# An Empirical Investigation of Critical Factors Affecting the Ability of Public Entities to Compete in Public Private Competitions 

Timothy J. Gilbride

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AN EMPIRICAL INVESTIGATION OF CRITICAL FACTORS AFFECTING THE ABILITY OF PUBLIC ENTITIES TO COMPETE IN PUBLIC PRIVATE COMPETITIONS

THESIS
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# AN EMPIRICAL INVESTIGATION OF CRITICAL FACTORS AFFECTING THE ABILITY OF PUBLIC ENTITIES TO COMPETE IN PUBLIC PRIVATE COMPETITIONS 

## THESIS

Presented to the Faculty<br>Department of Systems and Engineering Management Graduate School of Engineering and Management<br>Air Force Institute of Technology<br>Air University<br>Air Education and Training Command<br>In Partial Fulfillment of the Requirements for the<br>Degree of Master of Science in Systems Management

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Timothy J. Gilbride

## Table of Contents

Page
Acknowledgments ..... iv
Table of Contents ..... v
List of Figures ..... viii
List of Tables ..... ix
Abstract ..... x
I. Introduction ..... 1
Background ..... 1
Public Private Competitions ..... 4
Research Question ..... 5
Potential Benefits ..... 6
Thesis Overview. ..... 6
II. Literature Review ..... 7
Background on Public Private Competitions ..... 7
Politics Factor. ..... 18
Cost Factor ..... 25
Organic Factor ..... 39
III. Methodology ..... 53
Introduction ..... 53
Delphi Technique ..... 53
The Expert Group ..... 59
Development of the Delphi Survey Instrument ..... 62
Testing of the Survey Instrument ..... 66
Distribution of the Survey Instrument ..... 66
Data Processing ..... 67
Public Private Competition Assessment Tool (PCAT) ..... 67
Development of the PCAT ..... 69
Testing of the PCAT ..... 76
Beta Use of the PCAT ..... 76

## Page

IV. Data Descriptions and Analysis ..... 78
Introduction ..... 78
Round One of the Delphi Process ..... 78
Results of Survey One ..... 79
Formulation of Survey Two ..... 79
Round Two of the Delphi Process ..... 87
Results of Round Two ..... 87
Preparation of Survey Three ..... 90
Round Three of the Delphi Process ..... 93
Results ..... 93
Analysis and Findings of the Delphi Technique ..... 93
Verification of the Research Model ..... 97
Content Development of the Public-Private Competitive Assessment Tool ..... 98
The POLITICS Content of the PCAT ..... 99
The COST Content of the PCAT ..... 101
The ORGANIC Content of the PCAT ..... 102
Results of the PCAT Beta Use ..... 105
The High Level Baseline Review of AR\&SC ..... 107
Final Thoughts on the Strategic Baseline Results ..... 114
V. Summary Discussion ..... 115
Introduction ..... 115
Background ..... 115
Research Question ..... 116
Summary of the Overall Study ..... 116
Discussion of the Delphi Technique ..... 117
Discussion of the PCAT ..... 118
Limitations of this Thesis Effort ..... 119
Discussion of Alternative Uses for Research ..... 120
Follow-on Research ..... 121
Conclusion ..... 121
Bibliography ..... 122
Appendix A: Survey One and Cover Letter ..... 126
Appendix B: Survey Two and Cover Letter ..... 143
Appendix C: Survey Three and Cover Letter ..... 161
Appendix D: PCAT Instrument ..... 179
Page
Appendix E: PCAT Flow Chart ..... 196
Appendix F: Raw Data Survey One ..... 198
Appendix G: Raw Data Survey Two ..... 202
Appendix H: Raw Data Survey Three. ..... 206
Appendix I: Threshold Evaluation Data. ..... 210
Appendix J: Raw Data Standard Deviation Delta Round One to Round Two ..... 213
Appendix K: Expert \#2 Survey Three. ..... 216
Appendix L: Raw Data Standard Deviation Delta Round Two to Round Three ..... 233
Vita ..... 237

## List of Figures

Page
Figure 1. Key Factors to Address for a Competitive Public Organization ..... 17
Figure 2. Key Factor of Politics ..... 18
Figure 3. Key Factors and Sub Factors of Politics ..... 24
Figure 4. Key Factor of Cost ..... 25
Figure 5. Key Factors and Sub Factors of Cost ..... 38
Figure 6. Key Factor of Organic ..... 39
Figure 7. Key Factors and Sub Factors of Organic ..... 52
Figure 8. Probability Scale of Opinion vs. Knowledge ..... 56
Figure 9. Effect of Group Size on Response Error ..... 58
Figure 10. Reliability vs. Group Size ..... 59
Figure 11. Example of PCAT ..... 72
Figure 12. PCAT Summary Sheet ..... 73
Figure 13. Questions below 3.0 Mean Thresholds ..... 81
Figure 14. Example of New Question Naming and Placement Convention ..... 84
Figure 15. New Questions included in Survey Two ..... 85
Figure 16. Example of Feedback incorporated into Survey Two ..... 86
Figure 17. First Four Survey Questions and Trend Toward Consensus ..... 89
Figure 18. Example of Comments from Second Survey ..... 92
Figure 19. First Four Survey Questions and Consensus ..... 95
Figure 20. Standard Deviation Delta for New Questions ..... 96
Figure 21. Standard Deviation Delta for Rewritten Questions ..... 97

## $\underline{\text { List of Tables }}$

Page
Table 1. Expert Participants ..... 62
Table 2. Participating AR\&SC Management Positions ..... 77
Table 3. Survey One Raw Data Example ..... 79
Table 4. Example of the Threshold Spreadsheet. ..... 80
Table 5. Example of Round One Standard Deviation Test ..... 87
Table 6. Standard Deviation Delta from Round One and Round Two ..... 89
Table 7. Standard Deviation Delta from Round Two and Round Three. ..... 94
Table 8. Standard Deviation Delta for New Questions ..... 96
Table 9. Standard Deviation Delta for Rewritten Questions ..... 97
Table 10. Example PCAT Beta Use Data Sheet ..... 106
Table 11. Summary of AR\&SC Baseline Evaluation ..... 107


#### Abstract

In 1996, the Commandant of the U.S. Coast Guard initiated the largest ever service acquisition program to re-capitalize Coast Guard assets. Called the Integrated Deepwater System or IDS, this acquisition effort seeks to renovate, modernize, and or replace the Coast Guard's entire portfolio of ships, aircraft, and support facilities. The IDS contractor will be responsible for designing and constructing the system, as well as, sharing responsibility for supporting and disposing of it. This poses a significant threat to the USCG Aircraft Repair and Supply Center (AR\&SC), the Coast Guard's aircraft depot located in Elizabeth City, North Carolina. Is AR\&SC prepared to compete for this IDS workload?

The study begins with the development of a Research model of public entity competitiveness. The resulting model is based on three generic key factors: Politics, Cost, and Organic; it also identifies multiple generic sub factors. The model is verified using the Delphi Technique to obtain consensus among experts in the field of public private competition and source selections. After data collection, the results are integrated into an evaluation tool called the Public Private Competition Assessment Tool (PCAT). Although generic, the PCAT is customized to provide AR\&SC management with a strategic baseline for competitive preparations.


# AN EMPIRICAL INVESTIGATION OF CRITICAL FACTORS AFFECTING THE ABILITY OF PUBLIC ENTITIES TO COMPETE IN PUBLIC PRIVATE COMPETITIONS 

## I. Introduction

## Background

In 1996, the Commandant of the U.S. Coast Guard initiated the largest ever service acquisition program to re-capitalize U. S. Coast Guard assets. As of today, seven of the Coast Guard's nine classes of deepwater assets reach the end of their planned service life in the next fifteen years. The term deepwater is synonymous with assets able to conduct sustained Coast Guard operations 50 nautical miles or more off shore. Called the Integrated Deepwater System or IDS, this acquisition effort seeks to renovate, modernize, and or replace the Coast Guard's entire portfolio of deepwater ships and aircraft with an integrated system of surface, air, C4ISR (Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance), and logistics capabilities. Based on the Department of Defense Life Cycle Acquisition Model, the IDS is unique because it implements an innovative mission-based performance acquisition approach.

Rather than focus on any one ship or aircraft program, the Coast Guard strategy concentrates on meeting all of its nationally mandated missions to include Marine Environmental Protection, Maritime Law Enforcement, National Defense, and Maritime Safety. The IDS program will partner with a world class Systems Integration and Management Contractor to design, construct, deploy, operate, support and dispose of this system of systems. The Coast Guard will be responsible for managing operational requirements, responding to mission demands and
environment changes, and operating the system; the IDS Contractor will be responsible for designing and constructing the system, as well as, sharing responsibility for supporting and disposing of it.

One of the major positions of the IDS philosophy is to take advantage of industries ability to perform logistical and support tasks traditionally operated by Coast Guard personnel in order to lower ownership costs. According to the Deepwater Request for Proposal (RFP), the IDS Contractor shall "implement a Total Ownership Cost (TOC) program to ensure that cost of ownership is considered throughout IDS and IDS asset concept technology development, system development and demonstration, production and deployment, operation \& support and disposal, including legacy assets." (Deepwater, 2001) Additionally, the IDS shall be designed with consideration of shore support activities to include facility additions, modifications, expansions, contractions, and, finally, closures. The RFP further requires the contractor to provide a matrix which lists the contractors ability to meet the requirements for system asset level logistics development, design, production, implementation, and disposal by Integrated Logistics System (ILS) asset element. Each potential contractor will be provided with an open template to develop and maintain an ILS asset specific reflecting operational deployment of that IDS asset.(Deepwater 2001) Of key interest here is any proposal submitted to conduct depot-level aircraft maintenance in support of this IDS philosophy of maintaining low ownership costs.

This particular issue demands the attention of the present U.S. Coast Guard support infrastructure, in particular to this study, the Aviation Repair and Supply Center (AR\&SC) located in Elizabeth City North Carolina. Built on the banks of the Pasquotank River, AR\&SC provides complete integrated logistics support to the aviation community of the Coast Guard. It is an industrial center whose mission is to provide the fleet with technical engineering support,
supply stocking requirements, aircraft overhaul, parts reengineering and manufacturing, and onsite repair teams. It manages a budget of $\$ 160$ Million annually with a $\$ 743$ Million inventory of aircraft parts. The labor force consists of 644 members of which 495 are skilled civilian workers and 149 are military maintenance specialists. On an average day, the depot ships 620 parts, answers hundreds of field technical questions, works 20 aircraft in varies stages of overhaul, and an additional three aircraft for "drop in" maintenance. Additionally, it manages 150 contracts, and has 2 maintenance teams visiting field Coast Guard Air Stations.(AR\&SC 2000) AR\&SC is also a major reengineering and overhaul facility for hundreds of U.S. Navy and U.S. Air Force Sikorsky helicopter components. Further solidifying its position as a war fighting industrial base, the depot began full aircraft overhauls of the U.S. Air Force Sikorsky MH-60G Pave hawk fleet in the summer of 2001. (Jewess, 2001)

In the 1990 s , managers of AR\&SC identified three potential threats to depot operations in the form of Federal budget cuts, workforce downsizing, and, increasing bureaucratic regulations such as Hazardous Material (HAZMAT) Laws. After considerable evaluation and planning, a complete redesign of product lines and work processes took place enabling the depot to deliver its services more efficiently and effectively to the customer. Basing the reorganization on crossfunctionality to streamline processes, these initiatives have resulted in substantial cost savings, work/life labor improvements, an increased customer base, improved customer satisfaction, increased product and service quality, and improved union-management relations.(AR\&SC, 2000) However, with the advent of the IDS program, another threat has emerged in the form of potential depot outsourcing. As a defensive strategy to this IDS philosophy of reducing ownership costs, AR\&SC must ensure that its streamlined, cost effective public organization is
prepared to participate as a highly competitive team in any potential public-private competition for aircraft depot workloads.

