager?

Appendix B – AFI 63-101 Roles and Responsibilities

2.26. Program Executive Officers (PEO) will:
2.26.1. Be responsible for total life cycle management of their assigned portfolios including assigned ACAT programs and ensure collaboration across the ILCM framework. The PEO is responsible for, and has authority to accomplish, portfolio/program objectives for development, production, and sustainment to meet warfighters' operational needs. The PEO will lead portfolios based on solid business strategies and work with the CD to secure necessary funding in time to meet those requirements.

2.26.2. Be dedicated to executive management and shall not have other command responsibilities except as waived.

2.26.3. Ensure PMs work with appropriate stakeholders and MAJCOM representatives to develop capabilities based requirements, operational, system and technical level architectures, test plans that integrate, technology transition plans, product support strategies, and acquisition strategies throughout the entire life cycle.

2.26.4. Maintain a continuous dialogue with the operational and implementing commands including sustaining, testing, training, and other development commands. Give early warning to the user, SAE, and acquisition staff of significant problems or issues.

2.26.5. Serve as designated officials for acquisition of services in their respective portfolio and comply with **Chapter 4** of this AFI.

2.26.6. Serve as acceptance authority for program ESOH risks classified "Serious" as defined by the government and industry *Standard Practice for System Safety*, MIL-STD-882D. The user representative shall be part of this process throughout the life cycle and shall provide formal concurrence prior to all serious risk acceptance decisions.

2.26.7. Chair ASP for ACAT II (as delegated) and III programs.

2.26.8. Recommend PMs and Deputy PMs for ACAT I, ACAT IA, ACAT II and selected programs to the SAE.

2.26.9. Approve selection of PMs for ACAT III programs. 2.26.10. Charter all delegated ACAT II and ACAT III PMs.

2.26.11. Direct PMs by emphasizing planning, reporting, and preparing for milestone and other program reviews.

2.26.12. Use the Acquisition Centers of Excellence (ACE) to provide real-time, on-call assistance to programs and as independent advisors providing recommendations on program business strategy and documentation, and for independent program assessments.

2.26.13. Review and approve SEPs per AFI 63-1201 and monitor their implementation.

2.26.14. Ensure Courses of Action (COA) are prepared for newly identified capabilities requirements and the users agree with the COA.**44   AFI63-101 17 April 2009**

2.26.15. Use EVM as an oversight tool, ensure program office compliance with EVM policy and guidance, and ensure program office personnel receive adequate EVM training.

2.26.16. Ensure PMs are managing acquisition program costs and schedules to meet all performance requirements within approved baselines, program direction, and the acquisition strategy.

2.26.17. Ensure that all programs listed on the APML update program information contained in the SMART database. Review and assess each AF Monthly Acquisition Report (MAR) on a monthly basis.

2.26.18. Notify HQ AFMC and/or HQ Air Force Space Command (AFSPC) of new mission workload and changes in workload to include proposed mission transfers. Work with HQ AFMC and/or HQ AFSPC to identify requirements for program facilities, personnel, and resources and validate infrastructure investment requirements identified by PMs.

2.26.19. Review and approve the integrated life cycle strategy, as described in the Life Cycle Management Plan (LCMP).

2.26.20. Ensure validated MAJCOM needs drive the acquisition and modification planning process.

2.26.21. Review requests for End Use Certificates (EUC) identified by the PMs and submit for SAF/AQ approval.

2.26.22. Review and provide concurrence on TEMPs for assigned programs where the PEO is the decision authority, or as delegated or assigned. For programs on the OSD T&E Oversight List, forward TEMPs per TEMP coordination procedures in AFI 99-103.

2.26.23. Ensure implementation across portfolio and acquisition programs for compliance with identified AF enterprise Core and 50/50 requirements to meet Title 10 USC §2464 (Core) and Title 10 USC §2466 (50/50).

2.29. Program Managers(PM),including System Program Managers (SPM),will:

2.29.1. Be accountable for designated programs through the ILCM governance chain of authority on all matters of program cost, schedule, and performance.

2.29.2. Develop appropriate programmatic documentation as required by this and other applicable instructions. Ensure the programmatic documentation is coordinated with all applicable user, sustainment, test, and system engineering stakeholders. Maintain programmatic documentation throughout the life cycle of the system in accordance with this and other instructions.

2.29.3. Ensure the LCMP fulfills the FAR requirements of the Acquisition Plan and the DODI 5000.02 requirements of the Acquisition Strategy (including the Life Cycle Sustainment Plan).

2.29.4. Execute program within the approved APB or other program baseline documentation.

2.29.5. Immediately notify the PEO/DAO of any breach or potential breach, as defined by law and/or regulation, to the APB or other original or current program baseline documentation.

2.29.6. Participate in the AoA process, development of COAs, and development of TDS.

2.29.7. Ensure product support integration as a continuous and collaborative set of activities that establish and maintain readiness and the operational capability of a system, subsystem, or end-item throughout its life cycle.

2.29.8. Ensure a Systems Engineering Plan (SEP) is developed, implemented, and updated per AFI 63-1 to provide adequate insight into program's technical planning.

2.29.9. Develop and implement, as applicable, Condition Based Maintenance Plus (CBM+) functions.

2.29.10. Ensure technologies in the program have been demonstrated in a relevant environment (or preferably an operational environment) prior to MS B and certified by the MDA as required. Ensure technologies are matured prior to MS C for the production of each increment of capability. Coordinate TRA preparations for MDAPs and other DAE/SAE programs with SAF/AQR no later than 12 months prior to MSs B, C. Plan, fund and complete appropriate technology demonstrations for MSs B and C not later than 2 months prior to the Acquisition Board for each milestone. Ensure maturity of Critical Technology Elements (CTE) is addressed in MDAP source selections conducted in conjunction with MS B.

2.29.11. Ensure and preserve the operational safety, suitability, and effectiveness (OSS&E) throughout the life cycle of systems delivered to the user by working collaboratively with the user, test community, and other stakeholders.

2.29.12. Ensure an intelligence supportability analysis is conducted in collaboration with the local (center-level) intelligence office to establish program intelligence sensitivity, document intelligence requirements (to include signature requirements), and ensure current, authoritative threat data is used for analysis throughout the program life cycle. Analysis shall be conducted in accordance with AFI 14-111, *Intelligence in Force Modernization*, CJCSI 3312.01, *Joint Military Intelligence Requirements Certification* and DODD 5250.01, *Management of Signature Support Within the Department of Defense*.

2.29.13. Ensure all technology, acquisition, sustainment, and management decisions are based on a balance between system or product capabilities, integrated risk assessments, and total ownership cost (TOC).

2.29.14. Seek assistance from functional and acquisition staffs at all levels with respect to compliance with AF guidance, policies, procedures, and public law.

2.29.15. Serve as acceptance authority for program ESOH risks classified "Medium" or "Low" as defined by-STD-882D. PM shall prepare and review High and Serious risk acceptance packages and forward to the appropriate authorities with an action recommendation. The user representative shall be part of this process throughout the life cycle.

2.29.16. Execute Security Assistance (Foreign Military Sales (FMS)) system acquisition programs in accordance with the Arms Export Control Act and DOD 5105.38-M, *Security Assistance Management Manual (SAMM)*. *DOD Financial Management Regulation* 7000.14-R; AFMAN 16-101, *International Affairs and Security Assistance Management*; and DOD 5105.65-M, *Foreign Military Sales (FMS) Case Reconciliation and Closure Manual*. Implementation shall also be in accordance with the DOD 5000 acquisition series; the 63- series acquisition AFIs; and the 16-series operations support AFIs.

2.29.17. Ensure aircraft system programs have an Aircraft Availability Improvement Program (AAIP) plan by MS C and airworthiness certification per AFPD 62-6, *USAF Aircraft Airworthiness Certification*.

2.29.18. Ensure aircraft and weapon/store system programs have a SEEK EAGLE certification plan completed by MS B per AFI 63-104, *The SEEK EAGLE Program*.
2.29.19. Ensure applicable programs meet the requirements of the Clinger-Cohen Act as described in Subtitle III of title 40, United States Code, DODI 5000.02, DODI 4630.8 *Procedures for Interoperability and Supportability of Information Technology (IT) and National Security Systems (NSS)* and DODI 8510.01 *Department of Defense Information Assurance Certification and Accreditation Process (DIACAP)*.

2.29.20. Establish an effective quality management system to ensure product quality (e.g., design, manufacturing, performance, reliability, maintainability, and military flight

operations) throughout the life cycle.

2.29.21. Establish and co-chair an Integrated Test Team (ITT) prior to MS A (or as early as possible but no later than MS B) to ensure the T&E strategy is developed, coordinated and fully integrated with the acquisition, intelligence, and sustainment strategies throughout the life cycle in accordance with AFI 99-103, *Capabilities Based Test and Evaluation.*

2.29.22. Ensure the ITT develops and implements a test program, including LFT&E if required, in accordance with AFI 99-103.

2.29.23. Ensure a TEMP is developed, coordinated and updated to provide adequate insight into the program's T&E planning

2.29.24. Develop a system certification plan as early as practical, but no later than MS B, to ensure systems are certified ready for dedicated OT&E according to AFMAN 63-119.
2.29.25. Implement a deficiency reporting process according to Technical Order (TO) 00-35D-54, *USAF Deficiency Reporting, Investigating, and Resolution* and AFI 63-501, *Air Force Acquisition Quality Program.*

2.29.26. Address all aspects of system survivability requirements specified in the program'scapability documents and also plan for survivability validation and verification.

2.29.27. Provide an assessment of the system's survivability in the anticipated battlefield environment to support milestone and in-process reviews (IPR). For any shortfalls in meeting survivability requirements identified during milestone and IPR, the PM will provide a plan for meeting the requirements as well as any associated risk analysis and mitigation plan.

2.29.28. In the event of updates to the capability documents, the PM will conduct a review to assess the impacts of changes to system survivability.

2.29.29. Update program information in the SMART database for all programs listed on the APML and prepare an AF MAR on a monthly basis.

