COMPETITION, DEPOT MAINTENANCE, AND BUSINESSLIKE REFORM OF THE DEPARTMENT OF DEFENSE

by

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A Dissertation Submitted to the Graduate Faculty of George Mason University in Partial Fulfillment of The Requirements for the Degree of Doctor of Philosophy Public Policy

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Date: August 26, 2010

Fall Semester 2010
George Mason University
Fairfax, VA
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Fall Semester 2010
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DEDICATION

To the Tolerance of My Family
ACKNOWLEDGEMENTS

To the citizens of the United States who have funded my studies and professional life, in some part I hope my service has repaid your investment.
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LIST OF ABBREVIATIONS, COMMON ACRONYMS, OR TERMS

Military Equipment:
- C-141: Air Force cargo aircraft
- F/A-18: Naval fighter aircraft
- F-14: Naval fighter aircraft
- F-15: Air Force fighter aircraft
- F-16: Air Force fighter aircraft
- J-52: Military jet engine
- P-3C: Navy patrol aircraft
- S-3A: Navy patrol aircraft
- SH-2F: Navy helicopter

Military Rank (Navy):
- Captain (or Capt.): U.S. Navy officer rank immediately junior to Admirals. In the Army, Marine Corps and Air Force, Generals are equivalent ranks to Admirals

U.S. Government Organizations:
- AF: Air Force
- ALC: Air Logistics Center (Air Force aviation depots)
- DOD: Department of Defense
- GAO: Government Accountability Office (until 2004, the Government Accounting Office)
- NADEP: Legacy term for Navy Aviation Depots
- NARF: Legacy term for Navy Aviation Depots
- NRO: National Reconnaissance Office
- PAA: Primary Aircraft Authorized
- PPBS: DOD Planning, Programming & Budgeting System

Other Miscellaneous Acronyms
- BRAC: Base Realignment and Closure. A DOD process to close excess military bases and facilities.
- POSDCORB: Public Administration/ General Management mnemonic describing seven functional responsibilities for top-level organizational leadership: Planning, Organizing, Staffing, Directing, Coordinating, Reporting, Budgeting
ABSTRACT

COMPETITION, DEPOT MAINTENANCE, AND BUSINESSLIKE REFORM OF THE DEPARTMENT OF DEFENSE

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George Mason University, 2011

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This research studies the effects of competition on businesslike supporting organizations within the Department of Defense (DOD). These public organizations are often structured as working capital funds to create nominally businesslike management conditions. The effort seeks to understand how competition among DOD public organizations in this structure can be harnessed to improve their cost performance. It treats internal organizational rivalry as a general phenomenon of public management and specifically examines how rivalry as competition can be harnessed to improve the efficiency of public organizations. A case study focusing on the Navy shipyard and aviation depot competitions from 1985 to 1994 is the specific means for achieving these research objectives. The study concludes the competition did reduce costs as part of a wider set of Navy management initiatives during this period. The research works from a rational choice economic perspective.
1. **Research Introduction: DOD, Competition, and Reform**

From 1985 to 1994, Navy shipyards and aviation depots participated in a series of competitions to provide spare parts and heavy maintenance overhauls for military ships and aircraft. In 1990, after five successful years of the Navy experiment, the Department of Defense (DOD) broadened the competition program to Army and Air Force maintenance depots and formulated a savings goal of $2.2 billion. In spite of the long-noted rivalry of the Navy and the Air Force, the initiative’s most impressive accomplishment was the Navy’s award of a contract to an Air Force depot for the overhaul of an important fighter aircraft. The losing Navy depot restructured its activities, lowered its costs, and soon regained the lost workload. The Government Accountability Office (GAO) independently analyzed and documented these successful results. Despite its successes, the depot competitions effectively ended in 1994 and the DOD started new reforms.

These competitions present intriguing issues both for the positive theory of public organizations and for the extension of businesslike reforms within the DOD. In any large and complex organization like the DOD, supporting organizations enable the primary organizational output or product. College registrars and facility maintenance are necessary supporting parts of a University’s primary commitment to teaching or research. In the DOD, supporting organizations like maintenance depots and shipyards are
necessary parts of the Defense Department’s overall commitment to effective military forces and warfighting. Many of these types of DOD supporting organizations receive their necessary financial resources through direct budget appropriations from Congress. However, since the late 1960s, DOD maintenance depots have largely utilized market-like arrangements known as “working capital funds” (Deluca 1969).

The 1949 Hoover Commission on Government recommended the expansion of working capital funds as a cost saving reform. These funds and other similar types of reimbursable work within the Department have become widely used: their DOD revenues exceeded $100 billion in 2008. DOD depot maintenance revenues constituted almost $14 billion that same year. Working capital funds create businesslike networks of suppliers and customers. These arrangements imitate commercial industrial sectors. Instead of budget appropriations provided directly to the supporting organization (“the supplier”), Congress provides budgets to military forces (“customers”), which are then transferred to DOD supplier organizations in exchange for necessary goods or services. In this case, the depots provide maintenance overhauls and other services to the military forces in exchange for a transfer of budget appropriations.

DOD public organizations operating as working capital funds do not make a profit. Instead, they seek to recover only the full costs of their products. In other words, when operating correctly, they come close to breaking even. In the case of aircraft depot maintenance, overhaul prices for different aircraft and engines build on expected costs and quantities of work. If the total revenue in one year exceeds the total costs of that same year, working capital funds reduce their prices the next year. If the prices they
charge customers are too low and total costs exceed total revenue, then the depot raises their prices in the following year. By controlling internal costs relative to expected revenues, working capital funds seek to create businesslike management incentives within public organizations. Good intentions aside, the results since 1949 have been mixed (GAO 1976, GAO 2008).

Working capital funds have historically financed both Navy shipyards and aviation depots. Navy public shipyards in the 1970s gained a reputation for poor workmanship and cost controls (Dorwart 2000). The competition initiative began with shipyards in 1985 and expanded to Navy aviation depots in 1987. These competitions were never large by DOD standards—typically only $100 million per budget year. Nevertheless, there were almost 300 individual competitions conducted between 1985 and 1994. Commercial firms then and now supply a significant fraction of DOD depot maintenance, and most of the competitions involved bidding between public and private shipyards and depots. Military depots did compete against one another on occasion. But common to all were public organizations in a condition of institutionalized rivalry. Arguably, these DOD organizations never operated closer to actual businesslike conditions except during the depot competitions of 1985-1994.

**Research Question**

Aside from the historical competition initiative, the absence of competition within military working capital funds is quite remarkable given the enduring attraction of businesslike reforms within DOD (Francis 2006). Market competition is widely viewed as an important, if not crucial factor in the efficient supply of products for ordinary
consumers. Adding competition to the working capital funds seems a natural extension to gain similar benefits for DOD internal consumers—the military forces. Lower costs for depot maintenance, or for any DOD activity supporting the forces, means additional funding for other warfighting demands such as modernization or training.

The study’s central research proposition asserts the historical depot competitions can be a model for reducing costs within DOD. The initiative’s apparent success suggests the following research question:

How can the Department of Defense utilize public-public internal competitions to reduce costs among supporting organizations organized as working capital funds?

The 1985-1994 initiative represents a unique historical experiment. The initiative exposed DOD public organizations to the forces of competition for nine years. The research not only undertakes an exploratory case study investigating the central research proposition, but also seeks additional quantitative data to confirm the generally positive GAO reported results. However, a more fundamental theoretical question exists within the research. Why did competition seem to work? Competition advocacy usually focuses on private firms and assumes profit maximization. Given the depot’s non-profit status, there is little in the literature to explain why competition might be effective. This study will assemble the necessary theoretical foundation to help interpret and understand the case study. The general research goals are to understand the initiative’s political and bureaucratic context, work to confirm its results in reducing costs, and then appropriately generalize its lessons for future reform. The research focuses exclusively on the use of
competition among DOD public organizations. It puts aside special issues of public-private competitions to study its use internal to DOD.

Using competition to reduce DOD internal costs immediately contrasts with traditional forms of cost control. An advocate for these traditional techniques might assert competition is unnecessary, perhaps arguing its techniques are effective and do not introduce competitive rivalry into the organization. In this study, the GAO frequently appears in this role. For much of the 1970s and 1980s, the GAO documented significant excess capacity among DOD maintenance depots. The GAO’s particular interest was aviation depot maintenance. Each of DOD’s three military departments maintained separate facilities to service its own aviation equipment. Navy and Air Force aircraft were the most similar, and the GAO documented what it believed was significant duplication and functional overlaps. A traditional technique for cost control, advocated almost ceaselessly by the GAO over this period, was reorganization and consolidation (Grosshans 1983). GAO representatives argued for depot centralization followed by a directed reduction of excess capacity.

Yet despite frequent claims like GAO’s, and the widespread assumption of excess both in government and the DOD, it is not clear excess capacity is both easily recognizable or easy to act upon within government. That is, efficiency is not easy to attain, and what appears to be “waste” from outside the organization seems to have a different appearance from within. Certainly, DOD did not directly act on the GAO recommendations, and depot excess capacity as viewed by GAO persisted well into the 1990s, if not beyond. Recently, the Secretary of Defense introduced a large budget
request and, when questioned by congressional members, summarily rejected the possibility of significant excess capacity or inefficiency within the department (DiMascio 2010). However, the entire DOD budget has almost doubled in 10 years. Growth at this rate, without at least some excess, strains credulity. Yet the Secretary is highly credible and the nation is currently undertaking significant military operations. It is hard to know which view is correct— vast excess or a reasonable efficiency. Called by almost any name within DOD or government, the nature of excess, surplus, slack, or waste is surprisingly elusive and paradoxical.

The research will attempt to develop a working explanation for this dilemma and apply it to the case study. To do so, it will argue for use of Cyert and March’s famous concept of slack, in conjunction with Niskanen’s revised model of a discretion-maximizing public manager. These concepts provide appropriate theoretical elements for interpreting the case study.

Costs and budgets will be at the center of the research. These are viewed here as forms of organizational information. The broad theoretical problem addressed here is the issue of information and communication within large, complex organizations like the DOD. The traditional demands of organizational integration and hence information demands on leadership and staff may well be beyond the capacity of human leadership and ordinary management techniques. It may be that competition is a more effective means to identify and act on the otherwise elusive presence of excess than traditional means of cost control and oversight. Competition may well be an antidote to the information asymmetry within the organizational parts, which contends with leadership’s
ability to integrate the organizational pieces into a purposeful whole. I view cost control as part of the central leadership’s general responsibility for resource allocation, and in turn, a portion of its general organizational function to integrate the parts of the organization into a resource-balanced unity.

**A Summary of the Research Approach and Overall Work**

The research works within an economics-informed framework of Public Choice. It uses a characteristically economic model of human decision making at the core of its research. In seeking to confirm the feasibility of improved DOD efficiency by internal competitions—referred to here as public-public competition—the work becomes not only an empirical effort, but also a work of bureaucratic theory. The empirical work provides reasonably strong evidence that selective internal competition can supplement traditional DOD managerial techniques. The theoretical work frames in new ways the internal managerial problems of large, complex public organizations like the DOD. Among others, the work makes broad use of Herbert Simon’s career-spanning critique of classical public administration concepts.

These classical management concepts, still widely influential and active (Seidman 1998), form a conflicting theoretical framework for interpreting the historical competition initiative. Under classical approaches to public organization, competition is unnecessary. It inherently represents duplication and overlap within the organization. If competition did work, it challenges classical theory to explain why. This study advances an alternative theoretical synthesis. In developing this alternative, the effort adapts Porter’s model of commercial industrial sectors to the study of DOD working capital funds,
utilizes the concept of internal organizational slack developed by Cyert and March, and, most importantly, utilizes William Niskanen’s revised model of budgetary decision-making within public organizations. The research interprets Niskanen’s model of the discretion-maximizing public manager in light of Cyert and March’s concept of organizational slack. These cumulative theoretical efforts serve to explain and interpret both the case study and the empirical results of the competitions.

The combined effect is a multi-faceted, seven chapter work: historical case study, empirical analysis, theoretical critique of classical literature, and a synthesis of alternative theory. Chapter 1 explains the motivation for the effort, introduces events from the case study, and explains the research approach. Chapter 2 is theoretical. It both surveys and comments on the classical literature of organizations and budgeting, and introduces an alternative literature of public organizations and competition. The subject of public budgeting relates to public work and efficiency. The research incorporates the appropriate literature of Aaron Wildavsky to address work, organizational complexity, and classical approaches to organizational integration. These topics enhance the later use of Niskanen’s work on slack maximization in public budgeting.

Chapter 3 outlines the research approach for the case study. Chapter 4 narrates the institutional history of the DOD competition initiative from 1985-1994. Knowing both why the competition initiative started in the Navy and ended in 1994 are important research objectives. If the initiative is really to serve as a model for future reforms, the chapter works towards this purpose. It contrasts Navy and Air Force aviation depots during this period, first comparing the two when only the Navy undertook competition,
then later when the Navy and Air Force joined in DOD-wide depot competitions. Chapter 5 surveys the GAO-reported results and conclusions regarding the aviation competitions. Chapter 6 not only reviews and validates the GAO-reported results, but also evaluates the case study and the historical initiative’s application for future reform. Finally, Chapter 7 states the conclusions of the research and recommendations for future explorations of the topic.

**Why Study DOD Public-Public Competition?**

The research envisions a policy alternative for the selective introduction of competition among DOD supporting organizations structured as working capital funds. However, working capital funds represent only a portion of DOD supporting organizations. These particular DOD organizations are institutionally separate from the DOD combat forces. They include up to 50 percent of the DOD military and civilian workforce (DOD 2004). Not all DOD supporting organizations operate as working capital funds; however, all DOD supporting organizations provide products and services to the military forces and spend a sizable majority of DOD’s roughly $600 billion annual budget (R. E. Porten 2002).

Seeking efficiency within DOD is an important goal. The DOD budget represents the largest single block of controllable spending within the Federal budget. Yet it has proven a difficult organization to manage. Since DOD’s creation in 1949, there has been a long stream of reforms seeking to control costs and improve its overall performance (Christie 2006; Francis 2006). Most of these have been techniques drawn from business and general management. Secretary of Defense Donald Rumsfeld continued this trend,
and the approach seems likely to continue into the future. Except for the largest business enterprises, there seems little else to draw on. Few organizations are as large and complex as the DOD.

An underlying fear motivating this work is the concern DOD might simply be too large to be run as a conventional unitary or even as a multi-divisional organization. DOD is large enough that if it were a country, it would have a seat in the G-20, the group of the world’s 20 largest economies. Its complex internal structure of semi-autonomous agencies and organizational interdependencies places a premium on management skills to coordinate its component parts. DOD seems less like a single organization and more like a whole economy in itself—more like a federation of organizations than a single entity. It may well have been the model for Rainey’s (2003, 348) summary observations on the unique problems of public organizations: “…many large government agencies become highly diverse confederations of groups and units whose relative independence weakens the authority of the politically appointed executives at the top.”

If DOD is too large to manage conventionally (and verification of this hypothesis is beyond the scope of this research), alternative approaches to management and organization need to be developed to improve not only DOD cost performance, but the broader alignment of its organizational parts with national security missions. The issues of competition studied here focus only on the subject of DOD cost performance. I must defer broader and indeed more vital questions to future research. But if market principles such as competition have been effective in economies around the globe, why not attempt to harness these same principles within organizational economies of similar magnitude?
The 1985-1994 initiative represents a unique, sustained exposure of public organizations to a competitive environment. The historical initiative achieved this exposure largely through public-private competitions, but the initiative reportedly ended because of the difficulty in evaluating bids from commercial and public organizations. These accounting differences remain a significant and inherent problem for future public-private competitions. A concept for DOD public-public competitions bypasses these problems. Its feasibility builds on the enormous size of publicly supplied DOD supporting activities (such as depot maintenance) and the difficulty of applying traditional organizational and management techniques for improving their efficiency. If competition is widely viewed as the basis of low cost and innovation within the market, the case study presents an opportunity to develop a theory explaining how and why competition can benefit large, complex public organizations such as DOD. The initiative’s unique nature and its apparent successes invite the research question and its implicit challenge to the classical forms of DOD cost control.

It may well be that this 1980s initiative cannot be replicated, that it was too much a product of its times, or that it faces insurmountable political obstacles. It may be that any success the initiative achieved came at too great an organizational cost, such as the introduction of disruptive rivalries among DOD depots. But if we can evaluate the organizational and political context of the historical initiative, retain confidence in its reported results, and distill the necessary conditions for its reintroduction, it suggests future use of selective internal competitions to improve cost performance among DOD supporting organizations. A study of the historical depot competitions can clarify the
necessary conditions, administration, and the limits of such a policy alternative. The research is categorically distinct from the issues of outsourcing and privatization, as will be made clearer in the following section.

Where the Research Fits as Reform and What It is Not

Despite the novelty of exploring competition within an organization, this research fits well within the larger historical stream of DOD and Federal businesslike reforms. Charles Goodsell (2004), like many others, has classified historical government reform activities. Goodsell’s taxonomy consists of three broad reform perspectives: a traditional category of government organization he calls Consolidate-Control, a second category of government privatization he names Downsize-Outsource, and a third category I will discuss first, which Goodsell calls the Business model.

In a separate taxonomy, Guy Peters (1996) developed an almost identical businesslike category he labeled as Market-Oriented Reforms. The objective of these reforms is the efficient and businesslike use of public funds. Both Goodsell and Peters noted the increased emphasis on businesslike government that emerged in the late 1970s and early 1980s. The trend is illustrated by the 1984 Grace Commission’s “War on Waste,” the late 1980s’ “Total Quality Management,” and the “Reinventing Government” initiative undertaken by the Clinton Administration and inspired by the work of Osborne and Gaebler. The depot competition initiative itself emerged from this same reform atmosphere. Two recent statutory accomplishments of this reform category were the Chief Financial Officer Act of 1990 and the Government Performance and Results Act of 1993. The movement also has an international dimension through its general correlation
with the New Public Management movement (Goodsell 2004). I see my research here as best aligning with this first category of Goodsell’s taxonomy.

Despite these recent achievements, a ready case can be made that these initiatives are only the most recent manifestation (and Goodsell notes this) of an older reform tradition. It precedes Woodrow Wilson’s (1887, 201) call for government, “to make its business less unbusinesslike,” and finds its origins in the years following the Civil War. We can call this older reform tradition the Progressive Movement or perhaps the Good Government movement. It sought to “clean up” American public organizations after they were “spoiled” by Jacksonian democracy. Its signal achievement was passage of civil service reform in 1883.¹ Purposeful and efficient public spending is also a part of this older reform tradition. In the long process of shaping how Federal organizations utilize public funds, idealized businesslike efficiency has been the standard almost from the beginning. This reform movement also sought to apply elements of business management to the internal operations of government. The “generic tradition” of public/private management, which to a large degree discounts the differences between public and private organizations, is an important assumption sustaining this extended reform tradition.²

Goodsell distinguishes businesslike reforms from his second category of Downsize-Outsource. Two of Goodsell’s reform categories essentially utilize business and markets as their benchmark for the execution of public management, but his category

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¹ See Nelson (1982) for a good historical overview beginning with Alexander Hamilton and the founding generation. Skowronek (1982) is the touchstone history for the expansion of Federal administrative capacity between 1877 and 1920.

² See Rainey (2003) for a careful introduction to the “generic tradition” and the strengths and weakness of its assumptions.
of privatization seeks efficiency through a different means. While his first category seeks
to reform government by utilizing the techniques of business and markets, Goodsell’s
second category would substitute private contractors for public employees to supply
government services. A depot-related example is when the 1995 Commission on [DOD]
Roles and Missions called for complete supply of DOD depot maintenance services by
private industry. Congress rejected this recommendation and directed public depots to
retain no less than 50 percent of the total depot workload. Within the DOD, this is
known universally as the “50/50 Rule.” Another example within Goodsell’s second
category are the public-private competitions governed by the Office of Management and
Budget (OMB) circular A-76. When private contractors win these competitions, they
result in a semi-permanent privatization of public work. The work stays with the winner
until an indefinite future date. Goodsell explicitly distinguishes privatization initiatives
like these from his first category of businesslike reform.

This research maintains the same distinction. It is more like Goodsell’s
businesslike reform and separate from privatization. It works within decisions like the
“50/50 Rule” and accepts that the private sector cannot accomplish all public activity
(particularly within the DOD). It is true that most of the actual competitions in the 1985-
1994 depot initiative were public-private competitions similar to the A-76 process.
Sometimes, regulations based on the A-76 process governed the depot competitions, but
the depot competitions were different. In the stated designs of the competitions, work
passed freely between public and private suppliers subject only to competitive results.
Private contractors won formerly public work. Public depots won formerly private work,
and public work on occasion moved across the boundaries of the military departments. What remains remarkable about the initiative was the continuing and seemingly useful exposure of DOD public organizations to the forces of competition from any source.

The research here is not about the substitution of private for public supply of supporting services. Choosing public or private supply of DOD supporting services should be a routine business analysis for any organization—private or DOD. There may be valid reasons to supply services internally. As Ronald Coase suggested and Oliver Williamson’s Transaction Cost Economics has built on, there can be non-financial costs to outsourcing and privatization in both private and public circumstances. These non-financial issues include trust, communications, and lost time arising in the process of formal contracting. However, just like both of Goodsell’s historical reform categories, this research seeks the efficient and effective supply of products to the DOD military forces. Similar to the historical initiatives, public-public competitions become an internal management technique for the efficient supply of internal DOD supporting activities.

Finally, Goodsell’s third category of reform offers important contrasts to help define the research. Goodsell’s third category is composed of what he describes as classical management and organizational theory. Goodsell labels this general set of reforms Consolidate-Control, for its repeated efforts to organize similar organizational functions under a single manager. This approach to public organization and management has its origins in Frederick Taylor’s “One Best Way,” and Luther Gulick’s POSDCORB (1937). Its tenets have many of the characteristics of classical bureaucracy, but with an American flavor. Its American instantiation includes a relentless focus on efficiency. One
of the most important means to achieve efficiency has been the elimination of organizational overlap and duplication. Reducing duplication and overlap has been one of the great organizing principles of American public management. In recent years, Secretary of Defense Rumsfeld (2005) invoked this classical litany when he stated, “A person performing a redundant task is a person not contributing to our defense. A dollar wasted is a dollar not invested in the warfighter.”

The personification of this general reform tradition is Herbert Hoover. Hoover’s public life spanned the Progressive era and ended with his leadership of two significant commissions (1949 and 1955) studying the internal organization of the Federal government. His first commission played an important role in the formal creation of the Department of Defense. Peri Arnold calls Hoover “the Great Engineer” for his multi-decade efforts to structure efficiency into the Executive branch. Seidman (1998), restated more positively, cites the 1949 Hoover Commission reports as the definitive statement of Federal (and DOD) principles for internal organization. The “Consolidate and Control” reform tradition works on these principles.

Hoover and this tradition remain extremely powerful influences within the Federal government (Seidman 1998) and implicitly within DOD. The consolidation of multiple Federal functions into the Department of Homeland Security after the September 11th attacks illustrates the enduring influence of this reform tradition. Consistent with this approach, DOD military departments operate functionally similar depot maintenance activities within a single major command. As recommended by the GAO, there have been repeated attempts to consolidate all DOD depot maintenance activities into a single
Defense-wide agency. This tradition remains an active, vital doctrine within DOD and Federal organization.

**A Different Approach to DOD Reform**

In direct opposition to Hoover’s approach, and Goodsell’s third reform category, a competition policy as envisioned here inherently requires duplication and overlap (Tuckman 1985). If competition is a fundamental business concept, and a reform based on its use is plausibly labeled “businesslike,” then adding internal competition seems to create a conflict within Goodsell’s reform agendas. Competition inherently requires duplication and overlap (Miranda 1995, 194). Yet up until this point, both historical reform categories seemed to peacefully coexist and intermingle. Why did these reform traditions not address this conflict until now? The answer is readily understandable. The techniques of the businesslike reform tradition simply augmented Hoover’s principles of internal organization. Further, business itself utilized the same approach to internal efficiency. Businesslike reform principles simply paralleled Hoover’s general doctrines for internal organization.

It is on this point the research takes a different approach. Its conceptual starting point is rooted in the environments of both public and private organizations. This is a stark contrast with the necessarily interior starting point for internal organization. In a sense, this approach echoes the customer-focused reforms of Michael Barzelay (1992) and sees the working capital funds as a DOD basis for Barzelay’s customer and product orientation. Yet both the Barzelay reforms and much of the now-faded Reinventing Government movement seemed to draw their insights from the interior perspective of a
successful business firm. Through this perspective, both reforms maintained the
traditional perspective of past businesslike reforms. In contrast, the research here draws
its perspective less from the internal organization of business and more from the literature
of markets, organizational networks, and value chains. Perhaps for this reason its central
approach may seem somewhat out of step with the classical reform genre. Clearly, its
inherent requirements for duplication and overlap place it in conflict with past approaches
to DOD internal organization.

What does this conflict mean concretely? As an example, for a time the Air Force
Material Command characterized its commander as the chief executive officer of five
separate maintenance depots. The commanders nominally removed functional duplication
and overlap from among the five depots to achieve efficient public management.
Management then assigned workload among the depots perhaps by “fair share” or
“available capacity” in a conventional internal corporate process. The depots nominally
operated as a single, integrated commercial entity and the management perspective was
that of traditional internal business management. A competition alternative might loosen
this functional consolidation and instead allow competitions to allocate work among the
depots instead of a conventional management allocation. The fundamental comparison I
seek to understand is the contrasting ability of the two organizational alternatives to
improve efficiency.

There are many denotations and connotations for efficiency. Like so many terms
associated with past reforms, usage of the word became so widespread and so much bad
policy justified under its label, that “efficient,” as a reform term, became hackneyed and
clichéd. Despite this, the reforms investigated here seek efficiency as their objective. I will adopt both Herbert Simon’s definition and defense of the term. Simon (1997) supplies a superior justification to any possibly offered here. His working definition of efficiency is simply the accomplishment of more public work for the same cost. More work for the DOD forces from the same amount of public funds, or the same amount of work for less cost over time. Another term for efficiency is simply the delivery of value.

**Curbing Research Enthusiasm**

An incidental goal of the research is to shift towards a more balanced relationship between customers and suppliers within DoD and to highlight attempts by the working capital funds to imitate some characteristics of markets. In economic terms, the research implicitly calls for greater consumer sovereignty among DOD consumers (the military forces) and less domination by the suppliers (DOD supporting organizations). This effort can plausibly offer a new line of research for truer businesslike reform within the Department of Defense. Certainly, this research does not envision creating a grand, large-scale economy of public organizations operating as Hoover-style simulated businesses. This is more in scope with broader swaths of reform such as mission budgeting and wholesale Pentagon reinvention offered by some in the New Public Management movement (Thompson and Jones 1994). Yet, as an alternative to the present means of coordination and oversight within the DOD, cannot the dynamic coordination and cost performance of private markets provide more lessons to public organizations? This was the original attraction of businesslike reform; it ought to continue. If the internal organization and management techniques of business have been the provenance for many
past DOD reforms, this research argues useful future reforms can draw from the internal structure and institutions of markets.

Yet it is clear the zeitgeist of post-September 11th reform is very different from those days when Vice-President Gore (1997) authored a pamphlet entitled “Businesslike Government – Lessons Learned from America’s Best Companies.” The research context has changed. There are new perspectives for evaluating the topic. In the light of the recent 2008-2009 financial crisis, markets are déclassé. Certainly, they cannot be viewed as panaceas. Markets are remarkably self-correcting, but they require institutions to operate within—boundaries, fences and walls that channel their benefits and isolate the poor judgments and follies of their actors. This notable loss of enthusiasm for either businesslike or market-like reform gives breathing space for the dispassionate evaluation of research initiatives of this type.

**Depots and Military Equipment Maintenance**

The vehicle for exploring these issues is DOD depot maintenance: specifically its public aviation depots. DOD depot maintenance effectively constitutes four separate repair systems—one for each military service: Army, Navy, Marines, and Air Force (GAO 1993, 2). DOD spent a total of $13.6 billion in 2008 on public and commercial depot services. The public depots’ revenue was about $7 billion. Among the three military departments (Army, Navy, and Air Force), there is a minor amount of cross-departmental support for aircraft and vehicles, but the quantity is very limited. When the Navy awarded depot work to the Air Force in 1993, it was a remarkable exception to this general condition.
Within the research, we will lump all Marine Corps aviation activity with the Navy and never distinguish it from Navy aviation activities. The Marines are a part of the Department of the Navy. The Navy budget finances Marine aircraft. The Marine Corp budget only finances depot maintenance for their ground vehicles and equipment. Any reference to Marine Corps depots will be in reference to their ground vehicle depot maintenance.

Each of the military departments operates separate depot systems through different major commands (HASC 1993, 404). A major command is an important sub-organization of the Military Departments and will be an important actor within the case study. The Department of the Navy operates three depot major commands: one for shipyards, one for aviation depots, and one for Marine Corps ground vehicles and equipment. Each depot-operating major command within the Military Departments separately services a set of assigned equipment and customers. Army depots service Army equipment; naval air depots service Navy aviation equipment, etc. They are effectively organizational monopolies.

Table 1 shows the DOD major commands operating maintenance depots. With the exception of the Marine Corps, no specific depots are located at these headquarters locations. Instead, the depots operate within 15 states. In contrast with 19 current depots, at the start of the competition initiative in 1985, there were 35. Multiple rounds of military base closures drastically reduced their numbers.
Table 1. DOD Major Commands Operating Depot Maintenance Activities

<table>
<thead>
<tr>
<th>Military Department</th>
<th>Major Command</th>
<th>Primary Depot Maintenance Services</th>
<th>HQ Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Army</td>
<td>Army Material Command</td>
<td>Army Aircraft and Ground Vehicles</td>
<td>Alexandria, VA</td>
</tr>
<tr>
<td>Navy</td>
<td>Naval Sea Systems Command</td>
<td>Navy Ships</td>
<td>Washington, DC</td>
</tr>
<tr>
<td>Navy</td>
<td>Naval Air Systems Command</td>
<td>Navy and Marine Aircraft</td>
<td>Patuxent River, MD</td>
</tr>
<tr>
<td>Navy</td>
<td>Marine Corps Logistics Command</td>
<td>Marine Ground Vehicles</td>
<td>Albany, GA</td>
</tr>
<tr>
<td>Air Force</td>
<td>Air Force Material Command</td>
<td>Air Force Aircraft and Missiles</td>
<td>Dayton, OH</td>
</tr>
</tbody>
</table>

Maintenance depots, both commercial and public, are part of a wider set of equipment maintenance activities that repair military equipment. Depots accomplish the most extensive and difficult of these maintenance activities, while local DOD activities both service military equipment and perform simpler repairs. These local activities are the military bases, airfields, and homeports of the U.S. military forces. In turn, all these DOD equipment maintenance activities operate within a wider field of domestic and international commercial industry. This broader industrial sector for repairing commercial equipment and reparable components is the broader context for DOD equipment maintenance. Within the commercial aviation industry, MRO (Maintenance, Repair, and Overhaul) is the acronym referring to this larger commercial sector. By law, commercial organizations of this type provide contract depot services for 50 percent of DOD’s depot maintenance. These commercial MRO organizations complement, interact with, and in some cases actually are the original manufacturers who produce military ships, aircraft, and vehicles.
Like this larger industry, a military maintenance depot is an industrial facility of shops—paint shops, hydraulic shops, optical shops, sheet metal and electric shops. A military maintenance depot can be a loud, dirty place. At public depots, the workers are typically unionized DOD civilian employees. The work is hard and physical. A maintenance depot often contains the smell of oily rags, the ringing sound of hammers clanging on steel or aluminum, or sometimes just the silent waveforms and numerical readouts of electronic test benches. Its lighting is likely to be dim and institutional. It contains docks and hard stands, 80-ton industrial jacks, drill presses, equipment bays, machine tools, lockers, deep sinks, and dirty hands.

Sometimes in the depots, there is a recognizable piece of military equipment and an obvious connection with military warfighting. At a naval shipyard, its connection with warfare is the most obvious. The warship is the workplace and its passages and compartments contain the work. At other times, this warfighting connection is harder to make. If a visitor is at the right hanger or dock, they may see a tank chassis or turret, an aircraft fuselage, or a military truck; other times the connection is less clear. Usually soon after the equipment enters the depot, the object is dismembered and dispersed among the shops as an unrecognizable collection of boxes, assemblies, parts, wires, and cables. This is the reality of military depot maintenance.

As will be seen, unions representing depot employees have an active working relationship with members of Congress. This linkage introduces the enlivening electricity of democratic politics into all discussions of public depot activities. It would be a duller subject without it. The congressional policy decision to retain 50 percent of DOD depot
maintenance workloads for the public depots was the result of intense internal bargaining that nearly paralyzed congressional activity in the summer of 1997 (Graham 1997).

However, congressional involvement is not an immediate reason for cynicism. Congress is an important actor within a history of the competitions. Sometimes the detection of politics within administrative process generates calls for its ouster and the maintenance of pristine, untainted, and objective internal policies. Certainly, this is a part of the historical reform agenda. As will be seen, congressional attention is pervasive throughout DOD depot maintenance. Although this gives pause, it should not end the research. We cannot abandon the goals of public efficiency with a helpless, cynical shrug in the direction of representative government. The alternative seems so much worse.

Despite its initial appearances, congressional interest is more complex than simply the maintenance of public employment. Congress authorized the initial depot competition and, as will be seen, somewhat hesitantly supported its expansion from shipyards to aviation depots. Despite intense congressional interest, public depot employment has shrunk dramatically over time. Some but not all of this downsizing was a result of the Base Realignment and Closure (BRAC) process. Congressional members both authorized the process and ultimately voted on the closure of many bases.

In a sense, base closures represent a companion storyline to the depot competition initiative. Just as the Navy aviation competitions began, the current era’s first round of base closures took place in 1988. Just after the competition initiative ended, in 1995 the Department undertook a fourth round of closures. In 2005, DOD completed a fifth round. In an important sense, the threat of base closures and the loss of jobs may introduce
organizational effects very similar to that of competition. For depot workers and perhaps their management, base closures appear to generate as much risk to their positions as the most intensely competitive industrial sectors. The base closure process may well be the governmental equivalent of the violent “creative destruction” Schumpeter associated with markets and capitalism. Overall, the base closures represent a parallel and intertwined storyline, which complicates understanding the 1985-1994 depot competitions.

The Shipyard Origin of the Depot Competition Initiative

The GAO had been a long-standing critic of DOD depot maintenance, particularly its aviation depots (Grosshans 1983). In reports beginning in the 1970s, the investigative arm of Congress advocated creation of a DOD-wide depot maintenance command that would consolidate the otherwise independent depot operations of the Military Departments. These proposals are representative of traditional approaches to organizational consolidation that lie within Goodsell’s third category of reforms. Despite its recommendations, the DOD did not directly implement the GAO proposals except to create modest means for internal depot coordination.

In the late 1970s, partly because of GAO interest but also because of questions regarding military readiness and overall defense spending, military depots attracted greater and greater congressional interest. Congress equated effective military depots with the equipment readiness of military forces. Despite resisting the GAO-advocated reforms, the Navy specifically had begun to have internal doubts regarding the efficiencies and effectiveness of its organic Naval Shipyards (Dorwart 2000, 208-222).
Navy internal studies began to criticize the shipyards as inefficient and poorly managed (GAO 1994, 2).

With this context, the date of conception for the Navy competition initiative can be identified as March 29, 1984. It begins in an exchange between Senator Ted Stevens of Alaska and Vice Admiral Earl B. Fowler, Commander of the Naval Sea Systems Command. Admiral Fowler is testifying for the proposed 1985 Navy budget before the Senate Appropriations Committee. Senator Stevens asked,

Would it be possible to compete [ship] overhauls on a basis where we literally had a competition between government yards and private yards. Why do we not bring the public yards into that competition?

After Senator Stevens completed his proposal, Admiral Fowler answered,

In essence, we do have a competition among our navy yards. It is not quite as formal as it is in the private sector. I try to foster that…I would like very much to have that sort of competition. We would have to do quite a number of things to make it realistic and make it honest and a true competition. I think it would bring out some very useful factors. (SAC-D 1984, 338)

The exchange ended with an agreement to generate legislation to allow formal competition between public and private shipyards.

**Expansion of Competition to Naval Aviation and Results**

The competition program gradually expanded from its shipyard beginnings in 1985 until at least 1994. Fiscal Year 1987 legislation added Naval Aviation depots to the competition. The aviation overhaul competition was never very large in dollar terms, but it extended across several Naval Aviation depots and private contractors. It involved a number of important naval aircraft. The initial competition consisted of four fighter aircraft overhauls in 1988, and multiple overhauls per year from 1989 to 1992. Two Navy
depots submitted one combined bid against two private contractors. The Naval Air Systems Command (NAVAIR) selected the bid based on best value to the government (GAO 1992).

During the next five years, public depots completed 36 aircraft under the competition program while 92 aircraft operated under traditional arrangements. However, the Naval Air Systems Command directed both systems to utilize identical procedures for their overhauls. Over the period of the competition, F-14 overhaul costs declined 23 percent in terms of constant FY1987 dollars. The GAO concluded the real concerns for contract loss at public depots had generated significant cost saving by changes in the F-14 overhaul process. An important finding of the GAO was the problem of administering the competition. Contract administration problems detracted from the overall success of the competitions (GAO 1992, 18-24). Commercial depot work had well established contracting administration procedures. However, no equivalent procedures for documenting agreements with public facilities existed at the initial contract award.

Contract administrators approached the awards to the public depots in the same way they approached contracting with private suppliers. Private or public contract work, they assumed, requires authorization before proceeding. However, contract administrators were surprised to find the public depots continued to spend up to $6.9 million dollars beyond what they had authorized for the awarded services (GAO 1992, 20). Up to that time the public depots largely made their own judgment regarding the scope of work and appeared to expend whatever resources they saw fit (GAO 1992, 21). Both depot management and award administrators made important
points justifying their actions and expectations. The conflict required additional regulatory guidance from Naval Air Systems Command headquarters. The GAO evaluated these shortcomings and the overspending by the depots, but concluded they only modestly detracted from an otherwise successful competition.

**Research Perspective and Framework**

The work proposed here is policy analysis and evaluation in its broadest sense. Through development of the case study and the application of theory, the research seeks to review the competition initiative of 1985-1994, confirm its results if possible, and evaluate the future application of competition among DOD supporting organizations. Its perspective is that of economics-informed rational choice analyses. Perspective aside, in any policy research of this type, Munger sensibly argues for policy analysts to adopt a critical attitude towards investigating newly proposed policies. His analyst, he writes, “…hopes for the best, but assumes the worst unless her skepticism is disproved” (2000, xiv).

Without question, research of this type requires a speculative intuition regarding its potential value. Yet Munger’s point is well taken. Many reforms begin with boosterism and enthusiasm until implementation reveals their shortcomings. Then they fade away like Cheshire cats when new reforms begin. Initiatives following this arc are legion. They fail as often as not because of overdrawn conclusions from skimpy evidence. Ideas are stretched beyond their appropriate scope; assumptions that seem minor or elementary in one application loom large and naïve in another. Brook and Candreva describe dangers to public employees from reform cycles like these as
“repetitive change syndrome” (Brook 2007, 66). These cycles create worker cynicism as senior management enthusiastically introduces new initiatives, which fade away until replacement by yet another new initiative. Failure often lies within the reform’s original concept. An effective research approach should identify these errors early on.

Returning to the rational choice research perspective, Herbert Simon (1995), James Q. Wilson (1989), and George Frederickson (2003) all offer important caveats to the application of economic approaches to the study of public organizations. One might discount these concerns as the misunderstandings of non-economists, even despite Simon’s Nobel Prize for economics. However, the caveats of economist and Nobel laureate Joseph Stiglitz (2002) are another matter. It seems impossible to avoid some sense of caution after reading his descriptions of the “economics of information” and its ongoing impact on the standard models in the field.

Rational Choice, as an economically influenced research approach, began in many ways with Buchanan and Tullock’s (1962) effort on the borders of politics and economics. This is now Public Choice economics. Downs (1967), Niskanen (1971), and Vincent and Elinor Ostrom (1971; 1983) all extended this general economic approach to the study of public organizations. Frederickson (2003) notes the intellectual turmoil their accumulated theory has created within the field. In response, Simon (1995; 2000) and others pose serious questions to rational choice theorists about their central model of the individual. Rational Choice implies a utility-maximizing manager at the center of its analysis. As such, a research approach based on its propositions must not only make clear
exactly what its decision makers maximize, but also clearly define the constraints within which maximization takes place.

With these caveats, this research seeks to marshal an economically informed, multidisciplinary approach towards the historical goals of businesslike reform for DOD. The first and last important economic treatises on national security management were by Hitch and McKean (1960) and Enke (1967). Since then much of the academy, including economists, seem to have abandoned the comprehensive study of the organizational DOD and its problems (Betts 1997). This effort hopes to help reopen the issue.

**Porter’s Industrial Framework as an External Theoretical Framework**

As a starting point, commercial firms do half of DOD depot maintenance work. If the analysis were of these commercial firms, the starting point would be clearer. Analysts reasonably well understand the incentives for commercial organizations supplying DOD. Business-oriented models of firms and industrial sectors are reasonably well established. In the spirit of viewing DOD as an organizational economy, it seems reasonable to analyze its public depot maintenance activities in the same framework. Although public depots are not profit-seeking firms, the working capital funds do nominally create some characteristics of business firms. Although they do not seek profits, they do seek sufficient revenues to cover their internal costs. The analysis needs an analytical framework for non-profit organizations not only operating as de facto monopolies, but also in an environment of limited, imperfect competition. Imperfect competition is different from the perfect competition of idealized markets and ordinary economic analysis. We cannot expect DOD competitions in the past or in any conceivable future
reforms to achieve the idealized status of “perfect competition” as used in standard economic textbooks.

Michael Porter offers a complementary analytical framework addressing several of these points. It is a model of competitive forces within an industrial sector. He defines industry as, “the group of firms producing products that are close substitutes for each other” (Porter 1980, 5). Porter’s general approach for industry analysis matches several characteristics of the depots, particularly the aviation depots. Air Force depots produce services that are close substitutes to Navy aviation depots. This has been the historical basis of GAO recommendations for depot consolidation.

