

How Incentives and Overpromising by Public Officials Contribute to Cost, Schedule, and  
Performance Shortfalls in U.S. Defense Acquisition Programs

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## Table of Contents

	Page
List of Tables.....	v
List of Figures.....	vi
Abstract.....	vii
Chapter 1 - Introduction.....	1
Chapter 2 – A Theory of How the Defense Acquisition Process Really Works .....	8
Chapter 3 - Overpromising by Public Officials: An Empirical Test .....	31
Chapter 4 - Acquisition Reform.....	62
List of References.....	73

## List of Tables

Table	Page
Table 1. Logrolling Scenario .....	15
Table 2. Defense Contractor Donations During the 2008 Election Cycle .....	24
Table 3. Analysis of DoD Major Acquisition Programs.....	33
Table 4. Changes in Cost and Quantities for 10 of the Highest Cost Acquisition Programs .....	33
Table 5. Evolutionary vs. Revolutionary Advances in Capabilities .....	51

## List of Figures

Figure	Page
Figure 1. Defense Acquisition Process .....	12
Figure 2. Defense Related Donations, 1990 – 2010 Election Cycles .....	23
Figure 3. Commercial Best Practices .....	47
Figure 4. DoD’s Low Adoption Rate for Best Practices .....	49
Figure 5. DoD Processes and Pressures .....	55
Figure 6. Acquisition Reform, 1970 - 1999 .....	63

## ABSTRACT

### HOW INCENTIVES AND OVERPROMISING BY PUBLIC OFFICIALS CONTRIBUTE TO COST, SCHEDULE, AND PERFORMANCE SHORTFALLS IN U.S. DEFENSE ACQUISITION PROGRAMS

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Defense acquisition programs in the U.S. continue to experience significant cost, schedule, and performance shortfalls despite decades of learning and numerous attempts at reform. This thesis examines one of the reasons for this problem - namely, how the incentives facing public officials lead them to overpromise what they can deliver and how this behavior contributes to shortfalls. First, a theoretical framework is established, and then it is tested against the findings contained in numerous reports and testimonies produced by the U.S. Government Accountability Office. The thesis concludes by applying the lessons learned to a brief analysis of acquisition reform.

## Chapter 1 - Introduction

Citizens of the United States have traditionally looked upon standing armies and foreign entanglements with a great deal of suspicion. For over a century, the world's vast oceans, rather than a large military, were the main line of defense against foreign aggression. Even after World War I, the U.S. avoided membership in the League of Nations, and Congress passed neutrality laws on several occasions. The U.S. did not belong to any formal military alliances, nor did it have any bases in other countries. The U.S. military also had relatively few troops compared to other nations. If circumstances were to thrust the U.S. into another war, the nation's vast physical and human capital resources could be brought together and mobilized as they had been in the past.

Of course, not everyone agreed with this approach to national defense. During the interwar years, some members of the armed forces, along with several prominent businessmen, worked to create greater military might and industrial cooperation. They eventually got their wish. With the events leading up to World War II, the U.S. government began to rapidly accelerate the development of its military strength. The share of federal spending dedicated to national defense soared from 17.5% in 1940 to a peak of 89.5% in 1945. As a percentage of Gross Domestic Product (GDP), spending



increased from 1.7% in 1940 to a peak of 38.8% in 1944.<sup>1</sup> As described by Higgs (1990, 1995), the fundamental nature of U.S. military procurement also began to change. In the past, military acquisitions had been conducted according to a relatively rigid and straightforward set of procedures. In most cases, the demand for a particular product was publicly announced, the government received sealed bids, and contracts were awarded to the lowest bidder. Beginning in the 1940s, the relationship between government and industry became much more cozy and interdependent. Contracts were now negotiated rather than competitively bid, and compensation was in the form of cost-plus-fixed-fee. Corporations also received government subsidies in the form of tax breaks and financing for plants and equipment. In short, much of the risk was shifted from contractors to the government - and ultimately the taxpayers.

Although World War II eventually came to an end, the large U.S. defense establishment did not. Instead, a number of developments across the world kept it going. The Truman Doctrine pledged assistance to almost any nation threatened by Communism. Entrance into the North Atlantic Treaty Organization committed the U.S to mutual defense among its members. The Korean War broke out in 1950. Tensions escalated with the Soviet Union. The list goes on. The U.S. was engaged in a series of overlapping military commitments across the globe, and no longer was there a clear distinction between peacetime and wartime. Emerging from these military commitments was a large and

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<sup>1</sup> Office of the President of the United States, Historical Tables, Fiscal Year 2009. Table 3.1 – Outlays by Superfunction and Function: 1940 – 2013. Available online at <http://www.whitehouse.gov/omb/budget/fy2009/pdf/hist.pdf>.

permanent arms industry that consisted of both military troops and supporting industry.

Former General and outgoing President Dwight D. Eisenhower reflected upon these developments in his 1961 farewell address (Eisenhower D. 1961):

Until the latest of our world conflicts, the United States had no armaments industry. American makers of plowshares could, with time and as required, make swords as well. But now we can no longer risk emergency improvisation of national defense; we have been compelled to create a permanent armaments industry of vast proportions . . . We recognize the imperative need for this development. Yet we must not fail to comprehend its grave implications. Our toil, resources and livelihood are all involved; so is the very structure of our society. In the councils of government, we must guard against the acquisition of unwarranted influence, whether sought or unsought, by the military-industrial complex. The potential for the disastrous rise of misplaced power exists and will persist. We must never let the weight of this combination endanger our liberties or democratic processes. We should take nothing for granted. Only an alert and knowledgeable citizenry can compel the proper meshing of the huge industrial and military machinery of defense with our peaceful methods and goals, so that security and liberty may prosper together.

In the original draft of his speech, Eisenhower used the phrase “military-industrial-congressional complex,” but he eventually axed the word “congressional” in order to avoid a “political firestorm” (Eisenhower S., Johnson 2005). More details about the origin of the term “military-industrial complex” can be found in Griffin (1992).

Regardless of the exact terminology used, Eisenhower’s remarks reflected his concerns about the inner workings of the defense system and the relationship between elected officials, armed forces, and private industry. He perceived that decisions were being made not just out of a desire to provide for a national defense, but also due to the private interests of individuals within the system. Although the establishment of a permanent

arms industry was needed, at least in the minds of certain individuals, to protect liberty, it ultimately led to an entirely different set of challenges that persist to this day.

One particular artifact of the military-industrial-congressional complex (MICC) is that it diverts resources away from other potentially valuable endeavors. This “guns and butter” tradeoff has been noted by scholars such as Mintz (1992). Eisenhower also reflected upon this issue in an earlier speech that addressed tensions with the Soviet Union (Eisenhower 1953):

What can the world, or any nation in it, hope for if no turning is found on this dread road? The worst to be feared and the best to be expected can be simply stated. The worst is atomic war. The best would be this: a life of perpetual fear and tension; a burden of arms draining the wealth and the labor of all peoples; a wasting of strength that defies the American system or the Soviet system or any system to achieve true abundance and happiness for the peoples of this earth.

The “burden of arms draining the wealth and the labor of all peoples” may refer not only to the amount and type of weapons produced, but also to the efficiency in which weapons are produced. Reports of fraud, waste, abuse, misconduct, and mismanagement in the MICC are certainly nothing new. Biddle (1985) wrote an article in *The New York Times* about contractors who billed the government for sporting tickets and haircuts.

Bowermaster (2003) wrote in *The Seattle Times* about a former Air Force official-turned contractor who improperly supplied Boeing with information about their rival, Airbus, in order to help Boeing win a deal on a new tanker program. Fitzgerald (1972, 1989) wrote two books about his misadventures in the Pentagon. He recounts his firing after presenting a testimony on concealed cost overruns with the C-5 transport plane program.

Aside from blatant misconduct, defense acquisition programs are frequently plagued by cost, schedule, and performance shortfalls. For example, the U.S. Government Accountability Office's 2006 report on major weapon systems notes that over 40 percent of the programs that the agency analyzed experienced cost overruns of greater than 30 percent or delays in the delivery of initial operational capability by at least one year (U.S. GAO 2006). In contrast to blatant misconduct, it is not always as obvious whether these shortfalls are due to poor performance by certain individuals, burdensome bureaucratic processes, perverse incentives, or perhaps all of the above.

As a partial response to the shortcomings and misconduct in the MICC, policy makers occasionally enact special Blue Ribbon Defense Commissions to study problems, identify solutions, and enact reforms. One such Commission made the following observation (Packard 1986):

All of our analysis leads us unequivocally to the conclusion that the defense acquisition system has basic problems that must be corrected. These problems are deeply entrenched and have developed over several decades from an increasingly bureaucratic and overregulated process ... Recent public attention has focused on cases of spare parts overpricing that have been prominently reported by the media ... In general, we discovered, these problems were seldom the result of fraud or dishonesty. Rather they were symptomatic of the underlying problems that affect the entire acquisition system.

As explained by Kovacic (1990), and as will be explained later in this thesis, special commissions, although well intentioned, often fail to correct the underlying problems they are trying to address.

## **1.1 Thesis Overview and Organization**

As previously mentioned, defense acquisition programs in the U.S. continue to experience significant cost, schedule, and performance shortfalls despite decades of learning and numerous attempts at reform. The goal of this thesis is to examine one of the reasons for this problem and to probe whether or not anything can be done to remedy the situation.

The next chapter, Chapter 2, develops the theoretical framework. First, it explains a few of the processes and policies that guide the procurement of weapon systems. Then it uses economic theory, along with some examples, to examine how self-interested public officials behave within a given system of constraints. It discusses log rolling, contract targeting, program funding, rent seeking, bureaucracy, and principal-agent theory.

The third chapter then builds on the theoretical framework to explain how the incentives facing public officials lead them to overpromise what they can deliver and how this behavior leads to cost, schedule, and performance shortfalls. This theory of overpromising is then tested using findings from U.S. Government Accountability Office (GAO) reports and testimonies.

Finally, the lessons learned are applied to a brief discussion of acquisition reform.

Chapter 4 examines past efforts and their shortcomings. Then it discusses how future

efforts can be most effectively implemented and whether or not they are likely to be successful.

Although the MICC has certainly been written about before, many of the writings are in the form of short articles, anecdotes, personal accounts, and so on. The number of thorough and formal economic investigations of the topic is significantly less.

Furthermore, none of the previous writings draw sufficiently on the wealth of real-world information available through GAO studies. The GAO has produced dozens of reports and testimonies on the topic of defense acquisitions, many of which contain numerous sub-studies. GAO officials also conduct face-to-face interviews with public officials in the acquisition community. In totality, GAO reports and testimonies encompass thousands of case studies and interviews. The agency's publications make up one of the largest sources of empirical information available to the public on how the MICC actually functions. This thesis advances the economic literature by connecting the findings from GAO reports with economic theory.

## Chapter 2 – A Theory of How the Defense Acquisition Process Really Works

This chapter develops the theoretical framework necessary for understanding the incentives facing public officials within the MICC, and it explains the type of behavior that typically results. First, the chapter briefly explains the key processes and policies that guide the development and acquisition of weapon systems. Then it uses economic theory, along with some examples, to examine how self-interested public officials behave within a given system of constraints.

### **2.1 Acquisition Policies and Processes**

Many different organizations play a role in providing for the defense of the United States. The Department of State, for example, offers diplomatic services that may help prevent conflict before it begins. The Department of Homeland Security is tasked with preventing terrorist attacks and responding to natural disasters. The Department of Defense (DoD), however, is the primary organization considered in this thesis. Under its umbrella are the Department of the Army, Navy, Air Force, and a few other organizations, such as the Missile Defense Agency.

### **2.1.1 Joint Capabilities Integration and Development System**

Before DoD officials decide what weapons they want to buy, they must first predict what types of threats they will face and what types of missions they will be called upon to execute. This predictive analysis leads to the production of the National Defense Strategy, National Military Strategy, and the National Strategy for Homeland Defense. Once these strategies have been developed, officials then decide what capabilities will be required to execute the strategies. The Joint Capabilities Integration and Development System (JCIDS) is the process that links national strategies to the acquisition process by determining capability gaps. The JCIDS is described as follows: <sup>2</sup>

The primary objective of the JCIDS process is to ensure the capabilities required by the joint warfighter are identified with their associated operational performance criteria in order to successfully execute the missions assigned ... The JCIDS process supports the acquisition process by identifying and assessing capability needs and associated performance criteria to be used as a basis for acquiring the right capabilities, including the right systems. These capability needs then serve as the basis for the development and production of systems to fill those needs.