## Public Private Competitions

It is important to clearly understand the term Public Private Competition. This form of competition breaks the common pattern of a service delivery in which the service is provided exclusively by public employees or exclusively by private sectors across an entire workload. (Ammons and Hill, 1995) Government procurement and quasi-procurement type situations, in which the public sector competes with the private sector to provide government services, can be considered a standard form of any Public-Private Competition definition.(Martin, 1999) PublicPrivate Competition has also been called a Managed Competition; the term is used to describe two parties, private and public, competing head-to head for lucrative contracts with the government entity refereeing the competitive playing field.(Barber, 1998) This competition involves the bidding process as private contractors vie with government agencies for the privilege of delivering a service.(Ammons and Hill 1995) Three forms of Public Private Competitions have been identified: the Ad-Hoc Approach, the Informal Bidding, and the Formal Bidding. The Ad-Hoc approach is when a public sector service is simply compared to private sector services. Informal Bidding is initiated when the public sector submits informal bids or proposals that are compared to formal bids submitted by the private sector. Finally, the Formal Bidding process is considered when the public sector submits formal proposals that are then compared with formal proposals submitted by the private sector. (Martin, 1999) The Informal and Formal Bidding will be considered as two prime definitions for purposes of this thesis effort.

## Research Question

This first half of this study identified the generic and underlying factors which provide the foundation for a competitive public proposal. It was conducted utilizing the Delphi Technique, a method used for the elicitation of opinions with the object of obtaining a group consensus of a panel of experts, to build a list of these competitive building blocks.(Brown, 1969) The experts used in this technique formed a group of professionals representing academia, military contracting commands, and private sector communities. Historically, it has been a challenge for public organizations to prepare competitive proposals that compete at a level associated with lucrative and experienced private sector firms. (GAO, 1996) This research focused on the necessary subject areas that must be addressed by any public organization to develop a highly competitive proposal. The first research question can, therefore, be stated as the following:

What factors must a Public Entity allocate resources in order to prepare a competitive proposal for a Public Private Competition?

The second half of this study examined the present state of AR\&SC to obtain a factor baseline. Te depot's present business practices were examined to see at what level, if any, those key factors are being addressed. This baseline was captured through the use of an assessment tool developed from the results of the Delphi process. The assessment tool was provided to U.S. Coast Guard management personnel located at AR\&SC. From this baseline, it is hoped that a tool might be developed which could provide depot management a strategic direction for allocating limited resources for proposal development. The second research question can, therefore, be stated as the following:

What is the Aircraft Repair and Supply Center's overall position in addressing these key factors to create a competitive public proposal for a managed competition?

## Potential Benefits

The identification of these key factors will hopefully provide AR\&SC, and other Coast Guard public entities, with the roots for a valuable defense against outsourcing. As with past managed competitions before it, it can be assumed an additional benefit of proposal preparation will be the further streamlining of depot processes ensuring an even greater, more cost effective Coast Guard facility. (GAO, 1996) Additionally, it is hoped the results of this study can be applied to other Coast Guard support entities further increasing their efficiencies in direct support of the Coast Guard IDS philosophy of minimizing ownership costs.

## Thesis Overview

The next chapter will present the literary research and development of a key factor research model. Chapter Three will discuss how the research was conducted and explain the Delphi method of group consensus to validate the model. It will also present the design and implementation of an assessment tool to evaluate $\mathrm{AR} \& S C$ in reference to the identified key factors of the research model. Chapter Four will assess the data obtained from the Delphi method along with the results of the AR\&SC assessment. Finally, Chapter Five will contain final conclusions of the study and provide suggestions on follow-up research.

## II. Literature Review

## Background on Public Private Competitions

As discussed in Chapter one, Public Private Competition is synonymous with the term Managed Competition. Managed competition is essentially the competition of a public and private entity for a service previously provided by a public entity. William D. Eggers, the director of privatization and government reform at the Reason Public Policy Institute, states that when governments decide to test the market for providing services, in-house units are also given the opportunity to bid for providing the service. Additionally he states that managed competition is predicated on the notion that allowing the widest possible range of competition between different types of providers is the best way of ensuring high-quality services at the lowest price with guaranteed performance. (Eggers, 1998)

Yet another definition of managed competition is the following by Dr. Lawrence L. Martin of Columbia University. In it he defines managed competitions as situations in which federal departments are permitted and encouraged to compete with private sector firms and organizations to provide government products and services. Dr. Martin further defines managed competition as entailing procurement and quasi-procurement type situations in which public employees compete against private sector firms and organizations to provide government services. He goes on to state that the major distinction that sets public private competition apart from privatization is that no a priori assumptions are made about which sector, the pubic or private, should provide government services. (Martin, 1999)

Perhaps the simplest and clearest definition of managed competition is from the originator of the process itself, the city of Phoenix, Arizona. In 1979, the Phoenix government designed and conducted its public private competition program based on this definition: a managed
competition is a process that pursues productivity in government-delivered services by involving city departments in competition with private contractors in public-bid situations to determine who can best provide services to customers.(Flannagan and Perkins, 1995)

A final vision of public private competition can be taken from Vice President Albert Gore's National Performance Review from 1993. In it, he acknowledges the present government view of managed competition as the being one force which gives public agencies no choice but to improve. In the article, he recommends that many federal organizations should begin to compete with private companies. (Martin, 1998) This definition reflects the service delivery thinking of managed competition to obtain best value. An example of this service thinking can be seen in the San Antonio and Sacramento aircraft depot competitions conducted by the United States Air Force. Both depots were put up for competition to obtain better, more efficient and cost effective overhauls of Air Force aircraft. The San Antonio public private competition will be discussed later in this section.

For purposes of the study, Managed Competition is defined as a process in which public entities are encouraged to compete with private entities for the opportunity to provide an overarching agency with products or services. The term entity in this definition is synonymous with organization.

The federal government has not been the first institution to utilize the concept of managed competitions. In the mid 1970s, the city of Phoenix was experiencing a population growth rate much higher than the average at the time. During this period, the state was suffering from high inflation rates, and the Arizona legislature was passing revenue and expenditure limitation laws. It was becoming extremely expensive for Phoenix to conduct all the city responsibilities such as ambulance services, billing services, data entry, and landfill operations. Armed with this
knowledge, private firms approached Phoenix with proposals advertising cost savings. Rather than make a decision to privatize these services, city officials chose to compare the private sector proposals against the cost of public service. The result was a selection process that would award contracts based on best value to the city council. Between 1979 and 1994, the city of Phoenix competed 13 service areas utilizing 56 competitive evaluations. Of these 56 competitions held, 22 were awarded to the pubic sector. (Flannagan and Perkins, 1995)

From this experience, the city was able to deduce some benefits associated with the tool of managed competition. The greatest of these benefits was that the competitive process had the ability to positively influence expectations about government and gain public support for its endeavors. The prevalent image of government as an over bloated bureaucracy slowly changed into one where the organization was constantly pursuing a full range of service product areas. Process efficiency and customer focus became established, important values allowing public departments to improve themselves for the sake of conducting competitive proposals.(Flannagan and Perkins, 1995)

Another benefit the city of Phoenix discovered was the self-directed attention to cost and customer satisfaction that occurs throughout the public organization. New and fresh approaches to equipment designs, staffing, and cross training were explored by the public department in its pursuit to prepare a competitive proposal. In Phoenix's refuse competitions, for example, the city justifiably purchased a new garbage truck when the public refuse department was selected the winner in a managed competition. Additionally, cost reduction becomes a major outcome of this entire competitive process. In the city's case, the public departments streamlined costs while simultaneously reengineering processes; it is not unusual to find this in federal departments as well.

Phoenix also found that its use of managed competition forced development of a management information system. Traditional government accounting and information methods concentrate on the needs of traditional accounting that focuses on reporting assets by standard line items. It does not focus on outcomes, customers, and efficiencies that make up the backbone of a competitive strategy. In the competitive environment, the public departments require detailed cost information to make decisions on process changes, improvement programs, and cost reduction initiatives. Without accurate information on where the high cost areas are concentrated, any effort to positively effect the department is done so in the blind. In addition, the city found that an instantaneous reporting system is necessary to ensure these costs are sent to all managers crucial to a competitive public department.(Flannagan and Perkins, 1995)

How did the federal government evolve into using managed competition as a tool to lower business costs? The Office of Management and Budget's A-76 Circular can be referenced for details. A look back into the history of the A-76 Circular describes the development of the government's present definition of public private competition. In 1955, the BOB Bulletin 55-4, the forerunner of the A-76 circular, stated that the Federal Government will not start or carry on any commercial activity to provide services or products for its own use if such product or service can be procured from private enterprise through ordinary business channels. Although this bulletin did not particularly address the issue of managed competition, it did introduce government agencies to a concept called privatization. Privatization is defined as turning over services completely or partially to the private sector.(Greenough and Eggum, 1999) The important point here is that the notion of federal departments competing for a contract was addressed, although clearly rejected in favor of complete privatization of the service delivery. (Martin, 1998)

In 1967, the new Office of Management and Budget (OMB) issued Circular A-76 describing the federal government's basic policy on the provision of commercial type activities including privatization of public services. Building on the BOB Bulletin 55-4, it required federal departments to transfer to the private sector those commercial activities that could be performed a at a lower cost. (Martin, 1998) This document was important because it required a cost comparison between the subject public agency and the private organization to create cost baselines. Although still advocating privatization as the objective, the government, again, addressed a potential step towards competition between the in house entities and private industry.

During the Reagan administration, the OMB issued a supplement to the A-76 circular that provided further guidance on conducting a comparison of public and private costs. The methodology was based on three principles. The first principle used the concept of the most efficient organization. This principle encouraged the public agencies to reengineer their processes with the goal of becoming more efficient and cost effective. This streamlined agency would then be compared to the private entity utilizing the second principle of make-or-buy comparison.

This second principle established a standard procedure for cost accounting in the public agency. The cost of the public department was to be computed utilizing avoidable costs. In the avoidable cost comparison, the aggregate cost of the public department is determined by adding the total indirect and direct costs associated with the entity. Then, the costs that are fixed or unavoidable (overhead and maintenance costs), and will not vary depending upon whether the public or private activity conducts the activity, are subtracted from the aggregate cost. (Martin, 1998) This difference is the avoidable costs and would represent the public department total expenditure. It is this cost which is compared against the private sector submitted bid.

The third and final principle defined what constituted the bounds of transferring public sector work to the private sector. The circular stated that a change from public to private service delivery would require a cost savings of greater than ten percent of the public sector's personnelrelated costs. In these three principles can be found the building blocks of the present day managed competition. These principles enabled further government migration toward managed competition. Although the procedures demonstrated a public-private competition perspective, the official A-76 policy still advocated the concept of privatization as the objective.(Martin, 1998)

In March of 1996, yet another supplement to the A-76 circular was issued. In it, the circular clearly states that government A-76 procedures are not designed to simply contract out, rather, they are designed to complete three objectives. First, the circular was to balance the interests of parties to make-or-buy cost comparisons. Second, it was to provide a level playing field between public and private offerors in a competition, and third, it was to encourage competition and choice in the management and performance of commercial activities.(Martin, 1998) It has been said that the result of this A-76 revision was the greatest single move of government policy towards public private competition. This was not, however, a complete transformation of federal business practices. The circular deleted the Reagan era's requirement to utilize avoidable costs, and replaced it with a requirement to use Total Costs for the public entity. The result was a net increase in the estimated public costs nullifying any chance of a neutral competition without close evaluation and adjustments by a selection team.(Martin, 1998)

The notion of public private entities competing for service continues to be one of the most popular cost saving initiatives in the federal government.(Martin, 1998) The most recent revision of A-76, released in 1999, applauds the managed competition process as a primary
means to ensure government achieves enhanced quality, economy and productivity which are all goals of the A-76 program. In the Department of Defense (DOD), managed competition has been placed with increased faith as a tool to save money and make its operation more efficient and effective. Driven by recent successes in depot and other competitions, the Pentagon has projected additional large-scale savings for the future. By the year 2005, it expects to save $\$ 9$ billion by putting tasks involving 200,000 positions out for competitive bid. (Gates and Robbert, 2000)

The United States Air Force has had recent success utilizing public private competitions. In response to the results of the 1995 Base Realignment And Closure (BRAC) Commission, a decision was made by the Air Force to complete the realignment of Kelly Air Force Base, maintenance depot of the gigantic C-5 Galaxy cargo aircraft. Worth \$1.1 Billion, this competition promised to be a significant leap towards advantages offered by the A-76 ideals. In 1997, the government obtained four proposals. Three of the proposals, McDonnell Douglas, AeroCorp S.A., and Lockheed, were strictly civilian, private offerors. The fourth was a public proposal from Warner Robbins Air Logistics Center (ALC), an Air Force owned aircraft depot. It was this fourth, public proposal that was eventually selected by the Source Selection Evaluation Board (SSEB) as the best value to the federal government. Although the public sector won this competition, it is necessary to understand some of the factors that allowed this public success to take place.