Porter’s model of industrial competition (Figure 1) is composed of five factors, in the following order:

1. Rivalry among existing firms  
2. Bargaining power of buyers  
3. Supplier bargaining power  
4. Threats of economic substitutes  
5. Threats of new entrants to the industry

Interpreting Porter’s list from last to first, original military equipment manufacturers might represent Porter’s fifth factor. Ordinarily, these types of firms (e.g., Lockheed Martin, Newport News Shipbuilding) usually choose not to participate in depot maintenance activities, but this commercial decision can change (factor #5). At the end of the Cold War, these types of firms became interested in depot work. These firms can also present the problem of economic substitutes (factor #4). A new aircraft or ship, perhaps designed for greater reliability, can be a direct substitute for existing equipment that may otherwise require extensive depot maintenance.
Continuing Porter’s list from last to first, the third factor (supplier bargaining power) includes not only ordinary production factor suppliers such as individual workers or labor unions within the depot, but also the parts suppliers for components replaced during depot overhauls. Labor costs are an important fraction of aircraft overhauls, but so are the costs of replacement parts. Rising prices in these areas (factor #3) can threaten profit margins in commercial firms. In this case, public depots might pass along these rising costs to military customers if less expensive alternatives are not available. For Porter’s second factor, buyers here are the military forces who purchase depot maintenance services through the working capital funds. In commerce, buyers with negotiating advantages (large accounts, few other buyers, etc.) can also introduce a type of competitive stress (factor #2) on supply firms. Finally, Military depots themselves, such as aviation depots or shipyard, might stand for Porter’s first factor. Any military depot capable of acting as a close substitute for another (factor #1) can create rivalry and complete Porter’s definition of an “industry” sector.
Figure 1. Forces Driving Industry Competition (Porter 1980, 4)

Porter’s methodology aids the formulation of business strategy for firms within a commercial industrial sector. Porter’s direct value to the research is his methodology’s ability to identify rival relationships among organizations. The technique builds on game theory and the assumptions of industrial oligopoly. Oligopoly is a market structure where organizations are interdependent. Members of the industrial sector are sensitive to the actions of other firms within the group (1980, 88). They react to the other organizations and circumstances of their environment. Porter’s commercial methodology assumes effective commercial strategy links with environmental circumstances. Strategy here seeks a friendly environmental niche away from damaging organizational conflicts such as profit-depleting price wars. The appropriate strategy adopted by a commercial firm follows from its environmental circumstances. In Porter’s view, effective organizational strategy causally links with the organizational environment.
Porter’s methodology suggests an application to this study from the earlier work of the organizational theorists emphasizing external resource dependencies. Like Porter, Pfeffer and Salancik (1978) also suggest the organization’s external environment is an important element in shaping internal managerial choices. In this same way, Porter’s methodology links organizational environments to a choice of strategy. Introducing competition is a change in organizational environment. This suggests that in adopting Porter’s approach, specific types of depot environments can result in desirable organizational strategies by depot managers. Porter’s model addresses alternative environments from monopoly to perfect competition and the circumstances of imperfect competition in between. It analyzes the degree of competition or rivalry within the organizational environment as a function of the five factors. Even if available depot-related data is inadequate to apply a uniformly quantitative approach to the analysis, Porter’s work provides a useful theoretical framework for research.

**Case Study Described**

Overall, Porter’s framework provides a firm theoretical structure encompassing the historical depot initiative. The research proposes a case study of the aviation depot competition to include both its Navy initiation and subsequent expansion to the Air Force and all of DOD. Consistent with Porter’s definition, DOD aviation depot maintenance constitutes a single industry as opposed to shipbuilding or ground vehicles. Further, Navy and Air Force contain the most closely relatable sets of depot maintenance activities. A case study comparison of the Navy and Air Force from the mid 1980s until early 1990s contrasts one Military Department (Navy) utilizing competition while another did not.
When the Air Force depots do adopt competition in 1991, their implementation can supply a useful contrast with the Navy. Although the aviation depot competitions were small relative to the overall Navy depot maintenance, comparisons of depot maintenance cost performance with the Air Force may suggest there were wider benefits for the competition.

The embedded units of analysis for the case study are the separate aviation-related competitions within the Navy and Air Force and their contrasting organizational context during this period. While the Navy began its aviation competitions in 1987, the Air Force undertook no competitions until 1991. The final years of the competition initiative were a DOD-wide effort begun just at the end of the Cold War. The relatively modest initial objectives of the competition initiative became a part of the Cold War drawdown. Its objectives commingled with large-scale base closures and proposals to privatize all of DOD depot maintenance. These combined circumstances intensely politicized competition and all depot issues by the end of the period.

Although the focus of the effort is on aviation depot maintenance, the research proposes to augment its aviation case study by also describing incidental events from the Navy public-private ship repair competitions beginning in 1985. The shipyard competitions provide useful additional data regarding the effects of competition on public organizations. Similar to aviation depots, public and private shipyards competed for Navy ship repairs but with one significant difference: the contrasting U.S. shipbuilding industry presents a very different context for the overall competitions from the U.S. aerospace industry. One industry is commercially defunct, where the other is internationally
competitive. It seems likely congressional reaction to the competitions varied with these differences.

**Remaining Chapters Overview**

The remaining research after this introductory chapter consists of six additional chapters. The second chapter will build on the defined research approach and draw from the compatible research literature to build a suitable theoretical basis for the effort. The third chapter will describe the case study methodology. The fourth chapter will consist of a case study concentrating on Navy and Air Force aviation depot maintenance from 1985 through 1994. The fifth chapter will present the GAO-documented quantitative results of the competitions. The sixth will evaluate and synthesize the case study and the competition results. A final chapter will offer conclusions and point out the opportunities for additional research.
2. Organizations, Human Models, Competition

As noted in Chapter 1, for nearly a quarter of century the GAO expressed concern about DOD’s overall depot management. They perceived duplication and overlap among the Military Departments. To achieve savings, GAO recommended, DOD should combine the depots into a one agency under a single manager. Centrally managed attrition would then reduce the excess facilities and personnel (Grosshans 1983). In different reports and testimony, the GAO advanced these recommendations repeatedly. The Military Departments and their depots resisted the GAO recommendations. It was around this period that the Navy began its policy of depot competition. In this sense, the Navy initiative represents a distinct policy alternative to the GAO approach. Each alternative seeks the same goal of efficiency, but each approaches the goal through distinctively different means.

Porter’s model of an industry sector seems well suited to analyzing the depots under these alternative arrangements. The depot’s working capital fund structure imitates a commercial industrial sector reasonably well, and Porter’s model has the flexibility to represent each alternative: single, integrated agency or competitively assigned suppliers. However, Porter’s framework is inherently commercial. Clearly, the public depots are not commercial entities. These facts require modifications to the content of Porter’s framework. The purpose of this chapter is to replace Porter's representation of
commercial firms with a theoretical understanding of public depots operating within a working capital fund. The literature review will provide a representation of the public firm and its managers to replace the commercial firms ordinarily evaluated within Porter’s framework.

Consistent with this objective, the literature of public organizations and competition forms the basis of the review. At the center of this chapter, there are three parts. The first part consists of the classical literature of public organizations. These canonical references form the basis of GAO’s recommendations for DOD depot maintenance. This literature describes the depots operating within working capital funds without competition. Competition exists within this traditional literature; however, it exists largely in the form of rivalry and bureaucratic politics. Competition is treated as a pathology for removal or suppression from within the organization. This first section concludes with a review of traditional organizational design, management oversight, and budgeting. These subjects represent the generally defined, traditional means for achieving efficiency within the DOD.

The second section of the review addresses a different view of competition. In contrast with the traditional literature of public organizations, competition is viewed here not only as a fact of organizational existence, but potentially as a positive force for achieving efficiency. Not surprisingly, this section largely consists of economics-inspired literature for the study of public organizations. This section also introduces various models of human mangers to allow a contrast with the implicit human models of traditional organizational design.
The third section seeks to review quickly the institutions of competition. Competition is not a panacea. It requires institutional safeguards to channel its inherent rivalry towards useful ends. The working capital funds create many of these necessary institutions, but the addition of competition may require new structures. Further, there are the pathologies of market competition, well documented in the literature, which a competition initiative must both explicitly acknowledge and neutralize by suitable institutions. This short section seeks to touch on these topics. The chapter concludes with a synthesis and critique of these three sections in order to provide a basis for the research design in Chapter 3.

This is a broad and disparate literature, and the review is necessarily interdisciplinary. It draws from organizational theory, the classical literature of public administration, and the economic theories of bureaucracy, and intersperses historical reform literature from the Progressive Era. An important if not synonymous element of the Progressive Era was the Good Government movement. Chapter 1 discussed some of the inherent conflicts between the research discussed here and the classical reform tradition. The following section does not minimize these conflicts. It recognizes that these differences are substantial even though this research and the classical reform tradition have almost identical objectives. This section serves to introduce the literature review and give each of its three sections a better-defined context and justification.

**Research Conflicts with Classical Reform Theory**

Many of the management/organizational reforms described by Goodsell, Peters, and others—most having DOD application—have their roots in the honorable objectives
of the Progressive Era and the Good Government movement. Michael Barzelay (1992), in his attempt to articulate a status quo alternative to his reform initiatives, somewhat dismissively labeled this movement’s legacy as the “bureaucratic reform vision” or “the bureaucratic paradigm.” However, it is worthwhile to distinguish the objectives of the Good Government movement from its historical assumptions and methodology.

Historically the objectives of the movement have been for organizational competence, public service, efficiency, and the common good. All of these goals are evident in the historical reforms practiced within the DOD. All remain appropriately vital objectives. Yet the theme of this chapter is to distinguish these ends from their traditional means.

As early as 1926, Leonard White, in the first American textbook for public administration, took note of this national reform movement. He characterized its objectives as a drive for “efficiency and economy,” which had concerned itself with such matters as “reorganization…accounting…the installation of a budget,” and sometimes the “control of the day-by-day expenditures of the departments.” To achieve these goals, he recognized the central importance the movement attached to organizational integration by top-level management. He makes this point in his summary of the reform movement’s organizational agenda at both State and Federal levels:

The general tendency of the movement has been all in the direction of setting up “natural” units of administration, and binding them together by many expedients, the most important of which have signally enlarged the scope and intensity of the administrative leadership of the chief executive. To this trend, therefore, it is proposed to give the name of integration…This definition does not, and need not imply that all administrative decisions are made by the chief executive…It means only that to the chief executive are given adequate powers to ensure that the whole administrative machine will work as a unit, instead of scattering its
efforts in a hundred unrelated, if not competing, activities. (White 1926, 103-4)

The Good Government movement has a long and distinguished history in the United States. Herbert Hoover and the Progressive movement are part of this tradition. Its history inextricably links with many of Goodsell’s reforms described in Chapter 1. Lieberman (2005) gives a useful overview of the movement. He describes its dedication to social progress and to a fundamental belief in expertise within the public administration, and finally the movement’s profound distrust of politics. The movement began after the U.S. Civil War with campaigns for civil service reform and movements against public corruption and city machine politics. Textbooks celebrate the Good Government movement through stories of muckrakers, the legendary Bureau of Municipal Research (which devised the public budgeting system) and in the great story of New York City’s Robert Moses (Caro 1974) as a fallen member of the movement. The movement reached its peaks in the first decades of the last century, remained readily visible within the New Deal, and now has essentially become a part of the civic culture of the United States.

The cultural seeds implanted by the Good Government movement contain a strong sense of personal service, if not morality. This latter point is evident in its frequent readiness to label human shortcomings as greedy, evil, or even sinful. Some in the ongoing evaluation of the late financial crisis have taken a similar approach. An admittedly crude simplification of the human models evident within the movement consists of two categories: the good and the evil. The good are distinguished among themselves by knowledge. These are “the experts” identified by Lieberman. Their
obligation is to leadership and to defend the remainder of the group from the venality and self-serving corruption of the bad. Working from its sense of morality, its goals are therefore apolitical. It seeks the common good. Politics, so often the domain of the venal and the corrupt, are often the enemy of the movement. It seeks enlightened, educated, moral leadership by the best and the brightest. Perhaps for all these reasons, the movement seems uncomfortable with management and leadership reforms built around individual self-interest.

There are many parallels and shared influences between the movement and the classical approaches to government organization. Special knowledge and expertise are both central to the organizational division of labor and to the Good Government movement. In the classical organizational approach, a distinctive managerial expertise synthesizes the parts of an organization into a coherent whole. Management integrates homogeneous clusters of expertise or skills into a balanced, purposeful entity (Gulick 1937). At the top of the hierarchy is enlightened and educated leadership giving the organization its guiding values along with reasoned, judicious decision-making. This integration function is a unique kind of generalist expertise separate from the narrowly focused specialists leading the organizational parts. Its role is the synthesis or integration of the organization into an effective, balanced whole.

A specific example of this classical model exists within 1992 congressional testimony discussing a study of the DOD maintenance depots. It seems to confirm the continuing attraction of classical management roles within DOD and its depot maintenance function:
Regardless of the action taken…truly significant progress [with respect to depots] cannot be expected without some superior commander with the knowledge and authority to make decisions and follow through on action across service boundaries. No matter what efforts are made, and the services [Army, Navy, etc.] have worked the subject hard, without top-down direction they will not even be aware of the opportunities available to decrease capacity which will free up funds for higher priority needs or reduce the overall cost of defense. (Went 1993)

A retired Marine Corps general offered this particular suggestion. Not surprisingly, it is a commonplace reform approach offered not only by active and retired military, but also by business leaders and congressional members as a prescription for DOD organizational problems. The GAO many times in its reviews of the DOD depots has offered this same suggestion in different forms. This basic approach and its implicit human model is at the center of DOD budgeting and organization. Consistent with its intellectual heritage, the two key features of the model are 1) “knowledge and authority” and 2) top-down direction providing value judgments. This is the classical model of organizational leadership for integrating information, priorities, and funding.

Cost control and efficiency is one of the managerial, integrative functions within Hoover’s leadership model. Once leadership creates the internal structure of the organization, budgetary oversight and review is conducted to ensure the efficient accomplishment of its work. The burden is on senior leadership and their staffs to detect and remove inefficiency. Barzelay (1992, 121) goes so far as to claim that seeking efficiency without effective functional integration is a sham. However, the basic criticism here is that Hoover’s organizations, particularly in their integrative functions, seem too much built on the assumptions of the Good Government movement and their implicit human models of leadership and management. These traditional approaches to efficiency
seem to rely too heavily on assumptions regarding the human capacity to integrate large
organizations and to discern the relative value of their parts. If this is true, it calls into
question the ability of Hoover’s organizational doctrines to achieve his goals for
efficiency and cost control.

The argument here is that the inherent size and complexity of an organization like
DOD overwhelms the classical approaches to efficiency. In many ways, the Department
of Defense carries many of the characteristics of the Good Government movement. To
this point, it is significant that Skowronek (1982) chronicles the rise of military
professionalism from 1877-1920 in parallel with the work of the Good Government
movement. Military professionalism and expertise dominate the DOD in a way perhaps
the Good Government movement might approve (Locher 2002). Nevertheless, the
management and integration tasks required of senior DOD leadership, including senior
military leadership, to bind together an organization such as DOD seem to strain ordinary
human capacity. Some have begun to call the position of Secretary of Defense “the
impossible job” because of these difficulties (E. A. Cohen 2002). The recent criticism of
the department by Secretary of Defense Gates (2009) points out the continuing
management problems for this very important but problematic organization.

A form of James Madison’s famous argument from Federalist No. 51 can be
applied to management of the Department of Defense. The preamble of the DOD
founding statute sought, “a comprehensive program for the future security of the United
States (50 U.S.C. 401).” The underlying concern within my research is that as currently
designed and operated this objective for DOD may be beyond the power of ordinary
humanity. For both the wider DOD mission, and for the cost control of its internal supporting activities, classic organizational dicta may well require Madison’s “angels and heaven itself” to repeatedly participate in the management of the department. Building on Federalist No. 51, not only must the structure of government furnish internal checks and balances, but it should also offer structural means to aid senior leadership in controlling its costs. Competition is theoretically such a means to aid the management of the department. In this sense, the research here is implicitly a critique of its current structures and processes regarding cost control while seeking an alternative formulation for reform.

The study works within a larger body of ongoing governmental reform research (Ingraham 2003). Albeit unconventionally, my research here seeks to improve one sector of Federal organizational performance and management. The Department of Defense is its specific focus. The research asks if alternative processes such as competition working with a working capital fund structure can achieve efficiency more effectively that the traditional process imposed on senior managers and staff. The research aims (stated less elegantly than Madison’s famous admonition) are to better align human incentives and capacities among the various positions of DOD leaders and managers. In the background of the literature review is the comparison of two organizational alternatives, each seeking to achieve the enduring goal of DOD internal efficiency. One alternative represents the classical organizational approach of functional consolidation and management cost

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3 Madison famously wrote in Federalist No. 51, “The interest of the man must be connected with the constitutional rights of the place. It may be a reflection on human nature, that such devices should be necessary to control the abuses of government. But what is government itself, but the greatest of all reflections on human nature?” (Madison 1788)
control by oversight. The second represents the acceptance of some duplication and overlap to create competition among a group of internal suppliers.

**Introduction to Competition in Organizational Literature**

This section introduces the first and second parts of the literature review. These two parts consist primarily of the traditional literature of public organization and the largely economic literature of organizations and competition. Both groups are concerned with the somewhat mysterious process of “coordination.” Coordination in both literatures is the process by which disparate elements of a system are brought together to work for an identifiable purpose. Economics’ study of markets, prices, and competition exemplifies its interest in coordination. Likewise, Wilson (1989) and Seidman (1998) both remark on coordination as a crucial problem within organizations. Coordination in this latter literature equates with the organizational problem of integration discussed in the previous section.

Despite these common interests, the literature largely sees markets and organizations as competing and mutually exclusive alternatives for accomplishing human activity (Williamson 1975; Simon 1995; Simon 1998). Each provides alternate structures for the coordination of human affairs. Each makes use of distinctive means for achieving its effects. For example, in a market economy, competition serves to control and discipline constituent organizations. Within an “organizational economy” (to use Herbert Simon’s phrase), alternate means achieve similar objectives. As such, in the ordinary view they become opposite and antithetical. An organizational economy excludes markets. A market economy is external to organizations, and public organizations start
where markets fail (Bator 1958; Bozeman 2002). These are typical viewpoints within the literature.

Of course, the reality becomes more complicated upon closer inspection. A market is composed of many nominally independent organizations. An organization of organizations like the DOD limits the independence of its constituent parts, but so do the institutions of the market system. In this vein, some suggest the concept of markets and organizations as exclusive categories is fading (Teisman 2002), and that the boundaries between these systems are not as distinct as ordinarily thought. At the risk of becoming too glib, this point suggests under some conditions markets and organizations might be more usefully analyzed as idealized categories at extremes of a spectrum. As illustrated by Figure 2, this implies a range of intermediate positions between the extremes where these idealized characteristics might mix to create hybrid means for coordinating human affairs. A DOD internal competition alternative conceptually falls between the two extremes of the figure.

![Figure 2. Markets and Organizations in Human Affairs](image)

Stepping off from some of Herbert Simon’s (1995) last words on the subject, we might currently see the effective use of markets and organizations in human affairs as differing in scale and definition. Organizations seem to dominate relatively focused and
well-defined sets of productive human activity, while markets seem to dominate when similar activity becomes uncertain in its inter-connections, diffuse, sprawling, or laden with contingency. The observation suggests asking, in the sense of information and uncertainty, how defined the activities of markets might become before organizations dominate as a means of human activity. Likewise, this research indirectly asks how uncertain the activities of organizations might become before markets and market-like arrangements alternately might dominate the process of coordination. Given the size and purposes of the Department of Defense, we seem to be working at the edges of the two systems.

These contrasting means of accomplishing human activity have generated differing views on the subject of competition. The views in the literature seem to coincide with the relative emphasis on organizational environments. Where one literature de-emphasizes organizational environments, competition is a less prominent subject. This research literature focuses more on issues of internal management and organization. Where the research literature emphasizes organizational environments, where its research perspective places itself outside the organization, competition tends towards greater discussion. I will use the literature’s differing views on competition as the basis for dividing the first and second parts of the review.

There are several examples of how an emphasis on the organizational environment parallels an interest in competition. Michael Porter (1980, 3) opens his work on competition and business strategy with the words, “The essence of formulating competitive strategy is relating a company to its environment.” Pfeffer and Salancik
(1978) emphasize the environment and the resource dependencies of the organization in their analyses. They argue an environmental focus is important to the management and control of organizations. Within the literature, a notable branch of research studied organizations as explicitly analogous to biological entities. In an earlier time, Louis Pasteur in his studies of microorganisms and their development is supposed to have eventually conceded, “Environments are everything” (Sinding 1999). In the same spirit of Pasteur’s comment, Hannan and Freeman, as founders of the organizational ecology literature, emphasize the selective or environmentally driven nature of organizational outcomes vice “adaptive” outcomes that originate from within the organization (M. T. Hannan 1977). Economics itself rarely uses the term “organizational environment,” despite its extensive research and discussion of competition. However, the environment is inherently present in economic models as it emphasizes organizational and managerial context as an environmental surrogate (Pfeffer 1978, 278).

Hannan and Freeman’s comment suggests “adaptive” as an appropriate label for the branch of organizational literature where competition is de-emphasized. This literature is less likely to address organizations from an environmental context; that is from the outside in. Instead, the adaptive literature is more likely to work from the inside out. Competition exists within the adaptive literature, but given its general focus on internal organization and management, it is less frequently addressed. This adaptive management and leadership literature is the basis for most recommendations on depot maintenance reforms offered by GAO. The review of “classical” approaches to organizational theory and efficiency already introduced a portion of this literature. After
discussing the muted role of competition within its content, I will discuss its processes for achieving internal coordination, efficiency, and integration.

**Adaptive Organizational Literature on Competition**

This adaptive organizational literature, associated with the classical theories of management and organization, forms the first of this chapter’s three-part literature review. There have been reform movements within the adaptive literature that argue expansively for extracting lessons from markets, but this literature generally stops short of discussing competition among public organizations. Peters (1996) and Light (1995) provide important and useful overviews of this literature. Of the four broad reform models Peters identifies, the closest to making active use of competition is “Market Government.” Peters notes it holds a “…basic belief in the virtues of competition and an idealized pattern of exchange and incentives” (Peters 1996, 22). It essentially accepts market organizations as the standard for public organization performance, but it generally favors privatization and outsourcing of public activities. In this way, it sidesteps issues of competition among public organizations under discussion here.

More generally, the adaptive literature seems uneasy when discussing competition. James Q. Wilson (1989) recognizes the force of competition in the form of bureaucratic turf wars. Gulick (1933, 158; 1937) discusses competition as a misunderstanding within the organization, and the need for a cooperative, common perspective within the organization to allow effective integration and coordination by management. Halperin’s (1974) seminal work on bureaucratic politics within the U.S. national security establishment is rooted in internal rivalries that are in many ways the
essence of competition. More recently, in discussing self-organizing informal networks among regional public managers, George Frederickson (1999, 709) offered these networks as evidence for the conclusion, “Market and Competition models are, then, less useful than cooperation models.”

The general sense within this literature, as hinted at in Frederickson’s conclusion, is that organizations should suppress competition, or at a minimum put it aside for tools that are more effective. The literature often cites the harmful presence of competition and conflict within small groups. Rainey (2003) in his standard text, “Understanding and Managing Public Organizations,” contains no reference to competition except in the context of small group conflict. The conclusion seems to be that large organizations should and can conform to the standards of a small workgroup with respect to internal conflict and competition. In this same vein, competition within and between public organizations is sometimes addressed as an explanatory factor for organizational problems. For example, there is a large set of literature, such as Schilling (1961) and Stubbing (1986), which views competition between the Military Departments of the Army, Navy, and Air Force as harmful. Undoubtedly, some of the competition has been damaging. Former Secretary of Defense Schlesinger notes the need to avoid some issues within the DOD to keep peace among member organizations (J. Schlesinger 1997).

Although this literature does recognize competition and its success within market economies, there is also a sense that if competition is simply about reducing costs, then planning can accomplish the same results. This viewpoint might be characterized as “the results of competition can be anticipated, and planned for, thus improving public
efficiency without creating adversarial relationships.” This view appears to parallel the historical commitment to planning not only with DOD but also in most public organizations. Heclo notes how powerful this planning impulse was within classical concepts of organization (Heclo 2002).

We are still within the first section of the literature review, reviewing the adaptive literature of organization. I will touch on this historical commitment to planning in the discussion of budgeting in the following section. The review will temporarily put aside the topic of competition until returning to it in the chapter’s second part. The following section completes our review of the adaptive literature of classical organization theory by addressing its concepts for cost control and efficiency.

**Classical Literature of Organizations, Efficiency and Budgeting**

Competition aside, this section provides a brief overview of classical organizational and budgetary theory appropriate to the research. The general issue discussed throughout this chapter is the problem of cost in a complex organization like DOD. In DOD, management assembles complex streams of diverse activity to create and sustain the military forces. The balanced integration of these diverse pieces is the task of its senior managers. In the process of integration, the DOD public manager is to seek out and remove waste from the organization relative to its public purpose. One of the means for achieving efficiency is the elimination of organizational duplication, overlap, and redundancy. Another is within the budgetary process where cost and organizational work are nominally related.
The section begins with the description of working capital funds and then widens its scope to a general discussion of classical management and organization theory for public organizations. Herbert Hoover is the great organizational engineer of this classical tradition, with Luther Gulick (1933; 1937) as its great theoretical recorder. Both Seidman (1998) and Arnold (1974; 1976; 1980) confirm the continuing relevance of the Hoover tradition within the Federal government and the DOD. The following discussion is a critique of classical concepts of organizational efficiency and budgeting that will both introduce working capital funds as one of Hoover’s legacies, but also address his extended influence in both areas.

**Hoover’s Market-Like Organizational Devices**

The Department of Defense, by statute, consists of two classes of organization: the first class is the military forces that represent the output of the department. The second class is a large set of activities necessary to create and sustain the military forces (R. E. Porten 2002). Military forces require support from DOD supporting activities to maintain their warfighting capabilities. These supporting activities recruit and train personnel, supply spare parts, or operate military bases. Often either public or private suppliers can serve as supporting activities for the military forces. The awareness in recent years of private contractors on the battlefield supplying services to operational forces illustrates the frequent ability of either public or private sources to supply this broad set of supporting services. Yet as discussed in Chapter 1, supporting activities cannot all be privatized. Depot maintenance within the DOD fits this pattern if only by
It represents a DOD supporting activity designated by law for equal supply by public or private sources.

If we can say that the organizations of the DOD have been broadly organized into categories of customers and suppliers, then a crucial feature of these supporting activities is the dedicated assignment of supporting activities to specific “customers” within the military forces. Alternatively stated, DOD military forces have a single source of supply for their support demands (K. S. Caldwell 1984). The first and second Hoover Commissions of 1949 and 1955 noted problems with this “free” supply of services. Customer demand by the military forces was in some cases virtually unchecked except by administrative control or rationing. The Hoover Commission saw this as a source of wasteful spending.

The Commission called for expansion of working capital funds or “simulated markets” throughout the executive branch in order to raise the cost awareness of customers. On the Commission’s recommendation, financial amendments to the National Security Act of 1947 included expanding the use of working capital funds within the DOD. Congress commended these improvements as “an incentive to efficiency and economy,” and noted their long and successful use in the U.S. Navy (U.S. Senate 1949, 18-21). GAO (2008) provides an in-depth background on working capital funds within the larger context of Federal financial practices.

These working capital funds sought to simulate a business enterprise by an initial grant of capital from congressional appropriations, followed by their indefinite sustainment by “selling” their products to internal DOD customers. Military customers of
the working capital funds receive their funding from specific congressional budget appropriations and then transfer these appropriations into the working capital funds when work is completed. “Selling” here is largely a euphemism for an internal accounting transfer, but it has its effects. The goal of working capital fund managers is to break even on an annual basis. The appropriate price to charge internal customers is an important problem of working capital funds.4 Product prices are set to offset the costs of goods and services provided to customers and to recapitalize the fund.

Breckner (1960) describes this “buyer-seller device” as “an attempt to impose on a sprawling network of military units the type of coordination and constraint that controls economic units under private property in the market.” It is a device designed to bring the benefits of decentralization to a very large organization and to reveal the full costs of internal supporting activities (Bailey 1967). In a 1976 review of DOD experience with the funds, the GAO presented a decidedly underwhelming endorsement. The funds provide a “satisfactory” and “worthwhile” technique for financing industrial and commercial type activities but, “The record of the past 27 years indicates [the funds] have achieved some of the objectives intended by Congress but have not been the panacea many hoped for (GAO 1976, i).” The GAO (2008) also notes the limited scholarly literature on the performance of the funds and the mixed findings as to their overall performance. Seeking to understand why working capital funds have not been more

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4 Hirshleifer (1956) provides a good theoretical background on the problems of setting internal transfer prices. GAO (2008) provides a good statutory and practical overview of the working capital fund concept along with a history of its DOD implementation.
successful becomes an important entry point to illustrating classical approaches to organizational design.

As mentioned earlier, an ironic feature in implementing these “simulated markets” has been the maintenance of a single source of supply for buyers. In no way are these functioning markets, with multiple customers and suppliers; instead, they are effectively monopolies. Breckner (1960), Bailey (1967) and, more recently, Byrnes (1993) were all concerned with this condition of monopoly supply within the working capital funds. More broadly, however, all were concerned with the general alignment of incentives within the device. The preservation of a single source of supply (i.e., no competing suppliers) appeared to these observers as creating adverse incentives for DOD supporting organizations.

Despite Hoover’s hopes for working capital funds, this feature of monopoly supply offered few new direct incentives for efficiency over existing organizations. Along these lines, the GAO characterized working capital fund incentives as similar to commercial cost-reimbursement contracts (GAO 1988, 25). In these types of contracts, contractors gain reimbursements and hence benefit from accumulating costs. These contracts expressly require oversight to review all costs offered for reimbursement. The oversight must be able to distinguish valid from invalid costs and enforce the distinction. The GAO finding recognizes these same incentives operate for organizations funded as working capital funds. Given this inherent need for effective oversight, dedicated supplier-customer links deprive the working capital fund customer the crucial ability to compare the costs of similar activities from different suppliers.
However, the maintenance of a single source of supply for working capital funds is not surprising. A pejorative label such as “monopoly” in no way completes the analysis. A second source of supply runs directly contrary to fundamental elements of traditional management techniques. If the adaptive literature generally adopts a theoretical perspective from within the organization, the maintenance of a second (presumably inferior) source of competing supply within an organization becomes the embodiment of a similarly pejorative label of “duplication and overlap.” If two internal sources or two internal alternative processes exist, management, in this view, should choose the superior and abandon the inferior. It is a natural, intuitive approach of classical management. Most importantly, at some level of certainty and organizational scale, it is an entirely sound approach.

Rainey (2003) provides an excellent overall review of this traditional organizational literature. An important tenet of this literature is work specialization and the appropriate division of labor. Whether it is Adam Smith’s famous pin factory or Gulick’s shoe manufacturer, the extraordinary productivity offered to human activity by specialization appears irresistible. Specialization offers such extravagant cost saving that its incidental problems are readily accepted. As Gulick (1937) notes, the need for organization itself is an inherent response to specialization. He goes so far as to recognize that “Work division is the foundation of organization; indeed the reason for organization.”

In the DOD, this work division is complex. The formal administrative organization is composed of three military departments, numerous major commands (as
partially introduced in Chapter 1), approximately 21 major defense agencies, and local organizations operating from more than 300 major installations worldwide. These local organizations, perhaps one or two per installation and consisting of perhaps 5,000-10,000 personnel each, undertake the day-to-day work of the department. After their coordination and integration by military major commands and military departments, the Office of the Secretary of Defense ultimately oversees the work of these local military and civilian organizations.

Simon (1995; 1998; 2000) notes the important effect of local group loyalty. The individual manager and worker often identify first with their local organizations. Simon states, this local organizational loyalty and identification:

…conditions the entire manner in which we [inside the organization] think about our situation and the choice we have to make. We view the world from the standpoint of the goals of the groups with which we identify…selective perception cuts the complexity of the world down to size – to the size commensurate with the ability of our minds to cope. (Simon 1998, 6)

Simon importantly claims this identification with the local group boosts work productivity and draws from the individual greater effort than might be predicted in standard economic theory by wage and benefit calculations.

Simon’s points appear to weaken one of the key assumptions of the classical organizational theory. Gulick and others emphasized the necessity of a common outlook across organizations to allow their integration and coordination. At some size, the organization cannot maintain a homogeneous outlook. When this common outlook become too difficult to sustain, and local loyalties dominate, top-level management often relies on central control and enforcement of rules (Barzelay 1992, 125). These rules seek
to define, in March and Cohen’s (1989) terms, a “logic of appropriateness.” Accumulated sets of rules seek to define a given situation and dictate the correct response, but the ability to anticipate all contingencies is beyond the power of organizational designers and top leadership. In the end, management must grant organizational sub-units some measure of autonomy simply because there is no real alternative.

Despite this explicit criticism, in defense of Gulick and the other great scholars of classical theory, they did operate at least implicitly within a world of bureaucratic discretion or autonomy. The adaptive literature of public organizations has always emphasized its intimate connection with public law. But if public law is the first of a series of rules for compliance, most of the early reformers recognized it is impossible to define completely the specific actions organizations are to undertake or avoid. Administrative organizations themselves exist because the law cannot define every task. Some measure of autonomy is inherently required. Gulick recognized this. As Theodore Roosevelt noted, “You cannot give an official power to do right without at the same time giving him power to do wrong” (Kehlman 2008). See also Justice Holmes’ famous admonition that government needs some part of flexibility and discretion to operate: “the machinery of government would not work if it were not allowed a little play in its joints” (Holmes 1931).

The need for discretion is an inevitable result of large organizations (Tullock, 1964), but also an inherent element of their design. Congress, the President, or the Secretary of Defense seek bureaucratic expertise to accomplish the public work it certainly could not undertake alone, and very often what it otherwise knows not how to
do. But beyond this, autonomy, as a stronger form of discretion, is won from Congress (or any level of oversight) sometimes even against its will. Daniel P. Carpenter (2001) surveyed the literature of bureau growth and independence following the Civil War (which included the professionalization of the U.S. military). He documents Gifford Pinchot’s 1905 coup against the Speaker of the House in transferring forest oversight to the Department of Agriculture.

Carpenter argues for the ongoing existence of bureaucratic autonomy even within a nominally controlling hierarchy. He defines autonomy as a form of deference from its political environment. Autonomy is larger than a simple allowance of discretion. Autonomy is, “self-consistent action that neither politicians nor organized interests prefer but that they either cannot or will not overturn or constrain in the future” (Carpenter 2001, 17). The specific application here of this concept is at the level of depots and their major commands. This is not to make any judgment at this point regarding the relative autonomy earned or even the relative discretion granted to the depots. It is simply to establish the concept within the literature.

**Achieving Efficiency – Planning, Budgeting, and DOD Organizations**

A theme I will continue to highlight is the attendant information and conceptual complexity forced on senior public managers, which follows from increasing organizational specialization, complexity, and autonomy. The classical reformers and management theorists recognized the attendant need to integrate organizations in response to specialization. Integrating specialized parts into a larger organizational whole is in part a process of ensuring the efficiency of the organization, ensuring that no
resources are wasted in the parts relative to the organization’s overall purpose. Gulick (1937) nicely summarizes the issue (and echoes the ethos of the Good Government movement) when he states, “Division of work and integrated organization are the bootstraps by which mankind lifts itself in the process of civilization.” [emphasis added]

It was in response to the problem of integration that Gulick (1937) discussed the problems of top-level management and devised his famous POSDCORB system to describe the integration work of chief executives.

Many of the topics summarized in POSDCORB describe what have become important staff functions supporting traditional public management. For example, its final “B” stands for budgeting.5 The literature of budgeting and organizations serves to extend the review of the classical approaches to organizations and efficiency. This is an appropriate extension. An underlying question in the research seeks to understand how the structure of public organizations shapes both the design of its work and its utilization of money to accomplish its designed purposes. To understand why internal competition might generate relative efficiencies under some conditions, we should start with budgeting. It is the sphere where public money and the public work are the most closely associated with classical approaches to organization. Money, the public work, and budgets would seem to be at the heart of the efficiency issue.

McCaffery and Jones (2004) provide the definitive contemporary description of the Department of Defense budget process, but Schick offers a classic description of

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5 POSDCORB is Gulick’s mnemonic describing seven functional responsibilities for top-level organizational leadership: Planning, Organizing, Staffing, Directing, Coordinating, Reporting, & Budgeting (Gulick 1937).
building budgets within a hierarchical organization such as the DOD. Schick’s
description applies not only to budgeting, but also to the flow of information within the
hierarchy. Budgets can be viewed as a form of managerial information:

…the first step in budgeting, in anticipation of the call for estimates, is for
each department to issue its own call to prepare and submit a set of
estimates. The call reaches to the lowest level capable of assembling its
own estimates. Lower level estimates form the building block for the next
level where they are aggregated and reviewed and transmitted upward
until the highest level is reached and the totality constitutes a department-
wide budget…each building block estimates the cost of what it is already
doing plus the cost of the increments it wants. (Schick 1966, 257)

Budgeting is an essential part of coordinating the organizational economy and a
favorite area for reform initiatives. Schick has described budgeting as the “routinization
of public choice” (1973, 147). Aaron Wildavsky, the great scholar of the budget, notes
the policy results produced by organizations are a function of institutional preferences
and budgets (1986, 3). “Budgets are a series of goals with price tags attached,” he wrote
earlier (Wildavsky 1964, 2). In the process of shaping and coordinating the Federal
government, budgeting had always held a special place for reformers. Rubin (1993)
argues that the Progressive movement, not business as is sometimes supposed, created
budgeting as a concept. It served as a means of controlling governmental organizations
and making them more responsive to political processes (Cleveland 1915).

The famous DOD Planning, Programming & Budgeting System (PPBS)
represents one of two approaches for financing an organization such as the DOD. The
original PPBS was a “top-down” budgeting process. The alternative is the more
traditional “bottom-up” budgeting. In bottom-up budgeting, every individual bureau
within the hierarchy—as Schick described earlier—is to accumulate its costs from the
lowest level to the highest. The combined total becomes the “bottom-up” computation of the cost of government. The process culminates with the Office of Management and Budget under the President, who forwards these estimates as recommendations to the Congress.

In contrast with the decentralized nature of “bottom-up” budgeting, DOD PPBS was intended to be centralized and comprehensive. Its design assisted the integration and cost control problems of senior leadership. Aaron Wildavsky had always been skeptical of comprehensive budgeting. Comprehensive budgeting was to be yet another means for the President to integrate the government, and in Leonard White’s words, “ensure that the whole administrative machine will work as a unit.” Yet it is interesting what Wildavsky actually found relative to this vision. Since budgets connect intimately with the work of government, Wildavsky, in effect, surveyed not only budgeting but also managerial practices. Organizational complexity, he found, made comprehensive budgeting (and management) theory difficult to achieve. His famous observations on the reality of “incremental” budgeting captured how far actual practice deviated from the ideals and requirements of a comprehensive process (L. R. Jones 2005).

Ridiculously understated, Wildavsky’s observations confirm senior managerial integration as difficult. In a broader survey of international budgeting practice, he wrote, “all participants in budgeting are overwhelmed by its complexity. None can relate the myriad factors to one another simultaneously so as simply to achieve desired allocations” (Wildavsky 1986). A restatement of Wildavsky’s famous summary reads, “Federal budgeting today is incremental rather than comprehensive, calculated in bits and pieces
rather than as a whole, and veils policy implications rather than emphasizing them”
(Wildavsky 1964, 135-6).

Attempts to extend Wildavsky’s observations to a general theory of budgeting collapsed in the following decades. Subsequent budgetary research on organizations found Wildavsky’s “incrementalism” was a phenomena at top- levels of the bureaucracy: an accommodation by senior leaders to address the complexities of their organizations (Tucker 1982; Natchez 1973). Budgeting at lower levels of the organization was much more variable and unpredictable.6 This seems a natural observation given the increased information available to lower level managers. This finding parallels the literature on information asymmetries within public organizations.7 Wildavsky’s observations complement the concept of information asymmetries by describing the difficulties of higher-level managers in assimilating the “bits and pieces” of organizational information, such as budgets, as they are aggregated at higher and higher levels of management.

Organizational Control, Coordination, and Comprehensive Budgeting

There is significant relevance in this literature to the research under discussion, particularly in the accommodation of managers to the complexity of organizational activity. The issues of comprehensive budgeting paralleled the historical “Socialist Calculation” controversy of the mid-20th century. Fonseca (2009) provides a good introduction. Wildavsky generally paralleled Mises and Hayek’s positions in the Calculation debate. But he more directly reflected the influence of Lindblom (1959) and

6 In 1989, Irene Rubin would declare the “Demise of Incrementalism.” Davis (1966), Le Loup (1978), and ultimately Rubin (1989) track the intellectual arc for Rubin’s claim.
7 See (J. S. Bendor 1987a), (Dunk 1993), (Rajan 2004), and (Harris 1982) for an introduction to the relevant literature of information asymmetry.
Herbert Simon when he predicted the complexity of the organizational economy would defeat comprehensive budgeting. In many ways, Wildavsky’s observations broadly validate Herbert Simon’s argument for the “bounded rationality” of human managers (Simon 1997). Like Hayek arguing for the necessity of the price system to coordinate the complex economic activities of human society, Wildavsky observed the heuristics and shortcuts needed by public managers to coordinate budgeting within an organizational economy.

An episode from the 1990s helps illustrates the problems of fully coordinating and controlling a complex system of organizations. This includes not only DOD depot maintenance activities, but also all DOD supporting activities. From 1994 to 1996, a budgetary scandal rocked the National Reconnaissance Office (NRO), an agency under the dual control of the Department of the Air Force and the Central Intelligence Agency. Accumulated, unspent appropriations and a long-history of limited congressional oversight had permitted it to build a lavish office building in Northern Virginia (Weiner 1996). A New York Times editorial offered, “...secrecy can keep Congress from exercising diligent oversight…and without oversight there is little incentive to control costs” (1994).

Ting (2001) reviews the NRO incident from a congressional perspective, and makes three observations applicable to any level of the hierarchy in light of Wildavsky’s observations: 1) Control is imperfect, 2) Oversight and punishment is ex post control, 3) The budgetary process is ex ante control. As a summary of all three points Ting writes, “In short, the power of the purse gives Congress authority over the boundaries of every
agency’s feasible policy space, but within those boundaries agencies may have considerable leeway” (Ting 2001, 244).

The NRO anecdote is not representative and not offered to condone a malicious secrecy, but it does highlight the information factor in organizational oversight and its role in creating incentives for cost control. Limited oversight created by a complexity can have the same effect as secrecy. Padgett notes the problems of information within even strict hierarchical organizations due to ambiguity in organizational purposes, technology, or leadership (J. Padgett 1980). Complexity creates ambiguity for all but the most carefully crafted goals and directives of senior leadership. Ambiguity begins when directives either intentionally or unintentionally allow for varied interpretation by sub-organizations (Chun 2005). Within the DOD bureaucracy, the works of J.A Stockfisch (1973; 1976) describe the effects complexity and information distortion. These works are an important but seemingly overlooked source of theoretical insight.

**Budgets as Information for Decision**

There is an additional point about budgets aiding the calculation of efficiency. Information (such as budgets) produced for managers, is not necessarily the same thing as information used by managers. In a volume exploring the application of performance measures (such as efficiency) to public organizations, Schick makes the following point.