2.29.30. Ensure applicable information systems are registered in the AF system of record for IT management data, currently the Enterprise Information Technology Data Repository (EITDR) in accordance with AFI 33-202, Vol. 1, *Network and Computer Security* (to be replaced by AFI 33-200 *Information Assurance Management* and AFI 33-210, *Air Force Certification and Accreditation Process (AFCAP)* when published).

2.29.31. Plan and program for Information Assurance (IA) engineering, certification and accreditation activities in their program plans, budgets, and contracts as appropriate.

2.29.32. Utilize the SISSU process and consider employment of IT Lean on applicable IT programs.

2.29.33. Ensure weapon systems and end-items (e.g., Support Equipment/Automatic Test Systems (SE/ATS), software and firmware) that support nuclear operations follow the Air Force nuclear certification process as outlined in AFI 63-125, *Nuclear Certification Program*.

2.29.34. Identify and coordinate execution of any independent assessments required by statute, executive orders, DOD issuances, or AF issuances.

2.29.35. Ensure the new MDA is up to date on program status and planning if a program's change in ACAT level designation results in a change in MDA.

2.29.36. Ensure non-statutory or non-policy requirements (e.g. independent assessments, out-of-cycle reporting, additional oversight requests, etc.) add value or require the proponent to justify the requirement and identify the resources (e.g., materiel, personnel, skills, training, and funding) for execution. The functional proponent may appeal an SPM/PM determination through the programmatic chain up to the MDA.

2.29.37. Coordinate key program documents and decisions with appropriate members of the ILCM enterprise throughout the life cycle.

2.29.38. Implement a program protection program from inception throughout the life of the system to ensure that critical technology and Critical Program Information (CPI), including Controlled Unclassified Information (CUI), are protected against deliberate and unintended compromise or disclosure in accordance with DOD 5200.1-M, *Acquisition Systems Protection Program*, DODI 5200.39, *Critical Program Information (CPI) Protection within the Department of Defense*, and AFPAM 63-1701, *Program Protection Planning* (will convert to AFMAN 63-113, *Program Protection Planning for Life Cycle Management*).

2.29.39. Ensure that when a program enters acquisition at a point other than pre-MS A all phase-specific criteria relating to a skipped MS are completed consistent with statutory/regulatory requirements.

2.29.40. Ensure that product/system-level performance, integrity, and safety requirements are maintained throughout the operational life of a product or weapon system.

2.29.41. Ensure industrial base constraints are identified and managed throughout the life cycle.

2.29.42. Ensure the establishment of depot stand-up actions from Source of Repair (SOR) decisions.

2.29.43. Implement identified AF enterprise Core and 50/50 program requirements to meet Title 10 USC §2464 (Core) and Title 10 USC §2466 (50/50).

2.29.44. Contact SAF/AQL for assistance with Special Access Programs (SAP).

2.29.45. Collaborate with sponsoring MAJCOMs/Agencies to identify cost and schedule impacts associated with changing any approved operational requirements.

2.29.46. Provide depot activation requirements and funding data to AFMC as requested. Collaborate with AFMC on depot activation requirements and funding.

2.4. Deputy Assistant Secretary, Contracting(SAF/AQC)will:

2.4.1. Exercise and further delegate (1) the authority to enter into, approve, terminate, and take all appropriate actions with respect to contracts and agreements (grants, cooperative agreements, and other transactions), and (2) the authority to issue, modify, or rescind Air Force contracting regulations under the system of the Federal Acquisition Regulations (FAR).

2.4.2. Provide contracting technical support to all AF MAJCOMS, PEOs, Direct Reporting Units (DRU), and Field Operating Agencies (FOA) in the execution of their acquisition programs, privatization, competitive sourcing, service, and support efforts. This includes review of program specific acquisition strategy and implementation decisions.

2.4.3. Provide a single entry point for reviewing, processing, facilitating, and acquiring contract-related acquisition documents requiring Secretariat-level approval such as Justification and Approvals (J&A), Determination and Findings (D&F), source selection plans, waivers, deviations, lease arrangements, indemnification requests, and associated legal/business arrangements.

2.4.4. Provide advice in the execution of contractual and other related actions.

2.4.5. Manage AF Industrial Labor Relations activities, including contractor work stoppages and the application of Federal labor statutes.**28 AFI63-101 17 April 2009**

2.4.6. Serve as the AF Competition Advocate General (reference AFFARS 5306.501, *Competition Advocates Requirement*).

2.4.7. Provide strategic sourcing/commodity council advice and support contracting efforts related to strategic sourcing/commodity councils (reference AFFARS 5307.104-93, *Air Force Procedures for Commodity Councils)*.

2.6. Deputy Assistant Secretary for Acquisition Integration (SAF/AQX) will:

2.6.1. Lead, integrate, change, implement, and set acquisition policy and processes across the ILCM Enterprise to facilitate rapid delivery of intended capability, support, and/or services to the user.

2.6.2. Ensure SECAF, Chief of Staff of the Air Force (CSAF), or SAF/AQ directed ILCM acquisition policies, directives, and initiatives and other functional policies as requested are communicated to the field.

2.6.3. Serve as the AF lead for acquisition program reporting policy, guidance and oversight. This includes but is not limited to Selected Acquisition Reports, Major Automated Information System (MAIS) Annual Reports, APB breach reporting, MDAP (Nunn/McCurdy) / MAIS Congressional APB breach reporting, MAIS Quarterly Reports, Defense Acquisition Executive Summary and the Monthly Acquisition Reports.

2.6.4. Chair the Research, Development, Test, and Evaluation (RDT&E) Panel responsible for programming Science and Technology (S&T), T&E infrastructure, and Defense-wide support activities.

2.6.5. Represent SAF/AQ on the AF Board and Group; serve as focal point for SAF/AQ participation in the Defense Planning, Programming, Budgeting, and Execution (PPBE) process.

2.6.6. Recommend a MDA to SAF/AQ prior to the Materiel Development Decision point.

2.6.7. Authorize, via issuance of Program Authorization documents, execution-year adjustments to program funding, to include release/withhold of funds, below-threshold reprogramming actions, and subprogram level funding realignments. Coordinate on all investment New Start and Above Threshold Reprogramming actions prior to submittal to the Assistant Secretary of the Air Force (Financial Management) (SAF/FM) and Assistant Secretary of the Air Force (Legislative Liaison) (SAF/LL).

2.6.8. Lead acquisition professional development efforts, including the direction, coordination, and review of actions mandated by the DAWIA and associated DOD Directives. Serve as AF Liaison to OSD and to the President, Defense Acquisition University (DAU), on behalf of the SAE for non-space, the SAE for space and all AF acquisition, technology and logistics career field managers covered by DAWIA.

2.6.9. Develop and integrate policy regarding the AF acquisition workforce, including both organic (AF civilians and military) and contracted resources.

2.6.10. Serve as the focal point for AF Earned Value Management (EVM) policy and guidance and the EVM focal point representative to OSD.

2.6.11. DELETED.

2.6.12. DELETED.

2.6.13. Develop and maintain the non-space APML.

2.6.14. Collaborate with AF A4/7 Program Element Monitors on budgeting and execution of funds for investment equipment and vehicles.

2.8. Assistant Secretary of the AF, Financial Management and Comptroller (SAF/FM) will:

2.8.1. Develop and provide financial policy.

2.8.2. Develop Business Case Analysis (BCA) policy, procedures and guidance as outlined in AFI 65-501, *Economic Analysis* (and AFI 65-509, *Business Case Analysis,* when published*)*.

2.8.3. Support SAF/AQX in developing AF EVM policy and guidance.

Appendix C – AFI 63-101 Definitions

Program Executive Officer (PEO)⎵The individual dedicated to executive management and supervision of a portfolio of mission-related ACAT and selected programs. The PEO shall be chartered by and is accountable to the SAE.

Program Manager (PM) The DODD 5000.01 designated individual with responsibility for and authority to accomplish program objectives for development, production, and sustainment to meet the user's operational needs. PM for sub-systems shall support overall system objectives as required by the SPM. The PM for acquisition programs shall be accountable for credible cost, schedule, performance, and materiel readiness to the MDA. ACAT I, ACAT IA, and ACAT II PM shall be chartered by the SAE and the PEO. Delegated ACAT II and III PM shall be chartered by the PEO or DAO. The PM for sustainment programs shall be accountable for credible cost, schedule, performance, and materiel readiness to the AFMC/CC or designee.

Service Acquisition Executive (SAE) The SAE is the individual responsible for the development of programs to meet defined needs, and as such develops, coordinates, and integrates plans, policy, and programs for systems and the acquisition of Air Force programs. The SAE for Air Force programs is either the Assistant Secretary of the Air Force (Acquisition) (SAF/AQ) for non-space programs or the Under Secretary of the Air Force (SAF/US) for space programs as delegated by the Secretary of the Air Force (SECAF); authority remains with the SECAF if not delegated. Delegation is contained in the HAF Mission Directive 1-10, Assistant Secretary of the Air Force (Acquisition), 08 Apr 2009 and HAF Mission Directive 1-2, Undersecretary of the Air Force, 08 Sep 2008.

Stakeholders Individual or organizational entities (users, developers, acquirers, technologists, testers, budgeters, sustainers, and industry) that are, or will be, associated with implementing and supporting the associated system, subsystem, or end-item capability requirements.

System Program Manager (SPM) In accordance with DODD 5000.01, the SPM is the Air Force designated individual with responsibility for and authority to accomplish *system* objectives for development, production, and sustainment to meet user's operational needs. SPM assignments are based upon the APML, SPML, and AFPD 10-9 (*Lead Command Designation and Responsibilities for Weapon Systems*) designated weapon systems. For systems in acquisition, the SPM is accountable for credible cost, schedule, performance, and materiel readiness to the MDA. ACAT I, ACAT IA, and ACAT II SPMs will be chartered by the SAE and the PEO. Delegated ACAT II and III SPM shall be chartered by the PEO or DAO. For systems in sustainment, the SPM is accountable for credible cost, schedule, performance, and materiel readiness to the AFMC/CC, AFSPC/CC, or designee.