Warner Robbins ALC was able to develop a highly competitive proposal comparable to what was presented by the other three private offerors. The final proposal submitted to the Air Force contained the following standout ideals: costs were captured in a credible manner to submit a competitive proposal, strengths of the present aircraft depot operations were optimized, and
finally, any weaknesses were minimized by addressing, head-on, any potential problems. This case study will be explored later as a resource for the Research Factor Model development. But, what can be said of the United States Coast Guard in regards to this best value practice of Managed Competition?

Rear Admiral Ronald Silva, the Coast Guard's Assistant Commandant for Systems, described the Coast Guard's infrastructure as doing the king's work with a peasant's toolbox. Since 1995, maintenance funding has decreased by $12 \%$ in constant dollars and readiness has dropped by 20\%. Intervals between Programmed Depot Maintenance (PDM) for aircraft have increased to the maximum safely allowable resulting in higher depot costs. These higher costs are directly related to the greater maintenance requirements driven by higher aircraft cycles. These are just a few of the examples that have haunted Coast Guard managers in the recent decade. Because of budget cuts, such as the $\$ 400$ Million dollars cut between 1995 and 1999, it has been said that the Coast Guard, although not yet sinking, is badly listing to one side.(Gavzer, 2001)

What keeps the Coast Guard from sinking with shrinking budgets? It has been called the Curse of Semper Paratus by the service's Commandant, Admiral James M. Loy. Semper Paratus, the Coast Guard motto meaning Always Ready, has induced such a can do spirit within Coast Guard personnel that its members refuse to accept any outcome other than success. (Loy 1998) In other words, the service's personnel are committed to ensuring the Coast Guard meets its obligation to the customer. To further solidify this point, and despite the significant cuts in budget, resources, and readiness, the Coast Guard was even designated a 1999 Best Business Partner by the National Partnership for Reinventing Government (NPR) for it's performance management and measurement techniques. Additionally, in 1999, the Coast Guard was lauded
by the Government Accounting Office (GAO) for its Risk Management practices and the restructure management approach called Managing for Results.(Loy, 2000) So what is the bottom line for the service? With little fiscal help on the horizon, the Coast Guard has an obvious interest in evaluating any additional enhancements, improvements, and cost reduction programs. (Gavzer, 2001) Just as in the DOD, public private competition can be one of those tools used to conduct streamlining and cost minimization in the Coast Guard.

A key to any competition is that all players have a level playing field. The underlying premise of a level playing field is that public-private competition should be conducted in an open and fair manner so that the process does not provide an inherent competitive advantage to either the public or private sector. Any inability of the public entity to access outside assistance tends to tilt this level playing field in favor of the private sector. (Martin, 1999) The term level playing field can also be called competitive neutrality. The term means designing a set of policies and legal arrangements that ensure that all organizations and individuals -public, private, and non-profit- are treated in an equal manner in the bidding process between public and private bidders.(Eggers, 1998) Simply put, the level playing field means making all equal for purposes of evaluation. Just because a private and public organization provides similar service does not indicate that they can be evaluated the same way without some constructive adjustments.

Without addressing certain factors, the public private competition would be the comparison of apples to oranges vice apples to apples. (Barber, 1998) If an organization were to be competitive within a level playing field, it would be beneficial to concentrate its preparation resources on key, important factors which would positively effect a source selection decision for that organization. So, what are these key factors? What are the factors that any potential entry must address to be successful in a managed competition? In particular, what are the key factors
that a public entity should direct resources to be competitive in a managed competition? The remaining portion of this literary discussion will focus on describing these competitive factors and how they apply to competition from the aspect of a public competitor.

The literature has provided insight into the development of a model reflective of these important key factors that a public entity must direct resources to be competitive. Of all the many topic areas discussed and researched in regards to managed competitions, they all seem to fall into three categories. These are entitled Cost, Organic, and finally, Politics. A visual description of this model can be seen as Figure 1. It should be noted that each factor is topically dichotomous. Together, they become an aggregate research model that can be used by a public entity to baseline competition preparations. The discussion will first focus on the factor of Politics.


Figure 1. Key Factors to Address for a Competitive Public Organization


Figure 2. Key Factor of Politics

## Politics Factor

The term politics is used to describe the internal and external communications and operations of a government bureaucracy. It can be simply defined as who gets what, when and how.(Pfeffer, 1996) Additionally, it involves those activities which attempt to influence decisions over critical issues that are not readily resolved through the introduction of new data and in which there are differing points of view.(Pfeffer, 1996) Probably the most descriptive definition for this study defines politics as intentional acts of influence to enhance or protect the self-interest of individuals or groups.(Allen and Madison, 1979) For this study, the term politics will be used to describe the protection of public entity self interests before and during a public private competition.

## Mobilize Congressional Pressures against outsourcing of Public Entity. One of the most

 obvious and powerful tools a public entity has available in its toolbox is the political juggernautcalled Congressional Opinion. As the legislative branch of government, Congress is most able to exert its influence in the form of fiscal appropriations to federal bureaucracies. These federal bureaucracies, or departments, fulfill the role of overarching agencies of public entities. It should be clearly understood that if the overarching agency wants to be well funded, it must adjust its policies and operations to fulfill the needs and issues of Congressmen or Senators. Congressional membership contains elected officials each having their own constituency and, therefore, agenda for participating in the institution of representative government. Generally, it is agreed upon in the literature that elected officials must do the work of those whom elected them to office; failure to not represent the constituency risks the official's reelection and the potential loss of a party's seat. (Cook, 2001)

A great example of this political procedure is the 1995 deliberations on the Department of Defense (DOD) Budget of 1996. In those deliberations, a House and Senate conference committee disagreed with the DOD announcement which discontinued the use of Public Private Competitions. At this time, there was popular agreement among lawmakers for increased use of competitions to decrease overall defense costs and provide opportunities for constituency businesses to compete for government contracts. Although the DOD had hard cost data favoring the discontinuation of this program, Congress still wished to see the program active and pursuing their goals. As a result, Congress directed the DOD to reinstate managed competition through linkages attached to the 1996 National Defense Authorization Bill. Because the DOD needed to fully fund its continued operations and high-level defense acquisition programs, the wishes of Congress were quickly addressed as a departmental policy change. (GAO, 1996)

Public entities should take every advantage to highlight issues most dear to the constituency within which it operates day to day. Outsourcing a public entity can have drastic effects on an
areas economy, infrastructure, and financial worth, in particular, if the public entity is closed down. If an outsourcing opportunity would cause harm to state, county, or local groups, it should be addressed and highlighted by the elected officials; in particular, those assigned key positions in the appropriation process. Additionally, every effort should be made to network with other state's public entity stakeholders to gain political capital. The key is to aggressively seek the interest of "turf protection" bureaucrats; these are Congressional members who actively seek to gain an advantage for themselves and their constituents.(Sapat, 1999)

Utilize the influence of Private Interest Groups. Private interests can be defined as politically motivated entities whose membership can include organizations like businesses, unions, ideological groups, and retirees. These private interest groups face a tremendous incentive to become active in the political sphere in order to pursue governmentally conferred benefits or to oppose efforts put forth by others. (DeBow, 1995) The pluralist perspective of interest group behavior argues that public policy is the product of democratic participation by individuals represented by organizations such as business and interest groups (unions, ideological groups, citizen groups). These theories of political influence on legislators and bureaucrats can range from narrow views of influence where the subject group holds all the political power, to more broad definitions where the interest group is considered to have no more power than other actors in the political process. (Sapat, 1999) In this study, the narrow pluralist perspective will be used to define how interest and business groups can assist with preparing a public entity for competition. For purposes of example, the interest groups associated with industry will be presented and discussed to describe its contribution to the political factor.

Industries have been traditionally viewed as a major player with interests at stake in the policy choices associated with outsourcing and privatization decisions. (Sapat, 1999) Industry, teamed
with public entities, is motivated to maintain the workload and increase the capability of the organization. A public entity in business means the public contractor will continue to recover present and future revenues. Through additional streamlining and business process improvement, the team can offer the best of both worlds and be extremely competitive. An excellent example is the San Diego Emergency Medical Service. This public/private joint venture easily beat out its competitors; the powerful service capability provided from an integrated public fire department and private EMS provider was a key attribute.(Eggers, 1998) Because of this strong incentive to remain in business, the door opens to other ways of advertising the beneficial work industries accomplish for overarching agencies and local communities.

A popular technique includes capturing political horsepower through influential tools such as Political Action Committee (PACs). These tools link the issues of the sponsor interest group to elected government official(s) via financial campaign contributions. Although potential customers of the results, it is important to point out that public entities do not participate in the tools. Through these contributions, it is hoped the elected official will work to ensure the goals of the PAC are fulfilled.(DeBow, 1995) Once Congressional support is obtained, then the overarching agency and their source selection teams can be addressed indirectly through appropriations, or sometimes, directly to the source selection team members themselves. Contrary to popular belief, heavy group and individual source selection team soliciting does take place, and Congressional staffers representing their superior's objectives usually conduct it. (Stockman, 2001) In the case of a public private competition, it would be the ultimate hope that an overarching agency's outsourcing decision would be effected by the larger agenda of the elected official. So, where and how can this take place?

Called a Public/Private Bidding Consortium, private companies have, in the past at the state level, teamed up with existing public entities to bid against other private providers in competitions. (Eggers, 1998) The U.S. Coast Guard Aircraft Repair and Supply Center (ARSC) is a perfect example of a public-private team that could benefit from a Public/Private Bidding Consortium. Presently, the depot's industrial teammates include such international corporations as Allied Signal, American Eurocopter, Dassault Falcon Jet, and Sikorsky; additionally, this list does not include all of the many regional based contractors who rely upon depot work assignments to remain in business.(AR\&SC, 2000) This compilation of companies could field a powerful political lobby with the goal of continued and uninterrupted Coast Guard aircraft overhaul and aviation support.

A good example of private interest group operations took place in 1995 during a round of the Base Realignment and Closure program (BRAC). Upon the recommendations of the BRAC committee, the Louisville Detachment of the Naval Surface Warfare Center, a weapons depot, was selected for closure. The plan was to have the depot's business broken up to fill excess capacities in other DOD depots around the country. Concerned with the potential economic impact of this decision, the city of Louisville and the two original contractors, Hughes Missile Systems Company and United Defense Limited Partnership, teamed up to create a privatize-inplace proposal. Together as a team, they submitted the proposal unsolicited to the Navy with the goal of keeping the depot operational in Louisville. Although the proposal was not obtained through the standard contracting procedures for outsourcing, the Navy accepted the proposal with interest, and awarded the consortium a contract, therefore, reversing its original decision on closure. A large factor in this reversal was the political support obtained from the Navy itself. The two large companies that made up the solicitation were original equipment manufactures
that built and supported those same weapons systems overhauled in Louisville. This fact of maintaining original contractor experience, together with the Navy's concern over the local community impact, was key to the closure turnaround. (GAO, 1996) Although the proposal ended up being questionable in regards to cost effectiveness to the Navy, the bottom line was it kept the Navy's funding, and therefore jobs, in the state of Kentucky.

Politics can be an extremely powerful, yet often overlooked, tool for use in proposal preparation. For a public entity to be competitive, the proper integration of Congressional pressures and private interest groups can be a tool unlike no other used in preparation for a managed competition. Its application demands to be highlighted and addressed as a key factor which makes a Public Entity competitive. The next section will discuss the Cost Factor of the research model.

The following is a synopsis of key points under the Politics Factor. Each sub factor is broken further into sub points. This review will take place after each section to further instill the significance of each key factor of the research model.