The great mistake of the performance measurement industry is the notion that an organization can be transformed by measuring its performance...This optimism is not justified, for organizations—public and private alike—can assimilate or deflect data on performance without making significant changes in their behavior. Performance information can affect behavior only if it is used, and it is used only when there are opportunities or incentives to do so. (Schick 2001, 43)
This is an extremely important point for evaluating public managers in depots or elsewhere. Schick’s quotation highlights a sometimes unstated assumption in the literature regarding individuals within organizations and their use of information. Writing earlier on PPB and the goals of comprehensive budgeting, he notes that “PPB aspires to create a different environment for choice,” and that, “The case for PPB rests on the assumption that the form in which information is classified and used governs the actions of budget makers.” McKean makes the same point when he asserts the existence of information (such as cost-benefit analyses) makes little difference unless it actually alters the benefits and costs of decision-making officials (McKean 1972, 182). Schick takes up McKean’s point and writes:

Yet this assumed connection between roles and information is a relatively uncharted facet of the PPB literature. The behavioral side of the equation has been neglected. PPB implies that each participant will behave as a sort of Budgetary Man, a counterpart of the classical Economic Man and Simon’s Administrative Man. Budgetary Man, whatever his station or role in the budget process, is assumed to be guided by an unwavering commitment to the rule of efficiency; in every instance he chooses that alternative that optimizes the allocation of public resources. (Schick 1966, 257)

I will return to the important role of human models later in this chapter. However, it is worthwhile to expand on Schick’s introduction to various models of humanity within the literature, and complete a point from the beginning of the chapter. Given the chapter’s introductory discussion of the Good Government movement and its implicit models of executive leadership, the review might add to Schick’s list of “economic man, etc.” a new member: the “Wise Man.” The name draws from a group biography (Isaacson 1986) of six members of the senior national security establishment in the 1940s and 1950s who
created the Department of Defense and organized U.S. post-war foreign policy. By all accounts, these were authentically selfless, broadly educated, good-meaning managers and leaders.

The “Wise Men,” as a type, were the exemplar personalities who populated government in the mid-century Progressive movement. The “Wise Man” was plausibly the implicit human model in designing the organization, budgeting, and management systems of the Department of Defense described in the preceding section. The upcoming second section addresses an alternate organizational literature with a different set of human models. The focus again will be on the use of competition as an alternate means of efficiency to the techniques discussed in the preceding section. Competition, as made plain by Schumpeter, may actually have a much grander role in market economies than efficiency. Schumpeter scoffed at reducing the market system to “price war” capitalism (Schumpeter 2001). Schumpeter aside, however, the research will be limited to this modest result.

**Environmentally Focused Organizational Literature of Competition**

The literature review is now beginning its second of three parts. We have completed a review and critique of the classical literature of organizations. These views remain influential and inherently shape the response to internal competition, which addresses competition largely as an internal pathology: a misunderstanding of the organization’s broader purpose and a source of bureaucratic politics. Where this adaptive organizational literature often works within the boundaries of organizations, the organizational literature discussed in this second section sets its perspective from outside
the organization. It sees organizations more or less shaped by the selection processes of their environments. This perspective is more inclined to see distinctions between organizations and markets on a spectrum rather than as separate, exclusive categories. Within this perspective, there are three identifiable literature clusters viewing competition in slightly different ways:

1. The first is the literature of organizational ecology that largely sprang from sociological approaches of Hannan and Freeman (M. T. Hannan 2005, 52). A hallmark of this literature is a tight coupling between the organization and its environment. Tight coupling implies a direct correspondence between changes in the organizational environment and a change within the internal organization and its product.

2. In contrast, there is a second type of environmentally focused organizational literature centered on Pfeffer and Salancik (1978). They reject the tight coupling of the sociological approach and see organizations working just as actively to change their environments as their environments work to change them. This approach echoes a portion of the work of James D. Thompson (1967) in “Organizations in Action.”

3. A third category of extra-organizational literature originates within the field of economics. It is within this third set where the theoretical issues of organizational competition and market-like arrangements are most fully developed.

**Competition in Economic-Based Organizational Literature**

Competition as a concept is at the core of economic thought both as policy and as an entrepreneurial and organizational force (High 2001). Despite the centrality of competition to economics and economic policy, the amount of economic-based work with respect to organizations themselves is surprisingly limited. Demsetz (1988) argues economics’ general focus on price competition and Walrasian general equilibrium has limited its contributions to the adaptive literature. Instead, economics has focused on the analysis of competition itself through the assumption of the profit-maximizing
entrepreneur. In a crudely stated economic theory of the firm, the entrepreneur seeks profit (more specifically to maximize present value) through the management of his or her firm in relation to its competitive environment. Firms that can compete, thrive, while those that cannot, fail. As Cyert (1972, 399) notes, the behavior of the firm “can be deduced from assumptions that describe its environment.” In some ways, the mainstream economic approach is suggestive of the tighter coupling of environments and organizations seen within the sociologically based literature of Hannan and Freeman.

William Niskanen authored one of the most prominent economic-based models of public organizations. Competition or its absence is a fundamental element of his analyses. Niskanen modeled public organizations as monopoly suppliers of bureaucratic services who promise to produce a set of defined services in exchange for budgets supplied by the legislature. Niskanen modeled this relationship as a dual monopoly of a single supplier and a single buyer. In a sense, Niskanen offers the beginning of a theory of the public firm.

Instead of an entrepreneur at the center of a business firm, Niskanen modeled a public manager in two distinct forms. The first, and by far the most famous, was the budget-maximizer (Niskanen 1971). The second was far more subtle. Adopting a suggestion by Migué and Bélanger (1974), Niskanen’s second model (1975) maximized slack or discretionary managerial resources. However, it appears the literature almost completely overlooked the second model’s implications. As Niskanen notes, the 1975 revision to the model relegates budget maximization to a special case (Niskanen 1991). Yet more than 15 year after the revision, Blais and Dion (1991) would organize an
important volume offering appraisals and evidence of Niskanen’s 1971 model while all but overlooking the implications of its 1975 revision.

The 1975 slack-maximizing model indirectly built on the concept of organizational slack introduced in the 1960s by Cyert and March (1963). Cyert and March would introduce a behavioral theory of the firm that departed from the rigid, “black-box” economic theory of the firm popular at the time. Instead, Cyert and March saw the organization as a coalition of disparate, interdependent sub-groups. In many ways, their study parallels the approach taken here with respect to an analysis of DOD. Slack is a concept that appears to have no explicit counterpart within the classical management literature except as perhaps the inverse of managerial efficiency.

Cyert and March describe their use of the concept “...as a hypothetical construct for explaining overall organizational phenomena. In particular, it seems to be useful in dealing with the adjustment of firms to gross shifts in the external environment (Cyert 1963, 37).” “Slack,” they write, “arises from the [internal] bargaining and decision process...without conscious intent on the part of the coalition members to provide stability to the organization” (R. M. Cyert 1992, 44). Slack, they note, cushions the organization in times of cutbacks. On this same point, Ting (2001, 268) writes, “One may be tempted to equate slack with corruption or graft, but this need not be the case. Slack can also be interpreted as overhead costs, or perhaps investments that have only a minor impact on the policy in question.”

As Cyert and March (1963: 36–37) explain further:

Many interesting phenomena within the firm occur because slack is typically not zero...Many forms of slack typically exist:...wages in excess
of those required to maintain labor are paid; executives are provided with services and personal luxuries in excess of those required to keep them; subunits are permitted to grow without real concern for the relation between additional payments and additional revenue; public services are provided in excess of those required.

The cumulative evidence from ongoing DOD public-private competitions conducted under the A-76 process certainly suggests the presence of something very much like slack. A simulation model based on the 2,000+ A-76 competitions conducted within DOD between 1978 and 1994 suggests slack resources of approximately 20 percent within public activities (C. M. Snyder 2001). If A-76 ordinarily sheds some amount of excess resources, someone can ask, “Why haven’t these slack resources been detected and eliminated by management prior to the competitions?” Here it seems clear; management does not view these resources as excess until confronted with competition. Cyert and March appear to suggest these special types of resources alternately ebb and flow across organizational boundaries under varied managerial conditions. This does not prove these resources are waste or without some value to public purposes. It appears these types of resources have ambiguous, local purposes and possess no definitive attribute for sorting between coarse categories like “necessary/unnecessary,” or “requirement/waste.”

To be precise, Niskanen never characterized his model as “slack maximizing.” Instead, he works in terms consistent with those originally suggested by Migué and Bélanger: “discretion maximizing.” However, if these terms are essentially equivalent, then Niskanen’s model deserves to be re-viewed. It offers a critique of classical approaches to service consolidation such as offered by the GAO for DOD Depot.
Maintenance, but it also advocates for the internal use of competition. Niskanen argues for the creation of competitions between smaller, decentralized bureaus in order to improve their performance.

In this vein, Niskanen (1975) offers an important prediction regarding standard GAO prescriptions for consolidation. He offered evidence for what he called the “Bureaucratic Structure Hypothesis.” Surveying six Federal reorganizations since World War II, which consolidated smaller bureaus into larger, Niskanen hypothesized these consolidations would expand the bureau’s monopoly power and increase costs. Niskanen reports a comparison of outlays before and after consolidation provides suggestive, but not conclusive evidence for his overall model.

Niskanen describes “Economic Man,” the public manager or bureaucrat at the center of his model, as both “purposive” and a “maximizer.” Purposive would mean the ability to see connections between opportunity and outcomes and engagement of an internal preference function to make selections. Niskanen (1971) contrasts his approach with that of sociology, which he says uses the group vice the individual as its unit of action. Niskanen describes his “Economic Man” as the characteristic human model of economics. It exists not for predicting individual behavior, but for the purposes of generating hypotheses about the interactions of similarly constituted individuals within groups.

In the course of Niskanen’s discussion of his bureaucratic model, he sets up a straw man that deserves to be articulated. For want of a better term, we might label this caricature as “Selfless Man.” I will pass over this construct quickly, but it captures in a
phrase a perspective that may prove useful within our discussions. Niskanen cites Mises as his source. “Selfless Man” is not an entirely accurate label, as the following quotation makes clear. Perhaps a slightly ironic “Public Man” or “The People’s Servant” is a better label for the following caricature by Mises from 1944:

From the writings of the German estatists the civil servant emerges as a saintly being, a sort of monk who forsook all earthly pleasures and all personal happiness in order to serve, to the best of his abilities, God’s lieutenant, once the Hohenzollern king and today the Fuhrer. The Staatsbeamte does not work for pay because no salary however large could be considered an adequate reward for the invaluable and priceless benefits that society derives from his self-denying sacrifice. Society owes him not pay but maintenance adequate to his rank in the official hierarchy. (Mises 1944, 78)

Mises clearly drapes his cartoon with ridicule. However, there is a sense here he describes something learned by close contact and personal observation. Only in the last sentence do we see a recognizable human being instead of a figure from sacred text. But the pattern of apparent selflessness combined with a sense of entitlement (made concrete in this final sentence), rings no less true in some human domains than “Economic Man” does in others.

Schick earlier noted Hebert Simon’s contributions in this area. In 1945, Simon (1997) described an important human model he dubbed, “Administrative Man.” Like Niskanen’s “Economic Man,” Simon’s model retains choices among alternatives as a central feature of his human model, but Simon imposes important limitation on the cognitive abilities of his decision maker. He distinguishes his model from a straw man version of Niskanen’s Economic Man. His straw man was a hyper-rational, ever calculating “superman” endlessly maximizing his own utility. In creating his model,
Simon first removed economic “maximization” from his straw man and offered the substitution of “satisficing” or “good enough” behavior. “Because administrators satisﬁce rather than maximize, they can choose without examining all possible decision alternatives.” This allows decision-making with relatively simple rules of thumb that do not make extreme demands on individual capacities for thought (119).

Simon’s model is important because it recognizes the role of uncertainty and the individual’s cognitive limits: humans do not have an unlimited ability to comprehend and manipulate a complex environment. When overwhelmed with detail, they focus on selected elements that they believe to be most relevant to the immediate situation. He writes, “Individual choice takes place in an environment of ‘givens’ – premises that are accepted…as a bases for his choice; and behavior is adaptive only within the limits set by these ‘givens.’” (92). He notes these “givens” within the organization often take place within a human-designed organizational environment.

**Incentives**

Incentives are at the center of Niskanen’s “Economic Man.” Incentives are here the means offered by the individual’s environment, in society, in an organization, in a bureaucracy, in the DOD, or in the depots, to attain their personal goals. Promotion, reward, recognition, retirement, a better world—all could be incentives. Rainey (2003, 230) deﬁnes incentives as “an external object or condition that evokes behavior aimed at attaining or avoiding it.” The emphasis is on external. The corresponding internal psychological construct for the external incentive is the human motive. This internal impulse or force causes an individual to respond to a given incentive. When an
individual takes actions or exhibits behaviors to attain an external object or condition, or seeks an intermediate object calculated towards a final goal, the construct locates a corresponding motive within the individual. The approach postulates that the combination of incentive and motive drives the behavior. I will not survey the psychology literature on motive and motivation. Rainey (2003) provides a good overview and references.

There has been an extensive effort to describe and categorize incentives. Financial transactions are easier to observe and report than other possible incentives. Not surprisingly, financial incentives have dominated their discussion (J. Q. Wilson 1990, 540). But prominent organizational writers from Barnard to Herbert Simon to James Q. Wilson have distinguished material inducements from the non-material. Mises’ “Selfless Man” is an example of non-material inducements. Barnard and others recognize the possibility of activities offering their own rewards. Criticizing the general theory of incentives, Avinash Dixit (2002, 714) notes that organizational members and managers can get utility just from being members of the organization. Dixit cites James Q. Wilson’s observations on founding members of policy-making Federal agencies. Wilson found these individuals gained apparent satisfaction with policy making itself in contrast with material rewards (J. Q. Wilson 1989, 64-68).

John DiIulio argues even more persuasively for openness to the influence of non-material incentives corresponding to Dixit’s “compensation by participation.” He cites compelling examples from the Federal Bureau of Prisons that challenge the focus of incentives research on financial compensation. DiIulio’s (1994) arguments reflect an
overall respect for the contributions of the Rational Choice [economic] perspective, but he notes its better abilities to explain shirking than equally frequent anecdotes of selflessness. Golden (2000) provides similar insights on a more complex set of bureaucratic motivations during the Reagan administration.

**Imperfect Competition**

One element of competition as an organizational force, which may have inhibited its use as argued by Niskanen, has been the concept of “perfect competition” as defined in mainstream economics literature. “Perfect” competition, and the related achievement of general equilibrium within markets, is often summarized as the interaction of many suppliers and consumers exchanging homogeneous product with complete certainty. There is easy entry into and out of the market by buyers and suppliers. The numbers of suppliers and consumers are such that their actions do not affect the price, nor are there changes in the nature of the exchanged commodity, such as the development of brands, to differentiate commodities from each other. This is sometimes called a “structural” approach to competition. This approach usually sees competition only at a point in time and offers no sense of interaction between competing suppliers. Perfect competition as a concept dominates mainstream economics.

A new understanding of competition in economics began to emerge with Frank Knight’s analysis of 1921 (High 2001, xxiii). This corresponds to the year when Herbert Hoover first began his well-regarded management of the Commerce Department and the Congress passed legislation creating the Federal presidential budget process. Frank Knight began his analysis seeking to define a theory for the source of profits. He
imagined a perfectly competitive economy by articulating familiar assumptions associated with perfect competition: perfect knowledge, mobile resources, property rights, and an absence of theft or predation.\(^8\) He concluded that profits could arise only through the differences between actual markets and the artificial world of perfect competition. For some economists, Knight’s analysis helped displace perfect competition from its central place in economic theory. Joan Robinson, Edward Chamberlain, and others set about understanding monopolistic or imperfect competition. However, for most economists, the perfect competition of multiple buyers and sellers exchanging homogenous products serves as the starting point for their analyses.\(^9\)

The Austrian school of economics has forcefully criticized “perfect” competition for its unrecognizable abstraction of competition from the reality of organizational life. Models such as perfect competition are always simplifications, but what they see lacking in the structural approach, as noted by the Austrian School economist Israel Kirzner, is the human sense of rivalry that is the hallmark of competition between two or more persons or organizations (Kirzner 1973). In the perfect competition model, buyers and sellers enter and withdraw from the market without any effect on the other participants. It effectively removes rivalry from the behavior of participants. What is lost to the structural model of competition is a sense of vulnerability, a sense of risk to the status quo, which provides the incentives for individual behaviors behind competition (Kirzner

\(^8\) High, xxiv.

These behaviors in turn are the basis for what benefits competition provides in the marketplace or possibly within DOD.

High describes this alternative view, this sense of rivalry and its effects, as “competition as process” instead of as structure. Competition is not taken as a given, but instead represents a change process or forcing function as the rivalry induces participants to discover means of economizing or adaptation. Interestingly, James Q. Wilson (1989, 352) makes exactly the same point in one of his few remarks on formal competition. Competition in this view is not just a process of price reduction, but also a process of knowledge building and discovery. In this sense, competition is an information-generating activity.

With regard to economic theory, price is of course, the essential information necessary for markets and their competition. In markets, factor prices for labor or material of course have important affect on product prices, but so does the size of the firm, its internal organization and its technology. These additional factors will influence the firm’s productive efficiency: the relative cost of goods offered to the consumer. But price also shapes an entire industry of firms, and most importantly, the relative distribution of consumer revenues among multiple industries. This is a market’s process of resource allocation and its theoretical achievement of allocative efficiency among industries again as a function of the price system. Price theoretically can guide an effective internal resource allocation process within the supporting activities of the DOD such as the relative size of depot maintenance activities with regard to other supporting activities. This result within DOD is implied in Abba Lerner’s (1942) legendary
unpublished paper, “Design for a Streamlined War Economy.” All these follow from the notion of competition as a knowledge and information generating activity.

I am, of course, interested here only in competition’s much narrower effects on depot costs. But to close this line of inquiry, another way to describe the managerial end-state of this knowledge building is organizational strategy. Earlier I noted Michael Porter (1998, 3) describing effective organizational strategy as an appropriate positioning of the organization in relation to its environment. Porter avoids the structural approach to competition and instead adopts a process approach that accepts its meaning as rival behavior (High 2001, xxxi). Overall, Porter’s analysis recognizes many of the well-known pathologies of competition: collusion, side-payments, even corruption. The necessary institutions of any foreseeable DOD competition must address these potential pathologies.

Porter frames his analyses around an industrial sector of direct competitors and potential rivals. A market structure of direct competitors forms the active part of the environment to which firms must accommodate through their strategy in order to survive. Firms must adopt appropriate strategies to avoid the ruinous price competition suggested by “perfect competition.” Competition becomes process instead of a structural variable. This again suggests the analysis of Hannan and Freeman and their image of organizations adapting away from a contested ecological niche.

A final, related development with respect to competition also builds around an industrial sector. This is William Baumol’s (1982) theory of contestable markets. Just as Porter recognizes potential industry entrants might be nearly as real as direct competitors
(e.g., Apple, Google), Baumol claims competition benefits might begin with just “contestability” within an industry. Contestability is simply the threat of active competition within an organization’s environment. Contestability may give benefits even with monopoly product suppliers. For example, given the presence of commercial depots, contestability theory might suggest the simple presence of these potential competitors would serve to constrain public depots and restrain their costs.

If we view competition as process, how does competition work to increase efficiency in Niskanen’s model? When so much of competition and its benefits are associated with profit-making businesses, a particularly important question to ask is why competition should work for government managers. Stated perhaps too simply, competition works by providing organizational leadership a comparison between the two suppliers: something lacking when a monopoly supplies products or services. The comparison enables the explicit choice of a lower cost provider for a specified set of work. This contrasts with oversight processes operating inherently at a disadvantage due to the expertise of the supplier. Particularly in the area of cost and budgets, DOD staff oversight is accomplished by individuals specializing in financial processes not in the specialized work underlying the budget request (McCaffery 2004). Instead, competition would seem to turn this expertise towards discovery of new, more efficient processes. But in many ways, this simple explanation falls into the problems of internal information and its use by managers addressed earlier. If competition as a process makes competition or rivalry a more human proposition, this still does not answer how competition works for
human managers. This requires addressing the human models that are at the center of the issue. I will address that later in the chapter.

**The Pathologies and Institutions of Internal Competition**

This section begins the third part of the literature review. The review earlier covered the literature of organizations. This section briefly addresses the literature of institutions. In Chapter 1, during the discussion of the original depot competitions, I noted a dispute between the aviation depots doing the work and the internal contract representatives. Who settles such a dispute in a policy of internal competition? How are conflicts resolved under conditions of internal competition? These are questions regarding the institutions of internal competition. These institutions are necessary to contain its inherent rivalry, effectively structure the competition, settle its inevitable disputes, and define the basis of its internal regulation.

Regulation and structure are important parts of the policy use of competition. Competition and rivalry have real and not always beneficial influences on behavior. For example, in the 1980s, the Pentagon tried to structure a competition between two defense contractors. The winner was likely to receive the largest share of work and as a result, more profits. However, the Pentagon improperly designed the process. Instead of encouraging cost cutting and value creation, it perversely encouraged price gaming. The contractors concluded there were better profits for the losers than for winners. Bidding went higher instead of lower (McMillan 2003).

What are the institutions of the market that ordinarily contain and channel competition into a useful form? Does competition simply consist of designating multiple
product suppliers or is there something deeper requiring recognition? Some make this sound almost effortless, writing, “Markets happen almost spontaneously, requiring only a rudimentary set of property rights definitions, some reasonably accepted medium of exchange, and a legal system for adjudicating disputes” (Munger 2000, xii). Charles Lindblom (2001) offers a readable overview of the general institutions of markets and their internal processes.

But Swedberg (1997) interestingly perceives a methodological race among economists and sociologists to fill a conceptual gap. The gap, as he defines it, is to explore and define the institutions of economics—an area the economists Heilbruner and Thurow (1975) claimed as one of economics’ weak points. This conceptual gap is on the edge between the well-studied subject of economic exchange of individuals, and the social institutions that simultaneously enable and contain this type of social activity.

The issue is actually of greater conceptual importance within this research than might otherwise be for an ordinary study of market competition. There the issue is more in the background. An organizational economy like the DOD is already a set of structured institutions. The existing institutions that define and regulate the internal working capital funds at least offer the initially plausible foundation for the policy. The working capital funds create buyer-seller relationships, and a market-like financial framework, but internal competition clearly introduces a new dynamic. Institutions are necessary to contain and isolate the competition. Ideally, the competition must at least do no harm as it delivers possible benefits.
Some of the literature I will draw on here has its origins with Granovetter (1985; 1992). Ironically, given the final section of this chapter, Granovetter (1985) argued too much effort had been exercised on defining human models (e.g., “Economic Man,” “Administrative Man”) in the social sciences. Instead, Granovetter argued for the need to embed economic models within a social structure: a framework that contained the rational choice activities of the individual within a social context. Granovetter attacks an assumption of isolated individuals, calling it, “atomized” decision making. (Swedberg 1997). Granovetter points out the limits of applying Williamson’s Transaction Cost Economics (1975). He argues that Williamson offers explanations why various organizational forms may exist (“the reduction of transaction costs”), but Granovetter claims the approach offers little prescription for creating appropriate institutions (for minimum costs) that tie elements to the large sphere of organization purposes.

Bendor (1987) seems to be exploring a similar problem. His models suggested the value of nested hierarchy to create hybrid organizational forms that combine the advantages of centralization and decentralization. Bendor admittedly is exploring a broader realm between informal cooperation and centrally enforced cooperation, but the general concept is the same as the competition alternative under construction here. It postulates that a release from central controls can be beneficial. Similarly, Adler (2001) suggests the transformation of hierarchy from a command and control role to that of organizational enabler. Behn (1999) discusses the creation of accountable but more autonomous agencies controlled by budgetary transfers. These elements of the literature appear to be exploring the necessary institutions that harness individual action into larger
social structures—the same sort of problem explored here. As a summary, the literature of Granovetter and others suggests the following necessary elements of internal competitions: property rights, trust, non-collusion, non-corruption, information transparency, legitimacy (as in political legitimacy), data rights, rule enforcement, and fundamentally, incentives to engage in (and win) competitions.

A final important issue for this research is the separation of a competitive process from political intervention. The history of Federal and DOD contracting simultaneously offers both hope and caution for isolating any prospective competition from political influence. These contracting institutions are designed to not only prevent the improper designation of winners, but also represent the means to avoid political intervention on the side of the perceived “losers.” An example of this problem was the award and reversal of a significant DOD contract in 2008. It demonstrates both the problems and the institutions necessary to channel and contain partisan influence over contract awards.

The Air Force awarded a large contract for aerial refueling aircraft to an aviation consortium dominated by a European partner. The losing bidder was the U.S.-based Boeing Corporation. Boeing supporters in Congress protested. The Air Force claimed its award had followed procedures defined in the Federal Acquisition Regulations (FAR) and was therefore proper. Boeing supporters questioned any process that could award contracts to foreign-owned firms over domestic sources of supply (which the FAR can do under certain circumstances). When this facet of the regulation became known, Boeing
supporters shifted their questions to other issues regarding the award.\textsuperscript{10} Boeing formally protested the award to the GAO, the designated final arbiter of contract awards within the U.S. Government. The GAO evaluated the issues, apparently without partisan influence on either side, and reversed the award. These points illustrate issues regarding the design of “containment” institutions for inherently rival processes.

**Synthesis of the Literature**

I have now completed the three central portions of the literature review. We are approaching the end of the chapter. At its beginning I set out to populate Porter’s industrial framework with a theoretical model of public depots operating as working capital funds. These funds already conformed in many ways with Porter’s model. They establish customers, suppliers and define potential competitors. In design, they imitate a commercial industrial sector just like Porter’s model. What was required from the literature review was a concept of the public firm operating without a profit motive. But not only this, what also was required was some theoretical explanation for why competition might be appropriate. What problem of public organization seemed to be arising in DOD and why might competition be a solution? I surveyed both the classical literature of public organization to articulate such a problem, and to describe a consistent model of the public firm operating without a profit motive.

Although we accept the absence of profits in these public firms, such an analytical approach remains essentially businesslike. It ultimately subjects public organizations to organizational forces much like business. Yet there is a persistent inclination within the literature that turns away from such an approach. To some degree, the DOD ended the competition initiative with the explanation, “public firms aren’t built to compete.” In a broader sense, this opposing viewpoint will reject the introduction of competition because “DOD is not a business.” At one level, this viewpoint argues its case by citing the absence of profits within public organizations. But at a deeper level, the issue centers on differing human models for public and private managers. These contrasting models are one reason why arguments regarding public-private comparisons are perennial. Given these differing assumptions, reforms such as the introduction of competition appear misguided at a minimum (Krieger 2009). On this point, I can be sympathetic to the starting premise but disagree with its conclusion. The literal translation of business experience into the public sphere has had many failures. Insufficiently addressing the human model at the center of public management might well explain these perennial issues. This constitutes a suitable starting point for synthesizing the literature review.

**Human Models**

The literature review has contrasted traditional organizational literature with an alternative literature primarily based on economics. In Chapter 1, I committed to an economics-informed rational choice analysis oriented towards understanding the individual manager within public organizational settings. This approach contains an explicit human model at the center of its analysis. Often this model is explicitly identified
as “Economic Man.” However, since my literature review has been essentially comparative, I should not only identify my implicit human model behind the research but also what appears to be a contrasting model arguably associated with the traditional organizational literature.

At the end of an earlier section, I tentatively associated a model dubbed “The Wise Man” with the traditional literature. Allen Schick in that same section introduced “Budgetary Man,” his ever-economizing manager, along with a reference to “Economic Man” and Herbert Simon’s famous “Administrative Man.” To ground the traditional literature’s human model more deeply in scholarly work, it is worth making passing introduction to an implicit human model in the work of March and Olsen (1989).

The work of March and Olsen helped revive the study of institutional constraints on human action. To complete the set of human models, I might identify the March and Olsen version as “Institutional Man.” Their implicit model rejected the assumptions of Economic Man and argued humankind worked within a logic of appropriateness instead of maximization. Their characteristic individual essentially possessed only the freedom to identify his/her situation and an appropriate role, followed by a set of choices for acting consistent with that role. Role and situation defined the constraints by which individuals order their lives.

We might reasonably associate this model with the “Wise Man” role identified earlier in the chapter. It does not seem extreme to argue Isaacson’s original “Wise Men” acted out of a sense of duty. They possessed their own logic of appropriateness similar to
March and Olsen’s formulation. Essentially, we can use Isaacson’s “Wise Man” as the leadership exemplar for the March and Olsen model.

These points make it easier to understand the absence of competition within the classical literature. Competition inherently not only implies local adjustment and autonomy, it implies circumstances unanticipated and uncontrolled by a central authority. To accept the March and Olsen human model undercuts any basis for exploring internal organizational competition. There would be no point; a wise and borderline omniscient leader can already know and anticipate its results. The use of a model like Isaacson’s “Wise Man” seems to lead to these conclusion. Likewise, this model implies a limit on local decision making. It implies either central leadership anticipates local decision-making or, when unanticipated circumstances do arise, local decisions will conform (or soon be made to conform) to the central leadership’s intentions.

The assumptions of “Institutional Man” or its leadership variation, “The Wise Man,” also leads to assumptions regarding the autonomy of subordinate organizations. Buried within the logic of the model seems to be the implicit assumption of organizational integration—an assumption that the “Wise Man” leadership model possesses sufficient conceptual capacity to reconcile local interests and integrate the parts into the whole without reference to organizational scale. As such, the autonomy of subordinate organizations within such a model is inherently limited. Autonomy in this view is the exception rather than the rule.

For these reasons, I must reject “Institutional Man” or its leadership variation, “The Wise Man,” as a central human model of decision-making. I accept a human model
influenced by institutions within their environment, but it is difficult to accept that central
authorities in a large complex organization can completely define and control these
institutions without some reference to scale. Certainly, at the organizational scope of the
entire DOD, this assumption seems unjustified. I can accept the desirability of “The Wise
Man” as an organizational leader, but reject its use as a model for positive theory.

Likewise, it is difficult to accept that local decision makers can routinely know or
anticipate what the central decision makers prefer without some reference to
organizational scale. It is also difficult to accept that local decision makers will conform
to the preferences of central leadership when these decisions run counter to local
interests. The fact of organizational life is the elevation of these disputes for mediation
and adjudication. To accept otherwise is to oversimplify the inherent difficulty of senior
leadership.

The integration of large, complex organizations does not seem a natural, effortless
occurrence. I accept the desirability of local organizations within the DOD operating as
integrated elements of a coherent organization to the degree this behavior can be defined,
but reject this as a positive model. It seems more consistent with observation to assume
an inherent degree of autonomy and conflict among subordinate organizations than to
treat these as anomalies. Herbert Simon’s point regarding the predominance of local
rather than global loyalties within an organization led more naturally to this conclusion
than the implicit organizational assumptions following from March and Olsen’s model.

Yet this is a partial rejection, I cannot reject completely the concept of institutions
placing limits on human decision-making. There are limits to human action and
discretion. Institutions must have some part in a human model. Yet a synthesis with Simon or Niskanen’s human models may not be as difficult as it first appears. Simon’s model, with its bounded rationality, is clearly and explicitly a circumscribed or limited individual. In this sense, it moves away from the connotations of an “all-knowing, all anticipating” senior leadership in the “Wise Man” model. Simon constructed the boundaries of his human model from the seemingly unlimited boundaries of a hyper-rational Economic Man. In the apparent straw man he continued to use until the end of his life, he rejected maximization in any form within his human model. Instead, individuals would make decisions based on the givens or “premises” of their circumstances. Without extreme difficulty, premises might be transformed into March and Olsen’s sense of institutions. In that sense, institutions are a part of Simon’s human model.

But what about Niskanen’s version of Economic Man? Niskanen’s public manager is a utility maximizer that seems to place the model in direct conflict with Simon’s construct, but it is not clear that the two models are as far apart as Simon might have indicated. Simon indicated his model was not of a maximizer but a “satisficer.” But with only one exception, Niskanen’s model conforms to constraints. These might easily be interpreted as givens, premises, or institutions. Niskanen’s model seeks to maximize itself only in the direction of slack resources. This is not the hyper-calculative, utility-maximizing activities of a super-rational individual clearly opposed by Simon’s human model. There the individual seems to maximize in all directions, ever seeking to increase
its utilities. Instead, in Niskanen’s model, the decision maker or manager satisfies itself within constraints, maximizing in only one dimension.

In seeking to somewhat reconcile Niskanen and Simon’s models, it seems important that the economist Oliver Williamson, associated with Transaction Cost Economics in the “New Economics of Organization,” (Moe 1984), readily accepted Simon’s human model. Williamson is fond of Simon’s phrase describing his (and Simon’s) human model, “intendedly rational, but only limitedly so” (Williamson 1975). Despite Simon’s criticism of mainstream economics and its methodologies up to the end of his life, Williamson’s endorsement for his line of inquiry signals perhaps fewer differences than what might seem apparent in a first reading of Simon. For this reason, let us leave Simon and Niskanen’s models partly reconciled. I can explicitly make qualitative use of Niskanen’s model to populate Porter’s framework with a slack-maximizing human manager in the place of its original profit-maximizing manager. If we can accept the partially reconciled human models of Niskanen and Simon, I can proceed forward with the problem of synthesizing the literature.

**What is Being Cut by Competition?**

The differing human models within the two literatures appear to provide at least the basis for arguing that public organizations are categorically not like business. The profit-maximizing manager of private firms sharply contrasts with the public manager as “Institutional Man,” defined by the surrounding constraints of his or her position. Earlier, I talked about the evident discomfort with self-interested human models in the traditional literature of public organization. The contrast between a public manager as “The Wise
Man,” and Niskanen’s “discretion maximizing” bureau chief, makes this discomfort all
the more understandable.

One issue that appears evident in the traditional literature is its difficulty in
describing the problems of public management. Herbert Simon once famously critiqued
Luther Gulick’s prescriptions and a large portion of the classical organizational literature
as “proverbs.” As discussed earlier, what Hoover and Gulick sometimes seem to lack is a
positive theory of public management. A positive theory might have at least explicitly
acknowledged the nature of inappropriate behavior inherent in Roosevelt’s comments on
awarding discretion to managers.

Competition forces us to confront this shortcoming. Military budgets are
presented to Congress as justifications. All costs are reviewed and presented to Congress
for funding. The costs are submitted as necessary and required. But what does
competition actually reduce beyond these “necessary” costs? Without some concept of
excess, competition in DOD simply becomes an exercise in reducing costs otherwise
regarded as necessary and essential.

If we intend to examine the use of competition, there exists an implicit
assumption that excess resources actually exist. Competition seeks a reduction in excess
resources that leads to an increase in efficiency: the same public work for less cost or
greater work accomplished for the same cost. The assumption of excess resources or
waste within DOD and government is widespread. However, in synthesizing the
literature, I must necessarily examine if this is a reasonable assumption. What is this
excess, which is commonly understood to exist within government? If we are to
I will not address the human models behind activities like the Grace Commission. Yet with only a little thought it becomes clear the model is almost identical with the moralizing categories of the Good Government movement. Arguments against waste, fraud, and abuse; declarations of “War on Waste,” all seem to work in categories of “good” and “evil.” If waste were so easy to identify, it would seem the war is losing its battles and public managers have failed in their tasks. Why don’t government managers see and eliminate the excess? A simple answer is to demonize the managers as lazy and incompetent. But this is too simple. If there is excess, why does it seem so difficult to cut from within the government? Information and incentives seem to be at the issue’s center. Fundamentally, it appears that the problems of excess resources are issues of definition rooted in establishing common meanings of terms.

Stinchcombe (1986) notes Weber’s distinction between the formal rationality of social organizations and a substantive individual rationality. Formal, organization-wide rationality presumably must provide the social basis for judging excess. It provides the common basis for all participants in the organization to call similar objects by the same name, and similarly perceive events. “Waste” might be one such object. Personal rationality is more likely to be individual and rooted in local definitions than common to an entire organization. As Stinchcombe notes, “formal reasoning is vulnerable to variations in the situation (151).”
In this vein, I can assert public work cannot be understood in exactly the same way commercial business understands its work. Business has at least the semblance of a formal, organization-wide rationality that the public organization does not. Profit and loss plus the inherently unforgiving nature of the market provides important financial feedback to business. The circumstances of government, and especially DOD, are different.

This point appears to provide a more sophisticated continuation of the discussion. It allows us to begin addressing the nature of profit and its absence in public management. Sometimes more sophisticated arguments against public and private comparisons recognize the public organization’s lack of a common internal metric (like profits), and the difficulty this generates for integrating disparate organizational sub-elements. Taken too far, this view can find itself arguing against concepts like public efficiency. Just like some too literally translate the concepts of business into government, others translate the differences into a complete dichotomy. Nevertheless, the lack of organization-wide rationality within public organizations represents a more substantial basis for arguing the difficulty of public management. Fundamentally, and most importantly, it deprives public managers a basis for judging waste and excess.

Herbert Simon (1997), seemingly as always, anticipated this problem. He recognized waste might not be so easy to identify. The process of winnowing out the necessary from the excess requires a managerial discernment that does not always exist within government or the DOD. It is less an individual failing of public managers than the lack of an organization-wide norm that allows a manager to escape the dominance of
their local circumstances. Slack represents the relatively greater ability of the parts of an organization to define and defend their definitions of the organization’s work relative to the integrative functions at its center. The attempt to define the nature of waste or excess from the center of the organization almost immediately comes into conflict with alternative definitions locally defined.

**Making Use of Slack**

Earlier in the chapter, I introduced the concept of slack originating with Cyert and March (1963). Slack is a reasonably non-pejorative label. Slack is not necessarily waste. Instead, it provides a useful, non-pejorative interpretation. Slack is a means of risk reduction. It covers a range of decision-making domains. At a personal level, slack is the equivalent of a flashlight in the hallway drawer, unused and apparently a “wasteful” asset until the night of the power failure. But slack can also be the snow blower retained in the move from upstate New York to the less demanding conditions of South Florida. “You never know,” someone might offer in defense. Reducing slack becomes an exercise in risk assessment and in contextual evaluation of resources.

Slack as a concept contains useful connotations enabling a more fruitful evaluation of public organizational issues. It allows us to treat all possible costs in public management as contingencies: some justified, some not. Revenue in the form of budgets, or revenue in the form of payments to working capital funds are not divided into just two categories of necessary and wasteful. These are normative conditions. Instead, because slack can represent a contingent use as perceived by the public manager, it is useful for positive theory. Normative theory would label these managerial contingencies as valid or
invalid; however, public managers presumably have suitable discretion to make the contingencies meaningful. Indeed the very need for public managers is rooted in the need for judgment, in the need to undertake contingent or “it depends” behavior. If suitable rules or a computer program could address all circumstances, if categories of justified costs or waste could be determined ahead of time, a manager would not be required and there would be no category of contingent behavior.

Why would a public manager take on slack? Why would they ever operate at any level other than the absolute minimum cost? One reason is because minimum cost can only be defined for a specific set of conditions, and frequently only the managers themselves can describe or define these conditions. Their task is to produce an output or product such as depot maintenance. Producing and maintaining an output requires a process of repetitive actions by subordinate personnel and equipment. It involves taking some actions and avoiding others. Maintaining actions that produce an output requires accommodations to a range of conditions or contingencies. The public manager must avoid ill conditions or contingencies in their organization. A critical machine is subject to malfunction. A maintenance emergency must be addressed. Workers get sick, retire, or take vacation. Managers must address the contingency. It is the role of management to prepare for these contingencies.

Other contingencies may exist as well. The manager needs a quiet place for meetings: to do work, to plan for future work. Discretion is open to not only these options but also more egregious choices. In 1986, a public depot manager in Jacksonville, Florida resigned when investigations revealed he diverted public monies to “renovate his office,
improving his living quarters …throwing private parties (AP 1986).” All these contingencies are available for introduction into the process. Slack is inherently viewed here as an exercise in the manager’s work definition. It includes defining not only what needs to be done, but also the preparedness for what might need to be done. In total, it includes what the manager chooses. The greater the range of possible contingencies, the greater the uncertainty of work processes or demands, the larger this overall category can become.

Slack hides in plain sight, identified only by the assumptions of managers in their definition of the work. Slack is no less present for commercial managers. As described by Migué and Belanger (1974), slack is the “manager’s budget.” They define it as an excess over minimum costs. Negotiations establish these minimums with workers, suppliers, and owners (profit as a cost delivered from the manager’s budget). In this sense, the concept of slack resources at least offers a plausible explanation for what competition reduces when introduced.

We may operate on the assumption that slack is zero and that a DOD supporting organization is supplying goods and services at the lowest possible cost. However, if we assume slack is greater than zero, then an organization is operating at something greater than a theoretical minimum cost. However, absent some standard, sometimes only supplied by the organization itself, we are obliged to understand what work the organization believes imposed on it and the costs or resources it believes necessary to produce that work. We will essentially require an audit or review of the defined work
process and the costs associated with the elements of the process. It is an exercise in either accepting the currently defined costs or defining a new work process.

The metric of efficiency is a similarly constructed concept. Its interpretation depends on defined perspective. As addressed earlier, not only does the concept include the cost of work, it implicitly includes the work definition. Who defines the work in many ways constructs it on a local definition of value and worth. In markets, it is consumers, with their demands and definitions of value, who drive the production and supply of goods. This is the concept of consumer sovereignty within economics. However, it is a well documented criticism within DOD that military consumers (the military forces themselves) are institutionally very weak. Instead, most critiques indicate it is the military departments (who essentially comprise DOD supporting activities) that are the dominant forces within the department (Aldridge 2004). They essentially define that nature of what is to be supplied to the military forces. Military suppliers largely define the work of the organization.

Economics appears to define this condition by the term “revised sequence” as opposed to the “conventional sequence” of consumer sovereignty. John Kenneth Galbraith used the concept of revised sequence in his discussion of the contemporary influence of large monopolies or oligopolies over consumers (Pass 1988, 479). Galbraith’s terminology appears to be a valid description of current conditions within DOD for the supply of goods and services to DOD forces by DOD supporting organizations. It may also be true for the supply of goods and services to DOD forces by commercial sources. But to return to discussion of the possible issue, it is not impossible.
that the absence of consumer sovereignty within DOD makes no difference: that a revised
sequence within DOD, distinct from the ordinary consumer sovereignty of markets, is
completely efficient. Said another way, I might assume both the requirements defined for
the forces by suppliers are exactly what is needed and their costs are completely efficient.
However, this seems much less likely than when a pattern of demand institutionally
originates within the military forces themselves. This observation, particularly on
requirements determination, is in line with a considerable amount of opinion offered as
recently as the current Secretary of Defense (Gates 2009). Many studies document this
condition within DOD. Aldridge (2004) and Locher (2002) both note the institutional
weakness of the military forces relative to their supporting establishment.