*Warfighter⎵An individual or organization who executes military force or is responsible for making operational decisions that result in the use of military force. The term includes field level personnel assigned to an Air and Space Expeditionary Force (AEF) whose

duties support USAF core competencies and distinctive capabilities.

*Weapon System A combination of elements that function together to produce the capabilities required for fulfilling a mission need, including hardware, equipment, software, and all performance based logistics (PBL) sustainment elements, but excluding construction or other improvements to real property.

Once appropriated by Congress, federal government funds in the U.S. Treasury pass through the Department of the Treasury, OMB, and Department of Defense to the Air Force organizations that use them. OMB specifies the amount of funds each agency, including the Department of Defense, may use by time period, program, project, and or/activity in **apportionment**, while the Treasury Department establishes the amount of cash available in particular appropriations accounts for disbursal using official documents called **warrants**. Within DoD, OSD outlines the amount of funding the services and defense agencies receive. Within the Air Force, funds received are passed from HQ USAF to the wings or other field units ("the field") via the various MAJCOMs, DRUs, and FOAs. In doing this the headquarters functional and financial managers for each appropriation complete a **Program Authorization (PA)** and **Budget Authorization (BA)**, respectively. (Functional managers are shown below. The financial manager for all appropriations is SAF/FMB.) The PA and BA are analogous to congressional authorizations and appropriations – the former grants the field permission to spend the funds being released at the program level; the latter releases funds and provides permission to enter into transactions that will disburse those funds from the Treasury. After receiving these, the MAJCOMs send funds to the various field organizations as directed.
Because of all the steps and paperwork, this process can take one to two months or more

Appendix D- Ashton Carter Memos

MEMORANDUM FOR ACQUISITION PROFESSIONALS

SUBJECT: Better Buying Power: Guidance for Obtaining Greater Efficiency and Productivity in Defense Spending

On June 28, I wrote to you describing a mandate to deliver better value to the taxpayer and warfighter by improving the way the Department does business. I emphasized that. next to supporting our forces at war on an urgent basis, this was President Obama's and Secretary Gates' highest priority for the Department's acquisition professionals. To put it bluntly: we have a continuing responsibility to procure the critical goods and services our forces need in the years ahead. but we will not have ever-increasing budgets to pay for them. We must therefore strive to achieve what economists call productivity growth: in simple terms, to DO MORE WITHOUT MORE. This memorandum contains specific Guidance for achieving the June 28 mandate.

Secretary Gates has directed the Department to pursue a wide-ranging Efficiencies Initiative, of which this Guidance is a central part. This Guidance affects the approximately $400 billion of the $700 billion defense budget that is spent annually on contracts for goods (weapons, electronics, fuel, facilities etc., amounting to about $200 billion) and services (IT services, knowledge-based services, facilities upkeep, weapons system maintenance, transportation, etc., amounting to about another $200 billion). We estimate that the efficiencies targeted by this Guidance can make a significant contribution to achieving the $100 billion redirection of defense budget dollars from unproductive to more productive purposes that is sought by Secretary Gates and Deputy Secretary Lynn over the next five years.

Since June, the senior leadership of the acquisition community the Component Acquisition Executives (CAEs), senior logisticians and systems command leaders, OSD officials, and program executive officers (PEOs) and program managers (PMs) has been meeting regularly with me to inform and craft this Guidance. We have analyzed data on the Department's practices, expenditures, and outcomes and examined various options for changing our practices. We have sought to base the specific actions I am directing today on the best data the Department has available to it. In some cases, however, this data is very limited. In these cases, the Guidance makes provision for future adjustments as experience and data accumulate so that unintended consequences can be detected and mitigated. We have conducted some preliminary estimates of the dollar savings anticipated from each action based on reasonable and gradual. but steady and determined, progress against a clear goal and confirmed that they can indeed be substantial.

Changing our business practices will require the continued close involvement of others. We have sought out the best ideas and initiatives from industry, many of which have been adopted in this Guidance. We have also sought the input of outside experts with decades of experience in defense acquisition.

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Going forward we will need the support of Congress, which will be essential to the success of this endeavor and we have tried to take their concerns fully into account in formulating this Guidance.

A capable, qualified, and appropriately sized acquisition workforce will be key to achieving efficiency. While Secretary Gates has directed a scrub of the oversight staff in OSD and the military commands, he has also determined that the acquisition workforce increases planned last year should proceed, since they are focused on specific skill sets near to the point of execution. You, the acquisition leaders, and your workforce will be essential to the success of this Guidance.

This Guidance contains 23 principal actions to improve efficiency organized in five major areas. Specific guidance is contained in directives I am issuing today or in the near future. Over the coming months, the acquisition leadership will discuss with each of you how you can implement this Guidance and monitor progress against its metrics.

There is every reason to believe the efficiencies we are seeking can be realized. It has taken years for excessive costs and unproductive overhead to creep into our business practices, but over the coming years we can surely work them out again. Those who hesitate to go down the road of greater efficiency must consider the alternative: broken or cancelled programs, budget turbulence, uncertainty and unpredictability for industry, erosion of taxpayer confidence that they are getting value for their defense dollar and, above all, lost capability for the warfighter in a dangerous world. Not only can we succeed: we must.

TARGET AFFORDABILITY AND CONTROL COST GROWTH

Mandate affordability as a requirement. Affordability means conducting a program at a cost constrained by the maximum resources the Department can allocate for that capability. Many of our programs flunk this basic test from their inception. As the Department begins new programs like the Ohio-class SSBN(X) replacement, the new Presidential Helicopter, the Army's Ground Combat Vehicle (GCV), and the joint Family of Systems for long-range strike in the near future, I will require program managers to treat affordability as a requirement before granting milestone authority to proceed with the program. *Specifically, at Milestone A. my Acquisition Decision Memorandum (ADM) approving formal commencement of the program will contain an affordability target to be treated by the program manager (PM) like a Key Performance Parameter (KPP) such as speed, power, or data rate – i.e., a design parameter not to be sacrificed or compromised without my specific authority. At Milestone B, when a system's detailed design is begun, I will require presentation of a systems engineering tradeoff analysis showing how cost varies as the major design parameters and time to complete are varied.* This analysis would allow decisions to be made about how the system could be made less expensive without loss of important capability. This analysis would then form the basis of the 'Affordability Requirement' that would be part of the ADM decision. I will be issuing a directive in the near future to implement this guidance that will apply to both elements of a program's life cycle cost   the acquisition cost (typically 30 percent) and the operating and support cost (typically 70 percent). For smaller programs, the CAEs will be directed to do the same at their level of approval. I recognize that we need to improve the Department's capability to perform this kind of engineering tradeoff analysis, but the ability to understand and control future costs from a program's inception is critical to achieving affordability requirements.

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The Navy has been conducting just this sort of analysis in connection with the commencement of the Ohio-class replacement. This submarine will be the bulwark of our survivable nuclear deterrent for the indefinite future as required by the Nuclear Posture Review, but at the price originally estimated, its construction would swamp the Navy's shipbuilding budget during the 2020-2030 periods. By conducting the kind of design tradeoffs I will require at Milestone B and trimming requirements as a result without compromising critical capability, the Navy has reduced the estimated average procurement cost by 16 percent with a goal of fully 27 percent. Over the next five years, the Department expects to begin new programs with acquisition costs in the FYDP of over $50 billion and totaling over $200 billion. If the forecast costs of these new programs can be scrubbed down by even a fraction of that achieved in the SSBN(X) program, billions of dollars just within the FYDP can be reallocated to more productive purposes.

Drive productivity growth through Will Cost/Should Cost management. During contract negotiation and program execution, our managers should be driving productivity improvement in their programs. They should be scrutinizing every element of program cost, assessing whether each element can be reduced relative to the year before, challenging learning curves, dissecting overheads and indirect costs, and targeting cost reduction with profit incentive   in short, executing to what the program *should cost*. The Department's decision makers and Congress use independent cost estimates (ICE)   forecasts of what a program *will cost* based upon reasonable extrapolations from historical experience   to support budgeting and programming. While ICE Will Cost analysis is valuable and credible, it does not help the program manager to drive leanness into the program. In fact, just the opposite can occur: the ICE, reflecting business-as-usual management in past programs, becomes a self-fulfilling prophesy. The forecast budget is expected, even required, to be fully obligated and expended.

To interrupt this vicious cycle and give program managers and contracting officers and their industry counterparts a tool to drive productivity improvement into programs, *I will require the manager of each major program to conduct a Should Cost analysis justifying each element of program cost and showing how it is improving year by year or meeting other relevant benchmarks for value. Meanwhile, the Department will continue to set the program budget baseline (used also in ADMs and Selected Acquisition Reports (SARs)) using an ICE.* We will use this method, for example, to drive cost down in the Joint Strike Fighter (JSF) program, the Department's largest program and the backbone of tactical air power for the U.S. and many other countries in the future. This aircraft's ICE (Will Cost) average unit price grew from $50 million Average Unit Procurement Cost (APUC) when the program began (in 2002 dollars, when the program was baselined) to $92 million in the most recent ICE. Accordingly, the JSF program had a Nunn-McCurdy breach last year and had to be restructured by the Secretary of Defense. As a result of that restructuring, a Should Cost analysis is being done in association with the negotiation of the early lot production contracts. The Department is scrubbing costs with the aim of identifying unneeded cost and rewarding its elimination over time. The result should be a negotiated price substantially lower than the Will Cost ICE to which the Department has forecasted and budgeted. Secretary Gates indicated in his Efficiency Initiative that monies saved in this way could be retained by the Service that achieved the efficiency; in this case the Air Force, Navy, and Marine Corps could reallocate JSF funds to buy other capabilities.

The Department will obligate about $2 trillion in contracts over the next five years according to Will Cost estimates, so savings of a few percent per year in execution are significant.