Under JCIDS guidance, decision makers should not start off simply by saying that, for example, they want more F-22 aircraft. Instead, they should decide what systems will be required to support missions like air interdiction, close air support, long-range strike, and so on. Filling these capability gaps might require the acquisition of more F-22, or it might involve upgrading and extending the service life of other aircraft. In some cases, a non-material solution, such as advanced training, may substitute for the acquisition of new

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<sup>2</sup> Chairman of the Joint Chiefs of Staff Instruction, CJCSI 3170.01G, *Joint Capabilities Integration and Development System*, March 2009. Available online at [http://www.dtic.mil/cjcs\\_directives/cdata/unlimit/3170\\_01.pdf](http://www.dtic.mil/cjcs_directives/cdata/unlimit/3170_01.pdf).



systems. Officials are guided to not think about “what the Army needs” or “what the Marines need.” Instead, they should start by thinking about joint warfighting requirements and then decide which services and which weapon systems can best provide the desired capabilities. Inter-service rivalries are generally viewed as detrimental to the joint warfighting process.

Of course, this idealized description of the JCIDS process only functions smoothly on paper. In reality, each military service usually tries to expand its capabilities and responsibilities, as will be discussed later in more detail. This competition takes place under somewhat unpredictable budget constraints. Just because a program was funded one year does not mean that it will be funded the next year. Service chiefs must convince the Joint Staff, and ultimately members of Congress, that their desired weapons are both important and necessary.

It is also unrealistic to assume that the JCIDS process is immune from outside pressures. In reality, contractors often influence decision makers by flaunting the latest technology and tempting them with the latest possibilities. A more detailed discussion of this behavior will be covered later in the section on rent seeking.

### **2.1.2 Defense Acquisition Management System**

The JCIDS process overlaps and feeds into what is often called the defense acquisition management system or the defense acquisition process. This process is governed by a

large number of rules and regulations, most of which need not be understood by the reader. However, there are a few important aspects of the process that need to be discussed in order to fully understand subsequent sections.

After JCIDS has identified a desired capability, and assuming that a material solution is necessary, officials must then decide what new systems will be required to provide the capability. This part of the process is called material solutions analysis. The material solutions analysis might determine, for example, what types of upgrades must be made to the C-130 in order to improve intra-theatre airlift capabilities on unpaved runways. After that, the next step in the process is technology development. This part of the process may be fairly simple or very extensive, depending upon the capability being pursued. Often times, the capabilities pursued by the military are at the forefront of technology and therefore require significant research efforts before the capability can be realized. Once the technology has been developed, the process proceeds to engineering and manufacturing development, production and deployment, and eventually operations and support. The defense acquisition process is shown below in Figure 1.<sup>3</sup>

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<sup>3</sup> Image taken from Department of Defense Instruction, DoDI 5000.02, *Operation of the Defense Acquisition System*, December 2008. Available online at <http://www.dtic.mil/whs/directives/corres/pdf/500002p.pdf>.

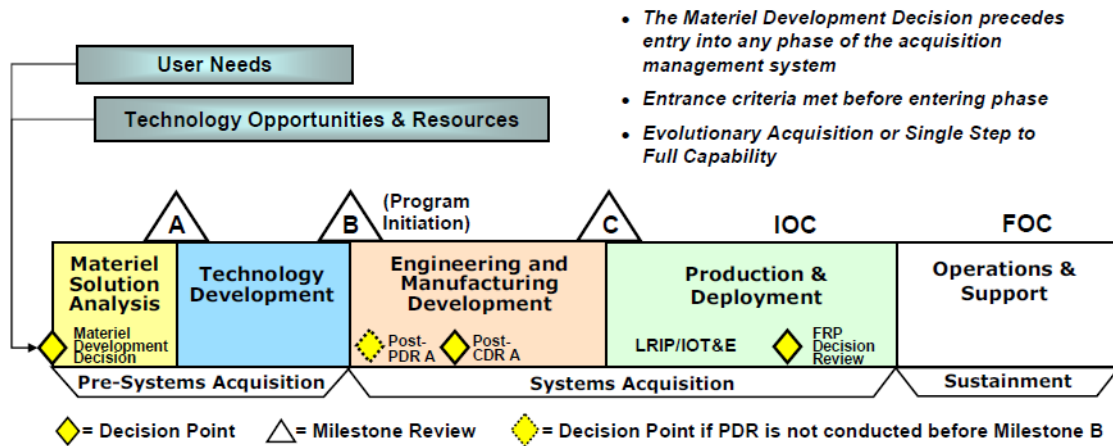


Figure 1. Defense Acquisition Process.

The key takeaway from this discussion and from Figure 1 is that the acquisition process proceeds in a number of different phases, each of which is separated by decision points and milestone decision reviews. For example, the separation point between technology development and engineering and manufacturing development is the Milestone B decision review. In order for a program to proceed from technology development to engineering and manufacturing development, program managers should be able to demonstrate that the technologies relevant to the program are fairly mature and have met certain criteria. In reality, many programs proceed to system development before having sufficiently demonstrated technological maturity. This behavior will be examined more fully in subsequent sections.

## **2.2 Legislative Behavior**

Although diagrams and directives offer an idealized and simplistic view of the acquisition process, the actual behavior of actors within the MICC is not so straightforward. This next section looks at the behavior of legislators and their role in the acquisition process. It takes the public choice view that legislators are self-interested individuals who make their living by winning elections. Of course, this does not mean that legislators necessarily have no interest in serving the public. Nevertheless, as quoted in Tullock (2002a), “In order to be a great senator, one must, first of all, be a senator.” One of the methods by which legislators gain electoral support is by concentrating benefits among their constituents and dispersing the costs among as broad of a base as possible, as described in Mitchell and Simmons (1994). The rest of this section will explore two particular legislative behaviors, logrolling and subcontract dispersal, in more depth and explain their importance in the MICC.

### **2.2.1 Logrolling**

Logrolling is the act of vote trading among various members of the legislature. As an example, one member of Congress, Member A, may support a project that extends the service life of a fighter plane because its assembly plant resides in his or her district. Legislator B finds this project to be wasteful and unnecessary, but he agrees to vote for it if Member A agrees to vote for a project that is important to member B. Member C votes for neither project, but Member C and his or her constituents are forced to help pay for the projects anyway. In the end, logrolling leads to the approval of both projects, even

though neither project would have likely been approved in the absence of vote trading. Of course, Congress is much larger and complex than three members, but the basic concepts still hold.

In many cases, logrolling leads to the approval of projects that provide negative net benefits to society. Table 1 provides a simplified example of such a scenario. Funding for a fighter plane's service life extension provides positive net benefits (4) to Member A. Member B, Member C, and their constituents ultimately help pay the bill for the fighter project (6) even though they view the project as unnecessary and contributing little to national security (3). Therefore, the project provides negative net benefits to both Member B (-3), Member C (-3), and to society as a whole (-2). Similarly, the avionics upgrade project provides negative net benefits to Members A and C (-3), positive net benefits to Member B (4), and negative net benefits to society (-2). With logrolling, however, both projects may be made possible. By voting for each other's projects, Members A and B can reap positive net benefits (1) for themselves and their constituents.

Table 1. Logrolling Scenario.

<b>Project</b>	<b>Member</b>	<b>Benefit</b>	<b>Cost</b>	<b>Member's Net Benefits</b>	<b>Society's Net Benefits</b>
Fighter Plane	A	10	6	4	-2
	B	3	6	-3	
	C	3	6	-3	
Avionics Upgrade	A	1	4	-3	-2
	B	8	4	4	
	C	1	4	-3	

Although the scenario depicted in Table 1 leads to negative net benefits for society, Tullock (2002b) explains that logrolling need not be harmful to society in all cases. For example, a project that offers significant net benefits to city A may not be widely supported if the project is funded by imposing a tax on voters across the nation. With logrolling, however, several such projects are made possible. The end result is the approval of several projects with positive net benefits that nonetheless would not have passed in the absence of logrolling.

The scenario becomes even more complicated when budget deficits are thrown into the equation. By running a deficit, both lawmakers and ordinary citizens need not face immediate tax increases to fund various projects. The ability to borrow may therefore

lower the short-term opportunity cost of various projects and consequently increase the opportunities to engage in logrolling. Of course, large deficits may have harmful consequences, and voters may not tolerate exceedingly large deficits in the long run. Nonetheless, some amount of borrowing against the future is fairly standard practice in the United States.

The non-excludability of national defense may also lead to more logrolling in the MICC compared to other non-defense spending projects. For example, spending money to construct a large community park and recreation facility might provide small but positive benefits to Member A, but it would likely provide negative benefits to Member B. On the other hand, if funds were taken away from the community project and reallocated to a defense related project, Member B would likely derive more benefit from the defense project than from the community park. This phenomenon may also lead to increased logrolling with defense programs.

Logrolling can also be broken down into two different types: explicit and implicit. The former refers to the direct trading of votes by members of Congress. Implicit log rolling, on the other hand, refers to more indirect methods of vote trading. For example, weapon systems are rarely voted on as standalone issues; rather, spending bills often incorporate hundreds or thousands of projects. The practice of bundling together various projects offers numerous opportunities for legislators to receive funding for their pet projects. Of course, even implicit logrolling often relies on some explicit deal making through

conversations and committee meetings. Nonetheless, the end result of implicit logrolling is still the act of a single vote on a package deal.

The large defense budget (over \$650 billion in 2009) offers numerous opportunities for legislators to strike deals and win patronage among their constituents.<sup>4</sup> Higgs (1988) recounts how logrolling by several influential Congressmen in the 1960 – 1980s prevented the transition from coal to oil powered furnaces at U.S. military bases in Europe. The votes gained by this practice carried a multi-million dollar price tag and were ultimately charged to the taxpayers. In another work, Higgs (1989) explains how Congressional meddling in the details of the defense budget not only adds to spending but may also undermine the effectiveness of the DoD:

[In 1970] Congress made 830 adds or cuts to line-items in authorization and appropriations acts. By 1976, the number had climbed to 1,254, and in 1987 Congress micromanaged 3,422 line-items ... Interconnected parts of the budget are thrown out of proper relation to one another. Congress directs the Pentagon to buy additional M-1 tanks, but not more of the support vehicles that are needed to operate them; or additional aircraft carriers, but not more of the naval aircraft that use them.

Kotz (1989) describes a “multiplier effect” in which deal making extends beyond Congress to involve the Pentagon, different branches of the military, Presidential administrations, and defense corporations. Stubbing (1986) claims that the defense

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<sup>4</sup> Office of the President of the United States. Historical Tables, Budget of the United States Government, Fiscal Year 2009, Table 3.1 – Outlays by Superfunction and Function: 1940–2013. Available online at: <http://www.whitehouse.gov/omb/budget/fy2009/pdf/hist.pdf>.



budget is not just the biggest logroll in Congress but the biggest logroll in Washington, D.C.

### **2.2.2 Subcontracts and Program Funding**

Given the prevalence of logrolling in the MICC, it might also seem reasonable to assume that politics plays a role in determining which companies are awarded contracts. Indeed, Higgs (2007) identifies “an extensive pattern of rotating major contracts that has been dubbed a ‘follow-on imperative’ or a ‘bailout imperative,’ a virtual guarantee against bankruptcy, regardless of mismanagement or other corporate ineptitude.” Mayer (1990) also argues that politics, broadly defined, may play a role in the awarding of contracts. He provides the example of the Wedtech Scandal, in which politics (and fraud) clearly played a role in the awarding of contracts.