**Arguments for Niskanen’s Model**

The preceding discussion offered an argument for the recognition of slack as an
important feature to be included in the study of any public organization. The argument
makes no judgment as to the nature of slack except to give it local value in the absence of
a wider formal rationality. Slack can be zero for the ideally managed public organization,
or it can be recognized as present within any organization or under any manager (public
or private). It likely exists due to the necessary consent of senior managers to the
discretionary judgment of subordinates. The concept recognizes the necessarily local and
contingent basis of these discretionary judgments. The construct of slack allows the
development of positive models of public organizations without the normative judgments
of slack as waste.
William Niskanen offers a broad model of slack within public organizations. Niskanen’s model represents the requirements for a range of specific public activity. Niskanen mathematically postulates a required quantity of public activity work from zero up to a point where the public consumer will purchase no more. The nature of his work definition is actually quite broad. It represents any service or product supplied by public organizations: depot maintenance services, social security checks issued. These services have costs, and budgets are an amalgamation of costs. An agency describes the costs it will incur in an upcoming budget year and seeks funding from successive layers of review culminating with the U.S. Congress. Budgets must exceed costs. Niskanen’s model captures these central points.

The essential (and controversial element) of Niskanen’s model is the zone between budgets and minimum costs over a range of quantities. Niskanen’s managerial decision-maker maximizes the difference between the two curves. Some interpret this zone between budgets and minimum costs as an indictment of waste within government. However, this controversy is rooted in the assumption that I actually know the minimum cost of most public services. Where there are substitute services available in the private sector, Niskanen offers these privately supplied services as his model’s minimum cost, but where direct substitutes are not available, determining Niskanen’s cost curve can be daunting. How do I actually know what the true minimum costs are for national security services? At the broadest level in the DOD, the services provided by military forces are the most public of all governmental services. There is no obvious substitute. However, this point is not offered to discard the concept of minimum cost and efficiency as
discussed earlier. It simply says, for public services like DOD, I have few existing standards for comparison that provide a basis for Niskanen’s minimum cost curve.

For the research here, the value of Niskanen’s model is less about its budget-output and minimum cost curves than it is about these concepts usefully structuring a model of decision-making by public managers. It provides a positive, non-idealized model for use in the research. Niskanen’s revised model offers a reasonable summary statement of budgetary behavior relative to various cost conditions. Niskanen’s revised model becomes a conceptual vehicle for thinking about the process of public management. It fits well with concepts of bureaucratic expertise, information, and uncertainty. All these are points observed and remarked on within public organizations (Wildavsky 1979, 30). Most importantly for the purposes of this effort, it seeks to offer hypotheses relative to the condition of organizational competition. Few other approaches to the study of public organizations and their budgetary behavior offer these features for systematic examination.

**Porter’s Framework Repopulated by Niskanen’s Public Firms**

As a working concept for the research, slack represents the imbalance (within a large complex organization like DOD) of locally defined work and costs relative to the integrating ability of the organization’s senior leadership. It is the imbalance between specialization and integration cited by Gullick as the two central organizational tasks. Niskanen’s model operates within an environment containing slack resources. The theoretical approach outlined here essentially builds on his important observation that:
The very problem which leads to the supply of services by bureaus (the difficulty of defining output), however creates one of the more important problems of controlling bureaus…(Niskanen 1971, 20)

If specialization is the essential basis for organization, which inherently requires a countervailing integration function to unify the organization, then slack is an imbalance in these two necessary organizational components. Controlling cost relative to organizational purposes is one aspect of this integration function. The definition of work inherently relates to controlling costs. If lower levels of the organization define the work, then this specialization inherently creates an information asymmetry that is difficult to counter at the center. The integrating function is at a disadvantage and slack is likely to exist.

What are the incentives for Niskanen’s discretion-maximizing manager in the face of traditional organizational integration and alternately, competition? Niskanen’s model allows for a range of slack allocating values within local managers—from slack maximizers at one extreme, to budget-maximizers at the other—but it also implicitly recognizes slack can be bound up within local cost structures such local pay scales and long-term contracts. For example, depot maintenance work is sometimes a locality’s best-paying and most stable work. Niskanen’s managers, consistent with his revised model, are probably likely to find value in the risk-mitigating value of slack resources. These cushion the local manager from the unpredictable demands of central leadership and an uncertain resource allocation process. It recognizes Simon’s points regarding the powerful influence of local circumstances over the abstractions of a wider organizational reality.
What are the incentives of depot managers under competition? The incentive will be to win, given the stakes are appropriately and fairly constructed. The alternative might be less work for their organization, potential furloughs for co-workers, and performance ranked against their peers. The necessary stakes might be surprisingly small. Competition here is less as a structure and more a process of human rivalry. Competition, with its inherent rivalry, forces local managers to rethink their work definitions and achieve innovations in order to compete. In this way, it plausibly reduces slack within the organization. Based on this synthesis, I can proceed to the research design working within this theoretical framework.

With the expanded concept of slack, along with Niskanen’s slack or discretion-maximizing manager, I can plausibly introduce this manager into Porter's model to help explain and predict depot responses to the competitions. Porter’s model provides a means to predict, using his five forces, when and how rivalry can exist among public organizations. Gulick is correct, in the traditional techniques of organizing, to emphasize the need for strict work definitions and unique work assignments to nominally minimize internal rivalry and conflict. These have their effect to some degree, but they also increase the integration problem for central leadership by depriving them of a basis of comparison. The removal of these unique work assignments creates the competitions and provides the integrative leadership a basis for comparison.

I have now populated Porter’s model with recognizable public managers operating within organizational domains potentially too complex to be fully integrated by senior leadership and managers. What I achieved in this synthesis is the construction of a
cohesive framework of public management to interpret within Porter’s general framework of a formerly commercial industrial sector. This synthesized framework provides a consistent theoretical viewpoint for analyzing the case study and interpreting its results.
3. Research Design – From Questions to Conclusions

This study’s central research proposition claims the Navy/DOD competition initiative represents a model for reducing costs among DOD supporting organizations. This chapter describes a research design to test this proposition and in turn answer the primary research question: can internal competition be utilized to reduce costs among DOD supporting organizations organized as working capital funds? One answer to the research question might conclude the historical initiative, suitably adapted, represents a feasible policy alternative for future use. Another answer might be to find the concept unsuitable. For example, the research may conclude savings are illusionary.

The GAO’s general endorsement of the initiative does give credibility to the central proposition, but many questions remain. The GAO findings are not only subject to verification, but it is again important to recognize the differences between the historical Navy/DOD initiative and the proposed set of public-public competitions. This modification places theoretical and practical challenges on the research. To go forward, I must essentially argue this distinction is irrelevant. I will assume competition from either private or public entities have the same effect on public organizations. On this basis, the historical initiative can serve as the model for a future public-public variant.

At the end of the last chapter, I outlined a synthesis from the literature that seems to provide a cohesive theoretical framework for exploring and evaluating the
competitions. Working from this framework, this chapter will describe a case study of the historical competition initiative focused on Navy and Air Force aviation depots. Porter’s framework builds its analysis around a single “industry.” An industry is defined by firms producing “close substitutes.” The production of close substitutes, or at least the capacity to produce these rival products, provides the basis for competition. Porter’s framework allows us to better define the elements of the case and understand how internal forces within the industry generate competitive forces or rivalry among its participants. This can be from suppliers or customers as well as direct competitors. This chapter will begin by describing a measurement system for evaluating the competitions, discuss case study methodology and then the application of Porter’s framework to the effort. The chapter ends with an attempt to think critically about why DOD ended the competition.

**Measuring Results**

A measurement system for study results is an appropriate starting point for the research design. The research question postulates competition can reduce costs. Establishing this claim for cost savings is central to the research. Competition is the independent variable while depot work costs are the dependent variable. The idealized standard for cost measurement compares identical work under competitive and non-competitive conditions. Attempting to compare different types of aircraft, or aircraft and ships, is a non-starter without significant adjustment to the data to control for the differences. Side-by-side work done for the same type of military equipment would be the ideal. By side by side, I mean the identical set of work, done at the same location, the same time, and under the same conditions.
Less desirable, but perhaps more common, is the application of competition to a single stream of work. By work stream, I mean a given depot accomplishing the same work on the same aircraft for a stable cost year after year. These depots’ work is to accomplish a specific aircraft’s overhauls. I assume this stream of work stays essentially unchanged over time. This situation is different from side-by-side comparisons of depot work for competitive and non-competitive conditions. Here competition begins in a given year. Instead of a side-by-side comparison, a comparison of year-to-year cost differences identifies the effects of competition. This requires establishing a cost baseline under non-competition conditions. As an example, a specific GAO review of one of the early competitions used 1987 as a cost baseline. The absence of aviation competition in 1987 was compared with its results from 1988 to 1994.

However, this second approach (different from side-by-side comparisons) generates a temporal dimension to the research. An obvious issue for control or adjustment under these conditions is inflation. Changes in the general level of prices require adjustment, particularly for years well removed from the baseline. Inflation (or deflation) represents broad changes in price levels across a wide range of commodities. Depot maintenance uses a reasonably consistent set of parts, labor, and commodities whose costs will change from year to year. Examples include worker pay, parts, supplies, and consumables. Inflation can vary from national averages by depot, by DOD major command, military department, or by the overall Department of Defense. Foreign inflation rates for overseas depot work might also be relevant. Comptroller staffs within the military departments and in the Office of the Secretary of Defense follow these trends
and publish annual reports on cost inflation. These published DOD inflation indices authoritatively adjust the data for price changes.

But controlling for inflation is relatively trivial compared with the controls necessary to remain consistent with the baseline year. The reason is cost accounting. We should expect depot costs reporting to consist of direct costs and indirect cost. Changes in the number of aircraft or ships processed at a given depot or shipyard can significantly affect overhead allocations to individual aircraft. The number of aircraft processed in a given year might affect overhead allocations and thus affect cost reporting. Work procedures or definition can change from year-to-year, distorting measurements. A good research design must work to address these possible issues to ensure the quality of the results.

As an example of this type of problem, just prior to the beginning of the competition initiative, the Navy introduced an aircraft inspection policy designed to reduce costs. This was the implementation of “condition based maintenance,” designed to replace the previous calendar-driven maintenance approach. An example of calendar driven maintenance is a personal auto maintenance policy to change your engine oil every 3 months. “Condition-based maintenance” is a policy of “inspect and repair as necessary.” If a home engine oil analysis was available for personal use, such a policy would analyze and then change our automobile oil only as required. For depots, inspections and optional repairs substitute for automatic depot overhauls. The introduction of such a policy might distort depot cost data under competition. Work
might change in the depots for a given aircraft. Only aircraft failing the inspection or older aircraft might now enter the work stream and distort cost measurement.

However, the issues of tracking depot maintenance costs over time, while admittedly crucial, are overly narrow. Although cost reduction is vitally important to the research, the policy will not be implemented because of cost effects alone. Introducing competition calls into question too many established practices. Only a wider understanding of the political and organizational issues generated by competition can overcome the resistance from these organizational routines and paradigms. For this reason, research design requires a wider perspective to address the broader realities. The goal is to transform the research from naïve theoretical inquiry into one capable of addressing the real problems of implementing the objective reforms. I will review this issue following a discussion of data availability.

**Data Availability for Cost Data**

With respect to cost data on the competitions, there are currently three possible sources for the research, of varying completeness, availability, and granularity. By high granularity, I mean costs reported at the level of individual aircraft. Low granularity would mean cost reporting for the entire Navy or Air Force regardless of the multiple aircraft types. The first of the three data sources consists of GAO studies from the early 1990s that specifically reviewed the depot competitions in varying detail. The second source consists of an intriguing set of internal Navy depot data. Serving military officers obtained the data while they studied for advanced degrees at the Naval Postgraduate School, in Monterey, California. The Department of the Navy operates the school, and it
is independently accredited. These published studies and their data are publicly available for research. These data seem to parallel key portions of GAO data.

This third type of data is Navy and Air Force budgetary data on the depots. This type of data is greatly more systematic than the other categories but much less detailed. The data does not specifically identify the historical competition initiatives. These data are not of very low granularity, but the competitions are small compared to its totals. The most uniform format providing the most consistent data is a specific budget report directed by the Office of the Secretary of Defense. This is the OP-30 format. This common budgetary format, in which all the military departments report their depot maintenance spending and gross workloads, reports a consolidated number of units (aircraft, ships, etc.) worked by both organic and contract depots. The budget data reports work accomplished at both public and private depots. However, this data can place the competition initiatives within a larger historical context and potentially control for a wider set of trends.

Niskanen (1971) in his original work, “Bureaucracy and Representative Government,” noted public organizations talked little about outputs. Despite the enormous scope of public information available on DOD budgets, relatively little of this financial information actually relates to outputs. An important exception is within the present area of research. DOD depot maintenance reporting on outputs is imperfect. It does not distinguish aircraft or engines refurbished by public depots from private. Nor does it identify individual aircraft types. But nearly unique within the DOD, this set of DOD supporting activities faithfully reports the total numbers of aircraft and engines
refurbished each year and the total dollars budgeted and actually spent on the work. By this data, albeit at a low level of granularity and with suitable caveats, I can uniquely gauge trends in work and average costs.

Case Study Research Methodology Described

Earlier I described this research effort as policy research. Policy research represents a subfield of social science intended to solve specific problems. Its orientation is less towards theory and more on problem solving (Marshall 1998). By necessity, research of this type must take a broader scope to assess the myriad of details confronting the study sponsor, but also requires an ability to translate policy abstractions into policy operations. For this and other reasons, this study appears well advised to adopt a case study methodology. With respect to case study methodology, Yin (2003) writes, “the distinctive need for case studies arises out of the desire to understand complex social phenomena. [it] allows investigators to retain the holistic and meaningful characteristics of real-life events.” These characteristics seem closely matched with the real-life events of the historical DOD competition initiative and with the chosen policy alternatives associated with this study.

Another reason for choosing a case study research is its application to explanatory research. If the historical initiative is to be used as a model for future use, we need explanatory details describing how it was originally implemented and under what conditions. We seek operational details, often traced over time, studied, and related in terms available for policy implementation. This type of requirement is ideal for case study methodology. Further, many of the events of the initiative are nearly a quarter
century old. Case studies methodology shares many of the techniques of historical research that may prove necessary to fully document the initiative. Despite the elapsed time, there remains the possibility of augmenting historical data and documents by conducting interviews with historical participants. Although the historical competition initiative is beginning to recede to the exclusive domain of the historian, some number of its architects may be available to add important details not answered by documentary evidence.

Case study designs include four separate types. These four designs are distinguished by combinations of single or multiple cases, and holistic versus embedded designs (Yin 2003). The basic approach to this research has been to treat the DOD not as a single unitary organization, but as an organization of organizations. This complexity argues for an embedded case study design. Various embedded units of analysis present themselves within the historical competition initiative. I have often referred to the 1985-1994 competition as a Navy initiative. But near the end of this period, the initiative ceased to be a Navy-only activity and instead become DOD-wide, to include both the Air Force and the Navy. The one continuity throughout the period was the Navy shipyard competitions, but this particular case is almost completely independent from the aviation competitions that began in 1987.

The case study literature notes this approach requires a clear definition of the unit of analysis, especially for an embedded case study. It is tempting to treat various Navy and Air Force major commands as the units of analysis. But to start at the smallest and most precise definitional level, the competitions themselves are the most basic unit of
analysis within the case. In different years, competition exists as an independent variable for specifically structured sets of work packages. Each of these competitions occurred in a given year (e.g. 1985, 1986, etc.), for a specifically designed set of work, bid upon by individual public and private depots, each distinguished by the respective major command. During this period, there were at least 203 separate ship/submarine competitions and 71 non-ship (primarily aviation) competitions undertaken by multiple DOD major commands within all three military departments and four military services (Army, Navy, Marines, and Air Force).

These depot competitions, though relatively numerous and differing in details, collectively represent a unique historical exposure of DOD public organizations to the force of competition. In the end, this argues for a single case with multiple embedded units of analysis. Ideally, each competition could be the subject of a separate analysis if the data were available. The GAO identified individual competitions, but sufficiently detailed cost data is limited to only a few of the individual competitions. The origination and presence of competitions within the Department of the Navy until 1990-1991 suggests an exclusive focus on the Navy and Air Force. Although the Air Force did not begin its competitions until 1991, its aviation depots and their major command, operating without competition prior to that time, provide a useful contrast with the Navy aviation depots.

**Defining the Context of the Case**

Yin (2003, 13) notes case study methodology works well for research where “the boundaries between phenomenon and context are not clearly evident.” Organizational
context and relationships are important to the study. For example, one issue is the
possibility of inappropriately equating depot management with private sector
management. It is inviting and easy to treat the individual depots as independent
commercial firms: each an autonomous entity analogous to a profit-maximizing firm
within a commercial market. Yet despite Hoover’s attempt to promote these working
capital funds as simulated businesses, they remain as entities within a hierarchical
organization. In many ways, this organizational arrangement makes each member of the
hierarchy a theoretical part of the maintenance depot. Senior members of organizational
hierarchies can frequently intervene anywhere lower in their chain when they see fit. A
famous story from the 1962 Cuban Missile Crisis has Secretary of Defense McNamara
bypassing numerous intervening links of the Navy operational hierarchy to give specific
direction to ships at sea (Leonard 2002).

McNamara’s intervention was an extraordinary event, remarkable if only for its
infrequency. Day-to-day practice discourages such behavior, and intervening members of
the hierarchy will actively resist intrusion to preserve their managerial autonomy. Yet it
illustrates a basic feature of hierarchical organizations, certainly military hierarchical
organizations, and the real potential for leadership intervention into the smallest
organizational domain. These blurry events, changing actors, and influential context
further argue for a case study research methodology. Figure 3 defines seven different
analytical layers to the case in terms of these complicated organizational relationships:
Defining a Theoretical Framework: Applying Porter’s Model

One of the methodological weaknesses of case studies has been a difficulty in their “analytic generalization.” (Yin 2003, 32). Earlier I referenced Porter’s work on competitive strategy as a theoretical framework to help structure the organizational relationships inherent within the general case. Inside Porter’s framework, I developed the concept of organizational slack, and essentially adopted Niskanen’s discretion-maximizing public manager to operate depots within the inherent complexity and ambiguity of DOD. Military depots and shipyards modeled in this way take the place of private firms in Porter’s framework. These are intended to be representatives for a wider set of DOD supporting activities. Instead of private commercial firms, these DOD public firms organized as working capital funds supply a specific set of intermediate products to
the military forces. I assume DOD organizations organized as working capital funds are representative of this wider set of DOD supporting organizations.

Porter analyzes competitive forces within an industrial sector. Porter defines an industry as, “the group of firms producing products that are close substitutes for one another” (1980, 5). The key phrase is “close substitute.” Economically, a substitute is a product interchangeable with an existing product. For two depots servicing the same aircraft, these depots are more than the “close substitutes.” Instead, they are direct substitutes. In terms of an aircraft depot, a “close substitute” might be sets of military depots servicing fighter or bomber-type aircraft. Although degrees of product substitutes define Porter’s industry, a firm’s relationship with its buyers and suppliers also represent important forces in the model. Porter establishes five organizing categories for analyzing relationships within a given industrial sector. These five categories are as shown in Table 2:

<table>
<thead>
<tr>
<th>Sector Members</th>
<th>Competitive Inputs to Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Industry Competitors</td>
<td>Rivalry Among Existing Firms</td>
</tr>
<tr>
<td>2. Potential Entrants</td>
<td>Threat of New Entrants</td>
</tr>
<tr>
<td>3. Substitutes</td>
<td>Threat of Substitute Products or Services</td>
</tr>
<tr>
<td>4. Suppliers</td>
<td>Bargaining Power of Suppliers</td>
</tr>
<tr>
<td>5. Buyers</td>
<td>Bargaining Power of Buyers</td>
</tr>
</tbody>
</table>

Porter’s definition of an Industrial Sector seems to justify the earlier decisions to treat shipyard and aviation maintenance depots as separate cases. Aviation maintenance depots and shipyards clearly offer entirely different products. They are not “close
substitutes,” but within each of these categories—aviation maintenance depots or shipyards—an industrial analogy is reasonably justified. However, unlike ordinary commercial practice, I might say the industry is regulated to minimize competition. DOD major commands of the Military Departments seek to remove rivalry among “industry competitors” by assigning customers (buyers in Porter’s list) to suppliers. This assignment in effect removes an individual depot or shipyard from competition so long as the assignment remains in place. Once made, work assignments are usually unchanged over the life of the equipment. For example, in the 1970s the Air Force assigned overhauls for F-15 fighters to Warner-Robins Air Logistics Center in Georgia. The work remains there today.

Entirely consistent with Porter’s framework, and paralleling the literature of bureaucratic politics, we might reasonably expect the assignment of new work, with its long-term implications, to be a spirited and contentious campaign among depots seeking the new work. It would be interesting to observe the decision process within the depot major commands. Earlier I set up eight hierarchical categories, to establish the organizational context for the depot competitions. The broader levels of hierarchy essentially create and enforce the rules of these work assignments. As one level of the hierarchy might call these assignments into question, it is reasonable to expect higher categories to react to these proposals. If the Secretary of the Navy proposes to close shipyards, Congress has the right to question the decision, even to block implementation. The right of “consent” by more senior organizational levels is inherent in the process of
hierarchical coordination. The case study will attempt to detail this important contextual feature of the depot competition initiative.

Porter’s category of “Substitutes” requires introduction of a somewhat more detailed description of DOD equipment maintenance to describe possible depot maintenance alternatives. There are direct substitutes for military depot maintenance at other levels of the department. This requires introducing three types of equipment maintenance within the DOD:

- **Depot or “D-Level” maintenance.** Sometimes this maintenance class is known as “heavy maintenance.” This is technically the most demanding. It often requires specialized facilities and equipment. Depot maintenance accomplishes specialized maintenance tasks and inspections deferred by the two other DOD maintenance categories.

- **“Intermediate” or “I-Level” maintenance.** This category can accomplish many, but not all of the same tasks as depot maintenance and therefore, in Porter’s terms, can be classified as a substitute. I-Level maintenance is usually available at the homeport or assigned airbase for the military equipment item. This makes it an attractive substitute for depot level maintenance given the convenience. I-Level maintenance accomplished at home station and substituting for depot maintenance does require a loss of operational availability for the home station commander.

- **“Organizational” or “O-Level” maintenance.** Within Porter’s categories, this level of maintenance is located with the military forces, or in Porter’s categories the “Buyers” of depot maintenance services. Assigned ship personnel or flight line maintenance personnel accomplish this level of maintenance. This is relatively “light” maintenance comparable to the “heavy” maintenance of the depots. Typically, O-Level maintenance both services the equipment with consumables such as fuel and oil, but also diagnoses component failures within the major equipment item. It removes and replaces the defective components (e.g., radios, pumps, generators, engines) and thus restores some portion of mission capability to the equipment. “O” level maintenance is not viewed here as a substitute for depot maintenance.
Given this introduction, Porter’s categories suggest the assignments shown in Table 3 for Navy/Air Force aviation depots and for Navy public shipyards. This reflects the current monopolistic management approach of uniquely assigning depots to suppliers.

**Table 3. DOD Depot Maintenance (Aviation and Shipyards), Industry Sector Members**

<table>
<thead>
<tr>
<th>Porter Model Elements</th>
<th>DOD Aviation Depot Maintenance Sector (Army not Shown)</th>
<th>DOD Ship Repair/Overhaul Sectors</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Navy Aviation Depots</td>
<td>Air Force Depots</td>
</tr>
<tr>
<td>Industry Competitors</td>
<td>Individual Navy Depots</td>
<td>Individual Air Force Depots</td>
</tr>
<tr>
<td>Potential Entrants</td>
<td>Peer Naval Depots</td>
<td>Peer AF Depots</td>
</tr>
<tr>
<td></td>
<td>Peer AF Depots</td>
<td>Peer Naval Depots</td>
</tr>
<tr>
<td></td>
<td>MRO Commercial Firms</td>
<td>MRO Commercial Firms</td>
</tr>
<tr>
<td>Substitutes</td>
<td>Navy Aircraft Intermediate Maintenance</td>
<td>AF Aircraft Intermediate Maintenance</td>
</tr>
<tr>
<td>Suppliers</td>
<td>Labor Suppliers: Depot workers and their unions can be viewed as separate suppliers for individual depots</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Replacement Parts Suppliers: The Navy/Air Force can expect only marginal differentiation between its replacement parts suppliers and original equipment manufacturers. Both these supplier types can expect to be close substitutes and therefore rivals. Commercial parts suppliers can be expected to sell to both Navy and Air Force</td>
<td>Material: Ship/Submarine part and equipment suppliers might be significantly differentiated from Aviation part suppliers - but not completely distinct.</td>
</tr>
<tr>
<td>Buyers</td>
<td>Naval Aviation</td>
<td>Air Force Forces (Aircraft)</td>
</tr>
</tbody>
</table>

**Thinking Critically: Deutch Must Have Had His Reasons**

Measuring the effect of competition is important, but the research question requires addressing broader qualitative issues. Research for reform requires more than a small amount of skepticism and restraint. The research design must seek to detect and address inconvenient facts that may lead to negative findings. If the competition initiative
is the crucial element of the central research proposition, then critical thinking about the
end of the initiative is a necessity. It seems important to understand how an initiative so
businesslike might be ended so abruptly just as a new round of businesslike reforms (i.e.,
“Reinventing Government”) were getting started.

It was a decision in 1994 by the Deputy Secretary of Defense, John M. Deutch,
which effectively ended the depot competitions (GAO 1996, 14). Understanding Mr.
Deutch’s reasons for his decision can help formulate important questions for the case
study. An otherwise apparently successful initiative seemingly ended without significant
protest from the Navy, the Air Force, or even Senator Stevens, its original legislative
patron. The political events between 1985 and 1994 might themselves explain the
Senator’s attitude, but the apparent lack of sustaining interest from the Army, Navy, or
Air Force gives pause. These are the DOD managers and organizations arguably with the
greatest incentives for its maintenance if the initiative was truly effective. We might
expect the military departments, having been exposed to a successful Navy initiative, to
adopt it for themselves and continue it beyond 1994.

The Air Force did undertake additional public-private competitions after 1994
when they sought to allocate workload from two depots closed by the BRAC
Commission. But the Air Force returned to other reform techniques in 2001 when it
undertook depot maintenance re-engineering and transformation (McCoy 2003).
Transformation was the key phrase associated with Secretary Rumsfeld’s (2001-2006)
reform efforts within the DOD. The results of the 2001 Air Force initiatives are uncertain,
but it seems significant the Air Force resorted to traditional reform techniques and declined to continue using competition.

It also seems important to Mr. Deutch’s decision that the overall competitions were small relative to the overall size of DOD aviation depot maintenance. The GAO (1996, 4) divides depot maintenance work between aircraft/engines and components. Between 1988 and 1995, the Department spent a total of $4.6 billion on aircraft/engine maintenance. Only about 6 percent ($268 million) of that total workload was subject to competition. The DOD component competitions started later than airframes. Components are the parts necessary to repair or overhaul military equipment. Depots and other suppliers can often economically repair components rather than purchasing new items. Between 1992 (when Navy component competitions began) and 1995, the DOD spent $3.2 billion on component repair. Again, competition comprised only about 6 percent ($196 million) of total depot work.

The shipyard competition was of a larger size (GAO 1994), but problems in its administration after 1987 may have amplified Mr. Deutch’s concerns about issues of financial fairness. The navy undertook a total of 203 separate ship and submarine competitions between 1985 and 1994. However only 98 of these competitions contained head to head, public-private bidding. Sometimes private shipyards did not submit bids, particularly for submarine work. Sometimes public shipyards declined to bid against private shipyards for a given piece of work. Over the course of the competitions, the shipyard competitions averaged only 7.2 percent of the ship maintenance and modernization budget per year. Its peak year was 1990, with 11.6 percent of the budget.
Over the 203 competitions, the Navy awarded private shipyards over 90 percent of ship repair contracts, but only 33 percent of submarine work. The expertise for servicing nuclear propulsion explains the mismatch between the two categories. Submarines are essentially all nuclear powered, with few private but several public shipyards having the necessary expertise. Navy surface ships, except for aircraft carriers, have more conventional, non-nuclear propulsion. Either of the more numerous public or private shipyards can service these conventionally powered ships.

The 90 percent award of ship competitions to private shipyard implies the public yards could not compete, but this mismatch emerged after 1987. Prior to this, the Navy allowed public shipyards to bid at less than full cost. Like private shipbuilders, the Navy allowed them to bid at a “loss.” For private shipbuilders, the concept is more readily understandable. A private shipbuilder, needing work, could ignore overhead costs, tax issues, etc. in order to secure work. Business logic limited how low these bids would go, probably no lower than the marginal cost of the work. But even a money-losing bid might maintain the workforce at the private yard until new work appeared.

Public shipyards, following perhaps this same logic, similarly ignored many of its internal cost categories prior to 1987: pay for military shipyard workers, perhaps investment costs, or costs of running its facilities. The public bid might have omitted any of these items to secure the award. Prior to 1987, when this practice stopped, public and private shipyards won equal numbers of competitions, but a protest submitted to GAO by a private shipyard ended the practice. This policy seemingly established the lopsided number of ship competitions (>90%) awarded to private shipyards.
Presumably, preparation for Mr. Deutch’s decision addressed all these points. Therefore, from the standpoint of using the competition initiatives as the basis for future reforms, Mr. Deutch’s stated reasons give a basis for caution. The GAO (1996) reported Deutch cited several specific concerns developed by a government-industry study team. That study identified problems in conducting public-private competition regarded as fair by all participants (DSB 1994). Deutch also noted the costs in time and finances necessary to prepare and administer the competitions. He also noted complaints from private industry regarding the basic nature of the public-private competitions. Industry complained the competitions forced them to aggressively bid against a DOD entity (the public depots) when DOD, at the same time, was sometimes their only major customer. The report cited competition problems associated with declining depot workloads, the ongoing transitions from depot closures, and the need to improve depot maintenance financial systems.

These are serious issues, but it should be noted initially most if not all these reasons seem to be associated with problems in public-private competition. Yet we should not discard these data from the research. Despite comparability problems, the historical competitions provide insights on the responses of public organizations to competition. The research design must address the ability of competition to reduce the work costs of public depots irrespective of their rivals – public or private. The research assumes either a public or a private rival can generate effective competition within suitable institutional constraints, and that the force of competition from either source is identical. The research design must be open to evidence to falsify this crucial assumption.
Further, why the 1985-94 initiative ended is crucial to any consideration as to its future revival. In considering Mr. Deutch’s reasons, we should separate issues of public-private comparability from issues confined to public-public competitions. As an example of these issues, Mr. Deutch noted the introduction of divisiveness into the DOD depot maintenance community assumedly through public-public competitions. This is a historically important theme given past rivalries within DOD. The research design must shed light on points such as these.

Key Questions for the Case Study

1. Why was the competition initiative begun?
2. Why did the competition begin in the Navy?
3. Why were the competitions expanded beyond the Navy depots in 1990?
4. How were the competitions administered?
5. Why were the competitions ended?
4. **The Depot Competition’s Institutional Context**

This chapter specifically describes DOD organizational and political activities from 1985 to 1994 that form the context of the actual depot competitions. I seek to describe how the initiative began with shipyards, expanded to Navy aircraft in 1987, and finally evolved to all DOD aviation maintenance depots in 1989 (McCoy 2003). The next chapter describes the actual results of the competition. Although the shipyard competitions were almost wholly separate from the aviation competitions, I treat the entire episode as a single reform. Dissatisfaction with the depot maintenance sector continued after the initiative’s end in 1994. As recently as 2001, the Air Force undertook another round of reforms, the “Depot Maintenance Reengineering.” This initiative’s objective, like the competition initiative, was to again address cost and performance issues within the depot sector.

The case study, particularly the contents of this chapter, will describe one approach to reform, one attempt at managing portions of a large complex public organization. Consistent with the long and uneven history of DOD businesslike reforms, the 1985-1994 initiative was one era’s attempt at change. This chapter particularly aims to provide clues for understanding why the competition initiative ended. If we can understand why it ended, we may be able to understand if and how it ought to be re-introduced. Subsequent chapters will successively report the actual results of the aviation
competition (Chapter 5) and then evaluate of the general features of the competition (Chapter 6). Finally, Chapter 7 will offer conclusions regarding the initiative’s revival in perhaps an altered form at some future date.

Many of the events described here occurred within the Department of the Navy until the initiative expanded. I will begin with the Navy and turn to the Air Force at mid-chapter. The chapter begins with an introduction to three Navy leaders of the period and two of its major commands. As discussed in Chapter 1, major commands are the standing sub-organizations of the Military Departments, functionally or geographically organized to accomplish the work of the departments. Headquarters leadership in the military departments coordinates and directs the major commands. Civilian leadership and staff in the Office of the Secretary of Defense, along with military leadership and staff in the Office of the Joint Chiefs of Staff, provide support for the Secretary of Defense. It is the job of that position, described by some in previous chapters as “impossible,” to coordinate and direct the military departments.

The Secretary of the Navy manages a portion of this enormous hierarchical system. The staff principal to the Navy secretary, with responsibility for Navy shipyards and aviation depots, is the Assistant Secretary of the Navy for Shipbuilding and Logistics. Mr. Everett Pyatt served in this position until 1989. He graduated from Yale in 1962 and occupied the position as either deputy or as the assistant secretary almost continuously from 1977 until early in the first Bush administration. During the initiative, Pyatt served under Secretary of the Navy John F. Lehman, Jr. Lehman served as President Reagan’s first Secretary of the Navy until 1987. Many remember Mr. Lehman
for his advocacy of a 600-ship Navy during the Reagan administration – a goal nearly achieved in the late 1980s.

These Senate-confirmed civilian leaders, in turn, oversee the military leadership of the Navy. Military leadership is also Senate-confirmed. The Chief of Naval Operations is the Navy’s most senior military position. It is nominally a staff position supporting the Secretary of the Navy, but in reality, it is an enormously influential position by itself. The Chief of Naval Operations oversees the commanders of the Navy’s major commands. The two most important major commands for the story of the competition initiative are the Naval Sea Systems Command and the Naval Air Systems Command. The two commands respectively oversee Navy shipyards and aviation depots as part of their much wider set of responsibilities. Navy admirals manage each of these major commands.

One commander of the Naval Sea Systems Command, Admiral Earl Fowler, will play a part at the beginning the competition initiative. But an important continuity throughout the Navy initiative is the presence of Mr. Pyatt. The chapter begins with congressional testimony by Mr. Pyatt in 1987, just at the beginning of the Navy aviation competition initiative. The testimony before a sub-committee of the House Armed Services Committee serves to introduce many of the political issues faced by the competition initiative in subsequent years. The chapter then moves backward to Admiral Fowler, the commander of the Naval Sea Systems Command and the 1985 beginning of the competition initiative within Navy shipyards. Still moving backward, the chapter traces the 1970s origins of competition as reform and then describes the immediate congressional context of the initiative. Finally, the narrative begins to move forward with
discussions of the Air Force depot maintenance in the 1980s and the expansion of the competition initiative to the entire DOD during the first Bush administration. The narrative ends with the actions of the Clinton administration in adjusting to the end of the Cold War and the four rounds of military base closures between 1988 and 1995.

Starting at the Core –Navy Aviation Competition Initiative Begins (1987)

In light of the success of Navy ship repair competitions, Congress allowed the Navy in 1987 to expand the scope of the competitions to the depot repair of aircraft, engines, and aviation components. The program would include bidders from both the public and private sector but would start with an extremely limited scope. Only a few fighter aircraft overhauls and other miscellaneous depot maintenance activities were to be included. Despite its small size, after legislative authorization a representative for the Navy aviation depot in Jacksonville, Florida, just one of six Navy depots, announced to local newspapers all Navy aviation depots would now have to compete for their work. He implied, no longer would work be assigned to the depots sufficient to maintain employment. “In the past, the Navy has assigned the work to the rework stations. In order for the facility to have a sufficient workload in the future, we need to streamline...We have to become more competitive. We are taking steps here at [Jacksonville] to win competitive contracts” (AP 1987).

Just months following this announcement, Mr. Pyatt, the Assistant Secretary of the Navy for Shipbuilding and Logistics, testified to the House Armed Services Committee on March 17, 1987. Mr. Pyatt’s office was at the center of competition issues within the Navy Staff. DOD parts acquisition scandals had made competition an
important topic in the Pentagon. Many offered competition as the solution to the scandals. Each of the military departments created internal competition advocates. The chief Navy competition advocate reported to Pyatt (HAC-D 1985, 809). Pyatt’s testimony on the new aviation depot competition reflects apparent Navy satisfaction with the shipyard competitions and positive expectations for the upcoming aviation depot competitions. However, the January announcement of depot competitions in the local Florida papers raised congressional concerns. Immediately prior to Mr. Pyatt’s testimony, Congressman Charles E. Bennett (D-FL) stated,

> Since we are now moving to competition between NARFs [Navy Aviation Repair Facilities] and private industry, and everybody acknowledges that and it is part of the statute as a matter of fact, from a standpoint of national security, the NARFs must be there to take care of immediate needs and to be ready to expand in time of war. So there must be a degree of guarantee of certain types of work being done in each NARF...Finally, although I believe that most people would agree that competition can bring down cost and perhaps even improve performance, nevertheless, there has to be a minimum and effective cadre in place to protect the national defense of our country in this field of repair of airplanes...I am sure the witnesses will recommend things which in their opinion will be in the interest of our national defense. (HASC 1987, 788)

Pyatt’s subsequent testimony appeared carefully worded. He indicated the competition program would start small (2 percent of total Naval depot budget) but would grow in the future to 15 to 20 percent, “depending on what assumptions you make.” The remaining work will be reserved to maintain the mobilization base and industrial activities, “as we all know them.” He referred to a contract study of Navy industrial activities that recommending more commercial practices, including competition. This is likely to be a reference to the ongoing Coopers and Lybrand studies of Navy Industrial Operations (Sterns 1987).
Pyatt indicated demand for aviation rework was declining due to improved aircraft reliability, and although the 1980s Navy buildup in aircraft carriers and aircraft was now essentially completed, the Navy did not anticipate closing shipyards or aviation depots. Minimizing the impact of the competitions, “We are talking about annual work loading problems and managing an industrial establishment.” Depot management is improving, he said, overtime has been reduced by 30 percent, along with improved management of aircraft parts repair. He called them “components.” Components are an important part of the aviation depot workload. He noted, “Components are really the thing that determines the operating effectiveness of airplanes. We seem to focus on airframes, but it is components; the guidance systems, electronics, all such gear, that keeps a plane flying.” This area [components] had improved during a recent test initiative. “This is management, and this is what we are trying to focus on” (HASC 1987, 789-792).

Pyatt went on to discuss the upcoming aviation competitions that would start the following year, in 1988. Each depot would retain significant work to maintain employment, but a marginal portion of work would be placed into competition with the private sector. He noted issues regarding worker motivation, but answered from experiences with the shipyards, “...the innovation that occurs in activities down to the foreman level and the working group level is just tremendous. When they see an opportunity to excel, they grab it.” Assistant Secretary Pyatt finished with a summation,

As you all know, the Navy is very strong on competition. [it] has been one of the fundamental elements which has let us achieve the build-up that has occurred in the last several years. It has enabled us to come to you making promises about what things are going to cost, and walk back a few years
later returning money. We need to expand this approach to these kinds of logistic support activities. This is the basis of why we think that we should continue our current plans. (HASC 1987, 789-792)

Congressman Pete Stark (D-CA), then spoke about the dedication of the workers at the Alameda, California naval depot in his district. The Rear Admiral accompanying Pyatt, the military head of Navy depots, concurred. “These [depot] people really and truly believe that they are in the Navy” (799). RADM Kirkpatrick went on to offer caveats,

But the productivity of the fleet has improved and our component workload has been reduced due to that productivity. The reliability of our equipment has improved. A number of these factors combined with the productivity that we are achieving within the NARFs has put pressure on the work force...We are carefully approaching the concept of competition. We are going to do it in as careful a way as possible. I think competition will open areas of work to the rework facilities that were closed to us before. (HASC 1987, 789-792)

In subsequent questioning, the tone echoed that taken by Congressman Bennett at the opening of the hearing: accepting of the competition but cautious of its results and implications. There was a discussion of worker incentives: about sharing savings with aviation depot and shipyard workers. Mr. Pyatt spoke to gain sharing: “We started to implement the program following the beginning of the public and private competitions on the ships...then our auditors came up and said oh, no, you cannot do that. There is a legal restriction on why you cannot... my frustration is immense... It is just incredible” (801). Congressman Hansen responded: “it would sure be an incentive for hard work... Instead of the theory that I have heard for 26 years, spend every dime you get” (801). Pyatt: “the [spend it all] phenomenon that you describe I know exists. I see it every day” (802).
Congressman Bennett, of Florida, with the Jacksonville Naval depot in his
district, expressed concern about the long-term implications for public depots from the
competitions:

I am apprehensive that the private business people might arrange their
prices so that they were very competitive to begin with, but after the
NARF went out of existence then you would never get an appropriation
out of Congress to reestablish them along with the equipment and that
worries me. (807)

Congressman Hutto, representing Pensacola, Florida, with a depot in his district
continued. He directed his comments to Pyatt and RADM Kirkpatrick, echoing Bennett’s
concerns about reducing the number of public depots without determining a lower bound.
“You [Pyatt] mentioned that a viable mobilization base is fundamental to naval war
fighting capability….we have not defined what that mobilization base is” (808). Hutto
and the entire committee clearly wanted to know how far the process of competition
would go and if depots would be closed because of it.

Pyatt’s responsibilities included management of the Navy shipyards and the
American shipbuilding industry. He drew on his experience in responding. The American
shipbuilding industry, as a private commercial enterprise, had ceased to exist sometime in
the 1960s. It was entirely dependent on Navy shipbuilding contracts. Pyatt appeared to
answer Hutto about shrinking the aviation depots with this in mind. “It is the same
problem [as the shipyards]…it very much depends on the assumptions which you start
out with” (808). But, one congressional member astutely noted the differences between a
non-competitive U.S. commercial shipbuilding industry and the globally competitive
U.S. aviation industry. In the end, Pyatt failed to calm congressional concerns. He
reiterated the aviation competitions would begin small and were not likely to grow to be more than 15-17 percent of workload (measured by dollars) in future years (HASC 1987, 858).

The Navy aviation depot competition would never become as large as indicated by Pyatt. The cautious and chilly congressional reception for Pyatt’s 1987 testimony was a poor omen. A last minute insertion in the previous year’s DOD appropriation bill authorized the aviation competition. Congressman Hutto’s committee never reviewed the initiative and they now were plainly irritated on this point. House members from outside the committee had joined the hearing to communicate their concerns regarding the depot competitions. Some participant’s clandestine, last minute introduction of the initiative perhaps indicates a calculation the initiative could not survive review by Hutto’s committee. Still it seems clear the introduction of competition aroused a wholly different response from House members representing aviation depots than it did from House members representing shipyards. The differences between exposing aviation depots to the aerospace industry and shipyards to the shipbuilding industry will become plainer shortly.

These hearings, held by the Readiness Subcommittee of the House Armed Services Committee in the early spring of 1987, introduced many of the issues and congressional concerns that would expand exponentially with the end of the Cold War. The concept of reserved workload for public depots and privatization would grow in importance until it completely choked congressional action in 1997. This was the origin of the statutory 50/50 rule preserving work for public depots. Even though I will end the case study in 1994, the 1998 congressional floor fight over the rule represents an
alternative culmination of the case study. Even though it is strictly irrelevant to the issues of competition under study here, many of the events associated with competition will culminate with the fierce congressional battle of 1998.