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The metric of success for Should Cost management leading to annual productivity increases is annual savings of a few percent from all our ongoing contracted activities as they execute to a lower figure than budgeted. Industry can succeed in this environment because we will tie better performance to higher profit, and because affordable programs will not face cancellation.

Eliminate redundancy within warfighter portfolios. The Army recently determined that it could forego the Non-Line-of-Sight Launch System (NLOS-LS) short-range guided missile because it already had weapons that had some (though not all) of the same features as NLOS-LS and because the cost of NLOS-LS — almost $300,000 each — was too high for the narrow capability gap it would fill. This was a classic value decision that could not have been made by looking at the NLOS-LS program in isolation. The Army had to look at the entire "warfighting portfolio" of precision weapons to see that NLOS-LS's cancellation would not, in fact, result in a major sacrifice of military capability.

I intend to conduct similar portfolio reviews at the joint and Department-wide level with an eye toward identifying redundancies. These reviews will initially cover Ground Moving Target Indicator (GMTI) systems and Integrated Air and Missile Defense. *I am directing the components to do the same for smaller programs and report the results.* The savings from these reviews cannot be estimated until they are conducted, but the savings could be substantial.

Make production rates economical and hold them stable. Government and industry both benefit from economic order quantity (EOQ) rates of production, and from stability in production year after year. Unfortunately, quantity cutting and turbulence to meet budget targets is widespread. Production rates are a critical part of any acquisition strategy approved by me. *Therefore, beginning immediately, I will expect production rate to be part of the affordability analysis presented at Milestones A and B. Furthermore, at Milestone C, I will set a range of approved production rates. Deviation from that range without my prior approval will lead to revocation of the Milestone.*

Recent examples where the Department ensured cost savings by implementing economical production rates include the Navy's E-2D Advanced Hawkeye program and the Air Force's Small Diameter Bomb II program. During reviews for initial production for both programs, business case analyses demonstrated significant dollar savings and more rapid achievement of operational capability, with the use of aggressive but attainable production profiles. Those EOQs were directed and are expected to realize savings of $575 million for the E-2D and $450 million for the SDB II as a result.

I expect to see a 5 percent annual increase in the number of ACAT 1D and 1C programs executing at their EOQ level.

Set shorter program timelines and manage to them. The leisurely 10-15 year schedule of even the simplest and least ambitious Department programs not only delays the delivery of needed capability to the warfighter, but directly affects program cost. As all programs compete for funding, the usual result is that a program settles into a level-of-effort pattern of annual funding that does not deviate much from year to year. The total program cost is the level-of-effort times the length of the program. Thus a one-year extension of a program set to complete in 10 years can be expected to result in 10 percent growth in cost as the team working on the project is kept on another year.

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Yet managers who run into a problem in program execution generally cannot easily compromise requirements and face an uphill battle to obtain more than their budgeted level of funding. The frequent result is a stretch in the schedule.

An example of the importance of addressing schedule directly as an independent variable is the Army's GCV. An initial acquisition plan had this program taking approximately 10 years to complete a first production vehicle, typical of the normal leisurely pace of programs. (In contrast, the MRAP-ATV began in 2009 and delivered more than 5,700 vehicles to Afghanistan by August 2010.) Given the large investment in ground vehicle technology made in the cancelled Future Combat Systems (FCS) program, there was no need to take this much time, especially if the basic requirements were limited to those essential to an infantry fighting vehicle and incorporating the lessons of recent wars. The Department determined that the GCV program should have a seven-year schedule to first production vehicle. Requirements and technology level for the first block of GCVs will have to fit this schedule, not the other way around. *When requirements and proposed schedules are inconsistent, I will work on an expedited basis with the Services and the Joint Staff to modify requirements as needed before granting authority for the program to proceed. In particular, I will not grant authority to release requests for proposals until I am confident requirements and proposed schedules are consistent. From now on, I will also require as part of the cost tradeoff analysis at Milestone B to support affordability, a justification for the proposed program schedule. This justification will be part of the ADM authorizing the program to proceed. Deviation from that schedule without my prior approval will lead to revocation of the Milestone.*

INCENTIVIZE PRODUCTIVITY AND INNOVATION IN INDUSTRY

Reward contractors for successful supply chain and indirect expense management. The Department pays profit/fee to prime contractors on work they conduct themselves, work subcontracted by the prime contractor to subcontractors, and allowable overhead and administrative costs. All three are appropriate, but in each instance the level of profit should be calculated to reward performance. Profit on subcontracted work is meant to compensate the prime for taking on the burden of managing subcontractor risk and delivering subcontractor value. Otherwise, the government would have to manage the subcontractor itself (an alternative called "breakout"). It follows that higher profit should be awarded to management of higher-risk subcontracts, and higher profit should be given when the prime succeeds in driving down subcontractor costs every year. Likewise, profit on overhead should incentivize control of overhead cost. There is evidence, however, that blanket profit levels are set and, what is more, are not revisited periodically in light of actual performance. This should be done as a matter of course. Additionally, incentives have not kept pace with fundamental changes in the defense industrial environment, among them the growth of services contracts and a shift in the role of prime contractors from manufacturers to integrators of components manufactured by subcontractors.

I am instructing the Director of Defense Procurement and Acquisition Policy (DPAP) to review the Weighted Guidelines for profit with the aim of emphasizing the tie between profit and performance. In the meantime and effective immediately, I expect all managers of ACAT 1D programs to provide to me, as part of their acquisition strategy, the reward and incentive strategy behind their profit policy, including consideration of breakout alternatives where

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appropriate. I direct the CAEs to do the same in programs for which they have acquisition authority.

It is important to note that the savings to be expected from this direction will be in cost, not in profit. Savings are not expected in profit per se since in some instances profit will increase to reward risk management and performance. But if profit policy incentivizes reduction in program cost, the overall price to the taxpayer (cost plus profit) will be less.

The value of considering a breakout option is illustrated by the results of a recent review of DDG-51 Destroyer costs. During this review, it was noted that the new cost for the Restart Main Reductions Gears (MRG), previously subcontracted by two construction shipyards as Class Standard Equipment, was now more than three times the previous cost. The incumbent manufacturer had exited the market for MRGs and had sold its intellectual property to another firm. The prime passed on this subcontractor's new bill to the government without aggressive cost management. The PEO broke out the MRG from the prime contract and conducted a full and open competition, which resulted in savings over $400 million to the government for a lot buy of nine ship sets.

Increase the use of Fixed-Price Incentive Firm Target (FPIF) contract type where appropriate using a 50/50 share line and 120 percent ceiling as a point of departure. Choosing contract type is one important way of aligning the incentives of the government and the contractor. One size does not fit all. At one time, the Department attempted to impose fixed-price contracts on efforts where significant invention (and thus unknowable costs) could be anticipated. More recently, Cost Plus Award Fee (CPAF) contracts with subjective measures of award fee not clearly tied to cost control became widespread. In between these extremes is the FPIF contract, which should be the contracting officer's point of departure whenever conditions obtain (or can be created) that make it appropriate. "Fixed Price" is appropriate when the government knows what it wants and does not change its mind, and when industry has good control of its processes and costs and can thus name a price. While these preconditions do not always exist (as in, for example, a risky development where invention is needed), they are certainly desirable, and both parties to the contract should aspire to fulfilling them. "Incentive" is important, since it shares the costs of overruns and rewards of underruns between government and industry, giving both sides of the transaction an incentive for good performance. FPIF will normally be appropriate early in production and in single-source production where year-on-year price improvement can be rewarded.

A 50/50 share line suggests that the government and contractor have a common view of the likely contract execution cost. A 50/50 share line should represent a point where the estimate is deemed equally likely to be too low or too high. A flat or steep share line suggests that the government and contractor do not see project cost the same way. These differences in view should be discussed and considered as the basis for adjusting the target cost before an uneven share line is agreed to in contract. This might occur, for example, earlier in a program where the costs are inherently more uncertain.

A ceiling of 120 percent on an FPIF contract sets a 20 percent limit on the government's liability for overrun of the contract target cost. This is reasonable in view of historical experience in program overruns, and also reasonable because programs that overrun more than this amount in an era of relatively flat defense budgets should face review with an eye to cancellation.

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A higher proposed ceiling requires explanation to the relevant head of contracting authority. Likewise, a lower ceiling than 120 percent suggests that perhaps a firm fixed-price contract is appropriate.

I am considering whether to issue more formal guidance on this matter, but effective immediately, I will require a justification of contract type for each proposed contract settlement be made to the relevant acquisition executive before negotiations are concluded. The metric for success of this measure would be fewer programs that overrun their cost targets.

The Navy, for example, recently concluded negotiations for a multi-year procurement of 124 F/A-18 strike fighter and E/A-18 electronic attack aircraft, which will yield over $600 million (greater than 10 percent) savings to the Department and the taxpayer. The F-18 program was able to drive down cost for each lot of aircraft procured in the framework of a fixed-price incentive contract that meets the Department's objectives for realistic costs, reasonable profit, a 50/50 shareline, and a 120 percent ceiling.

Adjust progress payments to incentivize performance. The government is an exceptionally reliable customer in terms of financing. The Department pays up front and regularly, sometimes before products are delivered. The Department also finances most industry investment needed to prepare products for the defense market. The Department can therefore offer its contractors a high cash flow return on invested capital, a feature highly valued by investors. This financial environment in turn offers another opportunity to reward good performance. The Department should take advantage of this circumstance through the use of innovative contract financing methods to incentivize vendors with the time value of money in exchange for lower prices/costs. *As a matter of practice, on all fixed price type contracts, I expect that the basis of negotiations shall be the use of customary progress payments. After agreement on price on the basis of customary progress payments, the contractor shall have flexibility to propose an alternate payment arrangement for the Government's consideration.* By having determined the projected contract cost, the contracting officer should be able to determine the consideration being offered by the contractor for a more favorable payment structure. The benefits of that improved cash flow shall be documented and the contracting officer will clearly identify in the business clearance the amount of consideration the Government received for the use of the improved cash flow opportunity. *I will direct that the Director of DPAP develop for my review a cash flow model to be used by all contracting officers contemplating financing other than customary progress payments and make certain that the guidance is developed to ensure that the improved cash flow opportunities provide benefit to both industry (at both prime and subcontractor level) and the taxpayer.*

Extend the Navy's Preferred Supplier Program to a DoD-wide pilot. The Department should recognize and reward businesses and corporations that consistently demonstrate exemplary performance. The Department has experience with these types of programs in certain parts of our business. For example, the Defense Logistics Agency's Strategic Supplier Alliance (SSA) has established long term relationships with major original equipment manufacturers (OEMs) within commodity groups for parts and supplies, and they are eligible to receive contract awards on a sole source basis. SSA suppliers have their performance tracked via a vendor scorecard tool that reports administrative lead time, production lead time, percent obligations and other measures and are eligible for preferred status based upon these measures.