On the other hand, Mayer argues that instances of contract steering are more the exception than the norm. In fact, a number of factors may prevent individual legislators from systematically steering competitively-bid prime contracts to their home districts. The first and most undeniable reason is that for every winner in a competitively-bid contract, there are often several losers. Therefore, it would be literally impossible for the process to systematically respond to the wishes of each and every lawmaker. Of course, some members of Congress may exert more influence than others, but Mayer cites a number of studies indicating that, for example, “constituencies do not benefit from being represented on the congressional military committees” (Rundquist and Griffith 1976).

Mayer also offers procedural and organizational explanations for his argument. For example, the Federal Acquisition Regulations spell out the manner in which contract awarding is to be conducted, and these laws also offer an appeal system. Finally, Mayer (1990) claims:

At this point in the acquisition cycle, decision-making responsibility is divided into too many separate parts to allow broad political factors to be considered ... Nearly all participants in the procurement process, from congressmen to defense officials to contractors, agree that once the acquisition cycle reaches the source selection phase, it is nearly impossible for congressmen and senators to influence decisions; too much bureaucratic machinery is in motion.

Misperceptions about Congressional influence in contract steering may be fueled by the fact that legislators often exaggerate their role in the process. Of course, no lawmaker wants to admit to outright fraud, but a politician whose district benefits from a major contract will often tout his or her role in the award. This credit claiming can offer significant returns in the form of votes, campaign contributions, and the like (Arnold 1979). On the other hand, politicians on the losing end of a contract award may issue public complaints or demand some type of investigation to appease their constituents. Most of the time, complaints result in little more than an explanation from the Pentagon as to why the decision was made the way it was.

Clearly, there is some controversy as to how much influence individual legislators have in the awarding of competitively-bid prime contracts. For the purposes of this thesis, it is sufficient to say that, in any case, various institutional factors serve to at least dampen political influence in competitively-bid prime contracts.

There are several instances, however, where political meddling by legislators clearly becomes a factor. First, earmarks and non-competitively-bid contracts are certainly prone to political steering. Second, Mayer (1990) notes that “military bases are handled separately, and differently, from contracts. Their distribution and disposition are much more political.” Third, members of Congress use the power of the purse to steer money toward or away from pre-existing programs. Often times, the wishes of individual legislators are at odds, but with the use of logrolling, many of these conflicts can be overcome.

Finally, although it is difficult for Congressmen to steer prime contracts, the subcontracting phase offers numerous opportunities for political patronage. Subcontract targeting is made possible because the rules, both formal and informal, governing subcontracting are different than those for prime contracts. Subcontracts are not governed by the Federal Acquisition Regulations, and there are no formal protest rights for companies that do not receive a contract award. Prime contractors are generally given free reign to choose their subcontractors, and in fact, the DoD does not even keep detailed records on subcontracts. Finally, although subcontracts may be very important to local interests, they generally escape the national spotlight and therefore generate much less controversy.

Like other forms of political meddling, it is difficult to prove with unwavering certainty the extent of subcontract targeting. Nonetheless, there is plenty of anecdotal evidence to

suggest that the practice occurs. The F-22 Raptor's subcontracting team, for example, consists of 1,150 firms in 46 states, Puerto Rico, and seven other countries.<sup>5</sup> Of course, the involvement of seven international countries probably has little to do with Congressional politics; rather, it is most likely related to the complicated nature of the project and the need to seek out highly specialized skills. From this perspective, some amount of subcontract dispersal should be expected. Nonetheless, Mayer (1990) conducts several studies comparing military and civilian aircraft subcontracting practices. His analysis supports the theory that subcontract dispersion is at least partially a political phenomenon. The empirical observation of subcontract targeting is consistent with public choice theory, as explained by Mayer (1990):

Subcontractor targeting occurs for the same reason that many believe prime contracts are targeted. By giving more congressman and senators an economic stake in a weapons program, chances of full funding go up and the probability of cancellation drops.

Of course, subcontract targeting could be considered not just a legislative phenomenon, but also an act of rent seeking by defense contractors in search of political support for their projects. Whether subcontract targeting is discussed as a legislative or rent seeking phenomenon is not extremely consequential for the purposes of this thesis. It merely goes to show that the MICC is full of intimate relationships and blurred lines of accountability and responsibility.

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<sup>5</sup> Information from "F-22 Raptor Specifications." *GlobalSecurity.org*. Available online at <http://www.globalsecurity.org/military/systems/aircraft/f-22-specs.htm>.

### 2.3 Rent Seeking

The concept of rent seeking began with (Tullock 1967), but the phrase was not coined until (Krueger 1974). Most recently, Tullock (2002c) defined rent seeking as “the use of resources for the purpose of obtaining rents for people where the rents themselves come from some activity that has negative social value.” Using this strict definition, much of the lobbying that goes on within the MICC can not actually be considered rent seeking if the resulting products have positive social value. With a more relaxed definition, however, the amount of rent seeking that goes on within the MICC is tremendous.

Previous theory and analysis showed that it is difficult at best for legislators and defense contractors to systematically steer competitively-bid prime contract awards. Nonetheless, non-competitive contracts, subcontracts, and program funding decisions offer a number of opportunities for defense contractors to seek favors from legislators. One of the principal means by which rent seeking occurs is through campaign contributions. Contractors make contributions to political parties or particular candidates with the expectation that they will be rewarded with some amount of increased business in the future. Figure 2 below shows “defense” contributions from individuals, Political Action Committees (PACs), and soft money during the 1990 – 2010 election cycles. Over this time period, total donations approach \$150 million, with a peak of almost \$24 million during the 2008 election cycle.<sup>6</sup> Table 2 shows the 10 defense contractors that donated

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<sup>6</sup> Information and image taken from “Defense: Long-Term Contribution Trends,” *OpenSecrets.org*. Available online at <http://www.opensecrets.org/industries/indus.php?Ind=D>. Methodology: The numbers on this page are based on contributions of \$200 or more from PACs and individuals to federal candidates and from PAC, soft money and individual donors to political parties, as

the most money to federal candidates and parties during the 2008 election cycle.<sup>7</sup> Anyone familiar with the defense industry will instantly recognize most of the names on this list.

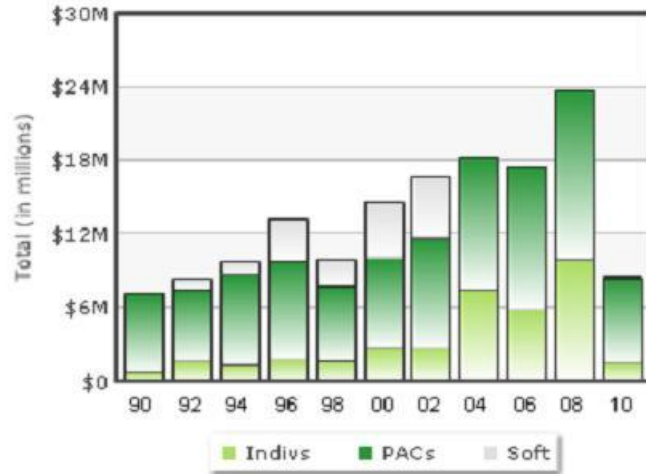


Figure 2. Defense Related Donations, 1990 – 2010 Election Cycles.

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reported to the Federal Election Commission. While election cycles are shown in charts as 1996, 1998, 2000 etc. they actually represent two-year periods. For example, the 2002 election cycle runs from January 1, 2001 to December 31, 2002.

Note: Soft money contributions to the national parties were not publicly disclosed until the 1991-92 election cycle, and were banned by the Bipartisan Campaign Finance Reform Act following the 2002 elections.

<sup>7</sup> Information and table taken from “Defense: Top Contributors to Federal Candidates and Parties,” *OpenSecrets.org*. Available online at <http://www.opensecrets.org/industries/contrib.php?cycle=2010&ind=D>.

Methodology: The numbers on this page are based on contributions from PACs, soft money donors, and individuals giving \$200 or more. (Only those groups giving \$5,000 or more are listed here. Soft money applies only to cycles 1992-2002.) In many cases, the organizations themselves did not donate; rather the money came from the organization's PAC, its individual members or employees or owners, and those individuals' immediate families. Organization totals include subsidiaries and affiliates. All donations took place during the 2007-2008 election cycle and were released by the Federal Election Commission on Tuesday, May 12, 2009.

Table 2. Defense Contractor Donations during the 2008 Election Cycle.

<b>Rank</b>	<b>Organization</b>	<b>Amount</b>
1	Lockheed Martin	\$2,596,655
2	Boeing Co	\$2,143,257
3	Northrop Grumman	\$1,881,148
4	Raytheon Co	\$1,780,236
5	General Dynamics	\$1,772,327
6	BAE Systems	\$1,084,447
7	United Technologies	\$1,050,990
8	SAIC Inc	\$977,125
9	Finmeccanica SpA	\$566,045
10	L-3 Communications	\$551,589

In addition to direct contributions to parties and politicians, companies also promote their products through advertisements. Most often, these advertisements make references to the importance of supporting the warfighter, the need to keep America safe, or other similar phrases that appeal to people's patriotism. These type of advertisements are frequently displayed in places where they are likely to be seen by policy makers, such as the area just outside of Wright-Patterson Air Force Base, OH (the headquarters of the Air Force Material Command), or at a Washington, D.C. Metrorail station.

The rent seeking that takes place within the MICC imposes costs on society in several ways. First, there are the direct costs of the expenditures made in the process of seeking out special favors. Second, there is an opportunity cost of the resources devoted to this process. Perhaps the most important aspect of this opportunity cost is the diversion of

talented and educated people away from more productive activities. Finally, rent seeking distorts the voting process as described in (Tullock 2002c). Rent seeking, especially when combined with logrolling, leads to programs that are not in line with voters' preferences and programs that offer a low ratio of national defense to dollars spent.

## **2.4 Bureaucracy**

Mises (2007 [1944]) argued that “bureaucracy in itself is neither good nor bad. It is a method of management which can be applied in different spheres of human activity.” Indeed, much of the process of acquiring military weapons takes place inside a large nested bureaucracy. Of course, most members of the military do not think of themselves as bureaucrats, yet ultimately they are a part of the bureaucracy that is the DoD. The nature of military jobs also tends to become more bureaucratic as members move away from the battlefield and into staff jobs. Military members assigned to the Pentagon or to any of the various acquisition program offices throughout the country also frequently work with civil servants who are best described as bureaucrats. Therefore, many of the participants within the DoD can be considered as or at least likened to bureaucrats.

The word “bureaucrat” often carries with it a considerable negative connotation. Tullock (2002d) makes clear, however, that his criticism of bureaucracy is not based on the view that bureaucrats are bad people. Rather, the institutional constraints facing bureaucrats often provide weak incentives for them to carry out their tasks efficiently.



Tullock's previous analysis in *The Politics of Bureaucracy* (1965 [2005]) provides a valuable lens through which to study bureaucracy and the MICC more deeply. Tullock argues that bureaucrats generally strive to increase the size or responsibility of their bureau (or sub-bureau) because this offers them maximum opportunity for career advancement. In order to be promoted, bureaucrats must also please their superiors. That pleasing superiors within the military is important almost goes without saying. Not only is pleasing superiors an important aspect of promotion, but many of the relationships within the military are governed by lawful orders. If a subordinate challenges a superior, he does so at his own risk. "Yes sir, can do!" is a much easier path to promotion than is "Sir, I think these cost estimates are unrealistic."

Of course, Tullock does not dismiss the fact that bureaucrats must frequently choose between their own wishes and the wishes of their superiors. This tradeoff becomes particularly important when considering what Tullock calls hierarchical or organizational patriotism. This term refers to the fact that bureaucrats are often particularly loyal to their organizations – even if this loyalty clashes with the wishes of their superiors, and despite the fact that bureaucrats are assumed to be working for "the greater good." For example, the Secretary of Defense might argue that the Navy does not need to upgrade a particular ship, but a number of sailors are likely to disagree. Of course the Navy needs the upgrade! On the other hand, submariners are less likely to support the ship upgrade than are surface warfare officers – especially if the upgrade does not benefit the submariners directly, and if supporting the upgrade necessarily means fewer resources for

submariners. This example demonstrates that organizational patriotism is a nested phenomenon that takes place across various levels of the bureaucracy. Higgs (2001) describes how organizational patriotism leads to rivalries within the MICC:

Clearly, the management of the military establishment reflects not the outcome of a search for the optimal provision of national security, subject to an overall budget constraint. Rather, it reflects the outcome of a bureaucratic rivalry in which each competing organization strives to maintain—and succeeds in maintaining—its organizational integrity and its share of the loot regardless of whether an organizational redesign or a substantial redistribution of resources would enhance national security. Fifteen years ago, General Mullins reached the same conclusion, though he expressed it in vaguer and more forgiving language: Like all large bureaucracies, the military-industrial complex does have its share of problems. It is particularly prone to focusing on internal, organizational interests often to the detriment of the output the organization is designed to produce. In other words, its structure and operation have often evolved without enough regard to its function (Mullins 1986).