**The Navy Public-Private Shipyard Competitions**

The overall depot competition initiative began with public and private naval shipyards. A private shipyard in the U.S. is a special case of private enterprise. Private shipyards, just as government shipyards, are wholly dependent on government contracts. The U.S. Navy shipbuilding program, exclusively carried out in private shipyards since the 1960s, is the overwhelming source of revenue for private shipyards. The President of a private shipyard, National Steel and Shipbuilding Company in San Diego, stated in 1979:

> Shipbuilding has existed in this country because the government has mandated that shipbuilding exist. Shipbuilding is truly a stepchild of government. Therefore, I make no entreaties for purely private interests. In every fundamental sense, shipbuilding is part of the public domain, and is to be dealt with as the Congress, in its wisdom, sees fit. (House 1979b 238)

Admiral Fowler, the Commander of the Naval Sea Systems Command, reflects this reality in his discussion immediately preceding the beginning of shipyard competitions. He notes that the private shipbuilding industry continues to decline and that this has created strong competition among the remaining private shipyards. “We have done a number of things to take advantage of this competition, and it has been effective.”

Past relations with the industry had been rocky, but relations had improved in recent
years. “Our relations with our contractors are generally good. While at arm’s length, they are still businesslike” (SAC-D 1984, 315).

Prior to the beginning of the shipyard competitions, Navy non-nuclear ship overhauls and repairs (essentially Navy surface ships other than aircraft carriers) were either assigned to public shipyards or were competed among private shipyards as private-private competitions (GAO 1994). The allocations served to maintain two viable industrial systems: public shipyards for repair and private shipyard for both repair and new construction.

To authorize the beginning of competition, Senator Stevens asked Admiral Fowler, the commander of the Naval Sea Systems Command, to assist in drafting legislation (SAC-D 1984b, 338). The legislation was written into the Fiscal Year 1985 DOD Appropriation Bill (PL 98-473). It directed a public-private competition for the overhaul of two vessels. Significantly, it also removed the program from the much-disliked A-76 process. It is generally agreed, the A-76 process is tedious. It culminates in a competition for the award of public services to either the supplying public organization or a private contractor. This is in essence a process of potential privatization. A-76 processes are less an ongoing competition, than an extended decision making process for the supply of public services either from a private or public source. Snyder (2001) notably found that the average saving in privatization averaged 20 percent. From the start, the depot competition was exempt from this process.

In the next year’s appropriation bill (FY 1986, PL99-190), the competition expanded to four ships. The Secretary of the Navy was required to certify the existence of
comparable public and private bids (GAO 1994, 24-27). In the FY 1987 Appropriation (PL 99-190), all numerical limitations on public-private competition for ship overhauls were removed and the Navy advised they “no longer considered the competitions as a test.” Now as the competitions expanded, investigations identified a technique adopted by public shipyards to win a portion of the bidding. This was the process of “marginal bidding.” Navy authorities quickly ended the practice, but it consisted of the public shipyards bidding only incremental or marginal costs for the overhaul. Public shipyards omitted overhead costs, which constituted up to the half of the actual costs, to help win the work. Private shipyards complained. If public shipyards underbid, the government would make up their losses. The private shipyards said they wanted equity.

The stress of competition was not limited to the public yards. Although its explicit impact on private contractors is not documented, public yards complained private bidders could theoretically bid at a loss while the public yards were now required to bid at full costs. Even at a loss, they said, government regulations would still require an award to the private bidder. This was true. The Federal Acquisition Regulations truly required selection of the lowest bid from qualified vendors. Public yards felt this put them at a disadvantage. Private yards retorted the public yards could hide their full costs elsewhere in the DOD budgets and win work unfairly. “A level playing field,” was the cautionary watchword from all as the shipyard competition evolved in its first years.

The general DOD competition environment began to yield warning signs; claims and bid protests in competitions began to emerge as the competition expanded. Ordinarily, competitions usually end in a formal contract award. The government first
issues a formal “Request for Proposal.” Bidders respond with a proposal and an offer. The government reviews the bids and then awards a contract. A claim or bid protest is an appeal of the award to the GAO. The GAO either denies the protest, directs a new round of bidding, or can award the contract to the protesting bidder (Kitfield 1987). The GAO decision is final within the government.

Bid protests increased as the shipyard competition evolved. From its inception in 1985 through 1994, the Navy organized 203 public private shipyard competitions (GAO 1993, 23). From initially a roughly even award of contracts among public and private shipyards, now private shipyards began to win increasing percentages as the years continued. A major factor in this result was the requirement that public shipyards must bid full costs. The private yards could bid any amount, even a loss, and the government was required to accept the bid under federal purchasing regulations. Despite these results, there is no evidence the shipyard competitions became as controversial as the aviation depot competitions. The shipyard competitions proceeded until 1994.

The Arrival of Competition on the Reform Agenda

Senator Levin would complain in 1981 about the unwillingness of the DOD to pursue competition (Senate 1981, 10). Yet competition in the 1980s would become a DOD watchword - at least in name: competition between commercial sources for parts, competition between prime contractors for the development of weapons systems, and of course, competition between shipyards that became the depot competition initiative. It is difficult to identify the diffuse origins of this development that reversed conventional wisdom of more than a century. Throughout the 1970s, there was the general introduction
of deregulation and competition into many areas of governmental activity. The 1970 transformation of the Postal Service into a quasi-government agency foreshadowed this transition. Others speak of the Penn-Central railroad bankruptcy that same year and conclusions that government over-regulation had contributed to its jarring failure. Finally, there was the economic shock of the 1973 energy crisis. Policy momentum grew for competition throughout the decade and expanded to DOD in the 1980s.

Airline deregulation was the first and most dramatic example of this new commitment to competition. The explicit airline deregulation process can be said to have begun in 1975 with hearings in the U.S. Senate and culminated in October 1978 with President Carter’s signature on the Airline Deregulation Act (P.L. 95-504). The airline industry moved from essentially a regulated utility toward a free market model of competition among carriers. Soon after, policy initiatives began for introducing competition into telecommunication, trucking, and financial services.

Competition between defense contractors had been the DOD conventional wisdom in the 1970s, but generally this had been a “winner take all” system. The problem was this approach effectively transformed the contract winner into a monopoly supplier (Drewes 1987). Departures from this pattern in the late 1970s would become illustrations in the 1980s of the advantages of competition. One such departure was the inauguration of a competition between manufacturers for production of cruise missiles (G. Wilson 1979). But the best documented example became known in the Pentagon as “The Great Engine War.”
“The Great Engine War” was the introduction of a second engine manufacturer to compete with the Pratt & Whitney engine for important new Air Force fighter aircraft. Pratt & Whitney had won the exclusive contract in 1970 to manufacture the engine. But by the late 1970s, the Air Force had grown dissatisfied with Pratt & Whitney’s non-responsive performance. The engine was technically very successful: in terms of performance, it was the most advanced fighter engine in the world. But there were serious problems with the engine’s reliability which Pratt & Whitney seemed uninterested in addressing. In 1979, the Air Force, with the Navy, began a small development with General Electric for an equivalent engine. General Electric was the only other significant military jet engine manufacturer in the U.S. The General Electric development effort soon expanded into a large-scale initiative and became an effective incentive for Pratt & Whitney to make improvements to the original design of its engine. The competition culminated in the mid-1980s with essentially a 50/50 share awarded to Pratt & Whitney and General Electric to supply Air Force engines.

Deregulation during the Carter administration had raised the profile of competition within Congress and in the newly elected Reagan administration. Competition seemed to offered solutions to many acquisition and procurement problems. Congress closely questioned Secretary of the Navy nominee, John Lehman regarding his views on shipbuilding competition in his confirmation hearings. Lehman had written a paper in 1978 that discussed the monopoly supply of aircraft carriers to the Navy (only one private shipyard in U.S. builds aircraft carriers). In the paper, he argued reduced costs might come with an altered ship design and multiple bidders (J. F. Lehman 1978). Early
in the new administration, when the Deputy Secretary of Defense issued a 31-point initiative to improve weapon system acquisition, Congress pointedly questioned the omission of references to competition (Carlucci 1984). Each military department established internal competition advocates in 1982, and Congress passed the important Competition in Contracting Act (PL 98-369) in 1984 (Coy 1986, 45).

Competition was to be the antidote to the procurement scandal still currently remembered within DOD through stories of $400 hammers and $600 toilet seats (House 1983; MacNeil-Lehrer 1983). The scandal had its origin in an Air Force internal investigation into the commercial procurement of spare parts. The investigation and the story of these bizarrely priced purchases was leaked to the newspapers. DOD senior leadership, particularly the Air Force, spent the next five years testifying on the origins and the solutions to problem. The information was available as early as 1982, but did not become actively discussed until the following year (Mohr 1982). Congress often asked the commander of the Air Force Logistics Command, overseer of Air Force depots, to testify to on this issue. These scandals played out over the course of 1983 and unquestionably aided the final passage of the Competition in Contracting Act the following year (Hiatt 1985).

To be fair, much of the zeal for competition throughout the 1980s was for competition among commercial suppliers. Nevertheless, the widespread theme of competition was plausibly on the mind of Senator Stevens when he interacted with Admiral Fowler during testimony on March 29, 1984 to begin the depot competition initiative. There is only one clear connection between the Competition Act and the depot
competition initiative—Senator Stevens was one of the Act’s earliest co-sponsors—but clearly, Stevens was acutely aware of the spare parts scandal. It had been a topic of hearings presided over by Senator Stevens two weeks earlier. In the discussions regarding the scandal, he said, “I think we have to get tough on this…the public that we have been exposed to all over the country is just up in arms about the continuation of this [lack of competition]” (SAC-D 1984, 35).

However, another theme in Stevens’s discussion was slowing budget growth anticipated to crimp Navy plans for a 600-ship navy. His fear was, “As we are being reduced, it seems that…we are going to be cutting readiness in order to maintain procurement.” (186) In the hearings with Admiral Fowler, he discussed the Air Force’s “Great Engine War” competitions (195-196) and noted, “Meanwhile efforts to reduce the budget deficit are imposing more severe spending restraints” (265). Senator Stennis (R-MS) joined the discussion a little later that morning (315). He said, “I know people are concerned that they want to back the military, but it seems like the money bills are getting very high. I feel that way myself. So anything that you could point to that you are doing that really gets into competitive bidding, and so forth, and savings of money on contracts I think would be very appropriate.”

Admiral Fowler, the ultimate commander of the naval shipyards answered, “The shipbuilding industry and ship repair industry has been depressed. It continues to decline. …This has caused very keen competition. We have done a number of things to take advantage of this competition, and it has been effective. So that has been a key measure… I think there have been a number of businesslike issues, clauses, and actions
taken, which have created a climate under which competition could take place and better pricing could be achieved” (315). Senator Stevens rejoins the questioning (333), eventually remarking, “The next 3 years are the hard cuts (335-8)…We had a series of questions, discussions here recently—I have been in them—particularly in terms of the percentage of work that is in Government yards as compared to private yards” (338). It is at this point in the dialog that Stevens asked Fowler if competition among shipyards would be possible to implement. This was the immediate context of the depot competition initiative.

**The Depot Competition’s Immediate Congressional Context**

Stevens and Fowler’s exchange took place in March, 1984 and the bill authorizing depot competition passed on October 12, 1984. Competition would begin in 1985. In the five months from October, 1984 to February, 1985, however, the political and budgetary winds changed direction. The shift is counter-intuitive. The President was easily re-elected. Neither the House nor the Senate changed party leadership. Caspar Weinberger remained Secretary of Defense. Yet the shift is plain in the historical record. In February, 1985, the re-elected administration submitted a new budget for the next fiscal year. Consistent with Reagan’s first term and with a landslide election, it contained defense budgets continuing to grow at record rates (5.9% per year). Yet the reception accorded the administration’s 1986 budget records the change.

Secretary Weinberger began his budget defense even before it was officially unveiled on February 5th. If Congress cut the Administration’s proposal, he said, it would be both harmful to national security and the national economy. But public opinion polls,
now on the recovery side of a painful recession, had shifted towards “too much” defense spending from the opposite position of “too little” five years earlier. The budget hearings were a stormy affair (Senate Budget, 1985). A defense budget freeze was under serious consideration (Domenici, 3). Some claimed economic stability was now at stake where four years earlier international military stability was the issue. Others argued the pace of defense buildup could not continue (Chiles, 4). But, Weinberger would not back down. He defended DOD against the charges it had not taken its cuts, he promised reforms, and he promised greater efficiency. Most importantly for the depots, he broached the possibility of base closures.

At the time Secretary Weinberger broached the issue, base closures had been for at least a decade a little used executive branch alternative for cost cutting. Congressional legislation would be necessary to reopen the process. But in the previous year, the President’s Private Sector Survey on Cost Control, otherwise known as the Grace Commission, had recommended the resumption of base closures in its voluminous, business-oriented report. Now, in response to a Senator’s plea for Weinberger and the DOD budget to demonstrate flexibility and offer cost-cutting ideas, Weinberger informally produced a list of 22 military facilities he said “could be closed with little or no adverse effect on our national security.”

For the depots, it was a shock. The Army could close 10 bases and 1 depot maintenance facility. The Navy could close 8 bases, 1 shipyard [Philadelphia], and 1 aviation maintenance depot. The Air Force could close 4 bases, but significantly, no depot maintenance facilities. The chair of the House budget committee immediately
alleged “Politics.” He noted 5 of the 22 bases were in his home state of Pennsylvania. “There’s nothing sinister in their selection,” Weinberger responded, “the Philadelphia naval yard has been recommended for extinction for a very long time” (Malone 1985). Secretary Weinberger was correct. The Philadelphia navy yard had been a troublesome and ill-managed yard—in the eyes of the uniformed Navy—for more than a decade (Dorwart 2000).

In addition, serious hearings on Defense organizational reform had been underway for several years. The rapid budget growth of the early 1980s was one source of the reform agenda. The sense was that the Pentagon’s internal processes generated military demand without efficiencies. The Senate hearings of 1985 would culminate the next year in the significant Goldwater-Nichols defense reform legislation. All these issues—base closures, deficits, and defense reform—were the immediate context for the beginning of the competition initiatives within the shipyards.

When the 1985 budget season had ended, the rising trend of defense spending had been broken. A steep recession, just ended in the year earlier, had created Federal budget deficits of historically unprecedented proportions. The budget deficit would become an important, retail political issue for the next 10 years. Later that year, Congress would pass the flawed Graham-Rudman-Hollings deficit reduction machinery (PL 99-177, 12/12/85), which set deficit targets and triggered automatic spending cuts if the deficits became too large. A court challenge disabled most of its machinery the next year, but Congress had made its point. Additionally, Congress did pass limited provisions for base closures in that year, but they reserved the rights to review the largest closures nominated by the
DOD (F. Thompson 1988). Nothing happened in DOD, but base closures and budget cuts were now beginning to infiltrate into the world of the depots.

One additional organizational context within the U.S. Navy is worth noting. Soon after the initial depot competition legislation, the Navy nominally altered the organizational landscape for its aviation depots and shipyards. On June 5, 1985, in the middle of the tumult over the budget already described, Secretary of the Navy John Lehman, disestablished the Navy Material Command. A full Navy Admiral had headed the Navy Material Command since its creation in 1966. It controlled the Naval Air and the Naval Sea Systems Commands and, in turn, the depots and shipyards. The Naval Material Command had become embroiled in the internal Navy struggle over the legacy of Admiral Hyman Rickover. During his term as Secretary of the Navy, Lehman (1988) ousted Rickover and began to undo his policies. He characterized Rickover’s legacy as rigid centralization, regulation, and a by-the-book bureaucracy. Lehman claimed this approach was “choking” the Navy. Admiral Zumwalt (1976), a former Chief of Naval Operations essentially parallels Lehman’s views on Rickover’s impact.

The disestablishment by Lehman of one of Rickover’s creation, the Naval Material Command, was a unique reversal of what otherwise had been a longstanding trend for organizational centralization. The disestablishment left six separate systems commands, previously overseen and coordinated by the command as nominally independent organizations reporting to the Chief of Naval Operations. This included the Naval Sea Systems Command, which operated the naval shipyards, and the Naval Air Systems Command, which operated the Navy aviation maintenance depots. After his
announcement eliminating the command, Secretary Lehman now advised Congress it could reduce his request for 15,000 additional personnel that year by 450 persons (Ledger 1985). With this action, oversight was somewhat reduced and the depots and shipyards achieved a greater degree of autonomy.

**Navy Contrast: Air Force Depots in the 1980s**

The narrative to this point has concentrated on the Navy and its two major commands for sea and aviation depot maintenance. Now I turn to the Air Force to provide contrast. Unlike the Navy, the Air Force during this period operated a single major command dedicated to depot maintenance. This was the Air Force Logistics Command in Dayton, Ohio. Its Navy analog is, of course, the Naval Air Systems Command. Yet it would be a serious error to completely equate the responsibilities of the two commands during the 1980s. Two internal functions dominated the Air Force Logistics Command: supply and depot maintenance. Research, development, and the acquisition of new aircraft and other equipment had historically been assigned to a second Air Force major command. The Naval Air Systems Command during this period combined both of these functions within a single command. Consequently, depot maintenance was a much more significant responsibility within the Air Force Logistics Command. Further, it was a longer established function. The Naval Air Systems Command only brought aviation depots formally under its responsibility in 1967. Air Force depots had been organizationally consolidated since the 1940s.

There are other important differences. Historically a four star general commands the Air Force Logistics Command, and two-star general officers usually command
individual Air Force depots. In contrast, a three-star admiral historically commands the Naval Air Systems Command, and a one-star Navy admiral oversees and represents all Navy aviation depots within the headquarters. Navy captains command Navy depots. Contrast the lower ranks commanding Navy depots with the Air Force: rank matters here. In terms of formal status and influence, the difference is analogous to the differences between a nice Buick and a Mercedes-Benz.

The relative scarcity of an officer rank roughly signals their organizational influence. There is approximately one admiral or general within the DOD for every 10 Navy captains or Marine colonels. This relationship crudely, but more or less accurately signals the relative influence each depot has within its hierarchy based on the rank of its commander. Further, the representation of all Navy aviation depots by an admiral with a single star indicates their relative influence within the entire Naval Air Systems Command. Overall, the relative difference of rank between the commanders in the Air Force Logistics Command is much smaller than within the Naval Air Systems Command.

Air Force depots are also said to be of much greater size and scope than Navy depots, thus justifying the assignment of a relatively senior general officer to the position. There were also differences in the organization of the supply functions. Air Force depots are more precisely identified as Air Logistics Centers and likely to have a larger set of supply responsibilities than Navy depots. These claims aside, it is a reasonable claim that individual Air Force depots are institutionally more powerful than Navy depots. Further, because they existed within a major command dominated by their activities, it is
reasonable to expect the leadership of the Air Force Logistics Command to be more closely attuned to their organizational interests.

But this arrangement also served to isolate the Air Force Logistics Command within the larger Air Force perhaps to a greater degree than in the Navy. The Navy command’s responsibilities for the development of new aircraft provided it greater organizational influence. Within the Air Force, the depot community (of maintenance and supply depots) was “generally viewed as a huge, poorly stocked spare parts warehouse or as a giant unresponsive repair depot” (McClougherty 1984). An unusually candid assessment found the problem lay in the differing work-views of the depots and their aircraft-flying customers: “The depots were commodity- or item-oriented.” They tended “to view weapon systems as combinations of items and subsystems…Items become ends in themselves, divorced from their ultimate applications” (McClougherty 1984). The writer stated the Air Force Logistics Command devoted great efforts toward shedding the image of a “box kicker/label licker mentality.” They were perceived as second-class citizens within the Air Force. Air Force depots had been separated from the operational Air Force from its very beginnings in 1947. The separation showed in these perceptions.

**Good Days Soon Passing – Air Force Depots in the Mid-1980s**

When the Navy began its shipyard competition in 1985, the Air Force and its depots were at their apex. All logistic accounts within the Air Force, all depot maintenance, all spare parts, all engine overhaul requirements were fully funded. General Hansen, the Commander of the Air Force Logistics Command, speaking later, seemed to revel nostalgically in those moments from the mid-1980s. Speaking of the fully funded
budgets, “That was the first time, and I doubt that we will ever see anything like it again” (SASC 1988, 158). Oil prices dropped. Inflation declined. Up to $30 billion in budget authority, granted by Congress between fiscal years 1982 and 1986, was actually returned to the Treasury unused (SAC-D 1986, 29). The costs of inflation, a problem that had bedeviled the Department and the entire nation for more than a decade, was gone.

There is a palpable, almost worry free sense throughout the logistics-related testimony from the Air Force to Congress in 1985. There was a sense they had moved beyond spare parts scandals and insufficient funding. All congratulated themselves—and sometimes the Congress—that the grim days of the 1970s were gone. An Assistant Secretary of Defense captured the mood not only for the Air Force but perhaps for the entire Department,

...let me state unequivocally that we are more ready, more sustainable and, in fact, more capable today than we have ever been. Last year before this committee I reviewed the serious readiness deficiencies which existed in our Armed Forces only a few years ago. We have, with your support, and I do deeply appreciate it, largely eliminated these. (SASC 1985, 2990)

In 1986, the halcyon quality of testimony continued. Lt General Leo Marquez, the Air Force Deputy Chief of Staff for Logistics and Engineering, would report its Depot Maintenance prices would be almost 5 percent lower than in the previous year—a third year in a row of negative rate changes. “This reflects increased productivity: through a stabilized work force, through equipment modernization…., higher ratio of direct to indirect workers; and through better control over material used in the repair process” (HASC 1986, 937).

Air Force logistics testimony that year sounded rattled. General Hansen from the Air Force Logistics Command in 1988: “This is the worst funding situation that the Air Force has ever been in. As a matter of fact, I looked at the funding back in 1975, and during the 1970s we were basically funded to the requirement...at the end of this year we are going to see aircraft without engines. I am repairing only 50% of the engines. Only 62% of spare parts” (SASC 1988, 238-240).

The next year, Hansen sounded similarly grim. After 1988, he states ominously, “We had run out of the new ways and innovative ways to do our business with less people. No longer could we do more with less. We found ourselves doing less with less” (SASC 1989, 135). He states spare parts funding is fast approaching the 1970s (139). He discusses job cuts within his civilian work force and pointedly notes, of his five large Air Logistics Centers (the depots), “four…are the largest employers in their respective states” (SASC 1989, 146).

So what had happened in 1988? It is worth recalling that the government’s Fiscal Year 1988 began on October 1, 1987. The testimony for Fiscal Year 1988 was taken by the Congress in the spring of 1987 and there are portents of what is to come, but most of the events which cumulatively would rattle General Hansen in testimony the following years would emerge later in the summer and fall of 1987. However, the first fact worth
nating was a January change of party leadership in the U.S. Senate following a record budget deficit the prior year. Now in 1987, for the first time since 1981, the Defense Department faced a politically united legislative branch.

Now also there was a set of bi-partisan legislation and studies, all essentially critical of the Pentagon and its internal management and structure, which would offer a serious basis for budgetary dispute. The most famous statute was the Goldwater-Nichols legislation. It was legislation born of facts painfully accumulated in four years of hearings by both houses of Congress. Taken as a whole, it was sharp criticism of the internal management of the Department.

Another rebuke to the Pentagon was the Presidentially appointed Packard Commission. Its official name is the President’s Blue Ribbon Commission on Defense Management. There is evidence President Reagan appointed the Commission over the objections of Secretary Weinberger, perhaps to counter the Goldwater-Nichols reforms gaining strength in Congress. Congress included Packard Commission recommendations in the Goldwater Nichols legislation (Locher 2002) and when President Bush took office in 1989, he pledged to fully implement the Commission’s recommendations. Now for spring 1987, these accumulated findings, all critical of the 1980s status quo within the Pentagon and the Department of Defense, constituted a new context for the season’s budgetary hearings. Certainly, they represented a backdrop to the worried pronouncements of General Hansen in 1988 and 1989.

However, as the budget season unfolded that first half of 1987, President Reagan and the Congress came to loggerheads over the deficits. Complicated maneuvering
between the legislature and the executive resulted in a compromise revival of the Graham-Rudman-Hollings legislation in a new form. Administered by the Office of Management and Budget, deficit targets would be set for the 1988 budget that automatically cut defense and domestic spending in equal proportions. The process cut defense spending by $23B in 1988. This placed special pressure on the Operations and Maintenance budget accounts that were the lifeblood of depot maintenance. The dollar amounts are hardly visible in the totals, but there were job furloughs and temporary layoffs. It was these cuts that seemingly so rattled General Hansen and the world of the Air Force depots.

**Bush Administration, DMRD, and All DOD Depot Competitions**

Now on the heels of 1988, President Bush entered office in 1989 and immediately informed Congress of his intention to undertake significant Defense procurement and management reforms by “fully implementing the Packard Commission report.” He proposed freezing defense spending with future accommodation for inflation. He called for a new round of base closures to continue momentum on a first round of closure decisions completed just two months prior (BRAC 1988). He opposed the defense cuts of the prior four year (Bush 1989).

In response, Secretary of Defense Cheney undertook the Defense Management Review (DMR) and produced his report in July 1989. In the vein of classical reform, it called for efficiency through elimination of management layers, “a consolidation of related functions where possible,” and an overall improvement in the efficiency of logistics and other functions (depots are a portion of logistics). These collective...
functions, including logistics, were to achieve savings of $7.5B in three years. A November 1989 deadline produced a draft plan for the extensive reorganization of all military depots (Cheney 1989, 16).

A draft decision offered three depot management options for Cheney’s consideration. One option directed the Air Force to assume responsibility for Navy depots and manage them as a combined organization (Krentz 1991). Despite its novelty, there was at least some merit in the concept. Its logic was that of traditional functional centralization: a division of labor by land, sea, and air depot maintenance (HASC 1993, 416-417). This was just one of three options, but it created an uproar within the Navy depot maintenance community.

Then history played a wild card. In August 1989, Hungary removed its border defenses from Austria and almost immediately, thousands of East German tourists in Hungary escaped to Austria. The borders were closed. Then East Germans attempted to leave through Czechoslovakia. Again, the borders were closed. Protests began, government leaders resigned, and authorities allowed a trickle of citizen exits. By November 4th, one million East Germans gathered in Berlin to continue a round-the-clock protest. Within a week, a dazed and confused East German government seemed to offer their citizens a chance to exit through the Berlin Wall. Protesters demanded its opening, and on the evening of November 9th, East and West Berlin celebrated together in the shadow of the wall. On the American evening news of November 9th, broadcasters introduced the story as “the most stunning piece of news to emerge from the so-called Communist bloc in 30 years” (Jennings 1989).
Within days of the collapse, President Bush’s defense freeze and modest $7.5 billion savings from efficiencies gave way to new goals. The administration announced new three-year defense cuts of immensely larger magnitude ($180B) (Morrocco 1989). Almost simultaneously, a new round of base closures became law. It included three rounds of closure decisions in 1991, 1993, and 1995 (BRAC 1991). The coincidence of the collapse in Eastern Europe and the announcement of vastly larger cuts are a bit too perfect and raise suspicions. The Berlin Wall fell on November 9th. On November 13th, the DOD Comptroller announced plans for $180B in cuts. Just as the November 5th signature on base closure legislation was the culmination of many months of legislative activity, a serious memorandum announcing $180B in cuts is not usually drafted and released in four days. It seems more likely the cuts had already been prepared over the course of 1989 and the Eastern Europe collapse accelerated its implementation.

Nevertheless, these changes had their effect on the depots. The final plan for the depots remained unsigned through the fall and winter of 1989, but its announcement had generated controversy. The issue came under intense internal review within the Pentagon. Old rivalries and suspicions flared anew. A Navy depot commander was quoted; “We are not going to be owned and operated by the Air Force,” Navy Capt. Thomas W. Hancock said. “Not that they wouldn't do a good job, but we think we have some things that cause us to be efficient without having to have another service run them” (Dorsey 1990).

Pentagon officials visited Navy depots in connection with proposals. Union representatives at the depots were concerned and alert to the uncertainty of Air Force
operations of the Navy facilities (Dorsey 1990). No decision was made through almost the entire first half of 1990.

Finally in June 1990, a new depot maintenance cost reduction policy was in place. A combination of depot efficiencies through consolidation, base closing, and competition replaced the original proposal for functionally consolidating depot ownership. The new plan was to achieve $1.7B in short term efficiencies over the next five years and an additional $2.2B in long term efficiencies for a total of $3.9B (Atwood 1990). Base closures were to be an integral part of the short- and long-term savings. But importantly, Atwood’s memo explicitly embraced a process of public-public and public-private depot competition to help meet the long-term goal of $2.2B in savings. The new plan would maintain a core of public depots, but the depot competitions were to expand.

The Air Force apparently offered the initial proposal to consolidate the depots. It had the merits of increased functional integration of the military departments—an important goal of the Goldwater-Nichols legislation. But the Air Force had been relatively clumsy in its proposal. Despite its merits as a conventional organizational consolidation, the proposal played to long-standing peer suspicions of Air Force motives. Was the Air Force now just seeking “good government” or was it something else?

Within the Atwood memo and its decisions, there appears to be an attempt to incorporate elements of the original depot options proposed in 1989. The Atwood memo stated depot maintenance workloads:

…shall be performed in the Department of Defense at the location at which they can be accomplished at the least overall cost, on schedule, and with the needed quality without regard to whether the depot providing the
maintenance service is part of the Military Department receiving the service. (Atwood 1990)

In perhaps a faint echo of the original Air Force proposal, Atwood’s memo announced an objective that at least 10 percent of each Military Department’s depot work would be accomplished by another military department in five years (Atwood 1990). The Atwood memo is reproduced in the appendix.

Up until that time, despite the successful use of internal competition within the Navy, legislation prohibited the Air Force and Army from introducing competitions among their depots. Now the FY 1991 National Defense Authorization Act authorized the Army and Air Force to conduct a pilot competition program. It extended the existing competition program further by providing that any DOD depot maintenance activity could compete with the private sector for production of defense-related articles. In 1988, the Navy had begun its aviation competitions with work on the F-14 fighter. It continued that plan in 1990 with competitive bidding on a five-year contract (1+4 option years) for a helicopter overhaul along with a few other small contracts.

Now in December 1990, implementing the decisions of the Atwood memo, the Navy announced plans for expanding competition to meet its assigned depot savings goals (GAO 1996). The Naval Air Systems Command plan included future competitions for 10 types of airframes and four different engines. The plan assumed the competition would achieve 20 percent savings in maintenance costs ($550 million) by 1995. The plan protected a small amount of existing Navy depot capacity while subjecting the remainder to public-private competition.
The Atwood memo of June 1990 had codified the DOD-wide depot competition (Atwood 1990). Now in August 1990, Iraq invaded Kuwait and the U.S. fought its first war with Iraq. If there had been concerns regarding Air Force ambitions prior to the war, the events of the war and Air Force commentary changed concerns into fear. The Air Force offered expansive conclusions regarding its performance during the war, while the Navy finished the war organizationally defensive. Slow adoption by the Navy of many high technology weapons already in use by the Air Force limited Navy participation. While its participation was extensive, it perceived itself limited to lesser actions. The evident end of the Cold War further dispirited Navy leadership, as they saw their organizational rival standing tall while they faced a discouraging retreat from their goals for a 600-ship Navy. This general stance by the Air Force continued at least through 1994 (Graham 1994).

The first Iraq war ended in 1991 as the Defense-wide competition initiatives organized under the Atwood decision began to go forward. Lost in the initial focus on the war was a decision by President Bush in August 1990 to begin significant budget and force structure cuts within the DOD. The planned drawdown expected to reduce ships and aircraft demand for depot maintenance by 25 percent or more. This drawdown was an effort coordinated internally by General Powell, Chairman of the Joint Chiefs of Staff. It sought not top-down imposed cuts, but instead worked with individual military departments to achieve reductions.

The DOD now announced its next round of base closure recommendations in April 1991. These reflected recommendations by the staff of the Military Departments
coordinated with the Office of the Secretary of Defense. The decisions for base closures were to be non-partisan and apolitical. Congress was skeptical. In January 1990, secretary Cheney made an abortive proposal for the closure of 36 bases, but Congress received his suggestions suspiciously and took no action (BRAC 1991, 1-2). Now in the 1991 base closure process, legislatively designed to ensure an objective DOD process but also to avoid congressional impasse, the Navy nominated the Philadelphia naval shipyard for closure along with two California depots: a naval shipyard in San Francisco Bay and a Sacramento, California Army Depot. The Army nominated one additional depot site for realignment. Again as in 1985, the Air Force initially nominated no depots for closure.

The competitions, the base closures, and the rumors of closures had their effect on the depot community. The effects included even the Air Force, where public announcements of depot closures had been spotty. A study of alternative work schedules among depot workers at the Air Force’s depot in San Antonio, Texas reported rumors and concerns about base closures, especially among older workers and workers on the second shift (Dowd 1994, 8). The Ogden, Utah Air Force Logistics Center adopted new management initiatives in the aircraft landing gear division. Landing gear competitions were soon to begin. Maddox & Martz (1993) note that 14 of 18 of their management interviewees at Ogden, “stated that the impending wheel repair workload competitive bid was the reason” for implementing the reforms.

In 1991, the Air Force undertook five separate public-private competitions. The total dollars competed were $21.9M (GAO 1993). That same year, 1991, the Army offered seven competitions for about $50M. The largest item was competition for a
helicopter engine. There were no new Navy public-private competitions offered in 1991, but an extensive program was announced for 1992. Congress authorized more pilot programs (PL 101-510). Later Congress amended the competition pilot program in 1992 to limit private sector workloads to 40 percent of total depot maintenance funding (GAO 1994). This eventually evolved into the DOD 50/50 rule. Congress extended the competition-enabling act in the FY92-93 DOD Appropriations Bill (GAO 1994, 26). In addition, PL 100-456 added to 10 U.S.C. 2466 and established a limitation on the annual amount offered for competition. This extensive set of activity in 1991-1992, not only in the aftermath of the Atwood memo but also with the announced depot closures and the ending the Cold War, represented a dizzying pace of organizational change. The change and uncertainty to some degree sapped the energy of all participants. This two-year period was building to a high point in the depot competitions. It would all collapse in a similar amount of time.

**Excess Depots**

The Bush Administration was, of course, defeated in the 1992 elections. Polls had indicated for the administration the real possibility of defeat as early as summer. For almost 12 years, a somewhat similar worldview oversaw Defense management. Their senior political ranks had been drawn from the legacy of the Nixon administration. Their military leadership had been junior officers during the Vietnam War. They had labored in the political wilderness during the 1970s and came to office with the political revolution of the 1980s. Now, only General Colin Powell, the Chairman of the Joint Chiefs of Staff, remained from this management cadre.
In the fall of 1992, General Powell through the Joint Staff initiated a depot study. Instead of serving military officers, the study group consisted of retired general officers, one from each of the military services, augmented by defense industry representatives. General Powell was now at the acme of his national prestige. It was the euphoric aftermath of the first war with Iraq. Until the 1990-1991 conflict, the United States had not achieved significant battlefield success for more than two generations. General Powell shared national acclaim for the success.

Now General Powell received the report of the study group. The group, led by retired Marine General Joseph Went, was to report its first results two days after the 1992 election. It completed its work with a public meeting in January 1993 and reported its results to General Powell. It concluded that DOD had 25-50 percent excess depot capacity, that base closures was the only effective way to close a significant number of depots, and that depot closures ought to be coordinated across Service lines (JCS 1993, ES-2). These were the conclusions regarding DOD depots that faced the newly elected Clinton administration as they sought to organize around a new Secretary of Defense.

The High Point – Navy-Air Force Competition for F/A-18

Now in 1993, the Navy issued a request for another significant depot maintenance competition for one of its aircraft. The GAO (1995) reports the Navy decided in 1992 to expose selected work for the F/A-18 fighter to public-private competition. The F/A-18 was then the Navy’s newest, fighter aircraft. Two public depots and two private contractors bid for depot work on the F/A-18 aircraft. Its primary depot was the North Island Naval Air Station, San Diego California. North Island bid on the contract as did
the Air Force, Ogden Air Logistics Center in Utah. It was a one-year contract with options for four additional years. The contract award allowed for variable quantities in the first year between 36 and 90 aircraft. The expected award quantity was 72 aircraft. The one-year contract was worth $60.6M.

The Navy awarded the contract to the Air Force depot. Contract award was August 1993, with work begun in December of that year. When announced, local newspapers reported the contract award in terms of jobs and bases saved. In the upcoming base closure round, many expected the Air Force to close one depot. Now they could avoid this fate (Brown 1993). In contrast with local Air Force jubilation, the contract loss had a clear effect on North Island. In the wake of the competition, the GAO (1995) reports the Navy redesigned it work processes at North Island and reduced costs. Almost five years later, Forsyth (1997, 134) reports the loss of the contract “is still fresh in the minds of most NADEP North Island personnel.”

During this time (most likely subsequent to the award) the Air Force sought to have Ogden designated as the primary source of repair for the Navy F/A-18. Ogden had a long and impressive work history with fighter aircraft maintenance. The base performs depot maintenance on the ubiquitous Air Force F-16 fighter: the original prototype rival of the F/A-18 when the two designs competed in the 1970s. Similarly, Navy North Island had been servicing fighter aircraft for generations. In the end, the Air Force was rejected as the primary source of repair. The Navy indicated it wanted to retain at least some servicing capability at Navy North Island to sustain workforce knowledge. They determined 18 aircraft was the minimum necessary. OSD concurred (GAO 1995).
These decisions foreshadowed problems. Almost simultaneously with the induction of the first aircraft, the Navy contracting office informed the Air Force only the minimum number of aircraft would be inducted into Ogden. Between August 1993 and November 1994 when the last F/A-18 entered into the Ogden facilities, North Island would service 34 F/A-18s while Ogden would service 36 aircraft (GAO 1995). Ogden reported delays in both receiving F/A-18 parts from the Navy supply system and delays in Navy decisions that slowed the completion of work.

In September 1994, the Navy began evaluating the optional award of a second year of contract work to Ogden. In December, the Navy exercised its options and removed further work from Ogden Air Logistics Center. All subsequent F/A-18 work was consolidated at North Island. The GAO analysis of the Navy decisions, undertaken at the request of depot’s local Congressman, attempted to objectively review the Navy’s basis for the decision. A detailed GAO review found a significant number of questionable Navy decisions in the North Island consolidation. But it noted differences in Navy and Air Force financial systems produced “significant limitation on the application of their analyses” (24). Through the GAO, the Navy agreed the case “demonstrates the potential cost savings that can be generated when competition motivates public depots to implement efficiencies by reengineering depot maintenance processes and workload” (20). The Navy also stated the case demonstrated “the difficulties created when one service’s depot is pitted against another service’s depot in a competitive environment.”
Now What? – Clinton Administration Response to Savings Estimates

The results of the Navy-Air Force F/A-18 competition were announced in August 1993. However, in April of that year, two months into the new Clinton Administration, the Navy announced a new depot industrial strategy for its shipyards and aviation depots; it announced it would shift all aircraft maintenance to private industry beyond that necessary “to maintain the capacity and knowledge base within the Navy to support a weapon system over its life cycle (Morrocco 1993).” For each of its separate aircraft types, the Navy set aside a relatively small amount of work for each of its aviation depots. The Navy would allocate the significant remaining workload to the lowest public or private bidder who could demonstrate technical capacity for the work.

Industry welcomed the announcement. It constituted some relief from diminished DOD aircraft procurement with the end of the Cold War. Industry viewed depot maintenance and modification work as substitute workloads to maintain its production line workforce. But there was a caveat. Although the Navy said all excess depot workload beyond a core amount would be open to private industry, the Navy noted that the Naval aviation fleets could shrink small enough to effectively require all Naval aircraft to undergo depot maintenance in-house. The previous administration, with its depot initiatives, had endorsed competition as a process for obtaining savings within the DOD depot establishment. This new Navy policy seemed to signal an abandonment of the competition policy given the change of the political administrations.

The Clinton Administration entered office in 1993 explicitly skeptical of DOD savings forecast by the previous administration. In turn, it was skeptical of the processes
(such as competition) for delivering the savings. Experienced officials reviewed the estimates and found reasons for doubt (Grier 1993). Perhaps more importantly, the new administration entered office with the base closure process in full operation. As I have described, the 1989 base closure law prescribed three rounds of closure decisions. The second round process was well underway when the Clinton Administration entered office in January 1993. Congress immediately confirmed Secretary of Defense Aspin within a day of the Presidential transition. He entered office with significant experience in military issues. However, the 1993 base closure process had been underway for more than a year and the Military Departments forwarded closure recommendations to Aspin within weeks of reaching office. Aspin could do little to influence the process.

Despite these challenges, Secretary Aspin was required to submit final decisions to the base closure commission by March 21st. For the DOD depot maintenance community, particularly the Navy, the recommendations from the military departments to Secretary Aspin had significant impact. The Navy recommended closing three of its six aviation depots, and two shipyards. The Army recommended closure of one depot and large-scale realignments for others. Consistent with its previous practice, the Air Force suggested closure of only one small, specialized depot in Newark, Ohio. Ultimately, the Air Force sent no recommendations to the base closure commission to shut down any of its five large aviation depots.

The findings of the study on Depot Maintenance performed by General Powell’s Joint Chiefs of Staff were fresh in the mind of all. The study results of 25-50 percent excess depot capacity became public almost simultaneously with entry of the new
administration. Navy decisions for large-scale closures to its depots were consistent with these recommendations. Air Force decisions were not. The JCS study findings were politically dramatic in their estimate of the magnitude of the depot problem. But the general finding of excess capacity had been common knowledge for at least the prior four years. The earlier draft proposals for the depots, which eventually became the Atwood memo, had recognized the scope of the problem without publicly quantifying its magnitude. Now with the BRAC recommendations the Navy seemed to be addressing the issue, while the Air Force seemed to be operating under a different set of facts, assumptions, and goals.

The Air Force had apparently sought to nominate its depot at Sacramento, California for closure, but Secretary Aspin removed it from the list (FNS 1993). The administration developed regional “cumulative impact” as a new criterion apart from the base closure statute. This recognized that independent decisions by the military departments might unintentionally combine in particular geographic areas (FNS 1993). Secretary Aspin identified Northern California as meeting the criteria and the Air Force removed its Sacramento depot from its list of recommended closures. In addition, the Air Force implemented privatization plans at a small, specialized Air Force depot at Newark, Ohio to avoid job losses. This privatization plan would become an important model in upcoming 1995 BRAC. Overall, the BRAC commission accepted the exogenous criteria of “cumulative impact” and largely validated the DOD recommendations for military depots (BRAC 1993).
The atmosphere in Congress now turned skeptical on the subject of depots, particularly towards the Air Force. The Air Force Vice Chief of Staff, the number two military officer in the Air Force, was subject to pointed questioning on the subject of depots by a House Subcommittee chairman. The committee chair represented a Navy depot identified for closure that spring (HASC 1993, 404). The chair participated in the pointed questioning. Another committee member concluded and publicly mused that the Air Force seemed to be continuing to adhere to its earlier goal of taking over all aviation depot maintenance (HASC 1993, 18). Finally, during the same series of hearings with the same subcommittee, the Navy Vice Chief of Naval Operations delivered pointed remarks aimed at the Air Force and their approach to depot management (HASC 1993, 57-58). He stated:

As we became enamored with a management scheme, everyone forgot that the real problem was excess capacity. Our strategy [Navy] was to prove that we were capable of recognizing excess capacity and dealing with it. We knew that we were treading on dangerous ground in that somebody would say, “If I hold on to my excess capacity, and you get rid of yours, now I can absorb what you have remaining.”