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The Navy has announced a pilot program that would allow contracting authorities to set favorable post-award special terms and conditions that recognize those businesses and corporations that have demonstrated, over time, superior performance in delivering quality products and services, robust subcontracting management, cost containment, and on-time delivery. In the Navy's pilot, the special terms and conditions can, for example, include more favorable progress payments, higher designated ranges in the weighted guidelines, special award fee pools, and other potential post-award advantages. I believe this has significant potential to appropriately reward those corporate/business suppliers that the Department can count on to repeatedly deliver the value that we expect. *I am directing the Navy to continue to lead the pilot program but to immediately include the other Services and DoD components in order to transition to a full DoD program as soon as practical.*

Reinvigorate industry's independent research and development and protect the defense technology base. The Department reimburses industry as an allowable cost over $3 billion annually in "Independent Research and Development" (IRAD). This is one of the Department's principal investments in technology innovation, larger than any single military department's annual Science and Technology (6.1-6.3) program. Yet, we do not have insight into how or where these funds go or if they benefit the Department or promote the technological prowess of our industry. Beginning in the 1990s, the Department reduced its technical exchanges with industry, in part to ensure the "independence" of IRAD. The result has been a loss of visibility into the linkage between funding and technological purpose. Additionally, there is some evidence that the defense industry has reduced its in-house laboratory infrastructure to a point not envisioned in the 1990s.

The capability to perform work in science and technology has increased throughout the world. Data suggests U.S. world share is continuing to decline. In order to maintain our innovative edge, secure the basis for a strong economy, and provide for national security, we must implement new policies to effectively use Department resources and maintain appropriate investment in technology development and lower cost and time required for providing those capabilities.

Understanding that industry needs to maintain independence, but acknowledging that the public funds these investments, I am reviewing how we can work with industry to identify and eliminate impediments to innovation, provide better feedback to industry researchers, and better define the Department's needs to our industry partners.

I intend to take action to align the purpose of IRAD to actual practice. Unfortunately, as noted above, the Department does not have the information about how the program is actually functioning that I would need to undergird a policy change at this time. Accordingly, I am today directing three steps that I will review in six months with the objective of issuing a directive on this subject at that time. First, the Director of Defense Research and Engineering (DDR&E) should engage with the largest of the performers of IRAD to collect data on how they have used these funds in recent years, the resulting benefits to government and industry, and how they obtain insight into technical areas of potential interest to the government. Second, I will ask the Defense Contract Audit Agency (DCAA) to collect and provide to me IRAD financial data from all firms with allowable IRAD costs. Third, I direct the DDR&E to provide to me within 60 days a plan for a pilot program, to improve the return on IRAD investments for industry and

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government. The pilot program is to apply to as much as a third of the IRAD allocation, and will reflect early insights from the data we will collect.

PROMOTE REAL COMPETITION

Real competition is the single most powerful tool available to the Department to drive productivity. Real competition is to be distinguished from a series of directed buys or other contrived two-source situations which do not harness the full energy of competition. Competition is not always available, but evidence suggests that the government is not availing itself of all possible competitive situations.

Present a competitive strategy at each program Milestone. Since it is not practical to develop two of everything the Department needs, competition must be found in other forms. Program managers should have a competitive strategy for their program even if they do not have classic head-to-head competition. This might take the form of a related program that could serve as partial substitute for the program in question, a plan to re-gain competition in an unproductive sole source situation, breakout of subcontracted work, adapting commercial products, or other strategies.

I will require a presentation of a competitive strategy for each program at each Milestone and expect the CAEs to do the same at their level.

A highly successful example of a competitive strategy is the Navy's Littoral Combat Ship. This program was in danger of falling into a pattern of directed buys rather than real competition, with the result that the price of an LCS was creeping up towards that of a destroyer. The Navy decided to select only one of the LCS designs for production, doing so in an additional competitive selection. Competition in a different form will then be introduced into the program, as other shipbuilders are provided the technical data to build the same ship design competitively. This strategy is expected to save the Navy over $1 billion over the FYDP, with additional savings expected over the life of the LCS acquisition program.

Remove obstacles to competition. In recent years, the Department has achieved the highest rates of competition in its history. Having said that, the fact is that a significant fraction of those competitive procurements have involved what is termed "ineffective competition," since only one offer to a solicitation was received even when publicized under full and open competition. This occurs in about $55 billion of Department contracts annually. One step the Department can take is to mitigate this loss of savings from the absence of competition. A common practice has been to conclude that either a bid or proposal submitted by a single offeror in response to a full and open competition met the standard for adequate price competition because the bid or proposal was submitted with the expectation of competition. As a result, no certified cost or pricing data was requested, no cost or price analysis was undertaken, and often, no negotiations were conducted with that single offeror. *Henceforth I expect contracting officers to conduct negotiations with all single bid offerors and that the basis of that negotiation shall be cost or price analysis, as the case may be, using non-certified data.*

A more important approach is to remove obstacles to competitive bidding. For example, the Air Force's PEO for Services reviewed the Air Force's Design and Engineering Support Program (DESP) for effective competition. She found 39 percent of the task order competitions under the

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Indefinite Delivery/Indefinite Quantity (IDIQ) contract resulted in one bid. The Air Force team undertook an analysis to determine why they were getting the one bid and made two changes. First, they amended their source selection methodology so that technical, cost, and past performance factors were more equally weighted. No one factor can be less than 25 percent or more than 50 percent. This served to lessen the advantage of the incumbent contractor since the technical factor could not overshadow past performance and cost. Second, the team provided a monthly report to all DESP IDIQ holders listing all known requirements in the pipeline. The report includes sufficient information to allow contractors to evaluate whether or not to bid and to start to prepare a bid package. The team has effectively added an additional 45 days to the time a requirement is made known to the potential offerors and the bid due date. These two changes have reduced the percentage of task orders receiving one bid by 50 percent. The team continues to evaluate its processes to further reduce the percentage.

Each service component and agency has a competition advocate. *I am directing each competition advocate to develop a plan to improve both the overall rate of competition and the rate of effective competition. Those plans should establish an improvement rate of at least 2 percent per year for overall competition and an improvement rate of at least 10 percent per year for effective competition. Those plans are to be approved by the CAEs. The Department's competition advocate shall brief me on the overall progress being made to achieve those goals.*

 o *Require open systems architectures and set rules for acquisition of technical data rights. At Milestone B, I will require that a business case analysis be conducted in concert with the engineering trade analysis that would outline an approach for using open systems architectures and acquiring technical data rights to ensure sustained consideration of competition in the acquisition of weapons systems.* A successful example of the strategic use of open architecture and buying of appropriate technical data rights is the Navy's Virginia-class SSN program. The Virginia program uses a modular open systems architecture and selective sub-component technical data rights procurement that promotes a robust competition at the component supplier level, while still supporting continual and effective block upgrades to the existing systems that reduces the overall life cycle cost of the system.

Increase dynamic small business role in defense marketplace competition. Small businesses have repeatedly demonstrated their contribution to leading the nation in innovation and driving the economy by their example of hiring over 65 percent of all new jobs and holding more patents than all the nation's universities and large corporations combined.

Our defense industry must leverage that innovation and opportunity into our competitions, as small business representation on programs has demonstrated lower costs to the government. For many small businesses, subcontracting on Department contracts is the first step to becoming a Department prime contractor. Components must understand the small business capabilities within their industry and increase market research and outreach efforts to ensure small business utilization is maximized. In order to remove barriers to small business participation in Department contracts and competition, *I direct the CAEs to institute in all competitive and non-competitive procurement actions emphasis on small business utilization through weighting factors in past performance and in fee construct.*

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IMPROVE TRADECRAFT IN SERVICES ACQUISITION

Contract support services spending now represents more than 50 percent of our total contract spending. In 2009, the Department spent more than $212 billion in contracting services, using more than 100,000 contract vehicles held by more than 32,200 contractors — with more than 50 percent of the spend awarded to about 100 contractors.

This contractor support is critical to the Department. For professional services, for example, the Department depends upon three sources: the government workforce, the unique not-for-profit FFRDCs and UARCs, and for-profit professional services companies. Management mechanisms are in place for the first two, but far less for the third.

The Department's practices for buying such services are much less mature than for buying weapons systems. It is critically important that we have a cohesive and integrated strategy with regard to the acquisition of services. This substantial amount of spend demands a management structure to strategically source these goods and services.

<u>Create a senior manager for acquisition of services in each component, following the Air Force's example</u>. In order to achieve efficiencies in services contracting commensurate with the scale of the Department's spend, new governance is necessary. *I am directing the CAEs of the military departments and the commanders and directors of the other DoD components to establish a senior manager for acquisition of services, who will be at the General Officer, Flag. or SES level.* This senior manager will be responsible for governance in planning, execution, strategic sourcing, and management of service contracts. The senior manager will be the Decision Authority for Category I service acquisitions valued at $250 million or less or as delegated and collaborate with requiring activities which retain funding authority on service contract spend.