Much more could be said about the bureaucracy, but the principles discussed here are sufficient for understanding the basics within the MICC. The study of bureaucracy also paves the way for the next topic – namely, principal-agent problems.

## **2.5 Principal-Agent Theory**

The term principal-agent is ascribed to Ross (1973). It describes a situation where an individual or organization called the agent is hired or tasked to do work for another individual or organization called the principal. Quite frequently, the incentives facing the agent do not align with the desired goals of the principal. Furthermore, the agent usually has information that is either unavailable or costly for the principal to obtain.

The problems caused by asymmetric information and incentive misalignment can be minimized by the principal in several different ways. One option is to tie the output of the agent to something that the agent cares about - like pay and promotion. This situation should be quite familiar to anyone who has ever entered into an employee-employer relationship. A second approach is for the principal to monitor and correct the work of the agent. Monitoring is costly, though, because the information required for effective monitoring is often unavailable or costly for the principal to obtain. Therefore, a risk-neutral principal should, in theory, monitor the agent at the level where the marginal cost of monitoring equals the marginal benefit. In practice, it is difficult to discern what actions are required to equate the marginal cost and the marginal benefit. One final method of mitigating principal-agent problems is to set up situations that encourage self selection of high performers. For example, the all voluntary military limits the extent to which unmotivated and incapable individuals will enter service. Tryouts for a sporting team might also be considered an example of this situation.

The MICC is full of principal-agent problems. Citizens of the United States expect the government to provide a national defense and to do so in a cost effective manner. Therefore, the citizens are the principals, while Congress, the President, and the DoD are the agents. In practice, the methods by which citizens can hold government entities accountable for their performance in this area are fairly limited. Voting is, of course, one method of accountability, but it is an extremely crude method. Not only are people forced to vote for a candidate's "package deal" which necessarily includes issues other than

national defense, but voting also does not allow citizens to express the intensity of their preferences. Media stories, grassroots protests, and other various actions may also act as a form of incentivizing, but these actions are also somewhat limited in their effectiveness.

Another principal-agent situation occurs with the DoD performing its work under the supervision of Congress and the President. Congress can reduce information asymmetry by demanding reports, testimonies, and the like. Agencies like the GAO also help to reduce information problems. Furthermore, Congress can hold the DoD accountable through its funding decisions. Of course, the incentives facing members of Congress often lead them to continue funding programs even when the programs are not performing well.

Finally, defense contractors are an agent of the DoD. In this situation, information asymmetry can be reduced through various reports required by the DoD. Incentive misalignment can be minimized through contract structures and reward fees. For example, fixed-price contracts require contractors to meet their obligations within a predetermined and limited payment from the government. In this case, much of the burden of risk is placed on the contractor. Cost-plus contracts, on the other hand, pay contractors for the cost of their work plus some additional fees for performance. This contract structure places more of the risk on the government.

Understanding principal-agent relationships within the MICC is critical to understanding the outcomes that emerge. The next chapter will explore cost, schedule, and performance shortfalls in more detail, while relating them back to the theories developed in this chapter.

## Chapter 3 – Overpromising by Public Officials: An Empirical Test

This chapter begins with a short documentation of cost, schedule, and performance shortfalls in defense acquisition programs. Then it builds on the theoretical framework of the previous chapter to explain how various institutions and incentives facing public officials within the MICC encourage them to overpromise what they can deliver. The link between overpromising and acquisition shortfalls is also explained. Finally, this chapter tests the theoretical explanation of overpromising against the real-world observations contained within GAO reports. In short, the analysis finds a strong fit between the economic explanations of the MICC and actual practices observed.

### **3.1 Cost, Schedule, and Performance Shortfalls**

The U.S. Government Accountability Office has been studying DoD acquisition since the 1960s. In 1990, the agency developed a high risk list to identify and study areas determined to be vulnerable to fraud, waste, abuse, mismanagement, or in need of broad reform. DoD weapon system acquisition has been on the list ever since. Acquisition programs “continue to take longer, cost more, and deliver fewer quantities and capabilities than originally planned” despite decades of learning and numerous attempts at reform (U.S. GAO 2010a).

The opportunities to demonstrate acquisition shortfalls are numerous and persistent. Table 3 shows data from the GAO’s most recent report on a large portfolio of major acquisition programs (U.S. GAO 2009a). Although there were a few slight improvements from 2007 to 2008, the basic trends continue – enduring shortfalls in delivering capabilities on time and on schedule. In fiscal year 2008, for example, major acquisition programs cost on average 25% more than initial estimates, and the average delay in delivering initial capabilities was almost two years.

Table 3. Analysis of DoD Major Defense Acquisition Programs.

<b>Analysis of DOD Major Defense Acquisition Program Portfolios (Fiscal Year 2009 Dollars)</b>			
<b>Portfolio status</b>	<b>Fiscal year 2003 portfolio</b>	<b>Fiscal year 2007 portfolio</b>	<b>Fiscal year 2008 portfolio</b>
Number of programs	77	95	96
Total planned commitments	\$1.2 trillion	\$1.6 trillion	\$1.6 trillion
Commitments outstanding	\$724 billion	\$875 billion	\$786 billion
Change to total research and development costs from first estimate	37 percent	40 percent	42 percent
Change in total acquisition cost from first estimate	19 percent	26 percent	25 percent
Estimated total acquisition cost growth	\$183 billion	\$301 billion <sup>a</sup>	\$296 billion
Share of programs with 25 percent or more increase in program acquisition unit cost	41 percent	44 percent	42 percent
Average delay in delivering initial capabilities	18 months	21 months	22 months

Source: GAO analysis of DOD data.

Table 4 shows changes in costs and quantities for 10 of the highest cost acquisition programs (U.S. GAO 2009a). Most of the programs have experienced significant cost

overruns, and as a result, many programs have also been forced to accept lower quantities.

Table 4. Changes in Costs and Quantities for 10 of the Highest Cost Acquisition Programs.

Program	Total cost (fiscal year 2009 dollars in millions)		Total quantity		Acquisition unit cost
	First full estimate	Current estimate	First full estimate	Current estimate	Percentage change
Joint Strike Fighter	206,410	244,772	2,866	2,456	38
Future Combat System	89,776	129,731	15	15	45
Virginia Class Submarine	58,378	81,556	30	30	40
F-22A Raptor	88,134	73,723	648	184	195
C-17 Globemaster III	51,733	73,571	210	190	57
V-22 Joint Services Advanced Vertical Lift Aircraft	38,726	55,544	913	458	186
F/A-18E/F Super Hornet	78,925	51,787	1,000	493	33
Trident II Missile	49,939	49,614	845	561	50
CVN 21 Nuclear Aircraft Class Carrier	34,360	29,914	3	3	-13
P-8A Poseidon Multi- mission Maritime Aircraft	29,974	29,622	115	113	1

Source: GAO analysis of DOD data.

These tables, along with numerous other data not shown here for purpose of brevity, support the previous statement that acquisition programs continue to cost more, take longer, and deliver fewer quantities and capabilities than promised.<sup>8</sup> These shortfalls persist despite decades of learning about best practices, numerous attempts at reform, and

<sup>8</sup> Actually, the data shown here did not explicitly demonstrate that delivered capabilities are less than originally promised. However, capability shortfalls are indeed supported by GAO reports.



rapid advances in technology that should seemingly allow the DoD to obtain greater capabilities at lower costs. The next section explores some of the reasons for these shortfalls.

### **3.2 Theory of Overpromising by Public Officials**

This section builds on the theoretical framework developed in Chapter 2. It analyzes institutions and incentives to explain why public officials are likely to overpromise what they can deliver. The first sub-section explains the incentives and the behavior of public officials throughout the different phases of the acquisition cycle and how these actions lead to cost, schedule, and performance problems. Then the second sub-section draws some more general conclusions about incentives and overpromising in the MICC.

#### **3.2.1 Institutions, Incentives, and Overpromising**

Acquisition shortfalls are not merely the result of inadequate training, staffing, or poor execution of plans. Of course, these factors may contribute to shortfalls. However, the most significant problems with acquisition programs are rather a symptom of the institutions in the MICC that fail to align the incentives of individuals with the desired outcome – namely an efficient and adequate provision of national defense.

The problems with incentive misalignment begin early on in the acquisition process with requirements determination. On paper, the Joint Capabilities Integration and Development System (JCIDS) determines capability gaps from a joint warfare

perspective. In reality, organizational patriotism often leads individual services to compete for as many resources as possible. In some cases, individuals within the military may genuinely believe that their mission is the most important and that their funding needs are the greatest. Alternatively, individuals may realize that their mission and funding needs are not the top priority, but internal organizational pressures guide them to act as if this were the case. Furthermore, individuals are likely to pursue the most advanced capabilities they can possibly obtain. Service members almost always prefer to have the most advanced weaponry possible, even if a lesser capability would be adequate for completing the mission.

The tendency of individual branches of the military to view their needs as the greatest also leads them to sell their programs as the best deals. Participants in the JCIDS and funding processes naturally endorse their programs as ones that will offer advanced capabilities on a short timeline and a small budget. Furthermore, the DoD requirements determination and funding processes actually encourage overpromising by rewarding the practice with an increased likelihood of program approval. Participants who choose to present more realistic estimates will be punished with a decreased likelihood of acceptance.

The incentives to overpromise during the early phases of the acquisition cycle could potentially either be reinforced or dampened by the legislative funding process. If, for example, legislators punished poorly performing programs by refusing to fund them, then

only programs that were grounded on sound business cases would survive in the long run, and therefore overpromising would be discouraged (although probably not completely eliminated due to personnel turnover that would lessen incentive alignment). In reality, legislators will often approve funding even for poorly performing programs because legislators do not bear the full cost of doing so. In addition, logrolling tends to reinforce these practices even further. Lawmakers often vote for programs that they do not actually want as long as they can get something in return for their support. Of course, lawmakers may have to defend their actions against an angry media and constituent base. In response, legislators will express their “outrage” with cost overruns while assuring the public that they only support programs that are absolutely essential to national security. Even if the voters do not believe the story, the ability of voters to hold legislators accountable is fairly limited.

By the time a weapon system reaches the development phase, program managers will have to deal with problems that originated well before their tenure. Acquisition managers will be pressed to move forward despite the fact that the original selling points for the program were probably based on unrealistic estimates. It is possible that program managers could try to slow down, re-evaluate the program, and proceed only when a more sound business case is established. However, managers are often pressured to focus on calendar-driven events rather than sound business practices. Therefore, the development phase tends to encourage participants to continue with overly optimistic assumptions about the future. Frequent personnel turnover also makes it difficult to hold

individuals accountable for their actions. Program managers, and especially military personnel, often move onto new assignments before the long-term implications of their previous actions can be fully realized. Of course, the Congressional funding process has the potential to once again dampen undue optimism (although probably not eliminate it completely). The incentives of acquisition personnel could be changed if enough members of Congress made a credible commitment to take a tough stance on poor performance. In practice, however, this credible commitment is difficult to achieve because of the massive coordination effort that it would entail. A commitment to end wasteful spending would also go against the individual self interest of legislators whose district or state benefits from certain programs. All things considered, members of Congress can be expected to grant implicit approval of overpromising by continuing to fund poorly performing programs.

The impact of overpromising on cost, schedule, and performance has been alluded to but not yet explicitly stated. Simply put, overpromising forces programs to make changes later on in the acquisition process when these changes are more costly. For example, programs sometimes move forward into the system development phase even though the technological advances required to attain the desired capability have not yet been fully realized. This practice can lead to cost growth, schedule delays, and requirements changes. Significant cost growth may also force DoD officials, operating under a limited budget constraint, to accept lower quantities of the weapon than originally planned.