**Private Industry Wants Public Depot Work**

Another political factor began to emerge as the atmosphere around competition continued to deteriorate. As public-private competition had expanded, and as bid evaluations awarded significant numbers of contracts to public depots and shipyards, complaints from private industry emerged and protests increased. One example was the complaint introduced into congressional hearing by the President of Quantic Industries, a California manufacturer of electronic and pyrotechnics safety devices. He wrote to complain about competition from the Ogden Air Logistics Center (HASC 1993, 306).
Another quote from private industry further illustrates the perception: “Depots are one of the greatest threats to us,” declared the chairman of Hughes Aircraft Co (Mintz 1993).

In this contest between public and private depot maintenance suppliers, Secretary Aspin sided with private suppliers. Aspin had extended an analysis that he began while in the Congress. Now he applied it to the problems of post-Cold War defense planning. Aspin’s “Bottom Up Review” contained his thinking on the problem of industrial suppliers. A shrunken post-Cold War military foretold a shrunken post-Cold War defense industry. The condition had raised industry interest in depot maintenance activities as ways to maintain industrial and engineering capabilities. Aspin’s Bottom Up Review was believed to contain decisions for a large-scale expansion of private sector depot maintenance at the perceived expense of public sector depots. The result was the first flexing of what would become a potent political force in depot policy—the Congressional Depot Caucus.

The Congressional Depot Caucus is one of many ad hoc groups operating within and among the House and Senate of the U.S. Congress. A key organizer of the Depot Caucus was Representative Solomon Ortiz of Texas, representing many workers of the San Antonio Air Logistics Center. The center of the Depot Caucus was the Readiness Subcommittee of the House Armed Services Committee. Subsequently, the 1994 National Defense Authorization Act directed Secretary Aspin to appoint a task force composed of DOD and industry representatives to in effect determine the division of labor between public and private maintenance depots (DSB 1994 preface).
Depot Competitions Coming to an End

Under Secretary of Defense John Deutch formally requested a study under the auspices of the Defense Science Board (DSB). This group, usually composed ad hoc of senior individuals from industry and the retired military, addresses issues directed by DOD senior civilian leadership. The Defense Science Board depot maintenance task force met from January to April 1994. Its conclusions essentially marked the end of the depot competition initiative.

In place of competition, the study group endorsed depot management by the Defense Depot Maintenance Council. This was a loosely-aligned group of depot major commanders created by Deputy Secretary Atwood in 1990. To control depot maintenance costs, the study report stated the Depot Maintenance Council should: “…rather than expending resources to compete, DOD should focus on sizing its depots consistent with the CORE concept, divesting unneeded and expensive excess capacity and infrastructure, and [manage] remaining operations in the most efficient manner” (3).

With Air Force dissent, the task force found that public-private competition should end within DOD. The Navy contract for F/A-18 services with the Air Force Ogden Air Logistics Center had begun just 60 days prior. The task force is likely to have been aware of the effort. But it concluded, “Task Force perceived that competitions involving the organic depots are having disruptive and divisive effects on the services, particularly on the depot community.” Further it found, “Unbridled competition between the public and private sectors is inconsistent with the basic tenet that government exists to provide the essential services that the private sector either cannot or will not provide”
In the public report, the Air Force pointedly dissented from this rejection of competition among public and private depots.

Yet with regard to the Air Force, the report noted Air Force depots since 1990 had the highest winning percentage for any Military Department (65 percent by competition, 88 percent by workload) (F-31). The report also seemed to describe Air Force contracting officers (the legal officials determining contract award) as not distinctly separated organizationally from the Air Logistics Centers and hinted at a systematic internal bias. The Air Force position was stated as: “The Air Force, however, has taken the position that downsizing and reductions in excess capacity are not inconsistent with minimizing cost through competition, and that competitive advantage... and ‘best value’ to the DOD should determine the disposition of workload (F-39).”

These dissents became the minority report of the study. The study group delivered its report in April 1994. John Deutch, who had requested the study in January as the Under Secretary for Acquisition, Technology, and Logistics, now accepted the report as the Deputy Secretary of Defense (the number 2 position within DOD). Secretary Aspin had resigned and several senior leaders moved up to fill the space. On May 4, 1994, Deutch signed an internal memorandum, characterized by GAO as the effective end of DOD competitions (GAO 1996, 14). The GAO reports Deutch’s memo cited the DSB report on Depot Maintenance and echoed its conclusions. The Air Force, however, would continue to utilize small-scale public-private competitions for another four years. They were not systematic but used to solve particular problems of allocating work after depot closures.
Finishing the Story: Base Closures After the Competitions

Simultaneously with these activities, and for the remainder of 1994, the Military Departments prepared their recommendations for the 1995 round of base closures. On February 28, 1995 Secretary of Defense Perry delivered his recommendations to the Commission. The recommendation consisted of no maintenance depots closures and no additional shipyard closures. The Air Force stated that they would draw down about 10,000 depot personnel at their five depots, and modify operations to save costs. Why no depots? The Air Force said they expected significant environmental cleanup costs at the depots and argued it was less expensive if they should stay open (Inside AF 1995).

Many observers were surprised. The previous Air Force Chief of Staff had often spoken of the need to close depots. But news reports indicated that Air Force Material Command, the new parent command for Air Force depots since 1992, “resisted budget cuts for the depots in the hope that the Air Force could take over maintenance and repair work from the other services as well as continue its own.” Another unnamed source indicated the Air Force was concerned with congressional reaction to the recommendations “and preferred to work [with the base closure commission] through the back door” (Inside Pentagon 1995).

Two months later, the 1995 BRAC Commission added two large Air Force depots to their list of closures. The two bases recommended for closure or realignment were Air Force depots at San Antonio, Texas and Sacramento, California. Both bases were designated to close by 2001. Subsequently, President Clinton expressed concerns as to the impact on local workers and for these bases to implement the same privatization plan
adopted for the Air Force depot in Newark, Ohio. Newark was closed and privatized by the 1993 BRAC. President Clinton directed the DOD to retain about 25,000 jobs at the two bases until 2001 (GAO 1999, 18). After some questioned the initial privatization plan, the Air Force modified the plan and allocated depot workloads through public-private competitions between 1995 and 1999. Generally, the Air Force depots bidding for the contract won the competition. At least one public bidder had teamed with a private firm. When the public depot won the award, the private bidder received 39 percent of the workload (GAO 2000, 4). Some private depot suppliers at the privatized facilities retained workload, but no other significant private competitive awards are identifiable.

Summary

A complete end-to-end reading of the case study might produce the conclusion that the DOD depot maintenance sector is an intensely politicized activity. This would be an overstatement. Congressional interest is clear in the record. But more accurately, depot reality consists of millions of worker hours simply engaged in the grimy, hard work of overhauling military equipment. Yet the depiction of a decidedly politicized environment at the levels of depot major commands and in the Office of the Secretary of Defense appears accurate. These organizational levels are very aware of the factors judged important by elected representatives. Just as with the original Navy competition initiative, the introduction of a future depot initiative would undoubtedly generate similar interest within Congress and among the Military Departments. “Will it work?” and “Can it actually reduce costs?” will be only the beginning of many questions the new advocates for competition will be required to address. This was the purpose of the case study: to
reveal the context of the reform and to assist in its implementation. The next chapter returns to narrower issues regarding not only the actual effectiveness of the competition initiative, but also a review of the actual effectiveness of ordinary management of the Department in the area of depot maintenance.
5. The Quantitative Results of Competition

In 1996, the Defense Subcommittee of the Senate Appropriations Committee requested that GAO provide an assessment of the Navy aviation competitions. They noted the small size of the initiative relative to total dollars spent (6%) as well as the difficulty in measuring precise savings. However, they concluded:

The public-private competition program has reduced depot maintenance costs for the competed workloads. The threat of reduced workloads and job losses provided an incentive for Navy depots to minimize costs...GAO’s comparison of maintenance and repair costs before and after competitions showed, in most instances, that costs after competitions were significantly lower. (GAO 1996, 4)

This chapter will be organized to report first on the Navy competitions evaluated by the GAO, and then on the less well documented Air Force competitions of 1991-92. Between 1988 and 1993, there were a series of seven significant Navy aviation competitions for depot maintenance services. The competitions consisted of depot work on airframes, engines, and components. Of the five Navy aviation competitions evaluated by the GAO, the chronologically first and last, consisting of two important aircraft competitions, are the best documented and most interesting. They will be a prominent part of the chapter and provide important evidence on the effects of competition within public depots. The chapter begins with background data on the changing budgets and demand for aviation depot maintenance during the period of the 1985-1994 competition
initiative. This broad data provides important context for the individual Navy aircraft competitions and begins a comparison with the Air Force depot system that continues in the next chapter.

**The Changing Demand for Aviation Depot Maintenance**

Depot maintenance costs under competitive and non-competitive conditions are the central metric of the study. More precisely, the average costs of specific depot maintenance jobs, such as aircraft or engine overhauls for a given type of airframe or engine model, are the study’s central metric. When using the terms “job” or “a given set of work,” I mean a formally defined depot work package for the overhaul of a specific airframe, engine, or component spare part. For example, a “job” could be an airframe overhaul for an Air Force F-15 fighter or the separate overhaul of its F100 engine. The varying depot overhaul jobs for a given year represent the changing demand for depot work.

Significant changes in demand must factor into any analysis interpreting the impact of competition. To understand this impact, we must address the components of total cost and variations in the costs of individual jobs. Two identically defined jobs, working on the same type of aircraft or engine and expected by managers to require the same number of labor hours and material, can prove very different in execution. Differing levels of corrosion, varying types of part failures, and systemic issues like electrical wiring or hydraulics nearly always generate individual variations among jobs. Working to identify tendencies and trends among these varied outcomes requires the use of accumulated costs averaged over a number of similar jobs. These average total costs
provide more reliable data on the effects of competition than individual average costs provide. Beyond these individual job variations, the important topic of indirect cost allocations makes cost accounting and cost categories important subjects. The following discussion addresses two important components of total cost.

Total costs associated with an individual aircraft job (or a series of jobs) combines two separate cost categories: direct and indirect costs. Direct costs consist of the costs explicitly associated with overhaul work on the individual aircraft. An economist might refer to these costs as “variable” as opposed to a “fixed” cost. These direct costs are certainly variable with the job. Direct costs vary with the quantity of work. If there is no work, cost of this type will be zero. But instead of the term variable cost, we will refer to these costs as direct costs to emphasize the role of managers in identifying and defining these types of costs. Direct costs are those explicitly associated with a specific job.

Ordinarily, we assume all direct costs are variable in an economic sense. But here we do not immediately assume all variable costs are defined or identified as direct costs. Continuing themes explored in Chapter 2 and suggested by Lavoie (1987), direct costs are constructed elements of information formed by local managerial convention. Their textbook definition indicates they are “costs physically traceable to a specific product or service” (Ricketts 1991, 31). As a cost or budget-reimbursed enterprise, all legitimate depot costs should be physically traceable to a specific job whether now or at some time in the future. But some present costs are more difficult to trace than others, and present expenses to offset future costs inherently involve some level of managerial judgment.
The terminology of direct costs recognizes the role of professional managerial conventions and individual judgment in defining direct costs.

Direct costs within the depots usually include the labor hours to carry out the work plan for individual aircraft (the “job”). Simply put, these direct labor hours become direct costs when multiplied by some or all of the hourly wage rates. Direct costs also usually include the cost of parts and supplies to refurbish the aircraft. In general, direct costs are the expenses most clearly associated with depot maintenance work on the aircraft. They are costs that would not otherwise have occurred in the absence of the specific job.

But these direct costs typically account for only about half of the total cost for a specific set of depot work. The general concept of the DoD working capital funds require total depot costs (the sum of its direct and indirect costs) to be reimbursed through work submitted and prices paid by depot customers (OUSD(C) 2010). But many costs designed to facilitate or enable the effective execution of direct costs, cannot be easily associated with individual jobs. Indirect costs typically include pooled personnel costs and overhead accounts such as depot headquarters expenses and management personnel. Indirect costs often include the cost of facilities to contain the work: the heating, cooling, maintenance, utilities, security, etc.

Consistently linking indirect charges with direct costs requires an assignment rule. Different assignment rules can make a difference in computing total costs. There are two general approaches. One widely used approach equally divides indirect dollar costs among direct labor hours. For a given amount of work, each direct labor hour receives the
same amount of indirect costs. For example, if $100 million dollars of indirect costs are divided among 1 million hours of direct labor, then $100 of indirect costs are added to the hourly cost of direct labor. A second type of assignment rule divides indirect costs according to the total direct costs. Recall that two major components of direct cost are labor and materials. This second assignment rule takes into account both these types of direct costs. If $100 million dollars of indirect costs are divided among $200 million dollars of direct costs, than $0.50 (50 cents) of indirect costs are added to each dollar of direct costs.

Different assignment rules for indirect costs can make a significant difference in the total cost of depot work. For example, the replacement component costs of aircraft engine overhauls (i.e. new parts and assemblies) dominate the direct labor costs for actually doing the work (GAO 1996c). For engine overhauls, this work will appear less expensive if indirect costs are allocated by direct labor hours. Less overhead costs will be associated with engine overhauls under this assignment rule. More costs will be associated with other depot work. Given the significance of indirect costs in the total costs of depot work, one interpretation of these differences is that engine overhauls are subsidized by aircraft overhauls when indirect costs are assigned on the basis of direct labor hours.

The general cost trends of depot work, and the allocation of indirect costs, form an important context for evaluating the individual depot competitions. Ideally, the competitions will reduce average direct (variable) costs through innovative redesign of the work. But if total indirect costs remain unchanged, while the total amount of direct
work (both competitive and non-competitive) is declining, the cost savings earned by the competition can easily be offset by rising average total costs – rising because of a smaller workload base of direct costs over which to spread indirect costs. These considerations are important in understanding the context of the competitions.

At the end of the Cold War, the amount of direct depot work decreased. Concern regarding indirect costs (such as facilities) led directly to the base closure process reported in the previous chapter. If the amount of total direct work declines as total indirect costs remain the same, average total costs will rise. Alternately, if indirect costs for each unit of work are constant and the amount of direct work goes up, the average unit cost of the work will appear to go down. Total indirect charges are divided over a greater quantity of work. Understanding depot demand therefore becomes an important factor in understanding and interpreting depot costs and the effects of competition.

Four factors approximate the overall demand for depot work. Changes in these factors roughly determine the depot workload available for spreading indirect costs. An Air Force budget comptroller testifying during the historical depot competitions identified the factors and described their effects (HASC 1987, 353). They relate to discussions of aircraft depot maintenance, but with suitable metrics the concepts readily extend to discussions of ships and vehicle repairs. As these factors vary, they increase or decrease total direct depot workload and ceteris paribus, increase or decrease the average unit costs of depot workloads. These four factors, listed in their usual order of importance are:

1. Aircraft inventory,
2. Flying hours flown,
3. The complexity of aircraft in the inventory,
4. Aircraft age

I will report details on only the two most important of these factors. As the number of aircraft and flying hours increase, annual total demand for aircraft depot maintenance increases, given all else remains equal. With the ending of the Cold War, we must generally address the opposite: decreasing numbers of aircraft and flying hours. In this case, as the total demand for depot maintenance decreases, total indirect costs allocate over a smaller basis and average total costs may rise.

Summary Depot Demand Factors – Numbers of Aircraft and Flying Hours

The demand for depot maintenance directly links with the number of aircraft. This is true for ships, also. Figure 4 displays this information from 1981 to 2006 (OUSD(C) O&M,1983-2008). The DOD typically reports its aircraft numbers as Primary Aircraft Authorized (PAA). This is smaller than the total number of all aircraft. It excludes certain types of training and backup aircraft. The primary aircraft count also excludes aircraft undergoing depot overhauls. When aircraft return to military customers following depot maintenance, another aircraft enters and the number of “primary” aircraft remains unchanged. Primary aircraft counts are an important basis for flying hour allocation and depot maintenance funding. For ships, reporting is by total ships. There are generally no ships excluded to account for shipyard repairs. Still the general principle remains the same.
In comparing the differences in fleet sizes between the Air Force and the Navy, during stable historical periods, the Air Force can be as much as 60 percent larger than the Navy in terms of aircraft numbers. This was true during the 1980s, and the data shows this to be true again in recent decades. These larger numbers suggest greater demand for depot maintenance in the Air Force than in the Navy. The greatest similarity between the Air Force and Navy aircraft fleets are their fighter aircraft. These are roughly analogous aircraft with similar high technology engines and electronics. The GAO based many of its recommendations for depot consolidation based on these similar aircraft in the two organizations. In the 1980s, these fighter aircraft types constituted about 800 primary aircraft for Navy. At the same time, there were approximately 2500 primary fighter aircraft for the Air Force. In this last decade these numbers have shrunk to approximately
1500 fighter aircraft for all components of the Air Force, while the number of Navy/Marine fighter aircraft are less than 800 (Cohen 2001).

In terms of total aircraft, reductions for both Navy and Air Force began prior to the end of the Cold War. These reduced numbers began to conform with the mid-1980s budget cuts discussed in the previous chapter. Figure 4 shows the Air Force beginning an extended series of aircraft reductions after 1987, which end about 10 years later. In contrast, the number of Navy ships and aircraft peaks in 1989 and then begins a long decline continuing for nearly the next two decades.

A more precise comparison of depot demand comes from examining the different flying hour programs of the two military departments. Number of aircraft alone can be deceiving. Aircraft not flown require little depot maintenance. Aircraft flown a great deal are likely to require more. Flying hour programs are less susceptible to the small variations reported for aircraft numbers. In general, Figure 5 shows each military department’s flying hour program began to decrease significantly one to two years after they began their respective competition programs (OUSD(C) O&M, 1983-2008). These general trends are likely to put upward pressure on the military department’s average depot maintenance unit costs if the underlying average fixed costs cannot be reduced.
Aviation Competition Results – Navy

This portion of the chapter will discuss the Navy aviation competitions conducted between 1987 and 1994. During this time, the Navy undertook seven significant aviation competitions. The Naval Air Systems Command organized and managed six of the competitions. The seventh was a series of 33 component repair competitions conducted by the Navy supply system under a different major command. These were smaller competitions to repair spare parts such as pumps, radios, and generators. Of the six competitions managed by the Naval Air Systems Command, the GAO states public depots won four and private firms won two. Four competitions were for existing work while two consisted of new depot work. The lowest bidder won five of the six...
competitions and averaged 42 percent less than second place. In the sixth competition, the contract went to the existing private contractor, not the lowest bidder. The formal basis for this contract award was, “best value to the government.” “Best value” is a standard award category defined in Federal procurement regulations.

Although low bid won five of six Navy competitions, low bids are not the same as savings. There is no comparison with past work. For this reason, the GAO made no evaluation of the two competitions for new work. Table 4 and the following discussion report on the Navy competitions for existing work. The first competition in 1988 for F-14 overhauls is the best documented by the GAO. It will play a prominent role both within this chapter and in the next. Finally, the table’s seventh item, the F/A-18 overhaul, not only represents a surprising example of cooperation among DOD military departments, but is also the second best documented competition.

### Table 4. Navy Aviation Competitions 1988-1993

<table>
<thead>
<tr>
<th>Ref</th>
<th>Competition</th>
<th>Year</th>
<th>Work Type</th>
<th>Contract Award</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>F-14 Airframe Overhaul</td>
<td>1988</td>
<td>Existing</td>
<td>Public, Navy</td>
</tr>
<tr>
<td>2</td>
<td>P-3C Aircraft Upgrade (not discussed)</td>
<td>1988</td>
<td>NEW</td>
<td>Public, Navy</td>
</tr>
<tr>
<td>3</td>
<td>SH-2F Airframe Overhaul</td>
<td>1988</td>
<td>Existing</td>
<td>Private Firm</td>
</tr>
<tr>
<td>4</td>
<td>S-3A Aircraft Upgrade (not discussed)</td>
<td>1990</td>
<td>NEW</td>
<td>Private Firm</td>
</tr>
<tr>
<td>5</td>
<td>Component Repair Competitions 33 Total)</td>
<td>1992-94</td>
<td>Mixed</td>
<td>Mixed</td>
</tr>
<tr>
<td>6</td>
<td>J-52 Engine Repair</td>
<td>1993</td>
<td>Existing</td>
<td>Public, Navy</td>
</tr>
<tr>
<td>7</td>
<td>F/A-18 Airframe Overhaul</td>
<td>1993</td>
<td>Existing</td>
<td>Public, Air Force</td>
</tr>
</tbody>
</table>

**F-14 Airframe Overhaul Competition – 1988**

The first significant aviation competition and the most closely studied by the GAO was the F-14 airframe overhaul. The full contract ran from 1988 to 1992 with a
new competition and contract award planned for 1993. At the time of contract award, the aircraft was a frontline fighter aircraft. It operated from aircraft carriers and was vital to the Navy’s military mission. The award package began with a one-year contract for four aircraft, followed by four option years of 20 aircraft per year. The option years provided the Naval Air Systems Command an opportunity to either continue or cancel the contract without penalty. Bidding included two private and one public bidder. The public bidder consisted of two Navy depots who were both already engaged in doing F-14 overhauls. There is evidence the original manufacturer of the F-14, the Grumman Corporation of Bethpage, New York participated in the bidding as one of the private contractors.

The Naval Air Systems Command evaluated the bids and awarded contracts to the public bidders: the Navy aviation depots at North Island (San Diego), California, and Norfolk, Virginia. During the bid preparation, the Navy noted Norfolk was “more aggressive in scrubbing costs and improving efficiency” (GAO 1992, 15). In contrast with North Island, Norfolk expanded its accounting cost centers from 4 to 37 to track costs more aggressively, particularly overhead costs. These expanded cost centers also tracked costs for hydraulics, machining, and painting. In contrast, North Island added only a single cost center to separate its F-14 costs from other work.

In preparation for final bids, both Navy depots redesigned existing F-14 work specifications to reduce costs. Upon award, the two depots implemented this plan. However, there remained a significant number of aircraft receiving overhauls at the two depots that had not been formally included in the competition. The Naval Air Systems Command directed there be no difference in maintenance specification or repair
procedures between the competition and non-competition aircraft (GAO 1992, 27). Both the 80 competition aircraft under the contract and the remaining non-competition aircraft would use the same work specification. This was important to depot customers in the Navy fleets who desired uniform maintenance services from the depots. Indeed, officials from the Navy Atlantic Fleet (a depot customer) advised the GAO they could not distinguish between competition and non-competition aircraft (28).

Although there were no technical differences between competition and non-competition aircraft, the GAO states depot management and workers were very aware of the aircraft’s different status. Each type of aircraft had different administrative procedures even though overhauls occurred side-by-side at depot facilities. These differing procedures gave GAO an ability to analyze cost differences between competition and non-competition aircraft. Although the competitively awarded contract ran from 1988 to 1992, the GAO conducted side-by-side analyses for only two years: 1990 and 1991. Table 5 compares cost differences between competition and non-competition aircraft at each location. The results for 1990 show overhaul cost savings of more than 20 percent for competition aircraft. In 1991, cost savings decreased. Average cost savings that year were only about 8 percent.
### Table 5. Navy F-14 Competition: Side-by-Side Aircraft Competition Comparison

<table>
<thead>
<tr>
<th>Year</th>
<th>Location</th>
<th>F-14 Overhauls Completed</th>
<th>Average Cost of Competition Aircraft vs. Non-Competition Aircraft (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Non-Competition</td>
<td>Competition</td>
</tr>
<tr>
<td>1990</td>
<td>Norfolk, VA</td>
<td>12</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>North Island, CA</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Combined</td>
<td>21</td>
<td>25</td>
</tr>
<tr>
<td>1991</td>
<td>Norfolk, VA</td>
<td>10</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>North Island, CA</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Combined</td>
<td>14</td>
<td>11</td>
</tr>
</tbody>
</table>

Source (GAO 1992, 29)

Why did cost savings decline in 1991, particularly at Navy North Island? One possible explanation involves a Navy response to Secretary Atwood’s June 1990 memo. Chapter 4 reported its savings goals and decisions for expanded depot competitions. But the December 1990 memo also directed the Navy to remove future F-14 work from North Island and consolidate F-14 overhauls at Norfolk. Norfolk’s lower average labor costs may be one possible reason for this decision. Norfolk completed F-14 overhauls for about $1 million in 1990. North Island’s comparable cost was about $1.4 million (GAO 1992, 15). However, the GAO believed Norfolk’s earlier efforts to improve cost tracking influenced the Navy consolidation decision. But Navy officials also reported managerial turbulence associated with the shift (GAO 1996, 25). The data imply these problems occurred primarily at North Island, where cost savings only averaged 2.7 percent for 8 aircraft.

Unquestionably, the GAO’s 1990-91 side-by-side comparisons of F-14 overhauls provides the historical record’s best data on the aviation competitions. Nowhere else does
the GAO report in such detail or with an equivalent analytical design controlling for several important factors. The GAO analysis implicitly addresses differing depot labor rates, skill levels, management, overhead rates, etc. There is additional important data on the F-14 competition I will introduce shortly. But in contrast with the F-14 side-by-side data, elsewhere the GAO reports its results as multi-depot averages of competition and non-competition aircraft. This reporting was a stipulated requirement for Navy participation in the 1992 GAO review. Depot officials were concerned full disclosure might affect future competitions expected in 1993. Not surprisingly, the GAO stated this limited their ability to report some aspects of the competition.

Figure 6 summarizes the 1988-1992 F-14 competitions. It also presents important comparative data for the non-competition years before and after the competition; 1987 represents the pre-competition baseline for GAO reporting and the 1993-94 data shows costs after contract execution ended. All data are shown in constant dollars. Figure 6 shows a significant initial cost drop in 1988 (23 percent) from the 1987 baseline. This is the largest drop in any year of the competition. Adjusted costs in subsequent years increased from the 1988 low but remained below 1987. After 1992, there were no additional F-14 competitions. When contract execution ended, costs began to exceed the 1987 pre-competition baseline. Supplementing Figure 6, Table 6 shows raw and adjusted GAO results for the F-14 depot overhulls from 1987 to 1994.
Figure 6. Average F-14 Overhaul Cost During Competition: GAO Data

Table 6. Navy F-14 Overhaul Costs Compared: GAO Data

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Total F-14 Overhauls (GAO)</td>
<td>60</td>
<td>66</td>
<td>57</td>
<td>46</td>
<td>26</td>
<td>33</td>
<td>23</td>
<td>14</td>
<td>325</td>
</tr>
<tr>
<td>Competition Aircraft</td>
<td>4</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td></td>
<td></td>
<td></td>
<td>84 (of all overhauls)</td>
</tr>
<tr>
<td>GAO Raw Costs, All Aircraft</td>
<td>3.34</td>
<td>2.55</td>
<td>2.75</td>
<td>2.32</td>
<td>2.6</td>
<td>3.15</td>
<td>4.05</td>
<td>4.03</td>
<td></td>
</tr>
<tr>
<td>GAO Adjusted Costs</td>
<td>3.34</td>
<td>2.56</td>
<td>3.00</td>
<td>2.73</td>
<td>2.79</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Change from 1987 GAO Adj.</td>
<td>-23%</td>
<td>-10%</td>
<td>-18%</td>
<td>-16%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The data adjustment reflects accounting changes that emerged during contract execution. Like inflation effects, these accounting changes distort cost tracking over time. Understanding the accounting changes and adjustments are important to interpreting the data. The first accounting change affected the basis for allocating overhead costs. Depot
overhead costs can include items such as management, facilities, and utilities. Prior to 1989, direct labor hours served as the basis for overhead cost allocations. A per hour cost factor multiplied by each hour of direct labor was added to direct costs. These overhead charges included costs for depot facilities, management, utilities, etc. After 1989, overhead costs were allocated by total direct costs (labor and materials) instead of just direct labor costs (GAO 1992, 15).

The impact of this accounting change was as follows: all else equal, activities that were relatively more labor intensive—such as airframe overhauls relative to engine overhauls—appeared to become less expensive after 1989 because of reduced overhead charges. Prior to the accounting change, airframe overhauls were effectively subsidizing engine overhauls. In their 1992 report, the GAO adjustment revised the raw F-14 overhaul data upwards to consistently report against their 1987 baseline. The GAO reported these adjustments only from 1988 to 1991. A later report (GAO 1996), did not extend the adjustments but did offer additional raw data consistent with the initial report.

There is a second notable accounting change centered on the extensive replacement of spare parts necessary to an F-14 overhaul. In the research, I refer to these parts as components. On this issue, the GAO provides no explicit adjustment to the raw data. Prior to 1989, the Navy supply system purchased new aircraft components and provided them free to the depots. Neither the depots nor the supply system charged the military forces for these costs. During and after 1989, the depots no longer supplied these replacement parts as “free goods.” Their costs became part of the overhauls. With the end of this practice, the GAO reported depot maintenance activities began to economize on
these costs. However, the general effect of the change was to increase overhaul costs for 1989 and beyond. The GAO stated it was unable to compute a reliable adjustment and made no formal changes to the raw data. If GAO did produce an adjustment, this new cost plausibly would have required a downward adjustment on the raw data to maintain the 1987 baseline of a “free good.” This additional cost may partially explain the cost “rebound” in 1989 from lower values in 1988 shown in Figure 6.

**GAO Examines Depot Explanations for F-14 Cost Savings**

The GAO reported Navy officials differed in their explanations for cost differences between the two classes of work. Officials at the depot argued aircraft age explained cost differences, including the large drop in 1988. The depot maintenance community generally assumes older aircraft require greater work than newer aircraft. In this common depot viewpoint, problems like corrosion or the deterioration of aircraft hydraulic and electrical systems vary primarily with aircraft age. Despite this almost uniform explanation for increasing cost within the depot community, others dispute the view (Pyles 2003).

The age explanation offered by depot officials centered on differences in aircraft block numbers between competition and non-competition aircraft. GAO reported the depot officials estimated aircraft age based on production block numbers. For a given aircraft type (such as an F-14), block numbers are serially assigned from low to high during aircraft production. They identify groups of aircraft manufactured to a common design and configuration. The first aircraft manufactured receive the first block numbers. Therefore, smaller block numbers represent first produced or “older” aircraft. Larger
block numbers represent newer aircraft. For unknown reasons, average block numbers assigned to the competition category were generally larger than the average block numbers assigned to the non-competition category. This meant, in general, the competition aircraft were newer or more recently produced than non-competition aircraft. Since newer aircraft are widely believed easier to maintain, this anomaly supported claims by depot officials that the competition aircraft would cost less to overhaul.

However, the GAO attempted to test this explanation by comparing overhaul costs for aircraft of similar age. If the claim by depot officials were accurate, the GAO would find little or no difference between competition and non-competition aircraft of similar age. In effect, the claim implies cost differences would vary with age instead of competition. The GAO compared 26 aircraft of similar ages, overhauled at the same location for a two-year period. The only difference was competition. For similarly aged aircraft, the GAO reported competitively awarded aircraft cost 24-26 percent less than non-competition aircraft. This is a difference comparable to the competition differences reported in Table 6. This is contrary to the results expected by depot officials and appears to contradict their explanations for the differences. In this comparison, competition not aircraft age better explained cost differences.

This does not refute the claim for cost differences due to age, but it does deliver it a blow. It might be possible this was a random occurrence and the age differences and related cost differences between the groups did ultimately generate the cost differences. The age differences between the groups were about four years for each depot. If cost differences were about 20 percent between each group, this might suggest overhaul costs
were advancing for the F-14 at the rate of 5 percent per year. Two group separated by four years might generate a 20 percent difference in costs. However, this seems implausible given the GAO findings of 20 percent differences for equal block aircraft. Although the GAO review prompted them to put aside age explanations for cost differences and accept other explanations, this issue may require additional analyses. Aircraft age is such a pervasive explanation for differences in depot costs, any additional analyses to shed light on the subject will be helpful.

Navy officials at the Naval Air Systems Command offered a more persuasive explanation for cost differences. These officials argued contracting officers assigned to oversee the competitively awarded aircraft were more aggressive in controlling work additions to the aircraft. They colloquially referred to the category of additional work as “over and above work.” I will use this term in the research to means additional overhaul work identified after the aircraft enters the depot. For non-competed aircraft, depot managers approved this type of work. Depots then submitted these costs for reimbursement from military customer funds. For competition work, contracting officers supervised the overhaul process and limited payments only to that work which had been pre-approved. Depot officials conceded to GAO that their ordinary practices might be less cost-disciplined (GAO 1992).

In 1996, cost saving explanations offered by depot officials differed somewhat from 1992 GAO reporting. The 1996 GAO report quoted depot officials at Norfolk, Virginia as attributing the initial cost savings to management initiatives undertaken prior to the competition (GAO 1996, 26). In the 1996 report, depot officials again offered
aircraft age as a partial explanation for the gradually increasing costs shown after the first
year of the competition. These depot officials also note new F-14 maintenance problems
began to reveal themselves in later years and thus limited saving. Also, some aircraft
components needed for the overhauls were not available in the supply system and thus
required concurrent repairs with the overhaul. Depot officials offered two other
significant factors as explanations: 1) depot workload began to drop significantly after
1990, which they said increased the proportion of indirect costs supported by a declining
workload base, and 2) work efficiency declined after the 1993 decision to close the
Norfolk depot. GAO reports a similar loss of efficiency at other bases marked for closure
(GAO 1996b).

**SH-2F Airframe (1990) – Cost Increases after Competition**

The SH-2F is a small utility helicopter used by the Navy fleet for miscellaneous
combat and support tasks. In 1990, the Navy undertook a five-year, $22.0 million public-
private competition for the overhaul of 54 SH-2F helicopters. Prior to the competition, a
private contractor accomplished the overhauls. The same private contractor who
previously performed the work won the competition. Unlike the five other aviation
competitions, this contract was not awarded to the lowest bidder, but instead as “best
value to the government” (GAO 1996, 19). Although this particular competitive contract
award does not involve a public depot, it is included to illustrate contracting features that
may be useful for a public-public competition alternative.

The Navy awarded the contract in 1990, but because of declining Navy depot
workloads, only 14 of the expected 54 aircraft were actually completed. The GAO
compared the average cost of 75 SH-2F airframe overhauls completed by the contractor prior to the competition with the 14 completed under the competition contract. The GAO (1996, 28) noted differences between the two contracts and attempted to adjust for differences. For example, as part of the existing contract prior to the competition, the government provided equipment to assist the contractor in completing the work. Now the cost of this equipment was included in the competitive award.

The GAO found unit costs increased an average of 60 percent between the two contracts. NAVAIR officials attempted to explain these differences by citing work differences between the two contracts. They also sought to explain the differences by attributing part of the increase to inflation. Neither of these explanations, particularly the latter, seems particularly plausible. Historical DOD inflation indices (Table 7) do show a significant 11 percent increase for 1991. This was perhaps in connection with fuel cost increases due to the 1990-1991 Persian Gulf War. However, these changes are of insufficient magnitude to explain a difference of 60 percent. The table shows price indices for depot work as annual percentage changes between 1988 and 1994.

The GAO provides no additional information on the issue of differing work specification between the two contracts. One public and one additional private contractor (in addition to the winning private firm) bid on the work. This contract is unique among the competitions because the lowest bidder did not receive the award. The GAO (1996, 19) states, “the award was made because the company offered best value to the government after considering the results from a technical evaluation of all bids.” An award of this type is different from establishing the qualifications of a bidder. It
constitutes an unusual exception to the preferred pattern of contract award to the lowest qualified bidder. Few other conclusions are possible. The narrative serves to illustrate contracting issues that may affect internal DOD contracting.

Table 7. DOD Operations and Maintenance Inflation Rates – 1988-1994

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>% Change</td>
<td>3%</td>
<td>5%</td>
<td>3%</td>
<td>11%</td>
<td>-1%</td>
<td>1%</td>
<td>3%</td>
</tr>
</tbody>
</table>

Source: (OUSD(C) 2009), Table 5-6, Column “O&M excl DHP”


Aviation components are the reparable spare parts that, along with engines, populate an airframe. Components are the hydraulic pumps, generators, radios et al whose collective presence creates the capability known as an aircraft. Unlike the other Navy aviation competitions, the Navy supply system, which exists within a different Navy major command from the Naval Air Systems Command, managed the component competitions. The Aviation Supply Office (ASO) within the Navy supply system specifically ran the component competitions.

The Aviation Supply Office orchestrated 33 separate competitions between 1992 and 1994 for the repair of aviation components. The result of the competition as analyzed by GAO indicated an average cost decrease of 41 percent for 25 of 33 competed items. For eight of 33 items, costs increased by an average of 37 percent. The weighted average for the 33 cases showed an average 24 percent decrease in costs. Table 8 summarizes the competitions.
Table 8. Aviation Supply Office Component Competition Summary

<table>
<thead>
<tr>
<th>Total Competitions</th>
<th>Workload</th>
<th>Years completed</th>
<th>Prior Supplier</th>
<th>Public Bidders</th>
<th>Private Bidders</th>
<th>Winning Supplier</th>
<th>Total Value of 33 Contracts ($M)</th>
</tr>
</thead>
<tbody>
<tr>
<td>33</td>
<td>Naval Aviation Components</td>
<td>1992-1994</td>
<td>Public 21</td>
<td>35</td>
<td>42</td>
<td>Public 14</td>
<td>$196.1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Private 9</td>
<td></td>
<td></td>
<td>Private 17</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Both 3</td>
<td></td>
<td></td>
<td>Both 2</td>
<td></td>
</tr>
</tbody>
</table>

Source: (GAO 1996, 41)

J-52 Engine (1993)

The J-52 is a turbojet engine developed for the Navy in the 1950s. At the time of the competition, it powered an important Navy combat aircraft. At the time of the competition, the Naval Aviation Depot, Jacksonville, Florida accomplished the overhauls. The contract was for one year with four option years. The work provided for three types of repairs. These are classified as major, minor, and major with conversion. In the initial year of the contract, the Navy expected the work to require 95 major repairs, 12 minor, and 60 major repairs with conversions. This can be annotated as 95/12/60. In 1993, the year of the contract award, Jacksonville had completed 100/8/125 repairs—a plausibly comparable amount except for the larger proportion of major repairs with conversions (125 vs. 60). In addition to the Jacksonville depot, one additional public depot and one private firm also bid on the contract. The GAO reported the Jacksonville proposal as significantly lower than other bidders (GAO 1996, 27). The Navy awarded the contract in July 1993 and began the work in January 1994.

At the time of the GAO investigation (September 1994), the GAO reported on the cost of completing 11 J-52 major repairs and 17 major repairs with conversions. The average cost of major repairs declined by only 2 percent from the 1993 baseline. The cost
of major repairs with conversions had increased by 4 percent. The GAO compared costs adjusted for inflation (GAO 1996, 28). The GAO reported that Jacksonville officials attributed the disappointing results to reduced workloads and problems with parts availability. GAO reports engine overhauls are relatively more material intensive than airframe overhauls (GAO 1997). It is interesting that, as reported earlier, F-14 overhaul material costs increased by 80 percent in 1994 – the same year as the J-52 competitions. GAO reported Jacksonville officials to have said the cost of the J-52 overhauls would have been even greater without the competition. There may be some basis for this conclusion, but the results are at best neutral regarding competition effects.

F/A-18 Aircraft Rework (1993)

The Navy F/A-18 competition awarded to an Air Force depot was essentially the last of the Navy depot/shipyard competitions. The Navy planned the competition since 1992 and announced the award in August 1993. This followed the Navy’s April 1993 announcement of its new depot industrial strategy for its shipyards and aviation depots. The GAO evaluated the impact of this latter announcement as effectively ending the competition initiative (GAO 1996, 13). Yet the Navy announced this F/A-18 competition, with two public and two private bidders, just four months after the announcement of the new strategy. This seems to call the GAO characterization into question. Chapter 4 discussed these events in greater detail.

When the Navy announced the new strategy, they acknowledged it could end the competitions if the post-Cold War drawdown became large enough. Yet it would not seem the immediate intent of the strategy was to end the competitions. The central
element of the announced strategy was the expanded access of private industry to Navy depot work. The F/A-18 competition most likely represented an attempt by the Navy to demonstrate the credibility of its newly announced strategy. Yet there may well have been additional evolution of the Navy position after the award. I will comment on this point later.

North Island Naval Aviation Depot had been designated the Navy’s designated single source for F/A-18 depot services. The loss of the competition to an Air Force depot appeared to have a significant effect the San Diego Navy depot. Just as it had originally shared F-14 depot maintenance with the Norfolk Naval Air Depot until the Navy designated the Virginia depot as the single F-14 source in December 1991, the Navy now similarly designated North Island as the single depot for the F/A-18. Despite this designation, there were apparently ongoing problems with its performance.

Various sources indicate management issues within the North Island depot that may have led to the loss of competition. For example, earlier I cited Forsyth (1997) who reported the competition loss was “still fresh in the minds” of North Island personnel at the time of his research. Forsyth’s interviews led him to conclude, “This episode occurred because of dissatisfied [military] customers.” Another story from USA Today (Hillkirk 1993), just prior to the competition, discusses management improvements at North Island depot over the previous 18 months. But in this context, a Navy source described at least one depot shop within the North Island complex as formerly, “...an earthbound black hole where airplane parts, money and morale disappeared, never to be seen again.” Informal contacts with senior officials within the DOD depot maintenance community sometimes
describe a general sense of job entitlement among depot managers, but point out this attitude changed at North Island after the F/A-18 contract loss.

Further, Pruett and Zarkowski, two then-serving U.S Navy officers, state in their study, “The F/A-18 program was initially plagued with significant planning problems that resulted in...North Island, California, losing the depot level maintenance contract to the Air Force depot...” (Pruett 1998, 45). They go on to describe the management changes at the depot and the eventual return of all F/A-18 overhauls to North Island. These conclusions point to the existence of problems at the California base. These issues may have contributed to North Island’s loss in the competition.

But the competition loss had not removed all F/A-18 work from North Island. Consistent with the newly announced depot industrial strategy, Navy planned to retain an 18 aircraft workload for North Island while offering 36-90 additional aircraft for competition. The competition award to Air Force Ogden Air Logistics Center set the first year workload at this amount. The Navy would exercise a second year contract option for any additional work in 1994. However, in December 1993 the Navy informed Ogden it would send only the contract minimum number of 36 aircraft to Utah. Earlier I noted a possible evolution of the internal Navy position on the depot competitions. This minimum contract award to Ogden may have marked the beginning of this internal shift. The remaining work of approximately 54 F/A-18 aircraft would continue at North Island.