<u>Adopt uniform taxonomy for different types of services</u>. Today, the Department lacks a standard taxonomy for service contract spend that can be used among the components to understand the Department's aggregate spending and value of specific services contracting. Without a standard approach, the Department has no way of measuring productivity in more than 50 percent of its contracting investment. *I am directing, therefore, each component to use the following primary categories of service spend: Knowledge-based services: Electronics and Communications Services; Equipment Related Services; Medical Services; Facility Related Services; and Transportation Services. These are derived from, and consistent with, Product Service Code (PSC) categories contained in the PSC manual maintained by the General Services Administration, Federal Procurement Data Center, and Office of Management and Budget (OMB). This taxonomy will be used by each component to ensure basic consistency.*

<u>Address causes of poor tradecraft in services acquisition.</u>

o *Assist users of services to define requirements and prevent creep via requirements templates.* The Department has experienced significant increases in mission/requirements creep for services spending, particularly in knowledge management services, which has increased 400 percent in the last decade. These requirements often require the same function or service to be provided but are written uniquely among various commands so that competition is limited. *Therefore, I am directing two initiatives to address mission/requirements creep. First, the Services and DoD components should establish, through their senior managers for services.*

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maximum use of standard templates in developing Performance Work Statements (PWS) to improve contract solicitations. Successful examples of the use of standard templates are the Navy's SEAPORT acquisitions and DLA's use of templates to acquire Headquarters support services. *Second, I also expect market research to be strengthened in order to understand industry's capabilities and appropriate pricing within the market in which we are buying. I expect the military departments and DoD components will achieve this by establishing dedicated market research teams at the portfolio management level.*

o *Enhance competition by requiring more frequent re-competes of knowledge based services.* Although 89 percent of the Department's services contracting spend was awarded under competitive conditions, in 24 percent of those cases only one bid was received. This suggests bona fide competition (two or more bids) is not occurring in the $31 billion represented by those cases. To improve competition in services, *I will require the military departments and DoD components to review the length of time that services contracts remain in effect before re-competition occurs.* Single-award contract actions should be limited to three years (including options) unless, by exception, it is fully justified for longer periods by the senior manager for services. Contract length should be appropriate for the activity performed. Knowledge-based services readily meet the three-year limit. Other services such as Performance Based Logistics (PBL), LOGCAP, and environmental remediation, as examples, may not. The intent is that each service requirement will be reviewed by the appropriate official and only those with a sound business rationale will contain longer contract performance provisions. Multiple award IDIQ contracts may be up to five years if on-ramp provisions are included to refresh/update the competitor pool. In addition, *I expect Service components to align contract spend data, to the maximum extent that is practical, to the functional/requirements elements executing the spend.* This will focus all elements of the Department on the importance of achieving improved results.

o In cases where "1-bid" proposals are received, *I will require fully negotiated pricing and cost data as appropriate. Further, I will require solicitations that receive only one bid, and that were open to industry for less than 30 days, to be re-advertised for a minimum additional period of 30 days.*

o *Limit the use of time and materials and award fee contracts for services.* Today, more than 20 percent of the Department's services acquisitions are written using Time & Material (T&M) or Cost Plus Award Fee (CPAF) contract types. At a time when the Department is driving toward more fiscal discipline, we spend about $24 billion in services using T&M contract types, which are the least preferred contract type for understanding costs. Similarly, CPAF contract types provide only limited motivation for cost discipline. The acquisition of services differs greatly from the acquisition of supplies and equipment. The contractor at-risk capital is typically much lower for most service acquisitions and must be factored into the contract decision process. *I will issue further detailed guidance for establishing a taxonomy of preferred contract types in services acquisition, but starting immediately, I expect services acquisitions to be predisposed toward Cost-Plus-Fixed-Fee (CPFF), or Cost-Plus-Incentive-Fee (CPIF) arrangements, when robust competition or recent competitive pricing history does not exist to build sufficient cost knowledge of those services within that market segment. I expect that cost knowledge gained from those contracts to inform the Should Cost estimates of future price and contract type negotiations. When robust competition already exists, or there is recent competitive pricing history, I expect components to be predisposed toward Firm-Fixed-Price*

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(FFP) type contract arrangements. FFP should also be used to the maximum extent reasonable when ongoing competition is utilized in multiple award contract scenarios.

o *Require that services contracts exceeding $1 billion contain cost efficiency objectives.* With large Department outlays of capital for services contracting, it is important that the Department incentivize, achieve, and share in cost improvements over the period of performance for support services acquisitions, including knowledge management services. In acquisitions of material and production end items, we expect the contractor to be on a learning or efficiency curve to drive costs down and value up. We should incentivize and expect similar cost improvement on high-value services contracts. *Beginning immediately, I will require services contracts valued at more than $1 billion to contain provisions in the contract to achieve productivity improvements and cost efficiencies throughout the contract period.*

<u>Increase small business participation in providing services</u>. Small businesses provide the Department with an important degree of agility and innovation, even in support services, and they do so with generally lower overhead structures. To strengthen and improve opportunities for small businesses in the acquisition of services, *I am directing the OSD Office of Small Business Programs to review acquisition plans for services acquisitions exceeding $1 billion, and to be members of the OSD peer reviews of services acquisitions. Additionally, when multiple award contracts are used for services acquisitions, specific tasks suitable for small businesses will be set aside and military departments and DoD components will seek opportunities to compete Multiple Award/IDIQ contracts among small businesses.*

REDUCE NON-PRODUCTIVE PROCESSES AND BUREAUCRACY

Unnecessary and low-value added processes and document requirements are a significant drag on acquisition productivity and must be aggressively identified and eliminated. We cannot achieve Should Cost goals solely by providing incentives to industry to reduce overhead and increase productivity; the government must also eliminate unnecessary and often counterproductive overhead. Some of this overhead is required by statute, and I will work with the Congress to reduce these requirements that neither add value nor improve operational performance. Some of it is imposed by OSD, and is the natural bureaucratic growth in oversight that staffs generate over time and which has to be trimmed back periodically to more effective and productive levels. Secretary Gates has emphasized that the Department's efficiency initiative does not just extend to the $400 billion of contracted work outside the Department's walls, but to the $300 billion spent on the people and facilities that comprise the Department itself. He has reached into his own OSD staff and to senior commands to require greater leanness. Within OSD , he has directed my office (AT&L) to conduct a much-needed bottom-up scrub of process and staffing. Secretary Gates' determination to increase the overall acquisition workforce remains steadfast; however he intends for those additional positions to be filled with specific skill sets in short supply near the point of program execution, not an across-the-board increase or an increase in oversight staff. We must use these, and all our resources, effectively. I am calling on all participants in the acquisition system and all those who affect its processes to work with me to remove non-productive processes and bureaucracy. The following are just some of the steps we can take to address this problem:

<u>Reduce the number of OSD-level reviews to those necessary to support major investment decisions or to uncover and respond to significant program execution issues</u>. The number and

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frequency of OSD-level program reviews has increased significantly over the past several years. The year prior to August 2010 showed that over 240 major reviews and significant USD (AT&L)/staff reviews required more than 100,000 labor-hours to complete. This practice has tended to relieve the Senior Acquisition Executives (SAEs), PEOs, and PMs from responsibility and accountability for the programs they are executing. Insight at the AT&L level into program execution performance can generally be achieved through established status reporting mechanisms and informal staff contacts. While I expect a certain level of staff oversight, I expect the staff reviews to be focused primarily on major decision points for which I am responsible and on surfacing and solving execution problems. I also expect the OSD staff in AT&L and elsewhere to remain cognizant of our programs' progress and to identify problems quickly so that they can be dealt with as early as possible. There is a balance between this appropriate level of oversight and that which is excessive and tends to relieve the chain of command from management responsibility. I believe we have tipped the balance too far in favor of additional oversight and need to restore it to a more appropriate and effective level.

o *Realign OSD Acquisition Reviews to add more value.* It is important that we align AT&L resources to address the most significant investment decisions required at the Under Secretary level. Therefore, *I am directing ARA to review the current list of OSD reviews — DABs, Pre-DABs, OIPTs, PSRs, and TRLs etc., to recommend specific realignment of these reviews/meetings to ensure they focus their purpose on the major acquisition investment decisions made by the Department.*

o *Review DAB documentation requirements to eliminate non-relevant content.* Our DAB documents have become bloated and at the same time often fail to provide necessary and important content. A team has already been established to review DAB documents beginning with the Acquisition Strategy Report. *I am directing ARA to complete the review of all DAB documents by March 1, 2011 and to provide me with recommendations for streamlining and focusing these documents on needed content to support AT&L level decisions.*

o *Reform TRL reviews to focus on technology as opposed to engineering and integration risk.* The TRL review and certification process has grown well beyond the original intent and should be reoriented to an assessment of technology maturity and risk as opposed to engineering or integration risk. *I am directing the DDR&E to review this process and to make recommendations to refocus the TRL certification process to be consistent with its original intent.*

Eliminate low-value-added statutory processes. I recognize the importance of keeping programs within cost and schedule and agree on the need to reevaluate the viability of programs that incur large overruns or schedule slips. I fully support the spirit and the intention of the Nunn-McCurdy review process. However, I believe the process can be streamlined in a way that we can make sound decisions about the future of programs and provide Congress with the information and certifications they need without overly burdening programs and, in some cases, without reviewing programs that experience average unit cost growth because of decisions made by the Department, such as changed quantities resulting from requirements changes. As an example of overhead costs, my staff calculated the number of hours and attendant costs for Nunn-McCurdy evaluations that the Department undertook this year for the most recent six programs that breached the critical Nunn-McCurdy thresholds. The estimates for these six evaluations exceeded $10 million and 95,000 hours of overhead labor. Notwithstanding the legal