In summary, the institutions in the MICC often fail to align the incentives of various individuals in the direction of the desired outcome. This misalignment occurs across several dimensions. From a temporal perspective, practices such as overpromising that bring success in the short run are detrimental to cost, schedule, and performance in the long run. Incentives are also misaligned among various participants in the system at any given point in time. For example, voters generally desire an effective and affordable national defense, while acquisition officials hope to keep their program funding even if it is not living up to its promises.

### **3.2.2 More on Institutions, Incentives, and Overpromising**

The previous sub-section showed that individuals within the MICC face incentives to overpromise. This observation alone, however, does not necessarily imply that public officials should overpromise on a consistent basis. If public officials could somehow be held accountable for overpromising, then the incentives to do so would be dampened. In light of such potential counter-arguments, this section provides an important addition to the previous discussion. This section primarily explains the difficulty of holding individuals accountable for their actions. It also discusses in greater detail the claim that public officials do not fully internalize the cost of overpromising.

In any organization, whether it be the DoD or a private corporation, there are a number of criteria that are necessary for ensuring individual accountability, internalization of costs, and overall good outcomes. First, the incentives facing individuals should be at least

partially aligned with the desired outcome. Of course, this alignment will never be perfect. In the case that misalignment occurs, other individuals in the organization must have both the incentive and the ability to hold people accountable by punishing poor performance and taking corrective action. Furthermore, the cost of principal-agent monitoring must not be so high as to let significant poor performance go unnoticed. In addition, authority and responsibility must be clearly delineated so that outcomes can be linked back to the actions of certain individuals. Finally, the tenure of workers should be long enough to ensure that the long-term consequences of short-term actions can be realized. In the case that some or all of these criteria are not met, individuals may pursue their own self-interest at the expense of the broader organizational goals. The frequency and severity of self-interested pursuits that go unpunished will depend upon the number and mix of criteria that are actually met.

In the MICC, most of these criteria are met only partially at best. As mentioned before, the incentive to overpromise could potentially be dampened through the political process. Citizens could hold legislators responsible for supporting wasteful programs by voting them out of office. This enforcement mechanism would create pressure on legislators to not only consider their funding decisions more carefully but also to monitor the DoD more closely. In the face of increased monitoring, DoD personnel would also find their incentives to overpromise greatly weakened. In reality, though, the voting process is a rather crude mechanism for holding legislators accountable for their actions. For one, voters are often rationally ignorant about the intricate details of defense programs, and

therefore they do not make for very effective monitors. Stated another way, the agents (Congress, DoD, etc.) have a lot of leeway because their principals (voters) do not invest a lot of effort in monitoring. Even if voters were well informed and invested more effort in monitoring, they would still find it difficult to hold legislators accountable. One limitation is that voters are forced to choose between a number of “package deals.” For example, a person might be frustrated with a candidate’s defense spending practices but still vote for that candidate anyway because of his or her healthcare policies. Furthermore, voters do not have the ability to express the intensity of their preferences. Each voter only gets one vote, and none of these votes convey any information about the relative importance of various issues. Media stories, grassroots protests, and other various activities also convey information to politicians about citizens’ preferences. However, these actions are also fairly limited in their ability to accurately and precisely communicate constituents’ preferences. Lee (1990) summarizes the problem as follows:

If consumer preferences for national defense could be communicated through the political process with the same accuracy and effectiveness as are consumer preferences for private goods through the market process, then the special-interest waste created by the MIC would be intolerable. But preferences for national defense, or any other public good, simply cannot be communicated through the political process with anything close to the same effectiveness that preferences for private goods can be communicated through the market.

For citizens to hold government agencies or individual bureaucrats responsible is obviously even more difficult than is holding legislators responsible. Therefore, this analysis of the political process supports the claim that it is difficult for voters to hold individuals in the MICC accountable for their actions.

The argument that public officials do not fully internalize the cost of their actions follows somewhat naturally. Public officials clearly do not personally bear the monetary cost of overpromising or supporting poorly performing programs. Taxpayers ultimately pay the bill – either through taxation or reduced spending elsewhere. Of course, legislators and bureaucrats do pay some opportunity cost for acquisition shortfalls. Money spent on one program often means less money spent elsewhere. The magnitude of this opportunity cost, however, is probably fairly small. National defense is generally considered to be one of government’s core functions, and as a result, both policy makers and many voters are somewhat averse to cutting defense spending. Deficit spending also reduces the need to make tough tradeoffs in the short-term. Finally, even if citizens do get frustrated with wasteful spending, it is difficult to relay this information to politicians and then hold them accountable. Therefore, the opportunity cost of overpromising, although relevant, is not large enough to prevent public officials from doing so.

Another hindrance to accountability in the MICC is the large diffusion of authority and responsibility. Each and every acquisition effort is a complex web consisting of numerous actors. The list of participants includes the program office and its dozens or even hundreds of employees, the program manager, senior acquisition officials, the service chief and secretary, the Joint Staff, Unified Combatant Commands, the Secretary of Defense, JCIDS participants, Congress, and more. Given the long list of participants and their complex interactions, it is extremely difficult to tie acquisition shortfalls back to specific individuals. Frequent personnel turnover complicates the problem even more.



DoD officials often move on to new assignments before the long-term implications of their previous actions can be fully realized. For example, the typical military officer assignment, to include those in the senior ranks, generally only lasts about three to four years. High ranking civil servants may also move around a lot. The previous Undersecretary of Defense for Acquisition, Technology, and Logistics, John J. Young, only held his post for about two years. Before that, he held a high level acquisition position with the Navy for about four years. Of course, some civil servants, particularly in the lower ranks, may stay in their positions for decades. On the other hand, people with lower rank also have less authority and responsibility, so their actions usually are relatively less consequential. Finally, it is important to note that although diffuse authority and responsibility clearly has drawbacks, the alternative possibility – more streamlined authority and responsibility – is also not a perfect solution. Streamlined authority and responsibility might be desirable if the incentives of public officials were perfectly aligned with the goal of providing a national defense, and both citizens and other public officials had both the desire and ability to hold individuals accountable for their actions. Clearly, though, this hypothetical scenario is not representative of reality. Therefore, putting just a few public officials in charge of a multi-billion dollar acquisition program without changing their incentives would be a risky endeavor. More modest and incremental steps toward increased accountability might be possible by, for example, requiring program managers to sign a tenure agreement. Nonetheless, these changes will not eliminate the problem completely.

Even if responsibility and authority were delineated in an ideal manner, the lack of the profit motive weakens the incentives for public officials to hold each other accountable for their actions. In the private sector, firms that do not meet their customers' demands in a cost-effective manner eventually fail. As a result, firms must also hold individual employees accountable for their actions. Stated another way, the profit and loss system forces individuals and firms to internalize the cost of their actions. The public sector component of the MICC, however, is not governed by profit and loss. Instead, the system is governed both by bureaucratic management and by the rules of elections and legislatures. As a result, public officials have weak incentives to engage in behavior that maximizes the public interest and even weaker incentives to hold others accountable for their actions. Therefore, designing a rule that, for example, clarified the roles and responsibilities of program managers would not necessarily lead to better outcomes. Such a rule would only lead to better outcomes if other public officials had the incentive to punish poor performance.

In summary, section 3.2 has shown that 1) public officials in the MICC face incentives to overpromise what they can deliver, 2) this overpromising contributes to cost, schedule, and performance shortfalls, 3) public officials in the MICC do not fully internalize the cost of their actions, and 4) it is difficult to hold them accountable for their actions. The analysis so far has been grounded in economic theory. The next section will compare the theoretical analysis to real world observations.

### **3.3 Empirical Analysis**

The analysis thus far has drawn upon economic theory to make predictions about the behavior of public officials in the MICC, given the constraints they face. The goal of this section is to test those predictions. This test will be accomplished by comparing the theories developed earlier with the findings contained within GAO reports and testimonies. The comparisons will be necessarily qualitative in nature. Determining whether or not there is a match between theory and practice will also necessarily be a qualitative judgment call. Finally, given the vast scope of the MICC, it is possible that GAO reports might address some topics that are different than the topics analyzed in the previous sections but not necessarily inconsistent with their general themes.

As it turns out, the only major difference between the theoretical analysis and the GAO's analysis is that the GAO does not explore rent seeking or Congressional behavior in any depth. Although these issues play a crucial role in the MICC, this lack of analysis by the GAO does not represent a failure by the agency. Instead, this difference can be reasonably explained by the fact that the GAO is tasked by Congress simply to investigate other government agencies. Another way of thinking about the role of the GAO is to view the agency as an information gatherer that helps reduce principal-agent problems between Congress and other government agencies. The GAO does not, however, scrutinize rent seeking or Congressional behavior in much depth.

Aside from this difference, there is in fact a high level of compatibility between the theory developed earlier and the practices explained in GAO reports and testimonies. GAO studies also show a strong appreciation for the role of incentives, as opposed to simply analyzing policies and processes as they exist on paper. The strong fit between theory and practice helps confirm the validity of the economic theories developed earlier. The match between theory and practice also lends credibility to the application of the economic way of thinking when analyzing future policy problems in the MICC.

### **3.3.1 GAO's Experience with Acquisition Studies**

The U.S. Government Accountability Office produces reports and testimonies to inform members of Congress how programs are being implemented and how federal funds are being spent. The agency has been studying DoD acquisitions since the early 1960s. The following excerpt highlights the agency's "considerable history of weapon system evaluations" (U.S. GAO 1992):

During the late 1960s, we began to place more emphasis on reviews of major weapon systems. In February 1970, our first report on the status of 57 major DOD acquisition programs then in development or procurement was issued. In March 1971, we issued our first report on the DOD acquisition process itself, responding to Congress' desire for complete and impartial information about major weapon systems to facilitate critical acquisition decisions. Since that time, our audits have resulted in over 900 reports and testimonies on virtually all aspects of weapon system acquisitions.

Some of the data that feeds into GAO reports and testimonies is generally available to the public. For example, the GAO makes use of data from DoD's Selected Acquisition Reports. On the other hand, GAO analysts frequently interview government officials in

order to obtain data and perspectives previously not available on any website or in publicly available report. The findings from these inquiries then become available to the public once they are published in a report or presented in a testimony. All things considered, GAO reports and testimonies encompass what is potentially the largest publicly available source of information on how the defense acquisition system functions in practice.

### **3.3.2 Best Practices**

In order to understand what types of behavior lead to generally favorable acquisition outcomes, the GAO conducted several studies that analyzed commercial best practices. The results of these studies can be used as a baseline for comparison with DoD practices. The GAO's findings are briefly summarized in the following quote: "Knowledge about a product's design and producibility facilitates informed decisions about whether to significantly increase investments and reduces the risk of costly design changes later in the program. Leading commercial companies employ practices to capture design and manufacturing knowledge in time to make key decisions during product development" (U.S. GAO 2002).

There are three particularly important knowledge points in the development and production process. The first point is at the transition between technology development and product development. All else equal, the higher the level of technological maturity going into development, the lower the risk of costly changes late in the program. The

second knowledge point is during product development when the design has been demonstrated to be stable. The third point comes right before the production phase. Products should be demonstrated to be producible at an affordable cost before actually beginning production. Figure 3 provides a visual representation of the analysis (U.S. GAO 1999).

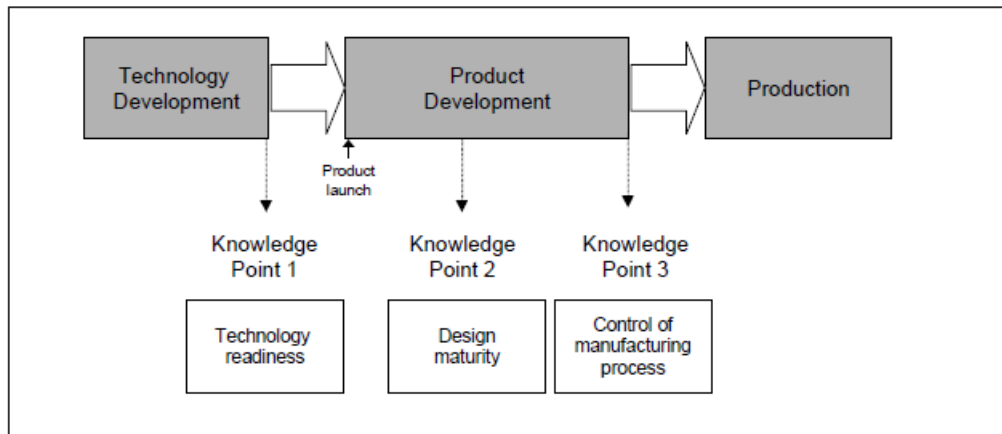


Figure 3. Commercial Best Practices.