## POLITICS FACTOR

Mobilize Congressional Pressure against Outsourcing of Public Entity
-Linkage of Congressional Opinion and the Overarching Agency
-Power of Local Constituency in Directing Congressional Agendas
-Negative Effects on Congressional members and Constituency if Public Entity is Outsourced
-Aggressive Pursuit and Utilization of "Turf Protection" Bureaucrats

Utilize the Influence of Private Interest Groups
-Use of Narrow Pluralist View to explain Role of Private Interest Groups
-Industry Groups as Major Player in Public Private Competition
-Capitalize on Political Horsepower through use of Influential Political Tools
-Use of Public/Private Bidding Consortium in Managed Competition

Figure 3. Key Factors and Sub Factors of Politics


Figure 4. Key Factor of Cost

## Cost Factor

Reducing cost is one of the primary reasons the government utilizes the tool of public-private competition. In particular, the government uses public-private competition to reduce service delivery costs of public departments. The cost of public service delivery can be defined as the sum of the applicable direct costs plus an allocated proportion of indirect, or overhead costs.(Martin, 1999) In managed competitions, cost becomes one of the premier issues when conducting the comparison with a private entity, however, a problem lies in determining how those costs are captured and how they are allocated in the public organization. (Martin, 1999)

An overarching agency's source selection team will be evaluating a cost proposal for Completeness, Realism, and Reasonableness. Completeness assesses the level of detail the offeror provides in cost information required by the Request for Proposal or RFP; a RFP is
defined as a standard format to communicate government requirements to prospective contractors and to solicit proposals or quotations from them.(Arnavas and Ruberry, 1999) The realism of a bid is evaluated by assessing the compatibility of proposal costs with proposal scope and effort. In other words, can the proposal cost be considered normal for a particular size of service or product? (Arnavas and Ruberry, 1999) Finally, reasonableness is evaluated for the purpose of determining whether a cost is appropriate or allowable for the evaluation. The Federal Acquisition Regulations (FAR) provides that a cost is considered reasonable if, in its nature and amount, it does not exceed that which would be normally incurred by a prudent person in conduct of competitive business. (Arnavas and Ruberry, 1999) As the public team develops a cost proposal, these three attributes should be used as a guide from which to measure their accounting procedures and results.

Before further discussions of what costs need to be addressed to ensure a public proposal is competitive, one must take a look at the system of cost accounting needed to be competitive. Why bother with a cost system at all? Three points can answer this. First, the public entity must determine the real in-house costs of delivering the public service.(Eggers, 1998) Secondly, these costs, once identified, are required to effectively identify, justify, and implement business process improvement programs.(O'Guin, 1991) Finally, third, total cost of the service or product is used as one of the key decision factors during source selection evaluations.(Stockman, 2001)

Apply an Activity Based Cost Managerial Accounting System. In order for public agencies to make an informed decision about competitive contracting, they must first identify the total cost of their in-house service or, simply, their full cost. Identifying the costs associated with the product, process, and customer is necessary to ensure the source selection team can conduct a
fair evaluation; more importantly, true costs allow the public entity to be competitive with private proposals.(Greenough and Eggum, 1999) In this context, true costs are considered those that accurately reflect resource usage by the product or service. In other words, there is a linkage between the product or service and the indirect costs they create.(O'Guin, 1991) Presently, most government organizations have no concept of what a service or product costs them; it has no system in place to capture these true costs of doing business.(Eggers, 1998) Typically, the only cost tools available to public organizations are based on the budget allocation process developed using direct labor hours as a cost driver.(Greenough and Eggum, 1999) Lost are the costs associated with overhead and other indirect costs such as those associated with administration procedures and capital setups. (O'Guin, 1991)

To be competitive, a system is required that is capable of capturing these true costs and providing upgraded information for decision-making. Without this cost data, any submitted proposal will potentially misrepresent the public entities capabilities, process improvements, and cost efficiency. In some past public-private competitions, public agencies, which had elected to base their costs on direct labor hours only, submitted proposals that were found to be unrealistic in comparison with private entities. (Eggers, 1998) Without properly allocating the overhead, service and product costs will be deceptive, distorted, and unreliable for evaluation purposes.(O'Guin, 1991)

So is there a system that can account for these true costs?. The answer is yes; it exits in a system called Activity Based Costing (ABC). ABC is a managerial cost system based on the goals of understanding and controlling indirect costs. ABC assigns costs of activities such as setting up a machine, receiving raw materials, scheduling a job, and then traces these activities to a particular product or customer that triggers the activity. As a result, the product or service
costs embody the total cost of these activities. The key to this system is overhead cost allocation; these indirect costs can be traced to a particular product rather than spread arbitrarily across all products.(O'Guin, 1991)

ABC provides public management with the ammunition to be competitive. As a system, ABC can cost products, develop budgets, measure performance, and value inventories. It can assist the public managers with cost strategy creation; it provides information necessary for public managers to make quality improvements and structure business practices to better meet the customer's needs. ABC is a management tool, not a reporting tool. It does not attempt to capture the historical costs or those costs that have already occurred over time. This is the duty of traditional cost accounting developed to report costs in the standard formats expected for the business environment.(O'Guin, 1991) . Although considered a challenging paradigm shift for most government agencies, ABC integration will provide the public competitor with reliable, true costs from which it can improve processes and eventually base its cost proposal.

Avoid Common Cost System Mistakes. Applying this cost system to a public entity such as a depot will have its challenges. There are many mistakes that have been made in the past when a public entity attempts to conduct a cost analysis to find total in-house costs. Some common examples include cross subsidization, failure to allocate overhead, failure to disclose all costs, and finally, failure to obtain worker buy-in. Cross subsidization occurs when costs of a target department are borne by other departments in the same agency; these costs are not reported as a target department's expense. Failure to allocate overhead is simply the failure to properly identify the user of the indirect resource. Examples of these frequently overlooked overhead areas include administration costs, personnel payroll costs, and capital costs. Additionally, there
is failure to disclose all costs. The private entity should make every effort to ensure there are no hidden costs associated with the cost proposal.(Eggers, 1998)

Finally, before it even gets started, the inability to obtain worker buy-in can stop the cost system deployment. A cost system cannot operate without the inputs of the worker; he must believe that a fully operational cost system, trusted and used daily, is in his best interest. The challenge of management is to properly convey this information. The workforce should be provided with corporate knowledge of what could potentially result from not learning the new system. It must understand the fact that a lost competition results in lost jobs. If integrated properly into an organization, an ABC system will ensure that these mistakes, and others, are not made to the detriment of the public entity's competitiveness.(O'Guin 1991)

Use Consultants to Integrate a Cost System. To avoid these mistakes, the literature suggests implementing a cost system using outside assistance or business consultants. (Eggers, 1998) Private corporations routinely utilize the services of consultants during public private competition preparations. Because of this, the public entity should be afforded the same opportunity to access this corporate experience.(Martin, 1999) The purpose of consultants is to integrate their knowledge of business reengineering, cost systems, and competitive proposal development with the existing organizational experience.(Barber, 1998) The consultants should be hired to assist, not just train, the pubic teams in preparing the actual cost proposal and reengineering-cost cutting operations.(O'Guin, 1991) Since this is an additional cost to the government and one normally included in private proposals, the consultant fees should be included in the public's total bid price. (Eggers, 1998)

The lack of outside expertise has been listed as one of the top reasons why the public sector fails to implement any system to account for costs.(Eggers, 1998) Why is this issue such a threat
to the public performance in a unbiased competition or, to put it another way, the public sector's performance on a level playing field? The underlying premise of a level playing field is that public-private competition should be conducted in an open and fair manner so that the process does not provide an inherent competitive advantage to either the public or private sector. Any inability of the public entity to access outside assistance tends to tilt this level playing field in favor of the private sector. (Martin, 1999) It is, therefore, in the best interest of a public entity to ensure consultants are key teammates in the development of an effective costs management system.

Reengineer to become Cost Competitive. Redesigning processes, streamlining processes, and cutting costs through improvement initiatives is a way to become more efficient and competitive. The management of a public entity must take a look at the agency's processes to see if there are any ways to improve the delivery of its product or service.(Hammer and Champy, 2001) For purposes of this study, a process is defined as "a collection of activities that takes one or more kinds of input and creates an output that is of value to the customer."(Hammer and Champy, 2001)

This improvement to business processes cannot just take place arbitrarily. The cost system employed will need to provide accurate data to benchmark and justify quality improvement efforts. Once allocated, these costs will be then used to identify and target high cost or broken processes for managerial attention. The overall goal will be to lower the costs of doing business, and increase the value-added to the customer by addressing the weaknesses in the organization.(O'Guin, 1991) It is simply an act of making the pubic organization more efficient, and, hopefully, more effective. To assist meeting these goals, technology, as a principle of process redesign, should also be integrated to its fullest extent possible during the redesign
procedure. As defined by the literature, reengineering is the fundamental rethinking and radical redesign of business processes to achieve dramatic improvements in critical, contemporary measures of performance, such as cost, quality, service, and speed.(Hammer and Champy, 2001) With true costs associated with its reengineered processes, the public entity will then finally be able to present itself as streamlined, efficient, and cost effective in a competitive cost proposal.(GAO, 1997)

Finally, one point should be kept ever present in the minds of the public managers. The private sector can be expected to have an extremely cost effective proposal due its own experience in the competitive business environment. (Eggers, 1998) As a result, public managers must assume that the private cost proposals will be polished, professional, and extremely competitive. It must be remembered that these private corporations deserve respect; they did not become successful without knowing how to competitively cost and market their product or service. (Greenough and Eggum, 1999)

## Transition Cost System into a Competitive Cost Proposal Structure. Once a cost system is in

 place and operating in a public organization, only then can its output be used to supply the competitive framework. Source selection officials strive to ensure as much equality as possible for each component of a procurement process, ranging from determining current in-house true costs to defining the consequences of performance failure. Although the perfect level playing field can never be attained, governments conducting a public-private competition should strive to get as close as possible to this equal comparison.(Eggers, 1998) In a public private competition, the overarching agency attempts to reach this goal by utilizing a vehicle called the Request for Proposal (RFP). An RFP is used to communicate Government requirements to prospective contractors and to solicit proposals or quotations from them. (Arnavas and Ruberry, 1999) Inother words, it is a comprehensive and formal list of directives detailing the proposal structure. In its entirety, an RFP is important because it creates the baseline for a common accounting of evaluation factors. This forces the competitors, both private and public, to develop and present their proposal in a format requested by the sponsoring agency; each competitor will fully know the relative importance assigned each factor. (Arnavas and Ruberry, 1999) Because of this proposal standardization, implementing the RFP begins addressing the issue associated with competitive neutrality. Therefore, as a sub-section of this document, the RFP cost section can be considered a standardized cost template to assist with creating this level playing field.(Council, 1998)

A great example of this neutrality driver is the 1997 U.S. Air Force San Antonio Air Logistics Center (ALC) C-5 Galaxy Overhaul Public-Private Competition. As a result of the 1995 Base Realignment and Closure (BRAC) decision, the San Antonio ALC was directed to close by the end of July 2001. Because of concerns over excess capacity at the three remaining Air Force depots, the Air Force announced a strategy which allowed those remaining facilities to compete against private corporations for the $\mathrm{C}-5$ overhaul business. The result was a highly competitive evaluation that awarded the contract worth $\$ 1$ Billion dollars to a public contender, Warner Robbins Air Logistics Center. In this competition, the public depot was selected over two large and extremely capable private corporations. (GAO, 1998)

The USAF was complimented by the Government Accounting Office (GAO). The GAO comments concluded that this competition provided an equal opportunity for public and private offerors to compete without regard to where work could be performed. Additionally, the procedures did not appear to deviate in any material respect from applicable laws or the Federal Acquisition Regulations. Finally, the competition was based on Air Force assumptions and
conditions at the time of the award; the award resulted in the lowest total cost to the government. (GAO, 1998) Because of this statement made by the GAO, and due to the availability of excellent data for review, this study will be used as a case to benchmark functional cost areas necessary to conduct a neutral and fair evaluation.