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requirement, two of the six evaluations were for technical breaches since the breaches were the result of production quantity changes or acquisition strategy changes rather than a result of cost growth per se. The knowledge we gained by conducting full evaluations was not significantly greater than what we already knew at the outset and had no effect on the decision to continue the programs. To curb this, *I am targeting specific oversight processes, described below, to reduce or eliminate costs associated with what I believe are unnecessary overhead burdens that add marginal or questionable value to meeting the needs of our warfighters or expectations of the taxpayer. I am also directing the streamlining of some processes that are important to keep, but that require significant efficiency improvement to be effective. The Department will continue to comply with all statutory requirements, but where it makes sense we will tailor how we achieve compliance to be consistent with the circumstances, and we will work with Congress to modify statutory requirements where the intended goal is clearly not being achieved.*

 o *Request Nunn-McCurdy Rules for Special Situations. I will work with Congress to eliminate the requirement for the full suite of Nunn-McCurdy assessments and reporting activities in special circumstances where quantity-induced or other external reasons cause critical breaches to occur.*

 o *2366a and 2366b Certification Process Review. I will work with OSD staff and the Congress to reassess both the need for and the overall method of implementation we have imposed on ourselves to respond to the requirement for retroactive 2366a/b certifications to ensure objectives are met without burdensome and inefficient bureaucracy.*

 o *Congressionally-mandated organizational changes within AT&L.* Congress has correctly identified and mandated some changes to the AT&L organization that are improving our ability to oversee acquisition programs and make better decisions about specific investments and about acquisition policy. It is important, however, that AT&L have the flexibility to balance the internal staff elements in order to effectively execute all the functions for which AT&L is responsible. *I intend to work with the Congress to ensure that all oversight functions are adequately staffed and performed without inserting inefficiencies and unnecessary overhead into the acquisition process at the same time.*

<u>Reduce by half, the volume and cost of internal and congressional reports.</u> The time and resources spent on one-time and recurring internal and congressional reports are costly to the Department and take the acquisition workforce away from executing programs. For internal reports, the Department must suppress its appetite for non-critical information and resist the temptation to become checkers of checkers. For congressional reports, in the past 10 years, the total number levied on the Department has grown from 514 to 719. During that same span, the number of reports assigned to my office (AT&L) grew from 102 to 156. Many of these reports, once they are introduced into legislative language, continue to be required year after year — long after the immediate relevancy and value of the information have passed. None of these reports are free. A conservative cost estimate of the resources consumed in producing the 719 congressional reports is $350 million annually. Consequently, *I am directing my staff to conduct a bottom-up review of all internally-generated reporting requirements and to work with ASD (Legislative Affairs) to conduct a bottom-up review of all congressionally mandated acquisition reports to assess the value of the reports with a goal to eliminate at least 50 percent of the reports and to substantially shorten the ones remaining. I am also tasking ARA to impose*
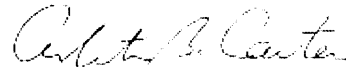
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reasonable page count caps (given the information requested) when reports are assigned for production and to indicate the estimated cost to prepare each report on its cover.

Reduce non-value-added overhead imposed on industry. Industry has its own internal unproductive processes which add to project costs, but these are in some part a reflection of the requirements which the government imposes. A great number of the inputs I received from industry were directed at what was viewed as excessive overhead expenses based solely on non-value-added mandates and reporting requirements which may have been relevant at some point in time, but have little relevance in the world in which we now find ourselves. *In order to identify and reduce these costly requirements, I am directing the Director of Industrial Policy, with support from DPAP, to more fully survey our industrial base to identify, prioritize, and recommend a path forward to unwind duplicative and overly rigorous requirements that add to costs, but do not add to quality of product or timeliness of delivery. As we remove these requirements, I will expect a decline in the overhead charged to the Department by our industrial base that reflects these reduced costs.*

Align Defense Contract Management Agency (DCMA) and Defense Contract Audit Agency (DCAA) processes to ensure work is complementary. It is well known that during the last 20 years, due to budget constraints, DCMA and DCAA have progressively reduced staff and capability. As a result, critical functions they perform have become blurred and require clarification, and where necessary should be de-conflicted to avoid unnecessary overlap and redundancies. In this vein, industry has expressed concern regarding overlapping roles and missions between DCMA and DCAA, resulting in duplication of data requests submitted by contractors and inefficient application of Department resources. Over the past several months, at my direction, the Director of DPAP has been working with DCAA and DCMA to identify areas of potential overlapping responsibility, such as Accounting, Estimating, Purchasing, Financial Capability Reviews, Earned Value Management System (EVMS), MMAS, Property Management, and Forward Pricing, and propose methods to eliminate the duplication. *I am tasking the Director of DPAP to develop guidance that will clearly spell out the roles and responsibilities of each organization in those areas where duplication and overlap occur.*

Increase use of Forward Pricing Rate Recommendations (FPRRs) to reduce administrative costs. Contract negotiations can administratively benefit from the use of Forward Pricing Rate Agreements (FPRAs). Certainly a quality FPRA will result in reduced administrative costs associated with negotiating and managing acquisitions. However, it is also recognized that establishing FPRAs just for the sake of having FPRAs is not beneficial and has been costly to the taxpayer. For multiple reasons, including but not limited to complexity of contractor rate structures and audit process changes today, DCMA has only established 32 percent of expected FPRAs. It has, on the other hand, established 85 percent of the expected FPRRs. Clearly the opportunity exists to re-examine how best to ensure contracting officers obtain the support they need to negotiate rates. We will strive to have FPRAs, when possible, but we will not do so when FPRR's are available if we believe that there is not a legitimate and thoughtful basis for departing from them. *Accordingly, I am tasking DCMA to be responsible for the promulgation of all FPRRs. In those cases, where DCAA has completed an audit of a particular contractor's rates, DCMA shall adopt the DCAA recommended rates as the Department's position with regard to those rates.*

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This letter is not the end of a process, but the beginning of vigorous implementation and further refinement. Today I have signed out directive memoranda to my key staff elements, DPAP, ARA, DDR&E, and the leaders of the OIPTs that coordinate the OSD-level oversight of major programs setting those offices on the course to begin implementing this guidance. I have provided the Component Acquisition Executives with a draft directive memorandum that I intend to sign within the next few days for their review and comments. Starting today but extending over the next several months we will be putting the actions I have described in this guidance into more formal direction and practice. Today, however, I am tasking all of you to absorb this guidance memo and begin acting on it within the scope of your existing authority. There is no time to lose.

Ashton B. Carter

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THE UNDER SECRETARY OF DEFENSE
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NOV 0 3 2010

ACQUISITION,
TECHNOLOGY
AND LOGISTICS

MEMORANDUM FOR SECRETARIES OF THE MILITARY DEPARTMENTS
DIRECTORS OF THE DEFENSE AGENCIES

SUBJECT: Implementation Directive for Better Buying Power – Obtaining Greater Efficiency and Productivity in Defense Spending

As detailed in my September 14, 2010 Guidance to acquisition professionals, I am seeking to obtain greater efficiency and productivity in defense spending by pursuing initiatives in the following five areas: (1) Target Affordability and Control Cost Growth; (2) Incentivize Productivity and Innovation in Industry; (3) Promote Real Competition; (4) Improve Tradecraft in Services Acquisition; and (5) Reduce Non-Productive Processes and Bureaucracy.

This memorandum specifies actions that I expect you to execute either immediately or in the time frame indicated in order to implement the September 14 Guidance. Additional actions in support of these five initiatives will be developed over the next few weeks and months.

TARGET AFFORDABILITY AND CONTROLLING COST GROWTH

Mandate affordability as a requirement:

Effective November 15, 2010, I will implement affordability-based decision making at milestone decision points for all Acquisition Category (ACAT I) programs. Specifically, I direct the following actions:

Baseline Portfolio and/or Mission Area Definitions: As a basis for affordability analysis, you will use standard budget categories to the extent possible. Representative examples include: tactical wheeled vehicles, tactical aircraft, surface combatants, and communications satellites.

Milestone (MS) A: You will establish an affordability target to be treated by the program manager (PM) like a Key Performance Parameter (KPP). This affordability target (initially, average unit acquisition cost and average annual operating and support cost per unit) will be the basis for pre-MS B decision making and systems engineering tradeoff analysis. This analysis should show results of capability excursions around expected design performance points to highlight elements that can be used to establish cost and schedule trade space. The affordability target should be presented in the context of an analysis of the resources that are projected to be available in the portfolio(s) or mission area(s) associated with the program being considered for the MS A decision, assuming programmed defense budgets and force structures. In order to meet this requirement, you will provide a quantitative analysis of the program's portfolio or mission area across the life cycle of all products in the portfolio or mission area, including acquisition and operating and support budget suitability to absorb the proposed new start as a

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content change. Specifically, if introducing a new program into a portfolio or mission area, you should indicate what specific adjustments will be made to absorb the new program.

Milestone B: You will present a systems engineering tradeoff analysis showing how cost varies as the major design parameters and time to complete are traded off against each other. The analysis will pay due attention to spiral upgrades. You will recommend for my approval to establish and document, in the Acquisition Decision Memorandum (ADM) and in the program baseline, an 'Affordability Requirement' for acquisition cost and for operating and support cost. This requirement will be the functional equivalent of Key Performance Parameters (KPPs) for baseline establishment and monitoring. You will provide cost tradeoff curves or trade space around major affordability drivers (including KPPs when they are major cost drivers) to show how the program has established a cost-effective design point for these affordability drivers.

By November 15, 2010, you will provide me with a schedule that charts when you will establish affordability as a requirement for ACAT II and below programs for which you are responsible.

Drive productivity growth through Will Cost/Should Cost management:

Effective November 15, 2010, you will establish "Should Cost" targets as management tools for all ACAT I programs as they are considered for major MS decisions. As described in my September 14, 2010, Guidance to the acquisition workforce, "Should Cost" targets will be developed using sound estimating techniques that are based on bottom-up assessments of what programs should cost, if reasonable efficiency and productivity enhancing efforts are undertaken. These costs will be used as a basis for contract negotiations and contract incentives and to track contractor and program executive officer/project manager performance. Program performance against "Should Cost" estimates will be reported to the Office of Acquisition Resources and Analysis through Acquisition Visibility Service Oriented Architecture (AV SoA).

By January 1, 2011, you will establish "Should Cost" estimates for ACAT II and III programs as they are considered for component MS decisions. You will use "Should Cost"-based management to track performance of ACAT II and III programs.