Another recent GAO report compared DoD to commercial space systems (U.S. GAO 2010b). The report contains a number of findings that are similar to those already explained. Overall, the commercial approach emphasizes gaining critical knowledge before making long-term commitments. More specifically, requirements are well defined before programs are initiated, and firms pursue evolutionary advances in capability. These practices allow companies to limit requirements growth, develop new products in a

relatively short time frame, while also limiting the amount of technology risk faced during any one increment.

Many of these practices could be implemented by the DoD to improve acquisition outcomes. In fact, the GAO has already recommended some of these practices, and the DoD has acknowledged their importance. If these changes were implemented, then a second round of changes could be implemented to improve outcomes even more. In the current acquisition environment, however, certain practices could not be realistically implemented, as explained in (U.S. GAO 2010b):

For instance, the use of firm, fixed-price contracts for procuring satellites would require a change in paradigm for DOD space programs--a much higher level of knowledge, including mature technologies and mature design--prior to the start of a program. Currently, however, DOD accepts greater technology and development risks and typically uses cost-reimbursement contracts for the first two satellites to be developed and produced. Some programs use fixed-price contracts for any additional satellites. Using fixed-price contracts for the development phase of a program has not worked well, partly due to the high level of unknowns accepted at program start. In addition, other factors, such as launch delays, program funding instability, changing needs, and the diverse array of organizations involved in DOD space programs pose additional challenges to the use of firm, fixed-price contracts.

The willingness of DoD officials to accept high levels of risk is largely a reflection of their incentives to overpromise and the difficulty of holding individuals accountable for their actions.

### 3.3.3 DoD's Not-the-best Practices

GAO studies clearly demonstrate that DoD officials consistently do not follow best practices. A testimony from 2008, for example, provides both numerical and visual illustrations of DoD practices (U.S. GAO 2008a). Figure 4 shows that only 12% of the programs analyzed by the GAO had adopted best practices at the start of system development. By the start of the production phase, every single program had failed to implement best practices at some point during the acquisition cycle.

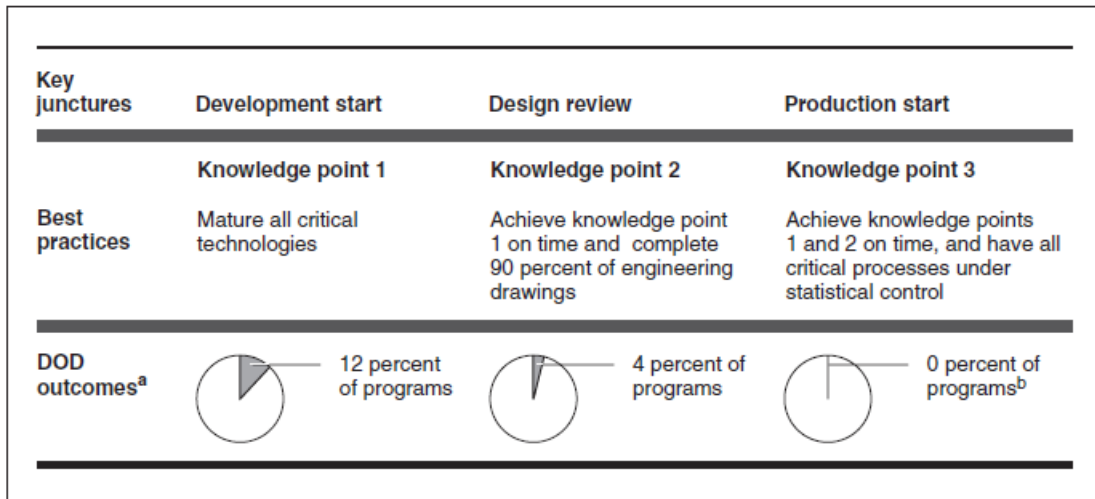


Figure 4. DoD's Low Adoption Rates for Best Practices.

There are two particular best practices that the GAO frequently emphasizes (and the DoD frequently ignores). One such practice is the achievement of technological maturity before proceeding to system development. A recent testimony from 2009 “found that



most programs have started system development without mature technologies and moved into system demonstration with low levels of design stability” (U.S. GAO 2009b). A 2007 assessment of selected acquisition programs illustrates the link between technological maturity and acquisition outcomes: “The programs that began development with immature technologies experienced a 32.3 percent cost increase, whereas those that began with mature technologies increased 2.6 percent” (U.S. GAO 2007). Of course, there are many factors that influence costs; nonetheless, GAO audits consistently demonstrate the link between technological maturity and acquisition outcomes.

The GAO also stresses the importance of pursuing evolutionary rather than revolutionary advances in capabilities. The agency explains that “the objective of an evolutionary approach is to balance needs and available capability with resources and put capability into the hands of the user quickly.” Table 5 shows that DoD officials frequently pursue revolutionary rather than evolutionary advances in capabilities (U.S. GAO 2006). In some cases, DoD officials admitted to the pursuit of revolutionary advances. In other cases, program officials claimed to be pursuing evolutionary capabilities, but in reality the programs did not meet the evolutionary criteria. Only three of the nine programs analyzed in this study did not experience significant cost or schedule growth. Not surprisingly, the only program that actually followed an evolutionary approach was one of the three programs that avoided significant cost or schedule growth.

Table 5. Evolutionary vs. Revolutionary Advances in Capabilities.

Programs in GAO's case study	Claim to be evolutionary?	Meet evolutionary criteria?	Greater than 30% cost growth or more than 1-year schedule slip
Future Combat System	Yes	No	Yes
Global Hawk (RQ-4B)	Yes	No	Yes
Joint Strike Fighter	Yes	No	Yes
Aerial Common Sensor	Yes	No	Yes
Multi-Mission Maritime Aircraft	Yes	No	No
Small Diameter Bomb	Yes	Yes	No
E-2 Advanced Hawkeye	No	No	No
Expeditionary Fighting Vehicle	No	No	Yes
Multiplatform Radar Technology Insertion Program	No	No	No

Of course, the issues of immature technology, revolutionary capabilities, and other various practices are all related. Public officials in the MICC have incentives to move quickly while simultaneously seeking out the latest and greatest weapons. The next few sections elaborate on these incentives and the resulting behavior, as explained by the GAO.

### 3.3.4 DoD Requirements and Funding Processes

The analysis in section 3.2 showed that the DoD requirements determination and funding processes are likely to differ on paper and in practice. On paper, the Joint Capabilities Integration and Development System (JCIDS) determines capability gaps from a joint warfare perspective. In reality, organizational patriotism often leads individual services to compete for as many resources as possible. This divergence is in fact supported by the GAO's findings. A 2008 report, for example, identified shortcomings with the JCIDS process: "In 2003, DOD implemented the Joint Capabilities Integration and Development

System (JCIDS) to prioritize and ensure that the warfighter's most essential needs are met ... The JCIDS process has not yet been effective in identifying and prioritizing warfighting needs from a joint, departmentwide perspective” (U.S. GAO 2008b). The GAO found that almost 70 percent of proposals for new capabilities were sponsored by individual services with little involvement from the joint warfare community.

A testimony from 2009 elaborates on the DoD’s requirements determination and funding processes (U.S. GAO 2009c). First, it explains the shortcomings of the JCIDS and funding processes:

DOD largely continues to define warfighting needs and make investment decisions on a service-by-service and individual platform basis. As a result, DOD does not effectively address joint warfighting needs and commits to more programs than it has resources for, thus creating unhealthy competition for funding. At the individual program level, a military service typically establishes and DOD approves a business case containing requirements that are not fully understood and cost and schedule estimates that are based on optimistic assumptions rather than on sufficient knowledge. This makes it impossible to successfully execute the program within established cost, schedule, and performance targets.

Then the testimony goes on to explain how diffuse authority and responsibility make it difficult to link outcomes back to particular individuals and hold them accountable for their actions: “Because DOD’s requirements, funding, and acquisition processes are led by different organizations, it is difficult to hold any one person or organization accountable for saying no to a proposed program or for ensuring that the department’s portfolio of programs is balanced” (U.S. GAO 2009c).

Frequent personnel turnover in high ranking leadership positions exacerbates the problem. As an example, the GAO notes that over the past 22 years, the average tenure of the Under Secretary of Defense for Acquisition, Technology and Logistics has been less than two years. As mentioned previously, military officers also tend to rotate into new assignments every three to four years at the most.

Finally, the GAO talks about the data that feeds into cost estimates and ultimately funding decisions. The failure to follow a knowledge-based approach to acquisition leads to a number of uncertainties at the start of a program. When combined with optimism and overpromising, the results that emerge are as follows (U.S. GAO 2009c):

Our analysis of service and independent cost estimates for 20 major weapon system programs shows that while the independent estimates were somewhat higher, both estimates were too low in most cases. The programs we reviewed frequently lacked sufficient knowledge and detail about planned program content for developing sound cost estimates. Without this knowledge, cost estimators must rely heavily on parametric analysis and assumptions. A cost estimate is then usually presented to decision makers as a single, or point, estimate that is expected to represent the most likely cost of the program but provides no information about the range of risk and uncertainty or level of confidence associated with the estimate.

In summary, this analysis confirms a number of earlier predictions about the actual functioning of the MICC: organizational patriotism, diffuse accountability and responsibility, and the impact of frequent personnel turnover, overpromising, and optimistic sales pitches.

### **3.3.5 Different Practices Reflect Different Incentives**

Some of the most profound and important insights provided by the GAO can be found in a 1992 report entitled “Weapons Acquisition: A Rare Opportunity for Lasting Change.” This report “draws on 15 years of GAO work on acquisition issues, examining the cultural side of acquisition problems to suggest ways to improve the process in the future” (U.S. GAO 1992). The ideas put forth in this report continue to show up in more recent GAO reports and testimonies. The 1992 report explains the underlying problems in the MICC as follows:

On the one hand, there are problems that are caused by inadequate training, lack of experience, poor technique, and the like. It would be proper to classify these kinds of problems as mistakes, errors in judgment, and unforeseen obstacles. On the other hand, there are those problems that occur not because they are inadvertent, but because they are encouraged. For example, while some problems in cost estimating are due to flaws in methodology and to unforeseen technical problems, the more pervasive problem is lack of realism. Such undue optimism does not occur by chance or because estimators lack know-how, but because it helps programs gain approval and survive...

Instead of pointing the finger at individual participants, one must keep in mind that they do not act irrationally or with bad intentions. Rather, they do what they believe is right, given the pressures they face. The difficulty lies in the fact that there is no consensus on what is right. In the absence of such a consensus, the acquisition process serves to satisfy the diverse needs of its participants within the umbrella of providing U.S. forces with the best weaponry. In so doing, the incentives of the process - both positive and negative - favor maximizing programs. Parochialism, optimism, protectionism, and information hoarding are pragmatic responses to these incentives, while cost growth, schedule delays, duplication, and performance problems are the logical consequences...

In the private sector, realism is essential to a responsible individual’s solvency and to a commercial enterprise’s profitability; undue optimism has direct and dramatic consequences. Conversely, in weapon acquisitions, optimistic cost estimates are rewarded because they help gain program approval, win contract awards, and attract budgetary income. The consequences of cost growth are not directly felt by an

individual program because they are “accommodated” through stretch-outs and quantity changes and by spreading the pain across many programs.

This analysis emphasizes the important role of self interest, misaligned incentives, and the fact that individuals do not fully internalize the cost of their actions. Figure 5 below was taken from a more recent testimony in 2009. It offers a visual description of the incentives faced by public officials (U.S. GAO 2009b).