The cost proposals for the competition were evaluated utilizing total costs based on a source selection framework recommended by the U.S. Air Force Cost Comparability Handbook or CCH . The CCH is the Air Force's effort to provide guidance on a standard set of Cost Guidelines. The purpose of the handbook is to provide standardized procedures and techniques to insure cost comparability during consolidation studies and when competing depot maintenance workloads between DOD components and between organic (DOD) sources and the private. (Council, 1998)

Additionally, the CCH states "There are some differences in accounting for costs between the Services and even between different locations within the same Service. These variances are a result of the managerial and organizational philosophy of the respective Service. These differences must be addressed in order to level the playing field before workloads can be compared or competed between Services and private industry."(Council, 1998) In the C-5 competition, the CCH provided the Air Force source selection team with the framework necessary to evaluate not only total cost of the service, as provided in the proposal, but also the costs which account for the differences between the proposal. For example, during the C-5 case, the Warner Robbins ALC had an aircraft depot proposal on the table; it included the cost of test pilots. The private corporations, on the other hand, did not include that cost in their submitted proposal. To obtain this level-playing field for evaluation, the source selection team adjusted the
public proposals downward to account for this cost differential. In simplest terms, the CCH provides the source selection team and proposal owners a tool to provide competitive neutrality.

This cost proposal framework is broken into sections of Direct Labor, Direct Material, other Direct, Production Overhead, General \& Administrative. The following is a short definition for each functional cost. It should be noted that these cost definitions are agreed upon when the offeror submits a proposal addressing the RFP. (Arnavas and Ruberry, 1999) These were taken directly from the CCH . It is interesting to note that the functional cost sections tend to define themselves using aspects of ABC cost allocation methodology.

Direct Labor. Work performed solely for the benefit of a single specific job order as provided by engineering estimates. The number of direct labor hours (civilian and military) chargeable to a job order are only those incurred during the period of time that benefits accrue solely to that specific job order. All other labor hours (civilian and Military) shall be recorded as indirect.

Direct Material. Material and supplies that can be identified as specifically required for the performance of work as specified by a work authorization document and / or Bill of Material (BOM). A small item of insignificant material may be treated as indirect material even though the item is incorporated as a part of the final product, if this practice is consistently applied from job order to job order. Direct material may either be incorporated as part of the final product or consumed in the maintenance process.

Other Direct Costs. Purchased services shall be charged as direct costs to the benefiting job order. If only one job order benefits from a contract or purchase, the cost of the contract shall be charged to that job order. If more than one job order benefits from a contract, the cost of
the contract shall be prorated to the benefiting job orders based upon estimates or calculations of the benefits received by each job order.
(1) The cost of contracts that supplement capacity or capability for the depot shall be charged to the job orders that use the additional maintenance services.
(2) Travel and per diem expenses including regular labor hours spent in travel shall be charged as other direct costs only if the labor hours worked while traveling are charged as direct labor. If more than a single job order is worked on, the travel and per diem expenses shall be prorated on the basis of the related direct labor. Otherwise, all travel and per diem expenses shall be charged as an indirect expense of the employees cost center.

The indirect costs are broken out by the CCH to include the following Indirect Functional Areas. The all-inclusive list may be reviewed in the CCH.

Production Support Function. This are all costs that are associated with the creation of the service or the product. Examples can include First Line Supervisors, Tools Management, Equipment Handlers, and Test pilots.

Other Indirect Functions. These are costs of conducting finance. These include Comptroller Services, Accounting, Budget Costs, and Finance. Others include the cost of communications services; aircraft support services, and data processing.

Facility Support Functions. These are costs associated with facility upkeep and maintenance. Examples include Police services, Fire services, Utilities, and Base Facility Repair Service.

Equipment Management Functions. These costs that can include Production Equipment maintenance, Motor Pool Maintenance, equipment calibration and equipment rental.

Indirect Labor Costs. The costs can include the Indirect time of Direct labor (work delays, safety meetings, training meetings ect.),overtime pay, holiday pay, and benefits.

Material Adjustments. These are the costs associated with material accounting. Examples include the costs associated with inventory adjustments, order cancellations, and the cost of quality or scrap material.

Depreciation/Amortization. Examples of these costs include the depreciation on equipment and facility construction.

Non-DoD Functions. These are costs which are associated with outside of the DoD. These include State Unemployment payments, Impact Aid (education aid for local communities of military facilities), and Insurance.

Excluded Support Activities. These are costs which the CCH identifies as a non-player in the organic cost of a depot. Examples include Chaplin Services, Commissary, and Community Support Services.

It is important to again point out that the CCH was developed to provide guidelines in a public-private competition for depots workloads. Although the depot processes are not necessarily the same as other public entities and workloads, a public depot competition can be considered to be one of the most complicated and dynamic source selection efforts. (Stockman 2001) It, therefore, can be assumed that the similar problems associated with conducting a depot competition will most certainly be a factor in other workload competitions. Although stated that it was not designed for other efforts specifically, the CCH cost allocations can certainly be used
as a reference template for competitive neutrality in any workload or line of business. (Council 1998)

The CCH was a key to the highly visible, highly successful C-5 Overhaul Competition. By selecting a public depot, the source selection process verified that these functional cost areas can be successfully presented and evaluated in a manner conducive to creating a level playing field. Because of this, these functional cost areas are required factors to consider in the development of a competitive public proposal. The Organic Factor will next be examined as a key for making competitive a pubic entity.

The following figure details the review of the Cost Factor Section.

## COST FACTOR

## Apply a Managerial Accounting System

- System must allow Entity to make Informed Decisions based on True Costs of Product or Service
- System must identity Full-Cost or Total Cost (Indirect and Direct Costs)
- System must Allocate Cost to Product or Service that Consumes the Entity Resources
- System must avoid Distorted Costs associated with the Misallocation of Overhead Costs
- Activity Based Costing is an Alternative to meet these Tasks


## Avoid Common Mistakes

- Cross Subsidization of Overhead
- Failure to Allocate Overhead Properly causing Distortions
- Failure to Disclose All Costs
- Failure to Obtain Worker, and Management Hierarchy Buy-In of Managerial Accounting System


## Use Consultants to Integrate a Cost System

- Use Assistance to avoid Common Mistakes
- Obtain Corporate Experience of Competitors via Consultants
- Consultants integrate with a Management Team, They do not simply train the Team
- Lack of Expertise his one of Top Reasons Public Entities fail to implement Cost Systems
- No Outside Assistance tilts the Level Playing Field in direction of Private Entity


## Reengineer to become Cost Competitive

- Process Redesign, Streamlining, and Improvements are ways to become more Efficient and Effective
- Overall Goal of Reengineering is to Lower Business Costs and Increase Value Added to the Customer
- Technology must be integrated whenever possible to assist in Redesign Effort
- Reengineering provides Tools necessary for Public Entities to match Professional Level of Private Proposals


## Transition Cost System into a Competitive Cost Proposal Structure

- In Place Cost System is required to supply Cost Input to a Competitive Framework
- Level Playing Field drives Cost Structure via Request for Proposal (RFP)
- RFP provides Standardized Cost Proposal Framework to Pubic Entity
- Cost Comparability Handbook (CCH) of standard cost procedures should be used to integrate costs
- CCH should provide direction to Public Teams on how differences in entity proposals are addressed
- CCH should provide Framework that addresses Direct Functional Cost Areas
- CCH should provide Framework that addresses In-Direct Functional Cost Areas

Figure 5. Key Factors and Sub Factors of Cost


Figure 6. Key Factor of Organic

## Organic Factor

In the context of this model, Organic means internal to the organization. In this study, the infrastructure of the public organization will be observed as a factor that should be addressed prior to a public private competition. Firms succeed by taking advantage of what they do particularly well. Every agency has in itself inherent strengths that can be improved and capitalized upon to make the organization more competitive in direct, or overhead costs. Called core competencies, these strengths are generally referred to, in the private sector, as those activities an organization conducts which make it an industry leader. (Hammer and Champy, 2001) They are an organization's unique resources and strengths which management considers when formulating strategy. In the public realm, this definition can be further refined to indicate
the work, equipment, and procedures that produce the valuable product or service consumed by an overarching agency. Core competencies rely on the knowledge that is gained over many years of experience, and the cadre of first class people who follow the literature and stay abreast of new external knowledge. (Krajewsiki and Ritzman, 2001) Because this takes place in a public organization, it is important to recognize these particular aspects are potential competitive strengths.

By identifying these core competencies, the public organization can further improve their operations and, therefore, value to the outsourcing agency. For example, as a result of a 1988 Naval public private competition for F-14 Tomcat airframe overhauls, in which the pubic depot was the winner, the Norfolk Naval Aviation Depot (NADEP) went from a two shift operation to a one shift operation and reduced the number of personnel assigned to the program. In this process, Norfolk reduced the F-14 production staff by over 100 people through recognition of their competence and familiarity with the Tomcat airframe. Additionally, further cost awareness and control changes were made to these processes to increase the competitiveness. In order to submit the lowest possible bid with the highest overall value, the depot's overhead utilization was increased through streamlining, and key work processes completed and integrated process improvement programs. Simply speaking, the Norfolk NADEP successfully endeavored to wipe out all non-value added tasks associated with the repair and overhaul of this legacy fighter aircraft. Naval officials stated that the measures adopted by the NADEP in response to competition caused the depot to become more business like, with an increased focus on efficiency of core competencies and bottom line results. (GAO, 1996)

## Highlight Overhead and Excess Capacity. A public organization, in particular those

 responsible for producing or overhauling equipment such as a depot, have large infrastructuresdedicated to the support and operation of that product or service. Vast amounts of funding have been allocated and invested in the particular public entity to accomplish the mission assigned by the overarching agency. More so than not, these public facilities, labor, and capital investments are capable of being allocated much more work.(GAO, 1996) This excess capacity is a competitive strength for the public entity.

For example, prior to the selection as winner of the C-5 Overhaul competition, Warner Robbins ALC had the facilities and manpower to overhaul the large C-141 Starlifter and smaller C-130 Hercules cargo aircraft. Simultaneously, the facility conducted overhauls of smaller, technologically more complex F-15 fighter aircraft further demonstrating the skill level of its workers and varied capabilities of the infrastructure. However, the extensive facilities still remained underutilized. Warner Robbins overhead facilities included 16 large work bays, multiple machine shops, paint de-paint facilities, as well as, a highly capable, and in-place, material supply center. ALC was able to present this known under-utilization as a beneficial strength in the competitive proposal for C-5 overhauls. The proposal documented the excess capacity as saving the Air Force a total of $\$ 20.3$ million dollars in overhead savings. In addition to the savings for C-5 overhead, Warner Robbins further advertised a decreased cost of other government workloads by $\$ 162.8$ Million Dollars. This large underutilization of public facilities became a definitive competitive asset, and one of the key reasons for contract award by the Air Force. (Beach, 1997)

Clearly, the fact that a public organization can accept more work in an attempt to further utilize public equipment and facilities is a powerful asset. Every attempt must be made by the public entities to investigate, identify, and take full advantage of inherent strengths involving the present facilities and capital investments of a public entity.

## Utilize Expertise and Corporate Knowledge. One of the most important aspects of the

 Organic factor is the availability of expertise and corporate knowledge about the public entity's business. No other organization, including the private entities, will know more about the competitive workload than the threatened public organization itself. Corporate knowledge, in the context of this study, is defined as the experience base obtained through long-term contact and performance within the workload area.The workforce of a public entity is, in particular, one of the key factors in the corporate knowledge issue. It is the workers of a public entity that carry out the procedures that produce the product or service. The experience these individuals have, in regards to the product or service they provide, is difficult to replace and demands to be recognized as a potential competitive strength. For example, the U.S. Coast Guard operates and overhauls a French designed helicopter, the Eurocopter HH-65A Dolphin. The service has been flying this helicopter since 1984, and, as a result, the Aircraft Repair and Supply Center (AR\&SC), the service's depot, has over seventeen years of in-depth knowledge on aircraft particulars to include overhaul peculiarities, expected parts replacement, parts reverse engineering, and airframe performance issues. In fact, in 1998, the depot's workforce built from scratch, using parts from a mishap airframe, a brand new HH-65A airframe. This indigenously built airframe is now the test prototype for the HH-65B Dolphin avionics upgrade program.(AR\&SC, 2000) Because of the small number of HH-65A airframes in the U.S. armed forces (all 93 units in procession by the U.S. Coast Guard), the capabilities and experience of this highly skilled workforce is difficult to duplicate by anyone with exception of the aircraft's original manufacturer. This is true of any asset or service that is of interest only to a small customer base. It would be extremely difficult
for private corporations to cost effectively duplicate the amount of historical expertise already available and funded by the overarching agency.(GAO, 1996)

The fact that public entities presently have trained workforces, and own corporate knowledge associated with those workforces, must be addressed in competition preparation. Although sometimes overlooked, public management must endeavor to identify, improve, capitalize on, and offensively present to the selection board this readily available and extraordinary capability.