Eliminate redundancy within Warfighter portfolios:

You will conduct portfolio reviews for selected ACAT II and III programs under your management to identify and eliminate redundancy. Beginning March 1. 2011, and annually thereafter, you will provide me with a one-page report on the selection of portfolios for review and the results of these reviews.

Make production rates economical and hold them stable:

By January 1, 2011, you will provide me, for each of your ACAT I programs, a one-page description of how the procurement rate and schedule were set, with reference to Economic Order Quantity (EOQ) and the affordability target set at MS A, as adjusted at MS B. As a central component of this investment plan, you will define production rate change limits based on the MS A or B affordability assessments mentioned above. Program deviations from these

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limits, including those intended in budget adjustments, will require my review and approval prior to implementation or submission with component Program Objective Memoranda (POMs).

Set shorter program timelines and manage to them:

Effective November 15, 2010, you will include a justification for the proposed program schedule as part of the cost tradeoff analysis at MS B to support affordability. This justification will be part of the ADM authorizing the program to proceed. Deviation from the schedule established at the most recent MS without my prior approval could lead to revocation of the MS.

INCENTIVIZE PRODUCTIVITY AND INNOVATION IN INDUSTRY

Reward contractors for successful supply chain and indirect expense management:

Effective November 15, 2010, you will include the incentive strategy behind the profit policy, including consideration of breakout alternatives where appropriate, in all acquisition strategies for all ACAT ID programs. By January 1, 2011, you are directed to establish the same requirement for all other programs over which you have acquisition authority.

Increase the use of Fixed-Price Incentive Firm Target (FPIF) contract type where appropriate using a 50/50 share line and 120 percent ceiling as a point of departure:

Effective immediately, you will give greater consideration to using Fixed-Price Incentive Firm Target (FPIF) contracts, particularly for efforts moving from development to production. In the past, acquisition teams have moved frequently from cost reimbursement contracts for development efforts and early production lots to Firm-Fixed-Price (FFP) for production efforts without adequately considering the use of FPIF contracts.

Effective immediately, you will provide a justification for the contract type used for each proposed contract above $100 million for ACAT ID programs. Effective immediately, you will also similarly review the contract type chosen for all contracts for more than $100 million under other ACAT levels

I expect acquisition teams to pay particular attention to share lines and ceiling prices, and FPIF contracts with a 120 percent ceiling and a 50/50 share ratio should be the norm, or starting point. Effective immediately, you will implement this Guidance for all programs under your immediate direction and direct your PEOs to do the same.

Adjust progress payments to incentivize performance:

Effective January 1, 2011, you will identify pilot programs to use innovative financing methods as a negotiating tool. To assist in this effort, I have directed the Director, Defense Procurement & Acquisition Policy (DPAP) to immediately develop a cash flow model and to provide guidance for the use of a preferred hierarchy of innovative financing methods described in the model that takes into consideration the lifecycle phase of weapon system programs. Emphasis should be placed on flow-down provisions to subcontractors as well.

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<u>Extend the Superior Supplier Incentive Program (SSIP) to a DoD-wide pilot:</u>

DPAP will establish a Superior Supplier Incentive Program (SSIP) based on the Department of the Navy's program pilot, effective January 1, 2011.

<u>Reinvigorate industry's independent research and development and protect the defense technology base:</u>

Effective immediately, you are directed to support the Director, Defense Research & Engineering (DDR&E), whom I have tasked to reinvigorate the Independent Research and Development (IRAD) program and create other incentives for industry to conduct more defense-relevant R&D. This task includes enhancing the Small Business Innovation Research (SBIR) program to promote the role of small business in supporting DoD IRAD needs.

PROMOTE REAL COMPETITION

<u>Present a competitive acquisition strategy at each program milestone:</u>

Effective immediately, you will provide a one-page competitive strategy for each ACAT ID program at each milestone as part of the overall acquisition strategy. By December 1, 2010, you will require a competitive strategy to be included in the acquisition strategy prior to each milestone for ACAT IC, II, III and IV programs under your management. You will also report to me on how you intend to reduce single-bid competitions. At a minimum, your report will address market research, restricted specifications, and adequate time for proposal preparation. I expect you to achieve a two percent reduction in single-bid competitive contracts in Fiscal Year 2011, with continuing reductions thereafter.

<u>Remove obstacles to competition:</u>

You will ensure that by November 15, 2010, your contracting officers conduct negotiations with all single-bid offerors unless this requirement is specifically waived by the Head of Contracting Activity (HCA) or yourself. The basis of these negotiations will be cost or price analysis, as the case may be, using either certified or non-certified cost or pricing data, as appropriate.

You will direct your component or agency competition advocate to develop a plan to improve both the overall rate of competition and the rate of effective competition by December 1, 2010. These plans will establish an improvement rate of at least two percent per year for overall competition and an improvement rate of at least 10 percent per year for effective competition.

   o *Require open systems architectures and set rules for acquisition of technical data rights:*

Effective November 15, 2010, you will conduct a business case analysis, in consort with the engineering tradeoff analysis that will be presented at MS B. The business case analysis will

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outline the open systems architecture approach, combined with technical data rights the government will pursue in order to ensure a lifetime consideration of competition in the acquisition of weapon systems. The results of this analysis will be reported in the Acquisition Strategy Report and in the competition strategy.

Increase dynamic small business role in defense marketplace competition:

Effective December 1, 2010, all competitive and non-competitive procurement actions will seek to increase small business participation through weighting factors in past performance and in fee construct

IMPROVE TRADECRAFT IN SERVICES ACQUISITION

Create a senior manager for acquisition of services in each component, following the Air Force's example:

By November 15, 2010, you will provide me with an implementation plan with relevant milestones to establish a senior manager for the acquisition of services at the general officer, flag, or SES level. This senior manager will be responsible for governance in planning, execution, strategic sourcing, and management of service contracts. The senior manager will be the decision authority for services acquisitions valued at less than $250 million.

Adopt uniform taxonomy for different types of services:

Effective immediately, you will use the existing Product Service Code (PSC) categories contained in the Product and Service Code Manual maintained by the General Services Administration, Federal Procurement Data Center, and Office of Management and Budget as the basis for collecting data on and managing services contracts.

Address causes of poor tradecraft in services acquisition:

○ *Assist users of services to define requirements and prevent creep via requirements templates:*

By January 1, 2011, you will standardize the method by which you acquire services through the development and use of standard templates in developing Performance Work Statements to improve contract solicitations. You will coordinate with the Director, DPAP and other CAEs to ensure a consistent approach across DoD.

By December 1, 2010, you will develop a plan to strengthen and improve the use of market research in order to understand industry's capabilities and pricing strategies.

○ *Enhance competition by requiring more frequent re-competes of knowledge-based services:*

By January 31, 2011, you will conduct a review of the length of time knowledge-based services contracts within your agency or component are scheduled to remain in effect before

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re-competition occurs and report the results to me. Single-award actions should normally be limited to three years (including options). I specifically exempt Federally Funded Research and Development Center (FFRDC) contracts and University Affiliated Research Center (UARC) contracts from this three-year policy given the strategic, long-term nature of their contracts and their unique relationship with the Department. By March 1, 2011, you will provide me with a plan to bring knowledge-based services contracts within your agency or component into closer compliance with the three-year general limitation.

o **"1-bid" proposals:**

In cases where "1-bid" proposals are received, you will require pricing and cost data as appropriate. In addition, solicitations receiving only 1-bid, and which were open to industry for less than 30 days, are to be re-advertised for a minimum period of an additional 30 days unless a waiver is obtained from the Head of Contracting Activity (HCA). This directive is to be implemented no later than December 1, 2010.

o *Limit the use of time and materials and award fee contracts for services:*

I will issue further detailed guidance for establishing taxonomy of preferred contract types in services acquisition, but starting immediately, you will ensure that services acquisitions under your control are predisposed toward Cost-Plus-Fixed-Fee (CPFF) or Cost-Plus-Incentive-Fee (CPIF) arrangements when robust competition or recent competitive pricing history does not exist. This practice will be used to build sufficient cost knowledge of those services within that market segment. You will employ that cost knowledge to inform the "Should Cost" estimates of future price and contract type negotiations. When robust competition already exists, or there is recent competitive pricing history, you will ensure that services acquisitions under your control are predisposed toward Firm-Fixed-Price (FFP) type contract arrangements. FFP should also be used to the maximum extent reasonable when ongoing competition is used in Multiple Award Contract scenarios.

o *Require services contracts exceeding $1 billion contain cost efficiency objectives:*

Effective immediately, you will ensure that services contracts valued at more than $1 billion contain provisions in the contract to achieve productivity improvements and cost efficiencies throughout the term of the contract.

Increase small business participation in providing services:

Effective January 1, 2011, DoD components will seek opportunities to compete Multiple Award/IDIQ contracts among small businesses.

REDUCE NON-PRODUCTIVE PROCESSES AND BUREAUCRACY

In accordance with the OSD tasking, you should seek to reduce non-productive processes and bureaucracy in your acquisition process.

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By November 15, 2010, you are to complete an assessment of all internal reviews to ensure that they focus their purpose on the major acquisition investment decisions to be made by your component and the Department.

By March 1, 2011, you should review all component- required acquisition documents for redundancy with OSD-required documents and eliminate redundant documents and non-value-added content. You should ensure that such documents are focused on content needed to make Component- level decisions.

You are to conduct a bottom-up review of all internally-generated reporting requirements. You are to assess the value of the reports with a goal to eliminate at least 50 percent of the reports and substantially shorten the ones remaining. In addition, effective immediately, you are to assign reasonable page count caps (based upon the nature of the information requested) when you assign lead responsibility for report production.

DoD Regulatory System: This directive and guidance are effective immediately. All applicable DoD Directives and other related issuances shall be updated to implement this direction and guidance within 180 days.

Ashton B. Carter

Attachment:
As stated

cc:
All CAEs
DCMA
DCAA
DCMO

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