As part of their preparation for the competition, North Island had planned several improvements to its work processes. When the Navy reduced the number of aircraft awarded to Ogden, North Island applied these new work processes to the 54 aircraft now
retained for North Island. For the 18 aircraft retained for North Island outside the competition, the depot used the older work specifications. This was the same work package used by the Air Force depot. The Navy expected both work packages, the old and the new, to be of comparable size in terms of labor hours. Navy-wide, the GAO found the older work specification averaged 7,300 actual labor hours. However, 18 F/A-18s inducted into North Island after the contract loss averaged 6,800 hours—a 6.8 percent reduction. Further, the use of the new work package at North Island averaged slightly less than 5,700 hours for a small sample of aircraft. This sample helped the Navy to decide against extending a second year’s work option to the Air Force at Ogden. The work hours on the sample aircraft using the new work package constituted a 22 percent drop in labor hours from the original competition work specifications. It was on this basis the Navy declined to offer additional work to the Air Force for the second option year and thus ended the contract.

**Aviation Competition Results – Air Force**

In response to Secretary Atwood’s June 30, 1990 memorandum (Atwood 1990), the Air Force began its own internal round of public-private depot competitions. Atwood’s memo specified minimum savings goals for each military department and the Air Force planned to achieve most of these goals through public-private competitions (GAO 1992b, 3). The GAO (1993) publicly documented these competitions through August 1993. This seemed to be the last GAO reporting on Air Force competitions begun in response to Secretary Atwood’s memo. Unlike the GAO evaluation of the two Navy
competitions, the GAO limited itself regarding the Air Force. For this reason, there is limited basis on which to evaluate the Air Force competitions.

It is significant that the Air Force in the course of two years completed the same number of competitions as the Navy completed from 1988 to 1994. The general sense here is that the Air Force was slow to accept competition, but then seemed to embrace it without reservation. Colonel Rigsbee (1992), writing in a public, but essentially all Air Force publication, both speaks to this point endorsing competition and also strongly implies the Air Force had adopted competition to avoid depot closures. Beyond these points, the $259.1 million in competition work constitutes only about 4 percent of the Air Force’s total airframe and engine workload over a two-year period. After initial opposition by House and Senate Armed Services Committees, the 1991 National Defense Authorization Act limited the amount of work in the initial phase to be committed to the competition (GAO 1992b). This opposition was to the extension of competitions beyond Navy depots (GAO 1993, 5). The most complete tabulation of the Air Force competitions is contained in GAO (1993b). It makes no report of savings.

An Air Force assessment of the competitions, contained in documents provided to the Office of the Secretary of Defense in 1996, documents an extensive series of internal policy memorandums issued by the Air Force Material Command between April 1993 and January 1994. It lists 45 policy memoranda, some of which are included in the package, including titles such as “Competition Between the ALCs [Air Logistics Center],” “Marginal Pricing,” or “Buyer/Seller Separation.” These memoranda document a very active set of Air Force headquarters activity in contrast with the apparent lethargy
at the Naval Air Systems Command documented by GAO. For example, as late as 1992 during the F-14 competition, the Naval Air Systems Command had yet to issue guidance for the competition. It is impossible to make a full comparison without a similar ability to examine headquarters documents at the Naval Air Systems Command comparable to the Air Force documents. The Air Force Material Command “Depot Maintenance Competition (DMC) Policy Index” is reproduced in the appendices.

Despite these extensive activities, the Office of the Secretary of Defense sponsored a contract case study of the public-private competitions by the consulting firm of Coopers and Lybrand (1994). The study found significant problems with the Air Force competition program. The case studies focused on competition problems among public and private depots. Coopers and Lybrand was a well-recognized business accounting firm of the time, and its selection for the study essentially evaluated public depots relative to commercial standards of fair and unfair competitions and practice. Industry had already questioned the fairness of Air Force competitions and the GAO had inconclusively testified to Congress on the subject. GAO cited recent Air Force improvements in competition administration. But it noted Air Force contracting officers had difficulties writing a precise statement of work for commercial bidders even while Air Force public depots knew and were bidding on the work. The inability to define the work fully obviously placed commercial contractors bidding on the work for the first time at an even greater disadvantage.

The Coopers and Lybrand case extensively documented these types of problems. It made an in-depth look at the specific competition for replacing the center wing box of a
C-141 transport aircraft. This is a large cargo aircraft, of comparable size to a commercial jetliner. Lockheed Aircraft of Marietta, Georgia manufactured the original C-141 aircraft in the 1960s. The Air Force Warner-Robins Air Logistics Center (also located in Georgia) provided C-141 depot maintenance since its original production. Both Lockheed and Warner-Robins bid for the work. But in contrast with Navy practice that evaluated and awarded competition at the level of the major command (the headquarters overseeing individual depots), in the Air Force competition, the Warner-Robins depot commander both evaluated and awarded the contract. This placed the commander in the position of both supervising one of the competitors and selecting between its bid and a commercial contractor. When the Warner-Robins commander announced the contract award, Lockheed immediately cited the obvious conflict of interest.

Warner-Robins responded to criticism by stating it had separated its bidding team from its evaluation team and formally instructed them not to communicate. The Coopers and Lybrand investigators, though plainly suspect of such an arrangement and dissatisfied by the Air Force explanation, were unable to identify any explicit breach in this procedure. Without substantive evidence for a conflict of interest, the report noted the immediate distrust such an arrangement created and went on to document accounting problems, improper overhead allocations, and what it called “inherently unfair business practices” in the Air Force administration of the competition. Although it is not immediately clear if the Warner-Robins competition is representative of all Air Force competitions, there is indirect evidence from GAO that the Air Force used similar procedures throughout its competitions (GAO 1996b).
6. Evaluating the Case Study and Its Results

The central research question asked how the Department of Defense could utilize competition to reduce costs. This suggests competition might be viewed as a management technique within a larger set of cost controls of DOD public management. This question formulation explicitly addresses policy implementation. Aside from issues such as, “Does competition work?”, the historical case study illuminates these issues. At this point, the basic narrative of the case is not definitive. From a small test case of a few ships, the initiative built steadily in number, was broadened to Naval aviation, and then to all DOD depot maintenance. But it seemed to implode in 1993—just as the Navy awarded F/A-18 work to the Air Force—and the initiative effectively ended early in a new administration. An evaluation might have been simpler if the introduction of competition had been a wholesale failure. I might have been able to assemble some lessons from the failure, linked it with its introductory conditions, and perhaps recommend future experiments under different conditions. However, this does not seem to be the result. The findings appear more nuanced and conditional.

The case study so far seems to offer mixed results. Reported cost savings are uneven; sometimes notable, as in the case of the F-14 overhauls, but sometimes small or even non-existent, as in the case of the Navy J-52 engine overhaul. A search for positive arguments can identify bright spots, but further exploration in similar areas seems to dim
their luster. For example, the expansion, particularly within ship repairs, is impressive. It began with two ships in 1985, and eventually undertook several hundred competitions over nine years. However, the Navy aircraft competition remained surprisingly small from 1988 to the end of the Navy-led initiative, despite Mr. Pyatt’s stated goal in 1987 for the expansion of competition to 20 percent of Navy aviation depot maintenance. This might indicate a small initiative clinging to life. Alternately, in 1990, as the DOD copes with the end of the Cold War, competition seemingly becomes the department-wide model for depot maintenance with the implementation of the Atwood memo. As late as 1993, we see the Navy continuing the initiative when it awards an F/A-18 contract to the Air Force. But then we note the Navy reversing itself within a short time, and only a little more than a year later, the Deputy Secretary of Defense would effectively end the initiative. This termination occurred while the DOD was in midst of numerous, seemingly sympathetic reforms associated with the Reinventing Government initiative. It is a complex set of events and difficult to interpret.

This chapter will seek to identify facts about the competition and develop a reliable interpretation of the overall competition initiative. As discussed in Chapter 3, the central proposition of the research is the use of the historical initiative as a model for future implementation. This chapter seeks to evaluate this basic proposition and confirm the quantitative results of the competition. If we can confirm the results of the competition, it establishes the basic research validity and extends the concept of competition to the realm of public organizations. If competition has validity for use
among public organizations, understanding the circumstances of its first implementation is important for future reform.

**Potential Issues Confronting the Research**

In Chapter 1, I established the skeptical attitude towards new policy recommended by Munger. Given the mixed history of DOD reforms, the burden of proof should be on any proposed initiative. His policy analyst “hope[s] for the best but assumes the worst unless her skepticism is disproved.” This chapter proceeds in this vein by constructing a series of skeptical questions and issues that challenge the case study and its quantitative results. This chapter addresses the following possibilities and questions:

1. The competition initiative did not reduce costs.
2. Reported cost savings are deceptive. Larger cost trends distorted any favorable interpretation of the historical initiative.
3. If competition can be effective, why was the initiative ended within DOD?
4. The initiative’s public-private competitions are not representative of the public-public competitions proposed by the research.
5. Competition threatens the necessary internal cooperation among DOD organizations.
6. Competition is unnecessary to reduce the costs of DOD supporting organizations.
7. Any cost savings from competition do not offset the costs of duplication and overlap necessary to competition.
8. The competition created problems more costly than its savings.
9. Competition cannot work for public organizations because it requires greater organizational autonomy than ordinarily granted to public managers.
10. The historical competitions were not of significant size or scope to justify going forward with the proposed reforms.
11. The circumstances of the competitions were unique and cannot be replicated. These issues have both theoretical and practical implications. They group into three broad classes of Cost, Externalities, and External Validity:

1. **COST**: A first group of issues clusters around the actual ability of competition to reduce costs within the depots. Did the competitions actually reduce costs or did broader cost trends distort their results? A second cluster of cost questions asks if competition is not a “second-best” strategy for cost control. They question whether competition has any practical advantages for cost reduction or if its inherent requirement for duplication and overlap are not more costly than traditional alternatives. Some implications here stretch beyond the case study, but some preliminary answers might be possible.

2. **EXTERNALITIES**: This group addresses the indirect costs of competition. These are oblique issues arising from the introduction of competition. These include issues of cooperation and internal strife that might offset any cost savings directly achieved by competition. The majority of these issues lie within the question, “Why was the initiative ended?” Nominally, Mr. Deutch ended the initiative for just these types of issues—he made little note of cost.

3. **EXTERNAL VALIDITY**: These issues challenge the construct of the research and its extension to future reforms. This third part of this chapter will attempt to interpret the case study and its results to address these concerns.

These groups of issues constitute the chapter’s basic construction. The three groups address the 11 prospective issues. The groups allow addressing the issues in an orderly, systematic manner. For example, with respect to cost, if the competitions can establish the basic effectiveness of competition, then issues of its relative effectiveness become clearer. In this case, issues include competition’s relative effectiveness to other means of cost control (i.e., oversight and review). Primary and secondary cost issues dominate the chapter. Even the second group of issues, labeled as externalities, is a form of cost. It addresses the unintended costs that might be associated with competition. This
might include issues of internal rivalry and subsequent possible loss of productivity due to reduced knowledge sharing among rivals. These costs are viewed here as externalities. The case study provides evidence to evaluate these issues. Finally, the chapter ends by evaluating the research’s external validity in light of the case study and its theoretical context.

**Did Competition Reduce Costs?**

Assessing the actual achievement of improved efficiency, that is the same amount of depot maintenance work for less cost, is undoubtedly the most crucial issue within the research. The research question asks if competition can help reduce costs for DOD supporting organizations. If the historical competition did not actually reduce costs, a negative answer to the research question is inescapable. Chapter 5 reported competition results compiled by the GAO and from other sources. The GAO findings in their detailed 1992 review of the F-14 overhauls, and in their overall assessments of the separate aviation and shipyard competitions, found that the competition had been generally successful in reducing costs. Despite these general finding on the competitions, the GAO provided relatively detailed data on only the Navy F-14 overhauls from 1988-94, and a less complete record regarding the short-lived F/A-18 competitions awarded to an Air Force depot. In this section of the chapter, I provide independent confirmation of the GAO’s general findings. Cost reduction is a central issue to the research question. Confirming the GAO finding is an important step in the research.

The most important evidence regarding cost effects comes from the GAO’s side-by-side comparison of F-14 overhauls in 1990-91. Chapter 5 reported these results. As
described earlier, at a given depot in California or Virginia, Navy F-14s underwent identical work distinguished only by a factor of competition. The GAO concluded aircraft overhauled under the competition contract achieved notable cost savings. These savings were as small as 3 percent and as large 22 percent. There is little additional information that confirms or refutes these claims. But we can ask how these differences came about. The competition award had been in 1988. Now it is 1990-91. What was the connection between the public-private competition of 1988 and cost differences found three years later?

The answer would seem to lie in the different administrative processes for each type of aircraft. The GAO reported on contracting offices at the Naval Air Systems Command administering the competition contract. They were relatively zealous in controlling additional work and additional costs (“over and above work”) billed against their aircraft. Depot officials conceded differences between management controls administered by depot supervisors and those administered by contracting officers could make a significant difference in costs. In the latter case, the contracting officers required their explicit approval for “over and above” work. This appeared to be more difficult to obtain than ordinary authorization practices on the shop floor. The GAO found these different processes might explain different (and lower) costs for the competition aircraft.

This raises questions about whether contracting officer attitudes hindered the addition of needed work. The case study indicated “over and above” work additions were common on the depot floor. Presumably, workers directly observing the condition of the aircraft nominated work in both cases [competition and non-competition aircraft].
However, we have no basis to evaluate this question of suppressed work except through the GAO report. It stated that Navy customers in the Atlantic and Pacific fleets detected no differences between the aircraft. Beyond this, the question seems to return to the theoretical issue identified in Chapter 3 regarding work definition. Who defines needed work? Clearly an overzealous attitude towards “over and above” can lead to disaster.

Necessary work for aircraft safety and mission effectiveness, unknown and unanticipated in the contracting process, should not be overlooked. But neither can specialists entirely control work definition without some linkage or comparison with costs. Viewed from an economic approach, if the military customer (“the Navy Fleet”) cannot detect a difference over the long-term, then I can reasonably claim the costs controlled by the competition contracting officers did not suppress necessary work and actually created efficiencies.

However, an argument can be made these cost reductions did not require competition. I might reasonably attribute these cost reductions not to competition but to the new procedures needed to administer the competition. The bidding established a price for F-14 overhauls in 1988, and contract administration secured these prices for the fleet customers in the 1990-91. This implies cost reductions can result from simply tightening the approval of “over and above” work. This is a valid issue. It will be addressed later in the chapter within a discussion on the necessity of competition to reduce costs.

**Beyond the GAO Side-by-Side Cost Comparisons**

There is a body of information providing additional detail regarding the GAO conclusions. The Naval Postgraduate School is an academic institution of the Department of the Navy and is an accredited graduate school. The school faculty is predominantly
active duty naval officers and civilians. Its resident students are primarily naval officers assigned to the school for advanced studies. Students are on active duty and return to naval service upon earning a degree. As part of its degree program, the school encourages student to base their masters-level theses on naval issues. The faculty maintains contacts with Navy organizations and encourages students to solicit useful research topics from contacts within these organizations. A series of master’s theses at the school undertook active research on topics related to naval depot maintenance. These topics occasionally touched on the depot competition initiative, but more often focused on technical issues at the depots such as cost reductions and improved process. Often Navy depots shared detailed data on depot costs and processes not otherwise publicly available. Navy Lieutenant Barbara Burgett (1997) used one such data set to analyze a specific depot maintenance policy related to F-14 airframe overhauls.

**Burgett Data on F-14 Overhauls (1988)**

The Burgett data represents 130 F-14 overhauls from 1986 to 1995. This number contrasts with the 325 F-14 overhauls (84 under competition) reported by GAO between 1987 and 1994. Burgett notes the competition in her research, but only as an aside. She obtained her data from the Naval Air Systems Command to address other depot research questions. It does not identify competition/non-competition aircraft. However, if I assume the data is a reasonably representative sample, it stands as greatly more detailed data than the information reported by GAO. The data is at a “tail number” level of detail. The term refers to the U.S. military practice of prominently painting these reference numbers on the vertical stabilizer at the rear or “tail” of almost all its aircraft. A tail number
specifically identifies individual aircraft and is an even greater level of detail than the aircraft “block” numbers discussed in Chapter 5. Depot management discussed these block numbers as surrogates for aircraft age. An aircraft block numbers defines a set of aircraft with a common manufacturing configuration. Block numbers encompass a series of tail numbers. The Navy uniquely assigns tail numbers to each individual aircraft when it signs contracts with the original equipment manufacturer. Like blocks, larger tail numbers usually represent aircraft in more recent production and therefore “newer” aircraft. The Burgett data reports direct labor and material costs for F-14 overhauls by actual tail number.

As discussed in Chapter 5, direct costs represent expenses uniquely associated with work on a particular aircraft. They do not include necessary overhead costs shared by a group of aircraft. Overhead includes the costs of facilities to house several aircraft during their overhaul. These costs cannot be uniquely associated with work on a single aircraft. Instead, indirect costs usually aggregate or “pool,” before they can be associated with the depot products. When these indirect costs allocate from their cost “pools,” they help compute the full cost of aircraft depot maintenance. The Burgett data does not include these indirect costs.

From 1987 to 1993, Burgett’s data averages 50 percent of the GAO reported totals. This helps to understand the GAO data. If Burgett’s data represents the direct cost of the overhauls, then the GAO data clearly represents both direct and indirect costs. This
helps to gauge the size of overhead charged to customers. Figure 7 compares the raw and adjusted GAO costs with the Burgett data.11

The Burgett data offers an independent confirmation of the information reported by the GAO. Although it only reflects the direct costs of the F-14 overhaul, without its information, the magnitude of indirect costs reported in the GAO data would be difficult to estimate. The Burgett data also confirms significant differences for both direct and indirect cost in the initial year (1988) of the competition initiative. Changes in subsequent

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11 The Burgett data is displayed with an adjustment from the original information. Burgett’s data is shown with one year added to its reported “Induction Year.” This is described as the “Fiscal year inducted into the SDLM [Overhaul]” (Burgett 1997, 38). Burgett describes the effects of the depot competition as occurring in 1987 in her data (15). The competition did not occur until 1988 in the GAO data. The chart aligns these two events. Burgett’s induction year of 1987 is shown as 1988.
years were more of indirect costs and overhead than in direct costs. After 1988, direct cost rebounded upward from their 1988 low but stayed below the 1987 baseline. Direct costs appear to grow faster than indirect costs from 1989-1991 and exceed the 1987 baseline by 15 percent in 1991. They continue to grow from there. Indirect costs dropped similarly to indirect costs in 1988, but stayed lower longer. Table 9 displays the GAO adjusted data with Burgett’s. Both data sets report growth at similarly significant rates from 1991 to 1994.

Table 9. Navy F-14 Competition: GAO/ Burgett Data Compared

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<tr>
<td>Total F-14 Overhauls (GAO)</td>
<td>60</td>
<td>66</td>
<td>57</td>
<td>46</td>
<td>26</td>
<td>33</td>
<td>23</td>
<td>14</td>
<td></td>
<td></td>
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<tr>
<td>GAO Adjusted F-14 Overhaul Costs ($M)</td>
<td>$3.34</td>
<td>2.56</td>
<td>3.00</td>
<td>2.73</td>
<td>2.79</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Change from 1987 (GAO)</td>
<td>-</td>
<td>-23%</td>
<td>-10%</td>
<td>-18%</td>
<td>-16%</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>F-14 Overhauls, Direct Costs ($M) (Burgett)</td>
<td>1.36</td>
<td>1.40</td>
<td>1.01</td>
<td>1.30</td>
<td>1.22</td>
<td>1.61</td>
<td>1.82</td>
<td>1.99</td>
<td>2.89</td>
<td>2.48</td>
</tr>
<tr>
<td>% Change from 1987 (Burgett)</td>
<td>-</td>
<td>-28%</td>
<td>-7%</td>
<td>-13%</td>
<td>-15%</td>
<td>30%</td>
<td>42%</td>
<td>106%</td>
<td>77%</td>
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</tbody>
</table>

However, there is a troubling fact contained within the data. Both the GAO and Burgett report significant 1988 cost reductions from the 1987 baseline in the first year of competition. The year 1988 exhibits the largest overall reduction. It is certainly tempting to attribute this to competition. But 1988 is both the competition’s smallest quantity of aircraft and its largest cost decrease. In 1988, the competitions included only 6 percent of total F-14s overhauls (four aircraft). How can the 1988 and other reported reductions be attributed to competition? Certainly not directly. But there is reasonable explanation as to
why non-competition aircraft showed cost decreases. Recall in Chapter 5 the Naval Air Systems Command directed identical work processes for both competition and non-competition aircraft. Non-competition aircraft were to use the same work package developed for the competition aircraft. This allows the Burgett/GAO data to co-exist with the GAO side-by-side competition comparisons reported in Chapter 5. The small size of the competition can be reconciled with the aggregate results reported in the GAO/Burgett data. If this explanation is valid, the competition can indirectly receive credit for the savings since the revised work package resulted from preparations for the bidding.

In Chapter 5, depot officials variously explained the later years’ cost increases. One of the explanations reported worker productivity losses due to depot closures. The reported loss of worker efficiency (and indirectly management effectiveness) at the end of the competition period is interesting. The GAO reported this same effect at other depot locations. There was evidence of anxiety throughout the depot workforce within this period. Although I have speculated base closures could generate similar effects to competition (i.e., workers and managers increase productivity to avoid a closure decision), there does not appear to be evidence for this possibility. Perhaps base closure and its processes seemed too remote for workers and management to link their local efforts with a national decision process. Worker fatalism rather than increased productivity perhaps better describes depot workforce’s response to the situation.

Depot officials offered an additional explanation for increased costs after 1990. They claimed reduced workload increased costs. I assume they refer to the issue of unchanged indirect costs allocated over a smaller base of direct workload. If my
assumption is correct, the available evidence cannot sustain the depot official’s claim. The Burgett data shows direct costs of F-14 overhauls increasing after 1990. Indirect costs after 1990 appear initially steady then begin to increase. Within DOD, trends of this type are sometimes more readily addressed by accounting changes than by real cost increases. Reparable aviation components underwent a significant accounting change during this period as part of the Bush Administration’s Defense Management Review process (R. E. Porten 2000, II-16). The Burgett data does shed some light on this issue. It shows a dramatic increase of F-14 material costs in 1994 - averaging almost 80 percent over previous years. This increase appears in Figure 7 as the notable rise for direct costs in 1994. Prior to that time, average direct labor and material costs advanced at approximately the same rate. Material costs and/or accounting changes offer only a partial explanation.

**Pruett/Zarkowski Data on F/A-18 Overhauls (1993)**

The GAO data for the F/A-18 competition in 1993 is not as rich in detail as that reported for the F-14. Fortunately, there is a similar body of Naval Postgraduate School data for the F/A-18 competition. This is the Pruett/Zarkowski data set. They obtained the data from the Naval Air Systems Command and used it at the Naval Postgraduate School (Pruett 1998). The research compared the F-14, F/A-18, and commercial airline heavy maintenance for the Boeing 737. F-14 aircraft were Pruett and Zarkowski’s central research interest. Because of this, there exists a four-year overlap with the Burgett F-14 data introduced earlier.
The Naval Air Systems Command reportedly provided both data sets. Both contain cost details at the level of F-14 tail numbers. However, as reported earlier, the Burgett data reports direct costs while the Pruett/Zarkowski data contains additional indirect costs. The Pruett/Zarkowski data does not report direct labor costs but both data sets do report direct material costs. Both data sets show identical material costs for the same F-14 tail number for the same overhaul. This gives both data sets additional credibility. Although the Pruett/Zarkowski data set only begins its F/A-18 data in 1993 and extends partially into 1998, overall it appears consistent with the GAO findings for the F/A-18. However, the data shows significant cost declines continuing six years after the competitions ended. Even though it seems too extreme to ascribe these declining costs to competition, combining the data with anecdotal information reported earlier suggests changes within the Navy North Island depot beginning with the competition. Sources confirm process improvements at the Navy North Island depot after the 1993 competitions. Table 10 displays this data.

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<tr>
<td>Average Total Cost (FY$10K)</td>
<td>1,165.4</td>
<td>1,033.8</td>
<td>618.0</td>
<td>664.5</td>
<td>466.6</td>
<td>491.7</td>
</tr>
<tr>
<td>Number Aircraft</td>
<td>38</td>
<td>19</td>
<td>37</td>
<td>22</td>
<td>64</td>
<td>4</td>
</tr>
<tr>
<td>Work Hours Estimated</td>
<td>6,555</td>
<td>6,054</td>
<td>5,303</td>
<td>4,900</td>
<td>5,270</td>
<td>5,402</td>
</tr>
<tr>
<td>Work Hours Actual</td>
<td>7,213</td>
<td>6,533</td>
<td>5,066</td>
<td>5,363</td>
<td>3,313</td>
<td>3,158</td>
</tr>
<tr>
<td>Average Material Cost (FY$10K)</td>
<td>327.6</td>
<td>268.4</td>
<td>91.4</td>
<td>146.8</td>
<td>158.3</td>
<td>189.6</td>
</tr>
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Broader Cost Trends and Other Effects beyond the Competitions

Moving beyond the supplemental cost data provided by Burgett, Pruett & Zarkowski, we continue to probe the validity of GAO-reported cost saving associated with the competitions. The GAO specifically reported side-by-side cost comparisons of F-14 aircraft, and found savings of 2.7 to 22.7 percent for overhauls completed under competition. In discussing the research design in Chapter 3, I identified side-by-side comparisons as the most desirable since they controlled for environmental changes over time.

In contrast, most of the results presented in this and the previous chapters compute their savings from a cost baseline. The GAO, Burgett, and Pruett/Zarkowski data imply cost savings relative to a benchmark in time. This approach is vulnerable to the type of changes otherwise controlled for in side-by-side comparisons. When making comparisons over time, the results must be adjusted both to account for general price inflation and for incidental accounting changes. I have attempted to control for both in reporting the data. But beyond these factors, broader cost trends in the data can affect our interpretation of the competition results. If the competitions were occurring within a general downward cost trend, the significance of competition could easily be overstated.

Of further concern, strategic behavior on the part of depot maintenance management might alter policies or take actions to temporarily reduce costs and assist claims for a reform. The history of DOD reform initiatives are littered with expansive claims for results that are rarely verifiable (e.g., 1990s DOD Acquisition Reform). Lorell and Graser (2001) document the limited verifiable results from this particular round of
DOD cost reforms. Acquaintance with this genre of reform “boosterism” suggests examining the historical cost record for signs of cost shifting and cost deferment. The incentive to give the leadership the results they plainly desire is an important source of distortion in the reform process. In a sense what is under discussion here is a modern version of the famous “Hawthorne Effect.” This was the claim that solicitous management attention to workers and changes to the work environment increases productivity.

Here we are discussing a variation on this famous (and controversial) effect. At the local level, depot management could inappropriately defer or alter work packages to reduce work and therefore claim savings. Alternately, I might expect to see worker time shifted to overhead accounts or into projects not a part of the reform initiative. On a grander scale, cost shifting and work redefinition can distort an interpretation of data over time.

This section introduces budgetary data aggregated at the level of Navy and Air Force major commands. These data provide much less detail than the information addressed in the previous section. Rather than individual aircraft by tail number at a given location, it consists of multiple aircraft types across many different depots for either the Navy or the Air Force. The purpose of evaluating these data is to provide a larger quantitative context for the 1988-1994 depot competition initiative, but also to examine the data for larger cost trends and possible cost shifting. The data includes historical workload and budget data before and after this period. It also provides a direct macro-level budgetary comparison of Air Force/ Navy aviation depot maintenance,
which extends the case study information presented in Chapters 4 and 5. Data at this level reports depot maintenance work accomplished not only by military depots but also by private contractors.

Figure 8 illustrates long-term, constant dollars trends in total depot maintenance spending before, during, and after the competition initiative. This includes the period of 1981 to 2006 surrounding the depot competition period. The data includes adjustments for a specific accounting change regarding component repairs for aircraft and ships. The data shows general reductions of approximately 50 percent in the reported costs of Navy aircraft and ship depot maintenance over the 1980s. A similarly sized decrease occurs in the Air Force between 1991 and 1992.
The budget data reported in Figure 8 is then combined in Figure 9 with total numbers of aircraft and ships reported over that same period. This combination creates a constant dollar index of O&M spending per ship or aircraft. The resulting chart (Figure 9) shows a striking divergence between the Air Force and the Navy about the time of the competition initiative. Average depot maintenance overhaul costs per ship and aircraft in the Navy begin declining while Air Force costs are stable. Both indices then grow at comparable rates after 1995. To be explicit about the nature of the data, this ratio combines total budgeted ship or aircraft depot maintenance dollars with the total numbers of ships (Navy) and aircraft (Navy and Air Force). It compares full cost with a proxy for demand. On its face, this is notable difference in trend for two organizations accomplishing similar activities, particularly since this divergence occurs exactly while one organization practices competition among its depots and shipyards while another does not.

At first, this might seem important positive evidence for the effects of competition. But in an odd way, these results seem to argue against its significance. These trends potentially signal that the Navy introduced competition during a period of declining costs. A more impressive result might have been a series of competition savings occurring within a larger trend of rising costs. While it is tempting to ascribe these declines directly to the competition initiative, the number of ships and aircraft undergoing competitions are small compared to total depot workload and spending.
If the competition initiative does not seem to be a factor, the divergence begs for an explanation. It is possible the Navy’s management over this area began to score success for both ship and aircraft depot maintenance in the mid-1980s, just as the competition initiative began. Also, both the Navy and the Air Force were each receiving new generations of fighter aircraft: it is possible the new Navy aircraft were notably less demanding of depot maintenance.

It is also worthwhile to recall from Chapter 4, the dissolution of the Navy Material Command in 1985. This was the Navy major command that contained both the Naval Air Systems Command and the Naval Sea Systems Command. When the Navy eliminated the Naval Material Command, each of these subordinate commands became
independent. It is interesting to recall Niskanen’s (1975) critique of traditional organizational practice, where he predicted increased costs when smaller organizational units consolidate into larger organizations. Here, the elimination of the Naval Material Command seems to offer a converse test of his hypothesis. Organizational consolidation is reversed and costs appear to fall. This reversal is unique in DOD organizational history. I can identify no comparable event within the DOD since its creation in 1949.

There is additional budgetary data that may give more insights regarding these trends. This information based on the number of aircraft and engines actually inducted into depot maintenance for both organizations. Figure 10 shows average Navy cost for airframe overhauls growing quickly between 1982 and 1986. Equivalent Air Force data is not available until 1985, but it roughly shows the same rapid upward pace as maintained by the Navy for 1982-86. Yet while the Air Force continues this trend of increasing average cost, Navy average aircraft overhaul costs between for six years between 1986 and 1991 are almost unchanged. From 1991 to 1995, they rise at roughly the same rate as the Air Force, but then suddenly begin to decline. Figure 11 shows average engine overhaul costs for each organization. Trends during this period are more similar than for airframe overhauls. I focus here on the stable period of Navy airframe overhaul costs between 1986 and 1991.

Again, although this period coincides with the competitions, the competition scope seems too small to have achieved these results. Further, it may show the Navy competition occurring in somewhat less challenging budgetary environment than in the Air Force (flat or downward overall costs). Again, it is more plausible to see the
competitions as evidence of a more effective approach to managing Navy depot maintenance activities than techniques adopted by the Air Force. Readiness to undertake competition could be here a symptom rather than a cause of these results within the Navy.

Figure 10. Navy and Air Force Average Airframe Overhaul Costs – 1982 to 2002
We are midway through the first topic of cost and competition. At this point, we can put aside questions regarding the categorical utility of competition among public organizations. Can it reduce costs? The answer is yes. Direct work comparisons are positive. Comparisons with historical baselines for F-14 and F/A-18 aircraft work showed cost reductions during the period of the historical initiative. As expected theoretically, competition is generating innovations in depot work packages. However, broader comparative budget data for the Navy and the Air Force gives pause. The decreases associated with the F-14 and the F/A-18 aircraft are notable when observed alone, but it cannot yet be determined what fraction of total Navy spending these two aircraft types represent. The depot work for these aircraft was not simultaneous. F/A-18 work began as
the F-14 ended. Even if both aircraft utilized the competition-derived work plans as
directed by Navy leadership, the work on these two aircraft seems too small to generate
these effects. Absent this information, I must conclude other larger trends beyond
competition must have been at work. Something unusual seems to have been occurring
within the larger Navy depot maintenance community. Competition seems to be working
but other effects appear in play.

Is Competition Unnecessary to Reduce Costs?

At this point in the chapter, I am still addressing issues of cost, but transitioning
from categorical issues such as “Does Competition Work?” to questions regarding its
comparative advantages. This compares the relative effectiveness of traditional means for
efficiency versus competition. To ask if competition is necessary implies traditional
forms of internal organization or other reforms can be more effective in reducing costs. It
argues competition is not the only way to achieve cost savings. I accept this latter point:
if the earlier conclusion holds regarding something unique about 1985-1994 Navy depot
management, I can attribute to competition only a small portion of these results.
Conventional Navy managerial practices offer a more plausible explanation. Competition
was only a piece of these practices and, contributed, at best, only a small part of these
results.

But to concede that competition might be unnecessary in some conditions retains
the possibility it might be useful in others. It is a more difficult case to make that
traditional techniques are more effective under all circumstances. The case study itself
demonstrates this point. During some portions of this period, traditional management
techniques were either ineffective or unused. Navy and Air Force depot maintenance costs during this period are generally rising except during the period in which Navy management introduced competition. The Navy management perspective, which introduced competition among its depots and shipyards, appears to have accomplished something unique during this period. Unless someone argues these organizations were for some reason not practicing traditional cost controls during the non-competition period (i.e., Air Force; Navy before 1985 and after 1994), then I must conclude Navy management techniques and arrangements between 1985 and 1994 contained relative advantages over traditional techniques. One of these novel techniques was the introduction of competition. At a minimum, the case argues for management principles open to its use.

Externalities – Why Did the Initiative End?

The end of the competition following nine years of DOD use, implies the policy got fair treatment, was found wanting, and then was appropriately discarded for the next reform. Questions regarding the actual effects of competition do not appear to have been a part of General Powell’s influential 1992-93 depot study, the 1993 Defense Science Board’s policy evaluation, or Mr. Deutch’s 1994 decision effectively ending the competitions. The decision seemed to be less about cost saving and more about the initiative generating tensions and conflict requiring management attention. But it is worth asking what had changed now in 1993 (the year of the Defense Science Board study)

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12 There is one exception to this statement. Average Navy airframe depot maintenance overhaul costs began to decline after 1995. This was outside the period of the competitions.
from 1987 when the Navy expanded competitions to its aviation depots. How was it the Navy had conducted several hundred competitions for shipyard depot maintenance before these new externalities were recognized?

It is difficult not to associate 1993 and the end of the competitions with the end of the Cold War. One line of thought might go like this. In 1987, when Everett Pyatt testified before Congress and officials gushed over DOD internal improvements since 1981, the future was unclear. This is always true, but yet we usually act as if the future will be much like the present. This seems true at this point of the Cold War. The collective wisdom did not foresee German reunification and Soviet dissolution within the next five years. Instead, what Pyatt hints at in his testimony was the achievement of a long-term steady state: the establishment of a new balance point in the ongoing struggle of the Cold War. The United States would go forward with its 600-ship Navy and a revived military establishment, having reversed military and economic decline relative to the Soviet Union. The size of this military establishment with its high levels of modern military technology and readiness was expected to support a very robust private defense industry within the United States. John Lehman certainly recognized this point relative to the shipbuilding industry when he pegged the size of the Navy at 600 ships (J. F. Lehman 1988).

Now at the end of the Cold War with force structure declining, private defense industry was on the hunt for work. Events had overcome the steady, controlled decline envisioned at the beginning of the first Bush administration. The argument here is the competitions suffered the same fate. Its public-private focus exposed it to the adjustments
of post-Cold War industrial policy. Designed to operate in steady state conditions where a
competition loss might reverse in the following year, with the end of the Cold War, a
competition loss now began to look like a death sentence. Certainly there is evidence
Grumman Aircraft, the manufacturer of the F-14 and a competitor in the first Navy
aviation competition, began to see each accumulating business loss in these terms.
Grumman’s fears were justified: corporate death was just around the corner. Northrop
Corporation eventually acquired its assets in 1994. The stakes had become too high for
competition to be continued. As perhaps was the case of the Navy North Island depot, the
loss of a competition can have a bracing, consciousness-raising effect among managers
and workers. But when the stakes essentially become “winner-take-all,” sometimes
participants decline to play the game or refuse to follow its rules. The competition’s
inherent conflict and rivalry could not be contained within its existing institutions.

In all likelihood, this was the divisive conflict referred to by Mr. Deutch in his de
facto decision to end the competitions. Not only was a divisive life or death trial going on
among industry and public depots; there was a separate public-public dimension. Navy
suspicions regarding Air Force motives, along with the threat of base closures, elevated
the public-public dimension to the same life or death consequences of the public-private
competitions. It seems clear that the Air Force proposal in 1989 to take over and manage
all Navy aviation depots raised tensions and suspicions. It was already clear steady state
conditions were unsustainable. Budgets and depot maintenance demands were falling.
Decision under these circumstances simply addressed the new reality of depot reductions.
It would have been unusually trusting for Navy depots to expect an Air Force-managed
drawdown to realign and close depots simply on the merits – even if the Air Force actually possessed the necessary wise and benevolent characteristics.

Instead, the evidence suggests the Navy offered its competition initiative as an alternative to other means of depot reductions managed by the Air Force. In any event, with the expansion of the initiative, competition as a policy alternative shifted into a more difficult realm. Competition used to bring about reductions has greater consequences for managers and workers than a steady state competition. In a steady state competition, as Pyatt apparently envisioned, there will be the same amount of work next year for losing competitors to potentially restore this year’s losses. But with declining work, hopeful expectations decline also. The consequences of a loss essentially become a permanent condition with no immediate prospects for a turn-around. Under these conditions, workers and managers who perceive themselves vulnerable and without prospects (as was reported for San Antonio depot workers) not surprisingly view the competitions in the gravest possible terms. The stakes for management are also very high.

Despite this, there is evidence Air Force management expected to win these competitions (D. M. Rigsbee 1992) and thus indirectly win Navy work by attrition. Navy management external to its depots may even have sensed this result. Internal dissatisfaction with Navy shipyards and depot was at least a decade old (Dorwart 2000). The Navy’s aggressive base closure recommendations, particularly in the 1993 round, plausibly conceded this inevitable result. The Navy plausibly concluded they should take credit now for what must be done eventually. Closing its aviation depots now preserved its higher priority bases from closure commission second-guessing. The Air Force faced a
similar conundrum. Its depots eventually succumbed to commission second-guessing in the 1995 round of closures.

In conclusion, it appears the largest share of the problem originated in the inherent public-private nature of the original initiative. The shipyard competitions show the inherent problems of public-private bidding and comparability; the Cold War’s end just accentuated the problems of public-private competition. In a sense, the broad alignment of the case study within Porter’s competitive framework worked well. Likely Air Force designs on Navy depots and private industry’s hunger to expand its DOD depot work, all seem readily foreseeable within the model. But as for the competition initiative itself, a reform seemingly designed to maintain the depots and shipyards of a 600-ship Navy, it was unable to adapt to the internal institutional stress generated by the Cold War drawdown. As a management technique, I conclude the competitions became unsustainable when the end of the Cold War raised organizational stakes too high.

**Does Competition Eliminate Necessary DOD Internal Cooperation?**

If the preceding explanation for the demise of the Navy competition initiative is accurate, then the initiative was at the center of a significant internal controversy. Not only did it involve the Air Force and the Navy, it also pitted private industry against the public depots and strained DOD relations with the Congress. But at this point, the research is more narrowly interested in the public-public dimension of the competition. Within that realm, it is certainly true DOD organizations operate on the assumption of internal cooperation. Classical organization theory supplies this assumption to those
operating its designs. Mr. Deutch certainly cited disruptions to internal relationships in his decisions effectively ending the competitions. But how valid are these concerns?

It is clear at some organizational level of the DOD there must be full cooperation. There must be groups that function cooperatively consistent with small group theory and with the traditional approaches to internal public organization. But blanket concerns about reducing the cooperation between DOD organizations because of competition centers on a misunderstanding of market relations. As envisioned by Hoover’s working capital fund reforms, a customer and supplier relationship for depot maintenance remains inherently cooperative. Since converted to working capital funds in the 1960s, the depots seemed to maintain cooperative relationships with their customers. Competition does not disrupt this relationship except to possibly substitute new suppliers. This by itself can certainly be disruptive to suppliers and undoubtedly changes informal relationships between customers and suppliers. But the military forces, like all consumers, must balance these continuing relationships with the need to assert other interests such as the efficient supply of supporting services.

Probably more to the point regarding a fear of competition, it does indeed introduce rivalry among internal suppliers like the depots. But it is not clear how much cooperation or information sharing actually exists or is necessary among these DOD supporting organizations. To the degree this exists, we can reasonably forecast this sharing will diminish with the beginning of competition. This may explain why the best example of public-public competition within the initiative, the 1993 Navy and Air Force depot competition for the F/A-18, was conducted between two military departments with
little history of interaction. The case study indicated more frequently Navy depots bid in
teams, such as the F-14 competition, perhaps to preserve information sharing and avoid
rivalry. But recall Admiral Fowler’s off-hand remarks in Senate testimony that he
encouraged informal competition among his shipyards of the Naval Sea Systems
Command. This implies Navy senior management saw limits to the advantages of
cooperating and information sharing among its shipyards and depots. We might say when
cooperation becomes pathological, that is, when a shared culture becomes unresponsive
to military consumers or leadership, then competition may be a useful tool for senior
management.

**Did competition cost savings offset its inherent duplication and overlap?**

The long-standing complaints by GAO of excess DOD depot capacity seem to
confirm that duplication and overlap might at least temporarily exist within DOD at any
given time. If correct, this suggests some of the inherent difficulties in efficiently
operating DOD by conventional means. Since the proposed alternative is for the selective
use of internal competition, this suggests its possible use when duplication and overlap
already exist and there is difficulty in improving efficiency by conventional techniques.
The larger policy issues of this claim deserve additional research.

**External Validity: Is the Case Study Relevant to Future Reform?**

The historical initiative's public-private competitions are not representative of the
public-public competitions proposed by the research.

This is a significant challenge to the research. The vast majority of the historical
competitions were public-private competitions. Yet the proposed reforms are public-
public competitions. However, to begin it should be noted this challenge inherently accepts that public organizations within DOD can participate in competitions. This in itself moves beyond implicit conceptual boundaries contained within the ordinary literature of public organization. Beyond this, the public-public competitions advocated here essentially reflect the concerns of Mr. Deutch and the GAO regarding the inherent fairness and practical feasibility of public-private competitions. No organization, public or private, will participate for long in an arbitrary competition process. A sense of trust in the process is necessary for the competitions to proceed without intervention.