Historical organizational experience is another aspect of this corporate knowledge. Most threatened public organizations have backgrounds that can be identified as strengths in a competitive environment. These include past experiences with services, products, business practices, and customers. In the literature, it has been stated that there are definitive differences between the private and public entity competitive capabilities. A key item that differentiates these two is this historical background in the subject workload area. In the past, private firms have complained that the public sector proposal is automatically given preference because its historical experience is given a weight. This takes place despite the fact a public institution may be suffering from inefficiencies causing a competition in the first place. The private firms constantly question the ability of local public entities to compete because they do not operate facilities throughout the country and possess a network of national experts and resources. The main complaint is that competitors are not evaluated on a level playing field.(Eggers, 1998)

The public agencies counter with the fact that it may not have the varied and highly competitive infrastructure of the private sector, but it does have an historically in-depth and superior knowledge of the local business environment.(Eggers, 1998) The term environment is used in this context to describe the entire scope of public entity operations; it consists of all inputs and outputs to the business process in which exists the public organization. (Hammer and

Champy, 2001) These inputs and outputs consist of such items as unit transactions, contracts, suppliers, support channels, and community relationships. Once again, the Coast Guard relationship with AR\&SC and the HH-65A Dolphin program is a perfect example of this historical background. (AR\&SC, 2000)

It must be remembered that when a public organization prepares to compete, these historical processes inevitably become more streamlined, cost effective, and cost efficient. (Hammer and Champy, 2001) This is important baseline for the public entity. If the public organization does not provide a competitive service, the private entity simply has no competition.

All of this has held extremely true in the awarding of contracts to Warner Robbins ALC, the Louisville Naval Armament Depot, and the Norfolk NADEP. Each of these particular examples presents a public entity competitively overcoming extremely capable private bidders; they have done this through solid presentations of historical assets associated with expertise and corporate knowledge. The fact that this issue has assisted the selection of public entities solidifies the importance of capitalizing on an organizations entire experience base.(Stockman, 2001)

In addition to the experience of an organization, the working relationship between the public entity and the overarching agency should be presented as strength in regards to corporate knowledge and expertise. (Greenough and Eggum, 1999) During the C-5 competition, the public entry, Warner Robbins ALC, was able to present itself as a known Air Force commodity; it had a successful business relationship with the service prior to the competition. This successful and familiar relationship clearly assisted the source selection team in the arduous task of minimizing the risk and maximizing the value to the Air Force.(Beach, 1997) The same thing can be said in reference to the Coast Guard and its' aviation depot, AR\&SC. If AR\&SC were to participate in a public private competition, the long, risk-minimizing relationship between the depot and the

Coast Guard would be a definitive competitive strength. Past successes in unit support, contracting, overhaul, and contingencies could be capitalized upon for competitive differentiation by AR\&SC management teams.

In-depth knowledge of the overarching agency needs, and how to satisfy them, is particularly difficult for private entities to identify, replicate, and convey in their proposal. This is certainly due to the level of confidence such a relationship entails between the overarching agency and the public entity. As some of the literature suggests, this is not conducive to a level playing field in competition.(Martin, 1999) However, it is a definite factor in selection teams evaluating best value for the overarching agency. (Stockman, 2001)

Finally, the knowledge and expertise involved with key contractors must be identified within the organization. Contractors are a key aspect of a well-organized, competitive public entity. As players in the public operation, they enable the organization to be effective and efficient at the organization's core competencies. Because of this, the contractor's capability and contribution to a pubic entity is invaluable and should be completely documented as a strategic strength. A good example of this dramatic contractor influence can be seen in the public/private consortium contract awarded to the Louisville Naval Armament Depot. At this depot, the original equipment contractors, along with subcontractors, were able to highlight the successful key aspects of their integration as team members via an unsolicited proposal to the U.S. Navy. Without this contractor support and participation in the proposal, it is very likely the depot would have been shut down and the workload transferred to other public military depots around the country.(GAO, 1996) This level of contractor contribution is an asset. It should be clearly identified and fully utilized by the public management team during proposal development.

Highlight Readiness Capability. An interesting point, and one that is often overlooked due to its simplicity, is the fact that a public entity is owned and controlled by the overarching agency. A beneficial result of this is the ability of the overarching agency to impose its will, at its pleasure, on that organization. When a government turns over functions it previously operated to private companies, this control is lost and public oversight of the new provider becomes extremely important.(Bunker and Davis, 2000) The overarching agency no longer has this direct control; it is limited by the contract specifications and the private entity's interpretation of those specifications.(Arnavas and Ruberry, 1999) An interesting example of this has little to do with the military. In November of 1997, two convicted sex offenders scaled a prison fence outside of Houston, Texas, and made it 200 miles, nearly to metropolitan Dallas, before authorities apprehended them. What makes this case special is that the state of Texas could do nothing to punish them for escaping; in fact, state authorities had no idea the men were serving time in Texas! The escapees, convicted in Oregon, had broken out of one of Texas's thirty-eight privately operated prisons. This example reflects the increased pressure and risk that an overarching agency must deal on the federal, state, and local level to cut costs and streamline operations through vehicles like public private competition. It also, unfortunately, clearly points out the lack of control a government inherits when awarding contracts to private competitors. (Bunker and Davis, 2000)

What does this have to do with readiness? It is simple. Readiness is defined as the ability to properly respond when called upon with the right equipment at the right time. According to 10 United States Code 2464, Department of Defense activities must maintain a core logistics capability, including personnel, equipment, and facilities sufficient to provide the technical competence and resources necessary for effective and timely response to a mobilization or other
defense emergency. Basically, this code provides guidance to the Department of Defense in order to maintain control over assets such as public depots. Although this core workload has the ability to be waived by Congress in some situations, the fact remains that the Department of Defense clearly recognizes outsourcing entire workloads as a risk to readiness. (GAO, 1996) However, this core capability is not required in other public organizations. As a result, the outsourcing risk becomes an unchecked danger to other public agencies and their own readiness levels. An example of a non-DOD organization whose readiness could be affected by outsourcing is the Federal Aviation Administration's Air Route Traffic Control System.

Without complete control over the public entity, the overarching agency loses this ability to respond quickly with the greatest amount of flexibility. For example, if an organization were forced to make strategic changes to induction schedules for a private entity depot, there is a significant chance it would be constrained by the contract terms limiting workload changes. Unfortunately, not all contingencies can be thought of when a contract is developed and awarded to a private entity.(Arnavas and Ruberry, 1999) As recognized by the Department of Defense, this lack of control is the risk other public organizations incur when contracting a private organization for workloads. There is generally little flexibility.

Flexibility, on the other hand, is the strength of a vertically integrated public entity and overarching agency. Vertical integration allows an organization to provide higher levels of control, as well as, higher quality work in a timelier manner without being constrained by outside organizational agendas. It takes full advantage of the internal organization's human resources, equipment, and facility space.(Krajewsiki and Ritzman, 2001) With this vertical integration, any product or procedural change can be quickly and efficiently implemented within the overarching agency. If this total control cannot be assured, then readiness of the overarching
agency may suffer. This points out the competitive strength of a public entity continuing work for the overarching agency.

Advertise Reliable Support Infrastructure. One item that has been alluded to, but not yet addressed, is the capability of a public organization to present an already operating and reliable support infrastructure for its workload.(Beach, 1997) This term, support infrastructure, implies all supply channels, contractor relationships, and management information systems. It is the infrastructure that allows the public entity to effectively and efficiently produce the product or service to the overarching agency. Again, it must be remembered that this assumes the public organization is operating with no crucial inadequacies; the organization is only threatened to be outsourced due to reasons beyond business performance. A policy to reduce support ownership costs, such as represented by the Coast Guard IDS program, could be an example of these other reasons.

Although applicable throughout all aspects of a public private competition, Best Value is a term that now enters into the discussion of support infrastructure. Best value can be defined as meeting all the needs of a customer.(Hammer and Champy, 2001) This includes items such as flexibility, quality, timeliness, and reliability of a support structure; it is not just simply the lowest cost. It is extremely possible that the overarching agency's need for a reliable support infrastructure is greater than the risk associated with relying on an unfamiliar support system sponsored by a private entity.(Dwyer, 2001) If a responsive and highly reliable support structure is already in place, then this must be considered a strength of the public entity. The support infrastructure of a public entity must, therefore, be presented in such a way to highlight this strength.

Develop Performance Guarantees. Issues such as cost information, politics, and overhead will be included in this competitive proposal; these have all been referenced heavily in the past sections of this chapter. What has not been mentioned is the topic of performance guarantees and penalties. It is important that public management teams address this issue with an openminded approach. Although against the quality improvement principle of doing a job right the first time, the competitive attribute here is comfort level of the overarching agency.(Hammer and Champy, 2001) If the public management team can provide a better or more encompassing guarantee, then the public proposal is that much more competitive than the private, unknown entities. A known quantity such as a public entity with good performance guarantees is a powerful combination in a managed competition.

Legally binding performance guarantees are typically required of private firms when they enter into service contracts with overarching public agencies. In addition, private entities are often required to put up a performance bond to guarantee performance over the multi-year contract. Public teams, on the other hand, are usually not subject to the same performance requirements; meaning, they are not subject to financial penalties for cost overruns. Private entities argue that the bids put in by public teams would be higher if they were subject to the same financial consequences as the private sector.(Eggers, 1998)

The literature suggests that to participate and be competitive in a fair competition, the public entity must be subject to downside financial risk when they enter into a contract. However, these same guarantees and penalties can also be a positive disruptor of the level competitive playing field; the public entity can use well-developed warranty plans as a competitive asset. The following are several ways a public organization could present guarantees. First, a cost overrun fund could be established and withheld by the public entity; it would be used in case of a true
overrun. The cost would then be tacked on to the price of the budget or contract cost. Another tool, although extreme, would be a proactive agreement for simple contract termination upon a lack of performance; a re-solicitation would take place for the workload. Because of this necessity to ensure a level playing field, and the opportunity to further differentiate themselves from the private entity, public management must seriously anticipate how it could best integrate such penalties into its competitive proposal. (Eggers, 1998) A warranty could be the difference between winning a competition or losing the workload.

Conduct of Proposal Preparation. To compete within a public private competition, the public entity must submit a proposal that is not only compliant with the Request for Proposal, but also highly credible and competitive with private submissions. From the literature, it appears that Cost Factors, Political Factors, and Organic Factors should all be incorporated into a proposal to present a complete picture of a competitive public entity. The problem for public agencies lies in the fact that they do not generally possess an experienced background in the business environment or with proposal development. Being a public entity, this concept of competition is not just new, but completely foreign. (Greenough and Eggum, 1999) It is one thing for a public organization to conduct process reengineering efforts for self-improvement goals, but it is quite another to present all those defining organizational activities in a manner conducive to winning a competition.

One of the first things which needs to be addressed is the requirement to hire outside assistance for proposal preparation. Earlier in the Cost Factor, it was mentioned that outside consultants should be used to assist with the formation of the cost portion of a proposal. Similarly, there should be consultants hired to assist with preparation of all other aspects of a competitive proposal. Many governments around the world have found that hiring experienced
consultants to assist in proposal preparation enhances competitive neutrality. After all, the public managers must remember their competition is extremely proficient at this endeavor. Having conducted dozens of competition procurements, many available consultants can bring greater objectivity and credibility to those public entities participating in the managed competition. It is important to note that the costs of the consultants should be included in the proposal to foster a level playing field, and also, to offensively disarm any potential bidder protests.(Eggers, 1998)

Attending Pre-Proposal Conferences can be a proactive action done to ensure a public management team has complete understanding of the RFP. The purpose of such conferences is to brief prospective offerors to make certain they understand the RFP's requirements and to give them an opportunity to obtain clarifications and explanations. If a pre-proposal conference is held, it is extremely prudent, although not mandatory, for all prospective competitors to attend. These conferences are usually conducted by the Contracting Officers or his representative.(Arnavas and Ruberry, 1999) It is in the best interest of a public management team to attend a pre-proposal conference to obtain the aggregate data and tools necessary for further bridging a very credible experience gap.