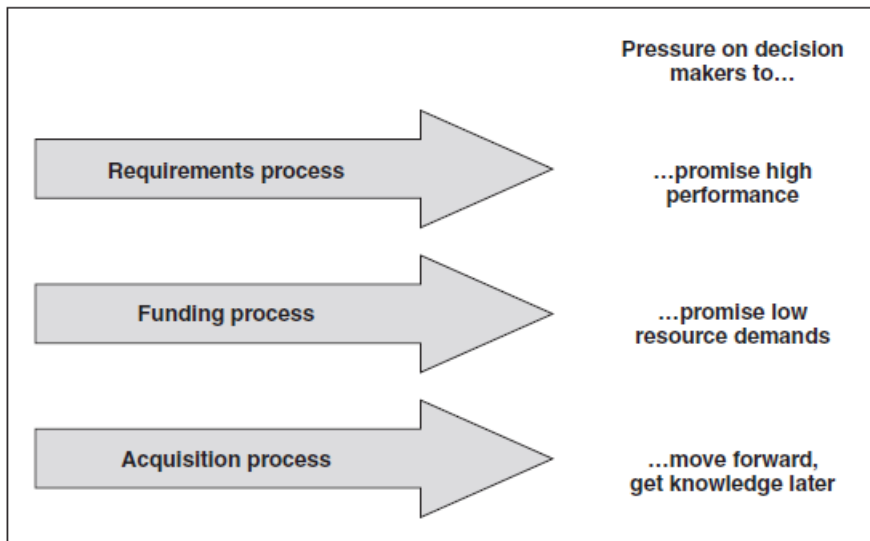


Figure 5. DoD Processes and Pressures.

### 3.3.6 Case Studies

As already shown, the GAO frequently makes general assessments about the results and functioning of the acquisition process. The underlying analysis, however, ultimately

occurs at the individual program level. Particularly high-profile or expensive acquisition programs often warrant individual reports of their own. These case studies provide a unique opportunity to dig deeper and identify underlying conditions that lead to different outcomes. For the most part, the results of individual case studies are consistent with the theory and empirics discussed so far. Programs continually fail to implement best practices, and as a result, they experience problems with cost, schedule, and performance.

Of course, there are exceptions. The acquisition of the Mine Resistant Ambush Protected vehicle (MRAP) is one example of a fairly successful acquisition program. The next few paragraphs identify and explain the various factors that led to better than average outcomes. These paragraphs demonstrate that the success of the MRAP program can be largely explained by several unique factors which are not generally applicable to other acquisition programs. Therefore, the theory and empirics developed in Chapters 2 and 3, although subject to exception, are still generally valid.

As of July 2008, about 75 percent of combat casualties in Iraq and Afghanistan were attributable to Improvised Explosive Devices (U.S. GAO 2009d). The growing number of injuries and deaths caused by explosions not only fueled public animosity toward the war efforts, but also caught the attention of people throughout the DoD and helped build a consensus regarding the need to take action. The end result was the initiation of the MRAP acquisition program in February 2007. This scenario demonstrates the first unique aspect of the MRAP program – widespread consensus. In the face of increasing

casualties, DoD officials realized the need to work together toward a common goal. In contrast, most acquisition programs are fueled by organizational patriotism and competition for limited resources.

As explained by the GAO, the Secretary of Defense (SecDef) declared the MRAP to be the DoD's top acquisition priority just a few months after the program was initiated. The SecDef then initiated a special task force to integrate planning, analysis, and actions to accelerate procurement. Furthermore, the SecDef gave the MRAP a special designation that required related contracts to be accepted and performed on a priority basis. The Secretary of the Army also waived restrictions on armor plate steel, thereby expanding the list of countries from which the DoD could procure steel. Finally, Congressional support, in the form of supplemental appropriations, was a contributing factor to the program's success.

The DoD's pursuit of MRAP vehicles was so aggressive that the DoD could not rely on just one source for procurement. As a result, the DoD awarded indefinite quantity contracts to nine companies, with the DoD agreeing to buy at least four vehicles from each firm. A byproduct of this approach was increased competition among contractors to provide the best value to the DoD. This competition among contractors appears to have benefited the program. On the other hand, the large number of MRAP variants may cause long-term challenges with maintenance and sustainment.



Another contributing factor to the program's success was the relatively low level of technological sophistication required to develop the MRAP. Of course, this is not to say that figuring how to build blast-resistant vehicles is an easy task. On the other hand, it is relatively simple when compared to building an aircraft carrier or a stealth fighter. This factor is not acknowledged by the GAO, but it is no less important.

In order to quickly acquire significant quantities of MRAP vehicles, the DoD was also forced to keep the design relatively simple and low risk. The end result of the MRAP program is described by the GAO as follows (U.S. GAO 2009d):

DOD use of a tailored acquisition approach to rapidly acquire and field MRAP vehicles was successful ... [D]ecisions to 1) use only proven technologies, 2) keep requirements to a minimum, 3) infuse significant competition into contracting, and 4) keep final integration responsibility with the government all led to positive outcomes and may be transferable [to other acquisition programs].

Despite the program's use of best practices and overall success, many of the underlying conditions that led to positive outcomes are not present in most other acquisition programs. The MRAP's successful acquisition was largely the result of a strong consensus that existed among DoD officials and the behavior that emerged from this consensus. The DoD aggressively pursued an incremental advance in capability in a short time frame with relatively low technological risk. The bigger challenge is to figure out how to get the DoD to follow similar practices on a regular basis.

The next few paragraphs illustrate a program that also had unique circumstances, but these unique factors did not translate into positive outcomes. The DoD attempted to develop an innovative acquisition strategy to reduce the cost of developing and acquiring the Joint Strike Fighter (JSF) aircraft. Without a change in underlying incentives, however, the end result was not particularly impressive. The GAO explains the situation as follows (U.S. GAO 2000):

The key objective of the Joint Strike Fighter acquisition strategy is affordability—reducing the development, production, and ownership costs of the program relative to prior fighter aircraft programs. DOD expects the Joint Strike Fighter acquisition strategy to save nearly \$18 billion (in fiscal year 1995 dollars) in development costs. To achieve its affordability objective, the Joint Strike Fighter program office has incorporated various DOD and commercial acquisition initiatives into the Joint Strike Fighter acquisition strategy ... However, a key objective of the acquisition strategy - entering into engineering and manufacturing development with low technical risk - will not be achieved due to the manner in which the Joint Strike Fighter program office is implementing the acquisition strategy.

By 2005, the GAO declared the JSF's original business case, as established in 1996, to be un-executable. Development cost estimates had increased 80 percent, operational capability had been pushed back two years, and expected quantities had been cut by 535 aircraft (U.S. GAO 2005). In 2006, the GAO pointed out that one of the program's key documents acknowledged but did not explain why 75 percent of the program's critical technologies were not mature to policy standards (U.S. GAO 2006). In 2009, the GAO highlighted the program's enormous costs and risky contracting strategies: "The total investment required now exceeds \$1 trillion--more than \$300 billion to acquire 2,456 aircraft and \$760 billion in life cycle operating and support costs, according to program

estimates ... DOD plans to procure hundreds of aircraft on cost-reimbursement contracts, magnifying the financial risk to the government” (U.S. GAO 2009e).

Why is it that the DoD pursued a supposedly innovative acquisition strategy but experienced such poor outcomes? The answer to this question is consistent with the ideas developed in Chapters 2 and 3 – namely, that without a change in incentives, the results were not significantly different. The following passage from a GAO report on the JSF provides an excellent example of some of the perverse incentives that drive acquisition outcomes (U.S. GAO 2000):

Once in a product development environment, external pressures to keep the program moving (such as preserving cost and schedule estimates to secure budget approval) become dominant. For example, DOD policies require that a program be funded in the current year and that funds be made available over the next 6 years in the DOD planning cycle. If a program manager decided that an additional year was needed to reach the desired level of technical maturity during the risk reduction/concept demonstration phase, the planned start of the engineering and manufacturing development phase could be delayed. This delay could jeopardize funding for that phase, thus risking the funding support for the entire program. Consequently, the program manager may be more likely to accept the risk of moving forward with a lower level of technology maturity rather than risk losing the program. That decision would raise cost-benefit issues because cost increases and performance compromises would likely occur.

In conclusion, this section has demonstrated both a successful and an unsuccessful acquisition outcome. In the successful program, a unique set of circumstances led to different behavior, which in turn led to better outcomes. In the unsuccessful program, the usual perverse incentives led to major shortcomings. This begs the question - what if the

incentives could be changed so that acquisition programs consistently followed best practices? The answer to this question will be explored in Chapter 4.

### **3.3.7 Conclusion**

This chapter has demonstrated both theoretically and empirically that the incentives in the MICC lead to frequent overpromising by public officials, which in turn contributes to cost, schedule, and performance shortfalls. The following quote from the GAO's 1992 landmark report provides an excellent summary of the situation: "On the one hand, there are problems that are caused by inadequate training, lack of experience, poor technique, and the like. It would be proper to classify these kinds of problems as mistakes, errors in judgment, and unforeseen obstacles. On the other hand, there are those problems that occur not because they are inadvertent, but because they are encouraged" (U.S. GAO 1992).

The persistence of acquisition shortfalls naturally leads one to wonder if anything can be done to improve outcomes. Accordingly, the lessons learned so far in this thesis will be applied in the next chapter to a brief discussion on acquisition reform.

## Chapter 4 – Acquisition Reform

The persistent trend of cost, schedule, and performance shortfalls in defense acquisition programs naturally leads to calls for reform. As the GAO explains, “Congress and DOD have continually explored ways to improve acquisition outcomes, yet problems persist” (U.S. GAO 2009c). This chapter is not meant to provide a comprehensive analysis of acquisition reform; to do so would require an entirely separate and lengthy study. Instead, this chapter simply seeks to examine what the analysis and insight from previous chapters can add to the debate.

### **4.1 Past Attempts at Acquisition Reform**

Figure 6 below shows some of the numerous special commissions, legislative acts, and DoD policy changes that were enacted during the period 1970 – 1999 to improve acquisition outcomes. The figure also shows that these efforts were generally unsuccessful in achieving their desired outcomes.<sup>9</sup> In fact, development cost overruns for major acquisition programs actually increased from 30% during the 1970s to 40% during the 1990s. What the figure does not show is that policy makers have been trying to

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<sup>9</sup> Actually, the figure only demonstrates one particular acquisition problem, namely development cost growth. However, previous sections in this thesis demonstrated that other problems, such as schedule delays and reductions in performance, also persist.

reform the acquisition management system even before the 1970s, and similar efforts continue to this day.

1970 - 1979	1980 - 1989	1990 - 1999
<p>Development cost overrun:</p> <p><b>\$13 billion</b></p> <p>(30%)</p>	<p>Development cost overrun:</p> <p><b>\$12 billion</b></p> <p>(39%)</p>	<p>Development cost overrun:</p> <p><b>\$15 billion</b></p> <p>(40%)</p>
<b>Key Studies and Initiatives Impacting the Defense Acquisition Process</b>		
<ul style="list-style-type: none"> <li>• 1970 Fitzhugh Commission</li> <li>• 1972 Commission on Government Procurement</li> </ul>	<ul style="list-style-type: none"> <li>• 1981 Carlucci Initiatives</li> <li>• 1982 Grace Commission</li> <li>• 1986 Packard Commission</li> </ul>	<ul style="list-style-type: none"> <li>• 1994 Federal Acquisition Streamlining Act</li> <li>• 1996 Clinger-Cohen Act</li> </ul>
<b>DOD Acquisition Policy Changes</b>		
<ul style="list-style-type: none"> <li>• 1971 DOD 5000 policy established</li> <li>• 1975 Policy revised</li> <li>• 1977 Policy revised</li> </ul>	<ul style="list-style-type: none"> <li>• 1980 Policy revised</li> <li>• 1982 Policy revised</li> <li>• 1985 Policy revised</li> <li>• 1986 Policy revised</li> <li>• 1987 Policy revised</li> </ul>	<ul style="list-style-type: none"> <li>• 1991 Policy revised</li> <li>• 1996 Policy revised</li> </ul>

Source: DOD (data); GAO (analysis and presentation).