This point illuminates trust as one of the crucial institutions of the competition process. It is more correct to say this sense of trust by participants is a result of effective institutions. When I say the competitions must proceed without intervention, an image of Congress immediately appears. For those cynics who, in the great tradition of the Good Government movement, view Congress as craven and venal, the case study paints a more balanced picture. From the earliest aviation hearings, some members of Congress seemed poised to intervene. Neither does it seem likely the Navy aviation initiative would have gone forward without some unknown backroom dealings. This said, the 99th through the 103rd Congresses deserve at least some compliment for allowing this public policy experiment to go forward. Clearly the members were wary, but the public record shows at least a willingness to be convinced their interests would be fairly treated.

Of course, the key test is the reaction of the losers in a competition. Do they return for a second round or destructively turn on the process? Managing perceptions of fairness and allowing for appeals and remedies after a competition loss are crucial to any
future competition policy. Establishing the means for effective public-public comparability is one of proposed reform’s important prerequisites. Incomparable public-private accounting systems helped wreck the first round. Comparable public-public systems are both within the power of the Department and necessary to future competitions. The historical initiative showed that public organizations can participate in competitions. The case study shows the competitions must be selective and fitted to the overall policy circumstances and climate.

Although there is little evidence public accounting systems have much improved since the 1985-1994 competitions, a public-public competition as proposed here is likely a less challenging case than the historical initiative. If true, a public-public competition is more readily achievable. Public-public accounting in the DOD is likely to be most similar within a military department, and most dissimilar for public-private comparisons. For this reason, public-private competitions are the most challenging for maintaining the perception of fairness by both parties. There are still internal DOD comparability problems as shown by the Navy-Air Force F/A-18 competition. Accounting differences among the military departments are still notable (GAO 2003). Yet these are greatly less challenging than public-private comparison. On these points, I conclude the historical initiative remains a valid model for future reforms: public organizations respond to competition from either public or private sources and public-public accounting comparability presents significantly less difficulties than the historical case study.
7. Conclusions and Additional Research

This chapter describes conclusions established from the preceding chapters and then attempts a summary answer to the basic research question: How can the DOD utilize public-public internal competitions to reduce costs among DOD supporting organizations? More precisely, the chapter describes, by issue, various degrees of certainty established by the case study and its analysis. In some cases, this condition is sufficient to achieve the category of “fact,” while in other cases I have simply narrowed the domains of uncertainty and ignorance. Beyond the lessons regarding DOD itself, the study was required to cover new theoretical ground in assessing the Department of Defense. This chapter will begin with a summary of the theoretical synthesis used within the study and then turn to conclusions regarding the DOD’s nine-year experiment with internal competition.

A Theoretical Approach to Studying DOD Supporting Activities

The study developed a new theoretical synthesis for analyzing the supporting activities of the DOD. The Department primarily achieves its organizational purposes through its military forces. These supply a specified set of national security services to address international risks. But to support these military forces, DOD utilizes a large, businesslike supporting establishment of commercial and public organizations. The public organizations of this mixed organizational economy not only provide depot
maintenance to ships, aircraft, and vehicles; they purchase equipment, recruit and train personnel, and operate bases, schools, hospitals, laboratories, and test facilities. Title 10 U.S.C. section 162 codifies this distinction between the military forces and the DOD public organizations operating in their support.

When working capital funds finance supporting DOD public organizations, their businesslike relationship with the military forces becomes more explicit. Working capital funds effectively create commercial industrial sectors composed of public organizations. Congress provides budgets not directly to public supporting activities, as is the ordinary case, but to their customers. This nominally creates the form of a commercial relationship. DOD military forces essentially exchange these funds for products of DOD supporting organizations. In the case of the industrial sector of DOD depot maintenance, private commercial depots supplement public depots by accomplishing similar heavy maintenance activities.

In this public-private mix of DOD supporting activities, the research addressed the starkly contrasting means for ensuring the performance of each type of organization. For commercial DOD supporting activities, competition is widely viewed as the chief means for controlling costs, a common assumption for all competitive market systems. Yet in contrast with these assumptions, traditional means of hierarchy, oversight, and public budgeting routinely seek to control the costs of DOD supporting public organizations. The historical depot maintenance competition, the focus of this research, was the exception to this pattern. In assessing the future use of this competition model within DOD, the theoretical challenge of the research was to outline a common basis for
evaluating all DOD supporting activities, public or private, whether operating in
competitive environments or under the traditional control of hierarchy and oversight.

This study appears to be the first to analyze DOD supporting activities using
Michael Porter’s methodology for analyzing competitive strategies within a commercial
industry. Porter’s general approach helped organize the analysis of the historical DOD
depot competitions. It not only defined industrial sectors, but also identified various types
of environmental forces (active and potential competitors, customers, and suppliers, etc.)
as producing organizational responses to competition. A comparison between
organizational reactions identified in Porter’s model found many parallels with the
organizational behaviors identified as bureaucratic politics in the works of Halperin,
Allison, and Bendor. The myriad analyses of bureaucratic battles for organizational “turf”
contain many parallels with Porter’s analysis of commercial activities.

But since Porter’s model builds from the assumptions of a profit-maximizing
manager and firm, the analysis required changes to Porter’s general approach to account
for decision-making within public organizations. Niskanen’s revised model for a
discretion-maximizing public manager is well suited to addressing the complexity of a
large organization like DOD. My research synthesis conceptually links Cyert and
March’s concept of organizational slack with Niskanen’s model of slack-maximizing
managers operating within Porter’s industrial framework. This arrangement provides a
theoretical explanation for several issues associated with the DOD competition initiative.

For example, the GAO historically found significant excess capacity among DOD
aviation depots. The classical literature described this as a problem of organizational
integration. Organizations in classical public organization theory divide the work of the organization among specialized activities seeking to gain productivity from the division of labor. In turn, the senior organizational leadership is required to then integrate these specialized parts and control their costs relative to organizational purpose. GAO reports faithfully documented excess DOD aviation depot capacity from the 1970s to the 1990s and provided recommendations to DOD in conformance with classical organizational doctrines. However, throughout this period, DOD senior leadership seemed unable to address the issue to GAO’s satisfaction.

The conceptual synthesis developed for the research helps explain this behavior. In my construct, conventional management concepts for DOD are problematic due to its exceptional size. In addition to the synthesis of Niskanen, Porter, Cyert, and March, the work incorporates a new use of Aaron Wildavsky’s observations regarding the integration problems of large organizations. My conceptual synthesis broadens the application of Wildavsky’s seminal work from its historically narrow use with regard to budgeting. Budgets are financial representations of work planned by the organization. I apply Wildavsky’s famous observations on budgetary incrementalism not just to the financial dimension of budgeting, but to the more general problem of integrating organizational costs and work required of DOD senior leadership by classical public organization theory. Wildavsky did not extensively study the DOD, but his observations remain highly relevant to its management problems, particularly in the area of controlling its costs and improving its efficiency.
Wildavsky’s observations make clear that the classical integration of cost with the work of the organization is a difficult proposition. In the traditional analysis of this problem, the leader must possess the authority to integrate and manage the specialized elements of the organization. But my conceptual synthesis argues that excess in government and DOD is less a problem of inadequate authority than a problem of information—not because of a lack of formal management information systems, but because deference to the specialized parts of the organization allow them to define the specialized work of the organization. Excess is difficult to remove because it is difficult to define and thus identify. Senior leadership is at an information disadvantage to contest these definitions even with sufficient power and authority. Put in the form of a commercial relationship, it is work defined by the supplier instead of the consumer.

This is the general problem analyzed through Porter’s industrial analysis as combined with Niskanen’s revised model. Like monopoly suppliers, specialized internal suppliers within DOD asymmetrically define the products and therefore the costs of the work relative to organizational consumers (the military forces). Organizational integration and cost control by senior leadership and staff is difficult because of the asymmetric expertise of these specialized and consolidated functional sectors. Comparisons among individual depots are available primarily to consolidated managers who have little incentive to reduce costs. The review of functionally consolidated activities, such as military depots, by senior leadership and staff far removed from the activities and without specialized knowledge of the work, must rely on a comparison with previous years’ work to judge cost and efficiency. These comparisons are difficult to
maintain as the external environment of the organization changes over time. Under these conditions, internal slack can grow as was documented by the GAO within the DOD depot maintenance sectors between 1970 and 1990.

This theoretical construct offers an explanation how competition might work and, like Niskanen, utilizes the concept of slack to explain what resources competition might actually reduce. Similar to the concepts outlined by Hayek, competition in this formulation becomes a procedure for discovery: a means for building knowledge and generating innovation. For example, competition redirects specialized knowledge towards rethinking work processes and definitions relative to the needs of the military forces. This general theoretical approach provides an alternative for analyzing the internal management of DOD. It also provides a theoretical basis for exploring selective introduction of competition within DOD. Despite the theoretical explanations, the important question remains, “Did competition work?”

**Competition Did Seem to Reduce Navy Depot Maintenance Costs**

In Chapter 5, I examined the most compelling evidence from the competitions: the side-by-side comparisons of the F-14 overhauls during the years 1990-91. There the GAO explicitly compared work done at the same depot, for aircraft of the same age, and found that competition aircraft overhauls cost approximately 15 to 20 percent less. The competitions for the F/A-18 between the Navy and Air Force depots, although less rigorously measured, showed improvements of similar magnitudes. These results, confirmed by detailed data provided by students of the Naval Postgraduate School, support the conclusion that the competitions did indeed reduce depot overhaul costs.
However, in examining the F-14 comparisons, I noted the paradox of ascribing its documented savings to a competition that occurred over two years prior. The savings process of 1990-91 documented in the GAO side-by-side comparisons looks very much like conventional cost controls administered by a motivated work supervisor. In this case, the contract administrator “protected” cost targets negotiated two years prior from the depot mechanic’s nomination of “over and above” work. Having noted the paradox (competition results sustained by conventional techniques), further analysis on this point provides insights towards describing the process of cost savings and better explaining the success of competition.

First, the issue of depot “over and above” work is an ideal illustration of the concept of slack used in the research. The concept of slack becomes concrete and real through the simple exercise of nominating extra work. There is no obvious perfidy. No extravagantly furnished employee break rooms. No spare parts purloined out the door for resale. It is simply the nomination of more work by a specialist. In making a claim for additional work, the mechanic raises an implicit risk: “If left undone, something might happen.” A natural reaction in both cases, particularly if the costs involved are not our own, is to consent to the additional work. Now if something happens, we are blameless. We listened and heeded the expert. It is a wholly natural reaction within government.

As an example, a customer confronts a similar ambiguity and information asymmetry with his or her automobile mechanic. We often deliver the car for a specified set of automotive work but then must confront the mechanic’s recommendation for extra work. The recommendation’s basis is ambiguous. It may be entirely self-serving on the
part of the mechanic or a disinterested recommendation and, therefore, useful to the consumer. It is also a situation of information asymmetry. We usually lack the specialized knowledge to check the mechanic’s recommendations. Even if we did, we may lack the time to review the internal automotive evidence that is the nominal basis of the mechanic’s claims. In the absence of time and additional information, on what basis are we to judge these recommendations for work? A normal reaction is to seek other opinions. Yet this is exactly what is lost by the traditional process of functional consolidation. We have no good alternative but to accept the claims of the specialist under these circumstances.

With this in mind, would the F-14 contract officials have been as zealous without the cost target negotiated during the bidding process? Possibly. Could senior commanders simply have generated a cost target as a substitute for competition? Perhaps. But note that the depot internally negotiated the cost target when it made its bid. The bid preparation process appears to provide useful internal legitimacy in contrast to an externally imposed and externally administered number. It is a commitment accepted rather than imposed.

With this internal commitment to a cost target, the entire process becomes more businesslike. The individual depot, like a for-profit firm, more readily accepts the requirement to control internal costs to sustain its bid. Without a negotiated cost standard, the manager must otherwise say no to the proposed “over and above” work proposed by subordinates and potentially appear arbitrary and capricious. Further, without the cost targets they too must bear the risk of “something might happen” if they say no to the additional work. The problem of contract administration aside, this example begins to
address why competition works, and why it might be superior to ordinary forms of cost control.

Competition directly engages the information asymmetry of the specialist. Rather than simply nominating more work on the basis of risks or contingencies (“something might happen”), a bidding process that engages these experts forces them to confront the risks in a more orderly and nuanced process. The preparation for competition forces the categorization and ranking of risks and helps prevent the unthinking accumulation of risk reduction measures that also accumulate costs. When the expert can creatively examine their personal or collective calculus of risk, it can create new processes. This is a fundamentally different dynamic and procedure from traditional means of cost control. Expertise is engaged to redesign work processes by becoming aware of another rival bidding team undertaking the same risk and cost calculus.

Did the competition initiative have this effect? The initial data, particularly for the F-14, shows such an effect. But the effect seemed to erode over time. This erosion may well illustrate the problem of slack growth. How many other commercial contracts, competitively awarded within the DOD, start with very low numbers, and then begin to accrue costs? These are often “cost plus” contracts where the bidder, in perhaps the same process of depot “over and above work,” inherently possesses incentives for greater costs.

But if this is true, why did the 1993 F/A-18 savings seems to persist long after the competitions had ended? This is perplexing. There were previously documented problems at the North Island depot that the competition may have solved, yet this turnaround is so long-lived (it extended at least to 1998), it seems very difficult to
attribute it to the competitions. To do so requires postulating some significant cultural adjustments either resulting from the competitions or some other source. Perhaps the competition generated these possible cultural changes due to the loss to the Air Force. After all, Forsyth (1997) was still reporting several years later the F/A-18 contract loss “is still fresh on the minds...” of North Island depot personnel. Perhaps the extensive round of base closures occurring around this time generated the postulated cultural change.

The Navy depot closure decisions in 1993 are impressively decisive. In fact, throughout the case study, Navy management seems to keep its depots at arm’s length. Within the Air Force, the depot major commander remarked that base closures were like forcing him to “choose between my children” (Sullivan 1993). I see no similar sentimentality among the Navy leadership. Did Navy leadership deliver a strong message to North Island with its dispatch of 36 aircraft to the Air Force for servicing? Did the decisive, large-scale, some might say even brutal round of Navy base closures in 1993 banish a sense of entitlement from depot workers and management? These are all intriguing premises, but the evidence is certainly not definitive. Another possible alternative is simply the successful improvement of the F/A-18 design regarding its reliability and maintainability. All these possibilities require additional research.

**Did the Air Force Stage Authentic Competitions?**

The discussion of the F/A-18 aircraft raises issues as to the authenticity of the Air Force internal competitions. In evaluating the evidence, it is a mixed case. The Air Force expended enormous internal effort to create the nominal institutions of its competitions.
The Air Force internal document index printed in the appendix testifies to an impressive effort in attempting to administer the competitions. But while Navy evidence answers positively the question of authentic competition, with respect to the Air Force, its efforts ultimately fall far short of similar evidentiary thresholds. This is primarily due to the structure of its competitions.

A crucial difference between the Navy and the Air Force was the organizational assignment of competition evaluation and award. The Navy administered its contract evaluations away from local depots in the headquarters of its respective major depot commands: the Naval Air Systems and Naval Sea Systems Commands. In contrast, the Air Force administered its competitions through local depot commanders. Local depots and their leadership essentially both competed for contracts and selected the winners. Local commanders would have deprived their own installation of work if they chose to award the contracts to private industry. Industry complained bitterly about these procedures while the Air Force argued it had instituted an internal “wall” to insulate local depot leadership from the competitions. But I conclude the Air Force approach fatally compromised the essential division of incentives characteristics of markets and undercut the crucial element of rivalry (and possible loss) that is the hallmark of true competition.

These findings might raise questions regarding the feasibility of public-public competitions. The competition between the Navy and Air Force for the F/A-18 contract has been labeled here as a “high point” in the initiative. But this was a Navy-administered competition with Air Force participation, not an Air Force-administered competition. Air Force allegations of bad faith on the part of the Navy (GAO 1995) in ending this contract
have merit. Yet in the initial award, there is little reason to doubt that the winning Air Force depot participated in an authentic competition. Here is at least one instance where the bid evaluation for an Air Force depot would have been authentically businesslike. Here, as with all the Navy aviation and shipyard competitions, a public organization was required to compete for work in the most businesslike of fashions. This is what appeared to be genuine about the Navy competitions and what appears fundamentally flawed about the overall Air Force effort. Despite the vigor and overall effort clearly visible in creating the Air Force competitions, its structure contained fatal flaws. Future studies of the initiative should confine themselves to the Navy except for comparative purposes and study the Air Force initiative only for its structural inadequacies.

**Evidence of a Distinct Historical Era within Navy**

Although I concluded competition did work in reducing costs, the broader evidence from the case study permits a more nuanced conclusion. This entire era within Navy depot management appears unusual and distinct. The creation of the competition initiative to some degree is a symptom, not necessarily a cause, of this impression. There is evidence from Secretary Lehman’s memoirs (1988) and from older testimony by Everett Pyatt (Navy Assistant Secretary for Shipbuilding and Logistics), that each found a unique value specifically in competition and in the market system in general. There is evidence from both Lehman (1988) and Zumwalt (1976) that Navy perceived itself with a significant internally organizational issue due to classical management principles practiced by Admiral Hyman Rickover. Lehman talks of Rickover’s stultifying influence
over the Navy. He seemed to grasp competition as a managerial antidote to Rickover’s practices.

Pyatt, too, at an earlier moment in 1978, expressed faith in the processes of competition and the market to enhance performance. In September 1979 House hearings on general U.S. Maritime Policy and shipbuilding productivity, he stated:

I said it’s the matter of the tools you use to encourage productivity. I think the experience that I have had and that they have had in the Navy, in general, is that the competitive environment for buying ships is far more useful and stronger a tool than would be some system of the Navy or the Government going and telling a shipyard manager how to manage his plant. That is what I got out of reading the draft legislation. (House 1979, 369) [emphasis added]

For the Navy, an effective shipbuilding industry is a strategic imperative. As discussed earlier, the U.S. shipbuilding industry was no longer a competitive private industry. New contracts from the U.S. Navy essentially support the U.S. shipbuilding industry. Rickover had become astute in playing off submarine and ship builders against each other to extract concessions, but he appears to have also created an extremely sour relationship with industry at this time. This relationship appeared to improve dramatically under Lehman and Pyatt. Certainly, Lehman’s commitment to an expanded shipbuilding program would have been popular, but the shipbuilding industry apparently viewed the competition process more favorably than they did Rickover’s manipulation.

The point here is that Navy senior management in this period institutionally understood competition as a management tool for its captive shipbuilding industry. It appears they extended these concepts to the repair shipyards and aviation depots over the course of the 1980s and generated a unique era of declining costs when compared with
the Air Force. There is additional work necessary to control for various factors and firm up these impressions, but it constitutes an interesting area of further research.

**Era’s Managerial Achievements Used Conventional Techniques**

Despite a tentative conclusion for a unique era of Navy management, which included competition, I must conclude that conventional management means achieved most of its impressive results. Lehman is no angel, but his energy in confronting Navy internal management problems of this era, such as perceived problems within shipyards and aviation depots, is remarkable. One serving Air Force officer during this period remarked longingly, “Why can’t we have a secretary like that?” Pyatt derived his power in overseeing the competition initiative from Lehman’s evident support. These achievements appear largely based on conventional management principles, albeit with the inclusion of internal competition, and therefore seem to belie the concern expressed in Chapter 1 that managing the DOD is an impossible job. Of course, the Navy is only a piece of the DOD, yet this period in the Navy may yield important conclusions for the public management of DOD with further study.

**Answering the Research Question**

How can DOD effectively use competition among its supporting organizations? At a minimum, it appears to be a uniquely effective supplement to otherwise conventional management techniques. Competition appears to generate unique incentives among DOD intermediate organizations. If slack based on risk averseness is an accurate characterization of the managerial cost behavior for DOD supporting organizations, then the introduction of competition crucially alters these ongoing behaviors. Public work of
any kind beyond its most elementary level consists of tasks that are almost certainly capable of accomplishment in a number of ways. Any one of these alternatives constitutes a work definition. Supplier expertise under competitive conditions forces bureaucratic suppliers to evaluate their work definitions relative to costs in new ways. If work such as complex depot maintenance overhauls consists of tasks accomplished by any number of multiple combinations, competition forces the expertise to reexamine these combinations in light of their costs.

Under Niskanen’s revised model, slack builds on top of a theoretical and otherwise undetermined, lowest cost. Niskanen here, like many public management observers, uses commercial markets to establish this theoretical minimum in building his theory. But many internal activities within the DOD have no commercial analogy. Without comparison to a standard (like a commercial cost), slack is impossible to identify or measure. Perhaps a set of DOD supporting work actually achieves a minimum cost. Perhaps it does not. Either result is undetectable without some basis of comparison, both to the individual manager or to their supervisors. Until challenged to rethink these work definitions in light of a competitive environment or other circumstances, the new combinations that could reduce slack may not appear. Competition can unleash a creative process of discovery not otherwise motivated except by the pressure of loss. This is the process of search and a rethinking of old assumptions summarized as “innovation.”

The classical texts of organization theory, such as Simon and March (1958) and Cyert and March (1963), discuss the process of search in terms of costs. Why would individuals, work teams, and supervisors undertake the cost in time and effort related to
search? Unlike Schick’s “budgetary man” constantly searching for cost savings, a human model more in line with Simon and Niskanen finds this process of search tiring and difficult and accepts or perhaps even defends previous work norms. Consistent with the human models assumed for this study and for its model of competition, these groups and individuals are not likely to take on these search costs except when incentives exist for their acceptance. When the search begins, the previous norm then becomes a basis of comparison in the search for new combinations. Just as in the F/A-18 and F-14 competitions, where the new work definitions provided a basis for lower cost bids, competition challenges the status quo and calls its ordinarily privileged position into question.

One additional important point regarding search is that the supplier may have already identified superior techniques, even without competition, and may be reserving these innovations for themselves. Auto maintenance—a line of work similar to depot maintenance—illustrates the issue. Auto repair prices are built around a standard time for a defined set of work. Mechanics identifying a water pump replacement for a given automobile model can bill a standard time—perhaps one hour, perhaps more—based on the difficulty of removing and replacing the part (Gittelman 2006). These standard times are often prepared by the auto manufacturer, and, for a given task like a water pump, the one- to two-hour standard task serves as the overall basis for the customer charge. The labor rate of the auto mechanic plus the entire set of overhead costs for the repair shop can then be associated with the standard billing hours of the task. This becomes the basis of price charged to the customer.
The individual mechanic, based on his skills and the circumstances of the repair, may accomplish the task in less time than the standard rate. We would expect an experienced mechanic routinely to accomplish the task in less time than an inexperienced mechanic. If the experienced mechanic can complete the work in less than standard time, but be paid for standard time, his productivity enhances his own pay and the overall revenue of the repair shop. This is an example of an innovation reserved for the individual worker or shop.

Pricing DOD depot maintenance, or the entire set of supporting activities for the military forces, is enormously less certain than auto repair. The frequency and standardization that become the basis of labor rates for given auto tasks are only present to a partial degree within aviation or shipyard depot maintenance. The complexity, and hence the uncertainty of the military work is greater, which can lead to undocumented norms and standards. This informal equilibrium will go unchallenged until competition creates the incentives for a reconsideration of these norms. A rearrangement of tasks from this formal or informal equilibrium, rearranged for the purpose of lower costs, either uses innovations already discovered but reserved to the individual worker or work team, or generates new innovative processes in the attempt to win the competition.

An angelic model of humanity might expect these innovations routinely shared with management. But these innovations discovered by the worker are not a shirking of duty except under a different human model than that described by Simon and Niskanen. They are natural elements of the model used here. To expect individuals to reveal voluntarily these innovations is to subscribe to a different, perhaps elevated, model of
humanity. Appropriate incentives more reasonably elicit discovered innovations. One of these incentives is the risk of loss inherent in competition and rivalry.

Although a depot competition can become an opportunity for process innovation or discovery, the stakes will inevitably generate rival relationship with one’s opponent in the competition. I accept the notion that under some circumstances these rival behaviors operating specifically within a team relationship are counterproductive. The competition must anticipate these changed relationships and possibly forego the loss of useful team behaviors where they actually exist. But this is often overstated. President Eisenhower’s exhortation to his quarreling military department in the 1950s to “act as a team” reveals both Eisenhower’s human models and an implicit claim for necessary team relations where they perhaps could not or should not exist.

Claims for the loss of team behaviors must be carefully assessed. A short review of this assessment process is justified because of the importance of the issue to the implementation of competition. Within the DOD, I suspect the claims for necessary team behavior are overstated except at the very lowest of organizational levels. Within a military department, team behavior is more possible since individuals there much more closely identify themselves with the larger organization. As Herbert Simon noted, these local organizational identifications are the basis of much individual productivity. Yet even here, at the level of the military department, this notion of teamwork can be overemphasized. To accept Simon’s conclusion and actually put it into practice, we are required to define “local organizational identification.” I believe this is actually at a much lower level than a military department. Even an assumption that depots or shipyards with
a military department are working as a team ignores the isolated nature of their work. An airframe or a ship cannot be in two depots at the same time. Perhaps it is possible to divide the work and send aircraft landing gear to one location while the related aircraft hydraulic system goes to another for repair. But when the whole system is reassembled this is not so much an example of teamwork as it is a successful example of managerial integration. The claims for teamwork at separate locations should be reviewed skeptically before allowing this assertion to undermine the implementation of competition.

When should competition not be attempted? Under the conditions where management has eliminated all slack and there is no unnecessary overlap and duplication, competition will be counterproductive. But if management falls short of these objectives, where some degree of organizational overlap and duplication exists, the opportunity for competition also exists. Certainly, these conditions were true within the Navy in the 1980s. For whatever reason, overlap and duplication existed within the depot system, and a set of management initiatives that included internal competition appears to have done remarkably well in reducing this slack.

The decision to proceed with competition should not be casually decided or without preparation. Earlier in the research, I touched on the design of the competition and the construction of its incentives. One example of a poorly designed competition is the existence of collusion between bidders. Recognition for a pathology like this follows more easily from the human models adopted here, but is less easily articulated using other models. Theorists such as Jean Tirole (1986) have explored the organizational reality of this topic. Competition designs must be constructed carefully. But if the
following conditions can be met—the existence of slack, the practical absence of necessary teamwork, similar sets of expertise in multiple organizations, and the construction of appropriate incentives—I can conclude, “Yes,” to the use of internal competition within DOD to reduce costs.

**Additional Research**

In Chapter 1 in describing the study’s focus on cost, I noted the deferral of broader and indeed more vital questions for future research. This part of the study seems to be the appropriate point to make these concepts more clear. Niskanen’s original analyses were rooted in the peculiar problems of bureaucracy he observed within the DOD during the 1960s. I observed the DOD, particularly its headquarters activities, during the 1980s and 1990s. I was not aware of the Navy competition initiative until many years after its ending. However, during the 1990s, I became intrigued with the use of working capital funds and their attempts to create market-like incentives among customers and suppliers. At the same time the larger historical problems associated with the end of the Cold War highlighted the internal processes by which the DOD assessed international risk and internally allocated its funding.

The attacks of September 11, 2001 highlighted the relative separation of these two processes not only within the DOD, but also within the overall U.S. government. The National Security Act of 1947 set its goal as “a comprehensive program for the future security of the United States.” Not only does the current program seem costly, but the attacks raise important questions relative to its effectiveness. The necessary internal adjustments required to neutralize international risk over time appear both sluggish and
halting. These adjustments, which must necessarily manifest themselves in the military forces of the department, seem dominated by issues of greater importance to DOD supporting activities than the relative demands of neutralizing international risk to the United States and its citizens. This suggests a necessary new structure and process for providing greater balance between internal military consumers (the forces) and military suppliers (the supporting activities).

It seems intriguing that the use of competition might shift many DOD major commands from advocacy for their assigned supporting activities towards a more balanced role. By administering an effective competition program on behalf of the military forces, these major commands begin to take on the integration problems that otherwise must be addressed by senior-level organizational activities with purview over both customers and suppliers. Instead of acting as the advocate for a functionally consolidated major command (such as a depot command), the commands in essence help to link suppliers and customers in a more balanced way through their administration of the competition process.

As a research agenda, this structural reorientation of supporting activities and process towards the military forces offers a potentially new orientation for DOD reform research. It essentially draws its insights explicitly from markets and attempts to harness their attractive structural features to the management of large, complex organizations like DOD. Further, research of this type suggests effective internal resource allocation comes not from the top of organizational hierarchy, but from tracing a chain of value back from the military forces themselves. Just as markets in their idealized state ultimately reflect
the demands of consumers, a reoriented DOD based on market-like reforms might reflect a varied set of intermediate activities mediating between military consumers and suppliers.

There have been occasional suggestions to provide all DOD budget authority to the Combatant Commanders—the ultimate operational authority over DOD forces—to bring on the types of changes suggested here. One of the first was by the economist Abba Lerner during World War II. Although some may argue this is a logical result of the research suggested here, I believe many necessary internal institutions require development before this suggestion would ever be effective or practical. Just as markets are complex and varied to meet consumer demands, the institutionalized structure necessary to provide better balance between DOD suppliers and customers is likely to be similarly complex. If these conditions were ever to come about, the role of the Secretary of Defense becomes more a regulator of the resource allocation process and less a wise man in need of some degree of divine omniscience. Investigating the introduction of competition among suppliers in order to improve costs for DOD internal consumers is potentially just a first research step towards a more effective and efficient national security for the United States.
APPENDICES

The following documents provide a portion of the documentary evidence behind the Navy and Air Force competition initiative. Appendix A reproduces the 1990 Deputy Secretary of Defense memorandum extending the depot competitions across the DOD. Among its other objectives, Mr. Atwood’s decision called for $2.2 billion in long-term depot savings. Appendix B is a 1994 listing of Air Force Material Command policy documents related to the depot maintenance competitions. This list illustrates the administrative efforts undertaken by the Air Force to engage in the DoD-wide depot maintenance competition.
MEMORANDUM FOR SECRETARIES OF THE MILITARY DEPARTMENTS
CHAIRMAN OF THE JOINT CHIEFS OF STAFF
UNDER SECRETARIES OF DEFENSE
ASSISTANT SECRETARY OF DEFENSE
FOR PRODUCTION AND LOGISTICS
COMPTROLLER OF THE DEPARTMENT OF DEFENSE
DIRECTOR OF ADMINISTRATION AND MANAGEMENT

SUBJECT: Strengthening Depot Maintenance Activities

The maintenance depots of the Department of Defense are among the most crucial of the Department’s operations. The armed forces rely upon the maintenance depots to ensure that weapons systems and other items are ready, safe, and effective for combat operations. As taxpayer resources devoted to the national defense become more scarce, it will be particularly important to emphasize effective maintenance of the physical assets the Department possesses to carry out its mission.

After reviewing the results of the study led by the Assistant Secretary of Defense for Production and Logistics of the Department’s depot maintenance activities, I have concluded that substantial opportunities exist to increase the efficiency and reduce the cost of the Department’s depot maintenance operations, while ensuring that they continue to conduct effectively their crucial maintenance mission. Accordingly, this is to direct as follows:

1. Execution of Near-Term Plans for Increased Efficiencies. The Secretaries of the Military Departments shall prepare and submit within 30 days of the date of this memorandum plans to reduce the cost for the period from fiscal year 1991 through fiscal year 1995 of the depot maintenance operations of their departments by $1.7 billion through internal streamlining and reducing the size of their maintenance depot infrastructure. These plans shall be submitted for approval to the Assistant Secretary of Defense for Production and Logistics. The plans and their implementation shall be in compliance with applicable law, including laws relating to base closures and realignments. To the extent permitted by law, the plans shall include, but not be limited to, the following:

a. Army Depots. The Secretary of the Army shall: (1) move automotive depot maintenance workloads from the Letterkenny Army Depot to the Tooele Army Depot; and (2) study redistribution of the depot maintenance workload of the Sacramento Army Depot to the Tobyhanna Army Depot or the Sacramento Air Logistics Center, or both.

b. Naval Depots. The Secretary of the Navy shall ensure that: (1) the naval aviation depot maintenance structure is streamlined so as to establish one aviation depot maintenance hub on the east coast of the United States and one on the west coast; (2) all non-hub naval aviation depot maintenance facilities are reduced in size and perform technology specific maintenance, or are closed, as appropriate; (3) the workload of
all naval aviation depot maintenance of a particular type of aircraft is performed at a single site, to reduce the number of product lines at a given depot; (4) engine depot maintenance is performed at not more than three depots; and (5) other maintenance workloads of the Department of the Navy are consolidated at appropriate

The Secretary of the Navy shall improve direct labor productivity, management of human resources, and efficiency in ship overhaul schedules at Naval Shipyards.

The Secretary of the Navy shall cancel planned equipment purchases for depot maintenance of the M-1 tank at the depot maintenance activity in Barstow, California.

c. Air Force Depots: The Secretary of the Air Force shall: (1) reduce manpower and costs within the depot maintenance functions of the Air Force through streamlining of management processes and production processes; divestiture of unneeded resources; and institution of the practice of performing the work load of all aviation depot maintenance of a particular type of end item or component at a single site; to reduce the number of product lines at a given depot; and (2) review the feasibility of reducing the size of, or totally withdrawing Air Force activity from, one of its five major depot maintenance activities by shifting part or all of its workload to other Air Force maintenance depots, and report the results of this review to the Assistant Secretary of Defense for Production and Logistics by September 1, 1990.

2. Preparation of Long-Range Plans for Increased Efficiencies. The Secretaries of the Military Departments jointly shall prepare and submit to the Assistant Secretary of Defense for Production and Logistics for approval a coordinated long-range plan for reducing the cost of the depot maintenance operations of the Military Departments by $2.2 billion, while maintaining the depot maintenance infrastructure necessary to meet valid peacetime and contingency needs. This plan shall, to the extent permitted by law, provide that:

a. Intergovernmental Competition for Maintenance Workloads: Depot maintenance workloads of the Military Departments shall be performed in the Department of Defense at the depots at which they can be accomplished at the least overall cost, on schedule, and with the needed quality, without regard to whether the depot providing the maintenance service is part of the Military Department that is receiving the service. The objective is to increase to at least 90% over the next five years the amount of depot maintenance work of one Military Department that is performed by a depot of another Military Department, in the interests of efficiency.

b. Public Sector/Private Sector Competition for Maintenance Workloads: Depot maintenance workloads of the Military departments shall be performed at the location at which they can be accomplished at the least overall cost, on schedule, and with the needed quality, without regard to whether the provider of the maintenance service is an organization within the Department of Defense. The objective is to increase significantly the amount of depot maintenance work that is
awarded competitively by the Military Departments, in the interests of efficiency.

3. Improvement of Maintenance Information Management. The Secretaries of the Military Departments shall prepare and submit to the Assistant Secretary of Defense for Production and Logistics by October 1, 1991 a plan for financial management, inventory control, and other information needs for depot maintenance activities that maximizes the exchange of information among depots within the Department of Defense, without regard to the Military Department of which they are a part, and that minimizes the number of unique information systems needed.

The Assistant Secretary of Defense for Production and Logistics, in coordination with the Comptroller of the Department of Defense, shall ensure that the cost reductions required by this memorandum are reflected appropriately in the Department's planning, programming, and budgeting system. The baseline for measuring cost reductions shall be the fiscal year 1991 through 1995 five year defense plan associated with the Administration's fiscal year 1991 amended budget submitted to the Congress in January 1990.

There is hereby established a Defense Depot Maintenance Council solely to advise the Assistant Secretary of Defense for Production and Logistics on depot maintenance within the Department of Defense, including plans required by this memorandum. The Council shall consist of the Assistant Secretary of Defense for Production and Logistics or his designee, the Deputy Assistant Secretary of Defense for Logistics, the Director of the Defense Logistics Agency, the Commandant of the Army Materiel Command, the Commander of the Naval Air Systems Command, the Deputy Chief of Staff for Installations and Logistics, Headquarters, U.S. Marine Corps, and the Commandant of the Air Force Logistics Command. The Assistant Secretary of Defense for Production and Logistics or his designee shall chair the meetings of the Council. The Assistant Secretary of Defense for Production and Logistics, in coordination with the Director of Administration and Management and other appropriate officials, shall prepare and submit to me by August 2, 1990 a charter directive for the Defense Depot Maintenance Council that is consistent with this memorandum.

The Assistant Secretary of Defense for Production and Logistics is hereby delegated the authority to ensure the implementation of this memorandum. In this regard, he shall issue such instructions as may be necessary, shall review implementation of it within the Department of Defense on a continuing basis, and shall report to me periodically through the Under Secretary of Defense for Acquisition on progress made in implementing it.
Any decisions to close or realign installations shall be made in accordance with applicable law, including section 2687 of Title 10 of the United States Code.
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<td>Alternate Source Selection Authority Delegation</td>
<td>PKP</td>
<td>AF &amp; AFMC FAR Supplement Appendix BB (AFMCAC 93-001)</td>
<td>Selection of SSA for DMC program</td>
<td></td>
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<tr>
<td>93-27</td>
<td>Post Award Administration</td>
<td>PKM</td>
<td>Being Developed</td>
<td>Responsibility for Post Award Administration</td>
<td>AFMC FAR Supplement</td>
</tr>
<tr>
<td>93-28</td>
<td>Performance Assessment</td>
<td>PKM</td>
<td>30 Nov 93 Ballot Approved</td>
<td>Program requirements established by the System Program Manager (SPM)</td>
<td>APMCR R00-54 (APPENDIX)</td>
</tr>
<tr>
<td>93-29</td>
<td>DMC Cost Reporting</td>
<td>FMMC</td>
<td>Being Balloted</td>
<td>Contract costs which will be tracked by the PAG staff</td>
<td>CCH Guide</td>
</tr>
<tr>
<td>Policy #</td>
<td>Subject</td>
<td>OPR</td>
<td>Location</td>
<td>Synopsis</td>
<td>Remarks</td>
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<td>93-30</td>
<td>Use of Direct Labor Actual Hours (DPAH) to Allocate General and Administrative (G&amp;A) Expenses</td>
<td>FMMC</td>
<td>16 Apr 93 AFM0/FMM Ltr</td>
<td>Provides guidance to use DPAHs versus costs to allocate G&amp;A expenses down to job order level</td>
<td>DFAS Regulation</td>
</tr>
<tr>
<td>93-31</td>
<td>Interim Public-Private Competition Policy</td>
<td>PKP</td>
<td>AFMCFARS 5317.95 AFM CAC 93-002</td>
<td>Provides preaward contracting guidance for public-private competitions, and DFARS clauses and provisions that have been determined inapplicable to public activities.</td>
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<tr>
<td>93-32</td>
<td>Allocation of Bid and Proposal Costs</td>
<td>FMMC</td>
<td>23 Apr 93 AFM0/FMM Ltr</td>
<td>How to allocate costs in the bid proposal</td>
<td>CCH Guide</td>
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<tr>
<td>93-33</td>
<td>Fixed Asset Policy Issues</td>
<td>FMMC</td>
<td>17 Jul 93 AFM0/FMM Ltr</td>
<td>Policy and procedures for accounting for excess equipment, transfer of equipment and correcting acquisition values exceeding $1M</td>
<td>DFAS Regulation</td>
</tr>
<tr>
<td>93-34</td>
<td>Procedures for HQ Support Costs</td>
<td>FMMC</td>
<td>21 Jul 93 AFM0/FMM Ltr</td>
<td>Defines cost accounts to record HQ support costs in the DMIF General Ledger and establishes the budgeted amount for each Center</td>
<td>DFAS Regulation</td>
</tr>
<tr>
<td>Policy #</td>
<td>Subject</td>
<td>OPR</td>
<td>Location</td>
<td>Synopsis</td>
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<td>93-35</td>
<td>Competition Savings</td>
<td>LGPW</td>
<td>9 Dec 93</td>
<td>Procedures for compiling different savings from competition</td>
<td></td>
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<td>AFMC/LGP Ltr</td>
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<td>93-36</td>
<td>DCAA Guidance on Auditing Government Operated Depots</td>
<td>FMMC</td>
<td>21 Jul 93</td>
<td>Information on how the DCAA regional offices will be handling government operated depots</td>
<td>To be determined</td>
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<td>AFMC/FMM Ltr</td>
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<td>93-37</td>
<td>Competition Strategy Steering Group</td>
<td>LGPW</td>
<td>23 Nov 93</td>
<td>Explain the functions and responsibilities of the CSSG</td>
<td>AFMC 66-48</td>
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<td>Charter</td>
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<td>93-38</td>
<td>JPSG-DM Procedures for Public/ Private or Public/Public Competition of Depot Maintenance</td>
<td>LGPW</td>
<td>21 May 93</td>
<td>Provide guidance for conducting fair public/private and public/public competition for depot maintenance workds</td>
<td>AFMC 800-30</td>
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<td></td>
<td>AFMC/LGP Ltr</td>
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<tr>
<td>93-39</td>
<td>Delegations of Source Selection Authority for DMC Contracting Actions</td>
<td>LGPW</td>
<td>30 Apr 93</td>
<td>Replaces Para 1.5 of AFR 70-15 AFFARS Appendix AA</td>
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<td>IMC AFR 70-15</td>
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<tr>
<td>93-40</td>
<td>Consolidation of Requirements Under DMC</td>
<td>PK</td>
<td>4 May 93</td>
<td>GAO Decisions on Bundling</td>
<td></td>
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<td>HQ AFMC/PK Ltr</td>
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<tr>
<td>94-01</td>
<td>See Policy # 93-39</td>
<td>PKP</td>
<td></td>
<td>Update to Source Selection Authority</td>
<td></td>
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<tr>
<td>Policy</td>
<td>Subject</td>
<td>OPR</td>
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<td>94-02</td>
<td>Corporate Seller Support Team (CSST)</td>
<td>LGPW</td>
<td>9 Dec 93, HQ AFMC/LG Ltr</td>
<td>The CSST concept is to make functional and technical expertise from throughout AFMC available to the seller</td>
<td></td>
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<tr>
<td>94-03</td>
<td>Contractor Acquired Property (CAP)</td>
<td>LGPP</td>
<td>Being Developed</td>
<td>Replaces GFM, 93-15. CAP is used by the performing activity when materials are not available through the supply system as Government Furnished Material (GFM)</td>
<td></td>
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<tr>
<td>94-04</td>
<td>Accounting for Government Furnished Equipment (GFE)</td>
<td>LGPE</td>
<td>Being Developed</td>
<td>Replaces GFE, 93-15. Address concerns about accounting for GFE, who owns it, and who should pay for it</td>
<td></td>
</tr>
</tbody>
</table>
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CURRICULUM VITAE

Dan Cuda served in the United States Air Force from 1976 to 1998. He is a veteran of the first Gulf War (1990-1991). His military assignments included nearly a decade at the Pentagon in analytical and PPBS positions within the Air Staff and the Office of the Secretary of Defense. He began his national security studies with his father, who worked in the defense industry, and continued them at the Air Force Academy (B.S., 1976), the Air Force Institute of Technology (M.S. Operations Research, 1985), Georgetown University (M.A., National Security Studies, 1989), and throughout his military service. He is currently a member of the Research Staff at the Institute for Defense Analyses within the Cost Analysis and Research Division.