Although extremely important, proposal preparation should not be a monumental task for the public entity. With the help of consultants and motivated personnel, it should be an exercise in capturing readily available information and presenting it in the proper format for competitive evaluation. A proposal is simply a snapshot of an already competitive public organization.

## Factor.

## ORGANIC FACTOR

## Highlight Overhead and Excess Capacity

-Underutilized Public Facilities
-Underutilized Skilled Workforce
-Underutilized Public Capital

## Utilize Expertise and Corporate Knowledge

-Workforce Knowledge Base
-Historical Experience Base
-Working Relationship Between Public Entity and Overarching Agency
-Contractor Experience

## Highlight Readiness Capability

-Level of Control of Workload
-Readiness Risk vs. Outsourcing Entire Workloads
-Issue of Flexibility and Vertical Integration Benefits

## Advertise Reliable Support Infrastructure

-Capitalize on proven and reliable infrastructure
-Best Value and the Support System in Competition
-Infrastructure as a Competitive Strength

## Develop Performance Guarantees

-Comfort level of Overarching Agency as Important Attribute
-Beneficial types of Public Guarantees and Penalties
-Guarantees required for Level Playing Field
-Guarantees and Penalties as positive disruptor in a Level Playing Field

## Conduct of Proposal Preparation

-Lack Public Management Team Experience and Knowledge in Subject Area
-Outside Assistance Required to Prepare Proposal
-Utilization of Pre-proposal Conferences
-Inclusion of Cost Factor, Organic Factor, and Politics Factors in Proposal

Figure 7. Key Factors and Sub Factors of Organic

## III. Methodology

## Introduction

The goals of this study are to accomplish two objectives. The first is to identify the factors important for a public entity to be competitive in a public private competition. The second is to establish the overall position of the U.S. Coast Guard Aircraft Repair and Supply Center (AR\&SC) in addressing these key factors to be competitive in a managed competition. Once again, it is hoped the results of this research will assist AR\&SC in preparation of a competitive, defensive strategy against outsourcing, as well as, increase the depot efficiencies in direct support of the Coast Guard IDS philosophy of minimizing ownership costs.

The methodology of this study will be divided into two phases with each addressing a particular thesis objective. In addressing the first goal, the research model presented in chapter two, Figure 1, will be validated using the Delphi Technique of expert solicitation and consensus. Upon completion of the model validation, the AR\&SC leadership and business management will be surveyed in regards to the validated key competitive factors to measure the depot's present capability to meet them. At a minimum, what is being sought is a baseline of AR\&SC's competitive capability. However, it is hoped that an assessment tool can be developed from this study that will allow AR\&SC to quickly measure its position in regards to preparedness for a public private competition.

## Delphi Technique

The Delphi Technique is a method of eliciting and refining group judgments. Simply put, it is a multistage process involving the initial measurement of opinions, followed by data anaylsis, design of a new questionnaire base on group responses to the previous questions, and a second measurement of opinions. This is followed by additional questionnaires, designed in the similar
fashion, repeated until consensus is reached or a saturation of opinion occurs. A key aspect of this technique, experts are used to participate in developing and responding to issue items included in the survey. Another important factor is that it allows these expert participants to reconsider their opinions in light of the views of other stakeholders. (Rayens and Hahn, 2000)

The rationale behind the technique is quite simply "two heads are better than one"; this is particularly valid when the subject issue is one where the exact knowledge is not available or readily known (Dailkey, 1968:6). This is the situation with which this study finds itself. The key competitive factors for a public entity have been researched from current literature, yet the model developed from this research requires validation by another source. This source is a group of highly experienced professionals in the field of public private competition; for this study, they will be referred to as experts.

There are three key features of the Delphi Technique that must be mentioned because they clearly point out the basis of this procedure. The first is the anonymous response in which group opinions are obtained by a questionnaire without the members knowing who else is participating. This is done to avoid, what numerous studies have identified as serious difficulties with face-toface group interaction. These difficulties include the influence of dominant individuals on group opinion, the semantic noise where everything else is discussed but the actual problem, and finally, the group pressure for conformity leading to distortions of individual judgment.(Dailkey, 1968)

The second is iteration and feedback of information. The interaction of the group member is effected by a systematic exercise conducted by utilizing several iterations of surveys integrating a controlled feedback tool. This is important because it provides the member with input from previous rounds of the questionnaire, not only from himself, but from the group of experts. This
feedback can be a highly motivating environment for respondents. Having experts share information in this manner can be academically refreshing, beneficial, and interesting to all. Additionally, the use of a systematic procedure allows the respondents to have a sense of objectivity in the study.(Dailkey, 1968) It is not often that participants can release their inhibitions on topics to an expert community. The Delphi Technique allows this to take place.

Finally, group agreement on a subject is defined as an aggregate opinion during the final round. Group Opinion is expressed in terms of a statistical score. This is called consensus of the factor, and this is the overall goal of the Delphi Technique.

Opinion, Speculation, and Knowledge - The Delphi Technique seeks to capture a particular piece of the decision input spectrum provided by expert participants. There are roughly three types of decisions that a participant can make in response to questions on a survey. They can provide direct answers with facts or knowledge, they can provide their judgment or opinion of the topic, or they can purely speculate about the topic.

Knowledge feedback will undoubtedly have large amounts of evidence backing it up as fact. It will be the information most likely found in many reference books on any particular topic; it is the baseline for fact. At the other end of the scale is speculation. This is where the member provides information with very little or no evidence at all to provide reference for the statement. In other words, it is a pure guess or educated feeling provided by the respondent without any information to back up the statement. Finally, in between the two points of fact and speculation, there lies the feedback called opinion.

Opinion is the broad area of material for which there is some belief or evidence behind the statements, but not sufficiently enough to confirm the statement as knowledge. Figure 8 provides a graphical presentation of these three areas of decision-making and probabilities
associated with factual truth. It is important to point out that what separates knowledge from opinion is the fact that there is a reasonable probability that opinion, when expressed, may be false. However, this does not stop the use of opinion to further validate the inclusion or exclusion of knowledge points in a theory or research model. It simply states that there are different levels of decision-making information.(Dailkey, 1968)


Figure 8. Probability Scale of Opinion vs. Knowledge (Dailkey, 1968:3)

The Delphi Technique seeks to explore this area of opinion to obtain access to the less factual, yet extremely valuable products of judgment, wisdom, and insight of subject experts. This opinion is only readily accessible by means such as direct expert contact though interviews, questionnaires or surveys. The value that expert opinion has to the researcher lies in the capability the information has to validate knowledge points brought out from literary research and model developments. As a result, this study will utilize several iterations of a survey to isolate this opinion base. It is hoped that the Delphi Technique can be used to confirm the
model's knowledge based structure, therefore providing the researcher with a refined model to measure AR\&SC.

More opinions are better than one - As stated, it has been said that two heads are better than one. Literature suggests that it is better to take the opinions of many experts and aggregate them because the range of answers is likely to include the true answer to a question. Figure 9 shows the dependence on group size of the mean accuracy of a response for a large set of experimentally derived, known answers to factual questions. In other words, the experimenters knew the true answers to the questions, and the subject experts did not. The main point is that as the group gets larger, so does the accuracy of the consensus answer

The Figure 8 curve was derived by computing the average error of various sized groups; the individuals answers were drawn from the experimental distribution. It is clear from Figure 8 that with this population of answers, the gains in increasing group size appears large. Notice that the largest group tested was 29 ; please note that the curve appears to be in a decreasing trend as the groups size increases. The larger the group, the lower the error in reaching the true statement.(Dailkey, 1968) It should also be pointed out that as the complexity of the issue increases, the sample size needs to be larger to include the entire range of participant experts; an example would be inclusion of experts both for and against a policy issue. This increases the value of the expert group to the studies results.(Rayens and Hahn, 2000) For this study, every effort was made to recruit the largest and most varied group of experts attainable in the field of Source Selection and public private competition experience.


Figure 9. Effect of Group Size on Response Error (Dailkey, 1968:11)

Reliability- Another important consideration of using experts to gain consensus is the issue of reliability. It is clearly desirable for a study that another analyst using the same approach and different experts arrive at similar results. Once again, the data from the above experiment suggests that a relationship between reliability and group size for the experimental population of answers does, in fact exist. This data set in Figure 10 was constructed by selecting, at random, pairs of respondent, various sized groups and correlating the median responses of the pairs of 20 test questions. The ordinate is the average of these correlations. From this correlation displayed in Figure 10, it is clear that there is a definite increase in the reliability of the group response with increasing group size.(Dailkey, 1968)


Figure 10. Reliability vs. Group Size (Dailkey, 1968:13)

It can, therefore, be assumed that taking opinions from a group of experts, using the Delphi Technique, is justified due to the considerations of improved mean accuracy and the higher reliability of obtaining the actual true answer.

## The Expert Group

Selection of Organizations. As stated above, the one of the goals in using the Delphi Technique is to obtain a broad opinion slice of the source selection and public private competition professional community. Research was conducted via literary searches, internet searches, and finally, email and phone interviews with offices representing various centers of topic knowledge such as Public Policy Think tanks. Primary selection rule was the level of understanding and involvement each organization had with past or present public private competitions. A secondary selection criterion was the level of compatibility with the U.S. Coast Guard, its organization, and mission. The following is a list of the organization represented in this study.

Federal Aviation Administration (FAA) - This organization was chosen because of the extraordinary budgets dedicated toward the Air Traffic Control Modernization Program. Of the federal government agencies dealing with outsourcing and conducting public private competitions, the FAA has been found to be an agency deeply involved with this effort. Presently, Lockheed, Boeing, and Raytheon have all submitted proposals to outsource or privatize some or all of the nations Air Traffic Control System. Because of the ongoing efforts inside the FAA, in particular with the politics associated with these proposals vice keeping the service in house, this organization was selected to participate in the study.

A major University - This University was selected because it represented a professional civilian academic entity. It is the employer of one of the nation's top experts in the field of managed competition. This civilian expert is involved in the survey effort. United States Air Force - The United States Air Force was selected because of its similarity to the United States Coast Guard in organization and mission. Both services operate military aircraft, and both services operate government depots to maintain those airframes. In particular, and most important, the Air Force was selected because of its broad experience with high profile, large scale source selections, as well as, the successful conduct of aviation depot public private competitions.

United States Coast Guard - The United States Coast Guard was selected due to it is representation as a smaller government agency. The fact that an entity inside the Coast Guard was sponsoring this study was not relevant; the Coast Guard was simply another avenue to obtain data. Having conducted smaller source selections and public private competitions in the past (A-76 studies), the service was found to have a broad knowledge
base and experience level representative of a budget challenged agency of the federal government. The fact that those answering the survey would be part of a potential source selection team for AR\&SC was a relevant factor however.

Civilian Think Tank Corporation - This organization is represented in the study by one of its key consultants. Based in Washington DC, this corporation is contracted to provide expert level acquisition support to senior level acquisition decision makers in the Department of Defense. Its corporate image is of a Center of Acquisition Excellence.

As one can see, those organizations listed represent a slice of the public private competition professional community. Federal Agencies and Civilian Institutions are both represented to obtain an all encompassing input of the managed competition issue.

Expert Selection. The experts sought for this study were high-level executives in each representative organization. With the exception of the expert from the Major University, all experts were each recommended by their particular organization. The expert from the Major University was approached directly by the researcher of this thesis; in particular, he was selected due to his extensive research published on the topic of managed competitions. Although not all experts that were approached agreed to participate, those that did agree stated that they were extremely motivated to participate. Table 1. documents each participant and their participation in each survey round.