Figure 6. Acquisition Reform, 1970 - 1999.

#### 4.1.1 Approaches to Reform

There are several different methods by which policy makers can go about trying to improve acquisition outcomes. One of the most obvious methods is the enactment of legislation. Typically, such legislation directs the DoD to modify its policies or procedures. For example, legislation could require the DoD to use more competition in prime contracting. As another example, legislation might direct program managers and

decision makers to demonstrate higher levels of technological maturity before committing to program development.

The DoD also sometimes makes policy changes without being directed to do so by Congress. DoD initiatives could be internally initiated or perhaps spurred by various outside pressures. For example, GAO reports not only provide information to policy makers, but they also make recommendations. Sometimes these recommendations are acted upon by Congress, while other times the comments are directed specifically at other agencies such as the DoD. GAO recommendations require the affected agency to respond to the recommendations with publicly available comments. The DoD is not required but sometimes does implement the GAO's recommendations.

A third type of reform effort is the enactment of a special Blue Ribbon Defense Commission. The first of these special commissions was the 1955 Hoover Commission Task Force. It was enacted largely in response to the growth of the arms industry after World War II and to address lingering questions about how to organize peacetime defense and procurement. The 1970 Fitzhugh Commission originated as a campaign promise by Richard Nixon, while the 1986 Packard Commission resulted in part from greater scrutiny of the acquisition process amidst a dramatic rise in defense spending. Kovacic (1990) explains that these commissions serve both analytic and political functions. On the analytical side, special commissions collect facts and try to determine underlying conditions that lead to specific events. In addition, they make

recommendations and propose solutions to problems. On the political side, special commissions serve as a means of achieving consensus where there is widespread agreement about the existence of a problem but less agreement or a lack of understanding about the causes of the problem. Furthermore, these commissions bring a degree of objectivity to the debate and help to remove political obstacles to reform. Finally, they may help to deflect criticism. The enactment of a special commission allows policy makers to signal their commitment to taking action without forcing them to follow through with any specific or meaningful action.

#### **4.1.2 Reasons for Failure**

Figure 6, “Acquisition Reform, 1970 – 1999” demonstrated that acquisition shortfalls persist despite numerous attempts at reform. Kovacic (1990) offers a number of insights that help to explain the reasons for these failures. Although his analysis is focused specifically on Blue Ribbon Commissions, many of the lessons learned can be extended to other reform efforts. One of the possible reasons for the failure of acquisition reform is that policy makers do not necessarily intend or desire change. Instead, reform initiatives are mostly just a political tool. Kovacic (1990) explains that “special commissions may be seen as especially attractive political tools if one is confident (and history justifies such confidence) that the defense panels will issue reports, that nominal policy changes will take place, but that business will proceed essentially as usual.” While the importance of political signaling should not be understated, this explanation may not represent the



whole story. Many policy makers appear to have a genuine interest in producing better acquisition outcomes.

Kovacic (1990) argues that even if we assume that policy makers have an interest in producing meaningful reform, various flaws in the approach may render the efforts ineffective. In particular, he argues that the reports issued by special commissions do not adequately address why previous efforts have failed to produce lasting change. An inquiry into previous failures would reveal the following:

To achieve needed effect, most suggested defense procurement remedies require sustained, long-term implementation and monitoring ... Our conventional policymaking institutions usually disdain these types of necessary follow-up ... [E]ffective monitoring creates benefits that are often difficult for public officials who might invest in monitoring to claim as flowing from their own efforts. In defense reform, public officials have weak incentives to invest in monitoring, and consequently they do little of it.

Kovacic's analysis provides important insights into the failure of special commissions from years past. On the other hand, the GAO does in fact help members of Congress monitor the progress of various efforts. For example, a previously mentioned study discussed the progress in implementing JCIDS (U.S. GAO 2008b). The title of the report almost speaks for itself: "Defense Acquisitions: DOD's Requirements Determination Process Has Not Been Effective in Prioritizing Joint Capabilities." Ineffective monitoring, although certainly an important factor, does not actually tell the whole story when it comes to the failure of acquisition reform.

Another reason for the failure of acquisition reform is the simple fact that, even if policy makers had the best of intentions, it would still be difficult to design institutions that align the incentives of individuals with the desired outcome. As discussed earlier, incentive misalignment occurs across several dimensions. From a temporal perspective, for example, practices that bring success in the short run may be detrimental in the long run. Furthermore, incentives are often misaligned among different individuals or organizations at any point in time. For example, the acquisition priorities of the Army are different than those of the Navy. Further exacerbating the problem is the fact that people often have competing desires that are not easily reconcilable. For example, many voters would like to see a reduction in wasteful spending and pet projects – unless, of course, such practices bring jobs to their hometown.

In cases where incentive misalignment can not be corrected, rules may be created with the intention of forcing people to act in a manner that goes against their own self interest. The work of David Primo (2007) shows, however, that creating and enforcing effective rules is no easy task. Primo's book *Rules and Restraint* actually deals with budget and spending rules, but much of his analysis can be applied more generally. He explains that in order for rules to be effective, they must meet several criteria. First, the people creating the rules must have the knowledge and the incentive to properly structure the rules. Second, the rules must be easily and effectively enforced. Third, the rules must be resistant to bending and breaking. As an example of the difficulty of creating effective

rules, consider the JCIDS - its operation on paper is quite different than its operation in practice.

## **4.2 The Way Forward**

Most people who study acquisition reform reach the same general conclusion: there are no easy answers. The conclusion of this thesis is no different, nor is the conclusion of the U.S. GAO any different (1992):

This report does not present the answers; there are no easy ones. However, in the following pages we pose challenges, in the form of questions, we believe can help acquisition participants change the incentives-and the culture-of weapons acquisition ... Are Participants Willing to Make Sacrifices to Achieve Better Outcomes? ... Are Participants Willing to Recognize the Broader Consequences of Individual Actions? ... Will Participants Agree to a Military Strategy Before Making Major Acquisition Commitments? ... Can Incentives Be Changed to Discourage Optimism Parochialism, and Protectionism?

The answer to most of these questions lies somewhere between “probably not” and “maybe.” For example, the shortcomings of the JCIDS process demonstrates that self interest, rather than joint warfighting needs, continues to influence requirements and funding determinations.

On the other hand, there is some evidence that incentives can be changed, at least incrementally, to discourage optimism and other perverse outcomes. The testimony entitled “Defense Acquisitions: Charting a Course for Lasting Reform” highlights some recent efforts toward this goal (U.S. GAO 2009c):

... DOD acquisition policy now incorporates a requirement that program managers sign tenure agreements so that their tenure will correspond to the next major acquisition milestone review closest to 4 years. The House and Senate reform legislation introduces a number of steps to monitor and oversee the progress of existing programs that started before the recent certification requirements were put in place for gaining approval to enter system development, and programs where DOD waived the certification requirements for one reason or another.

Another testimony from 2008 entitled “Defense Acquisitions: Better Weapon Program Outcomes Require Discipline, Accountability, and Fundamental Changes in the Acquisition Environment” highlights some other recent changes (U.S. GAO 2008a):

... Congress recently enacted legislation part of which requires decision-makers to certify that programs meet specific criteria at key decision points early in the acquisition process. Likewise, DOD has recently begun to develop several initiatives that are based in part on congressional direction and GAO recommendations. If adopted and implemented properly, these measures could provide a foundation for establishing a well balanced investment strategy, sound business cases for major weapon system acquisition programs, and a better chance to spend resources wisely.

These paragraphs illustrate recent efforts to address several important acquisition problems: short tenure and minimal accountability, a lack of effective and sustained monitoring, and inadequate knowledge requirements. Of course, as the GAO noted, whether or not these policy changes will improve acquisition outcomes will depend on the nuanced details of how the policies were crafted and how they are implemented. A recent assessment of selected weapon programs offers some cautious but initial optimism (U.S. GAO 2009a):

The cumulative cost growth for DOD's programs is higher than it was 5 years ago, but at \$296 billion, it is less than last year when adjusted for inflation. For 2008 programs, research and development costs are now 42 percent higher than originally estimated and the average delay in delivering initial capabilities has increased to 22 months. DOD's performance in some of these areas is driven by older programs, as newer programs, on average, have not shown the same degree of cost and schedule growth. For 47 programs GAO assessed in-depth, the amount of knowledge that programs attained by key decision points has increased in recent years; but most programs still proceed with far less technology, design, and manufacturing knowledge than best practices suggest and face a higher risk of cost increases and schedule delays...It is not yet certain that newer programs will continue to perform well, as we have previously found that most program cost growth does not materialize until later - after the critical design review. However, newer programs may benefit from recent changes in DOD's acquisition policies and practices.

Whether or not recent policy changes will have any lasting impact remains to be seen. In any case, the theoretical and empirical findings from Chapters 2 and 3 demonstrate that reform will be successful only to the extent that policy makers can either 1) effectively alter the incentives of individuals 2) or create rules that prevent people from taking harmful actions. GAO analysts seem well aware of these requirements for successful reform, as demonstrated by the following quote: "Reforms have often sought coercive, procedural, and organizational solutions to make things happen without necessarily affecting why they did not happen in the first place. For example, there have been recommendations aimed at improving the realism of cost estimates, but these are hard to implement when the acquisition process itself does not reward realism" (U.S. GAO 1992).

Without a doubt, the GAO appears to have a solid understanding of how the acquisition process really works, and the agency's continual monitoring, reporting, and

recommendations will probably lead to incrementally better outcomes. There is one major issue, however, that limits the extent to which the GAO can push meaningful reform. This limitation is the fact that the GAO is tasked by Congress to investigate other agencies, but Congress itself is a huge part of the problem. To understand why, consider that many programs experience severe cost, schedule, and performance problems but continue to receive adequate funding. This Congressional behavior offers implicit support for poor performance and reduces the incentive for DoD officials to change their practices. In essence, it condones and even encourages overpromising. The GAO is aware of this problem and has occasionally made note of it (U.S. GAO 2009c):

... [D]ecisions on individual systems must reinforce good practices. Programs that have pursued risky and unexecutable acquisition strategies have succeeded in winning approval and funding. If reform is to succeed, then programs that present realistic strategies and resource estimates must succeed in winning approval and funding. Those programs that continue past practices of pushing unexecutable strategies must be denied funding before they begin. This will take the cooperative efforts of DOD and Congress.

This issue also relates back to the question “Are Participants Willing to Recognize the Broader Consequences of Individual Actions?” Certainly, at least some members of Congress are aware of the broader implications of their actions. Without a change in incentives, however, they are unlikely to make any major changes in their behavior.

### **4.3 Conclusion**

Eisenhower’s warning about the military-industrial-(congressional) complex was both prophetic and ahead of its time (Eisenhower D. 1961):

In the councils of government, we must guard against the acquisition of unwarranted influence, whether sought or unsought, by the military-industrial complex. The potential for the disastrous rise of misplaced power exists and will persist. We must never let the weight of this combination endanger our liberties or democratic processes. We should take nothing for granted. Only an alert and knowledgeable citizenry can compel the proper meshing of the huge industrial and military machinery of defense with our peaceful methods and goals, so that security and liberty may prosper together.

Unfortunately, most citizens are neither alert nor very knowledgeable about the MICC.

Even if the public did have a greater awareness, the challenges with defense acquisitions are so significant that many of the problems would still persist. People respond to incentives. Even Eisenhower dropped the word “congressional” from the phrase “military-industrial complex” so as to not offend members of Congress.

How can we guide the hundreds of thousands of self-interested individuals who make up the defense establishment to act in a way that is in line with the public interest? To this question there are no easy answers. Nonetheless, the lessons learned in this thesis offer a modest improvement to our understanding of economics and the nature of defense acquisitions.

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## Curriculum Vitae

David Bieler received his B.S. in Electrical Engineering from Penn State University in 2005. After graduation, he served as a 62E – Developmental Engineer in the U.S. Air Force. Most recently, he worked as a graduate student fellow at the Mercatus Center at George Mason University. He will receive his M.A. in Economics in 2010 and then work as an analyst for the federal government.