Table 1. Expert Participants

| Expert | Organization |  | Position | $\mathbf{1}$ |
| :---: | :--- | :--- | :--- | :--- |
| 1 | FAA | Acquisition Specialist | 3 |  |
| 2 | A Major University | Full Professor | x |  |
| 3 | U.S. Air Force | Financial Management Specialist | x | x |
| 4 | U.S. Air Force | Director Contracting of a Systems Center | x | x |
| 5 | U.S. Coast Guard | Contracting Office Chief | x | x |
| 6 | Civilian Think Tank | An Acquisition Policy Director | x | x |
| 7 | U.S. Air Force | Deputy Commander AF Support Group | x | x |
| 8 | U.S. Coast Guard | Competitive Sourcing Specialist | x | x |
| $\mathbf{x}$ | x |  |  |  |
| 9 | U.S. Coast Guard | Commander of a Maintenance \& Logistics Center | x | x |

As can be seen from Table 1, each expert was given a number. This kept the responses anonymous. Please note the variety of positions each holds in his or her organization; this provides the study with a large cross section of the public private competition professional community. Once again, all of the expert participants are members of the executive corps of their respective organization. Of the nine survey participants, four are Senior Executive Service (SES) of Federal agencies, one is a military GS-14, two are military $0-5$ s, one is a civilian executive vice president in private industry, and finally, one is a full university professor and associate department chair.

## Development of the Delphi Survey Instrument

The Delphi instruments developed are questionnaires specifically designed to reflect and validate the results of the research model development. The goals of this survey program are three fold. The first is to validate the research model for concept accuracy; second is to examine areas were it is not accurate and produce explanations why. Finally, third, it is hoped that the results of this questionnaire program will produce a refined, highly accurate reflection of the areas a public entity needs to dedicate resources to be competitive in a public private competition.

Each questionnaire is divided up into the three key factors reflected in the research model. Once again those are Political, Cost, and Organic. Under each key factor heading, the questions are further broken down into sub groups reflecting the sub factor areas. Together, each of these sub factors make up the pillars on which each major key factor is built.

The questions in each survey are divided into two types: closed and open. Most of the closed ended questions can be traced directly to the literary research conducted to form the research model, however, as the survey iterations develop, several of those closed questions are also created from expert comments in the previous survey. These closed ended questions generally form the core of the survey tool. Although called closed ended, this set of questions does have an area for participant comments. This provides an avenue to capture information possibly not reflected or asked about in the particular question area.

The survey instruments also seek to query the expert's knowledge via open-ended questions; these are positioned at the end of each sub factor block. This serves to capture any additional thoughts, concepts, or factors the expert believes should be integrated into the study to make it more accurate and reflective of the public private competition concept. Although this assists with all goals, in particular, it assists with meeting the third.

A five point Likert scale is used in the survey structure. It reflects a scale of agreement using the descriptions Disagree, Moderately Disagree, Neutral, Moderately Agree, and Agree.

Round One Survey. This first questionnaire formed the baseline of data gathering for this study. This can be seen in Appendix A. It was the first instrument to probe the expert knowledge base. It also validated the instrument's design and user flow. The closed questions, reflective of the research model, helped to quantitatively justify the model's existence, while the open-ended questions guided the development of new questions for the following second round.

Round One Results and Second Survey Development. This second questionnaire was developed from the responses produced from the first instrument. This questionnaire was exactly the same as the first one, but it had some key exceptions. The first exception was the inclusion of new questions suggested by the experts, and the second was the removal of several unpopular and off target questions. These off target questions were identified as having a particularly low score.

Determining which questions had the lowest score was done by taking the average of the answers for each question and comparing it to the threshold score. The threshold was established at 3.0. While this seems arbitrary, a 3.0 score has been utilized in past Delphi studies to establish concept importance. If the question's average was not 3.0 or better, then the question topic was considered not important for the study. (Scheffler and Logan, 1999) The intent of this study was to have minimum loss rate of questions; this minimum loss would reflect validation of the research model. As will be seen in Chapter IV, only two questions were actually dropped from the study during preparation for the second survey.

In addition to adding new questions and deleting others, the groups average for each question and the individual expert responses, were included in the survey alongside the particular question. Once again, this allowed the expert to reflect on the previous individual and group score prior to answering the questions again.

Round Two Survey. In the second round, each participant was provided an individually prepared survey that reflected the individual and group statistics. This can be seen in Appendix B. Additionally, for some of the individual statistics per question, there was an asterisk included next to the response. This indicated those questions where the individual response was greater than 1.25 standard deviations of the group mean for that particular question. In the directions
provided with the survey, it was requested those experts provide comments on why they think their responses were outside this statistical interval. It was hoped that this additional information would assist in determining if the answer was based on new information that could make the study stronger, or if it was simply an issue isolated to the particular organization represented by the expert.

The results of this second survey consisted of closed question quantitative data, comments from the individual closed questions, and factor oriented responses from the open ended questions. All of these response types were included in the development of the third questionnaire.

Round Three Survey. The third questionnaire was developed to be the final measure of consensus. This can be seen in Appendix C. Literature suggests that any additional consensus obtained from more than three iterations will be negligible. In other words, three appropriately conducted Delphi survey iterations will provide the best indication of group agreement on a topic. With any more rounds, the study will begin to suffer from the law of diminishing returns. (Dickson and Leitheiser, 1984)

This leads to the question of what constitutes or defines a consensus. How will this study know if agreement is quantitatively reached after three rounds? For this study, consensus was determined by measuring the standard deviations of individual question responses. A deceasing standard deviation indicates a decrease in the differences between the expert participants on a particular question. As the study moves from the first to the final round, the standard deviations of these questions will be plotted to indicate a trend toward a standard deviation of zero, or perfect consensus. (Dickson and Leitheiser, 1984)

## Testing of the Survey Instrument

A pilot test was conducted utilizing an Air Force Institute of Technology professor knowledgeable on the topic of public private competitions. There were two goals of this test. The first was to ensure the instrument flowed well and was mechanically sound for the user. The second was to check for question readability and user understanding of question content. Upon completion of the pilot test, it was found that all of the goals were met with the exception of readability. There were a few questions that required a revision for readability.

Upon completion of the pilot test revisions, the survey was then sent to an additional Air Force Institute of Technology professor specializing in the survey methodology. This review constituted a second review of the instrument. The feedback from this review identified a few readability and concept problems; these were quickly resolved and the results integrated into the instrument. Upon completion of these minor changes, the survey was ready for deployment to the expert participants.

## Distribution of the Survey Instrument

Three months prior to the first survey round, the expert participants were contacted by telephone. Each expert was interviewed to find out their background and to evaluate their potential for providing data on the subject of public private competitions. A resulting benefit of those interviews was the unilateral agreement amongst all participants to use electronic mail (email) for communication of minor messages in reference to the study. Because email proved to be very timely with each participant, and because the experts all agreed to it, the decision was made to deliver the survey by using the electronic mail system.

For every round, a copy of the Survey and a Survey Introduction Letter was set as an email attachment to each participant. The Survey Introduction Letter simply provided detailed
information on the study and survey instructions. These can be seen as Appendix A, B, and C respectively.

During the first survey round, the experts were provided the option of returning the completed survey as an email attachment or in the regular mail. After all the first round responses were returned via email, the decision was made to discard the mail service as a return option. All experts liked the idea of returning the survey as an email attachment.

## Data Processing

Data processing was performed using spreadsheets developed in Microsoft Excel.
Immediately upon receiving a survey, the results were entered into the spreadsheets utilizing two individuals. One would call the data out, the other would enter the data into the spreadsheet. As a check upon completion of data entry, the inputted data was then read off and verified with the originating survey. This was done individually for each survey to minimize mistakes in the mechanical process.

The main area of emphasis in the spreadsheets was the computation of question means, medians, and standard deviations. As will be seen in the next chapter, this structure provided absolutely adequate datum from which to verify the research model and build an evaluation tool for AR\&SC.

## Public Private Competition Assessment Tool (PCAT)

The next step in the study is the development of a Public Private Competition Assessment Tool, or PCAT, designed specifically for use by the U.S. Coast Guard Aircraft Repair and Supply Center.

With the advent of the Integrated Deepwater System (IDS) Acquisition plan, the threat of outsourcing historically Coast Guard specific workloads to private companies is very significant.

Of these workloads, one of the most targeted is aircraft depot support and repair; this is the specialty of AR\&SC. Because of this issue, it was a goal of this study to develop an evaluation tool that could assist AR\&SC management in preparing the organization for a public private competition.

Typical of most government agencies, AR\&SC has little experience in the competitive business arena, and as a result, has little idea on how a public private competition works. With the IDS program on the horizon, extinction is a definitive reality for AR\&SC unless it can recognize what it needs to do to prepare for competition. This recognition not only includes planning, but a well-designed distribution of resources.

AR\&SC has a unique position in the Coast Guard and Coast Guard Naval Aviation. Being the only government depot for Coast Guard aircraft and helicopters, AR\&SC maintains many unique capabilities and conducts each of them with extreme professionalism. Recent efforts to further improve these products and services include Business Process Reengineering (BPR) and the implementation of an Activity Based Cost System (ABC). Both of these efforts have produced a very streamlined and, potentially, cost effective organization sitting on the proverbial fence post of competitiveness. However, these accomplishments will mean nothing unless AR\&SC can effectively build on their foundations and present them in a competitive format. This is where the PCAT enters into this study

The PCAT provides real time feedback to the AR\&SC management team. The foundation of the tool is based on three key factors that make a public entity competitive. These factors were presented by this study's research model and verified through the Delphi process. Once gain, these factors are Politics, Cost, and Organic.

The basic premise of the PCAT is to increase the visibility of these key factors and how AR\&SC management addresses them. AR\&SC management will take this PCAT data and use it as a planning reference for competition against private industry. The objective here is to provide the management teams with broad, strategic oriented recommendations. The goal is not to micromanage Coast Guard leaders by having the tool provide exact issue and resource management planning; this type of micro planning not only decreases flexibility, but it would make a tool far too complex to be practicable for use. AR\&SC will simply be provided just enough key information to make its own decisions on resource deployment and factor priorities.

## Development of the PCAT

The PCAT was developed from the results of the Delphi process. This survey procedure provided a validation of the three key factors of Politics, Cost, and Organic. As a result, the PCAT's evaluation questions came from the cadre of information gathered and verified during the first half of this study. As mentioned earlier, there were only two rules of the road for this tool development; they were ease of use, and strategic level feedback. Both of these goals were kept in mind throughout the entire process of research, design, and final production of the PCAT.

Tool Design Research. After the successful completion of the Delphi process, the next step was to develop a design which could provide AR\&SC with a worthwhile assessment tool. After researching various tool designs in use in management today, it was discovered that there was no totally compatible design that met the goals set for AR\&SC. As a result, it was decided to benchmark from an already established project management tool to begin development of a tool indigenous to AR\&SC needs.

Called the Project Implementation Profile, the goal of this tool is to assess how an organization's project was progressing. (Pinto and Slevin, 1992) It was specifically developed to
make periodic assessments of key factors concerning a project through the implementation process. Attractive was its simplistic ability to conduct an evaluation of key factors, as well as, its goal of providing an iterative tool for the user. The tool used a format that broke down project areas and asked the user specific questions designed to obtain a level of issue measurement. The input obtained from the user was in the form of a Likert scale from one to seven ranging from highly disagreeing to highly agree respectively. Each of the project area statistics was then summarized into a user-friendly chart for managerial evaluation of the project. (Pinto and Slevin, 1992)

Although far more generic for this study's use, the Project Implementation Profile provided this study with a basic format from which to benchmark its own AR\&SC specific tool. Specifically, the two ideas borrowed from it are parts of the tool's format, and user flow. It is important to point out, however, that the PCAT only faintly reflects those ideas of this more generic tool. The structure of the PCAT system can be divided into three areas, the PCAT design, the PCAT Summary, and the PCAT User Flow .

PCAT Design. The PCAT design consistently implements the rules of user simplicity and strategic managerial feedback. It is divided up into three sections reflecting the key competitive factors of Politics, Cost and Organics. Under each of the factors headings, the tool proceeds to be broken down further into subsections describing the particular factor. It is in these subsections that items are brought to the user's attention in the form of questions relating to the factor. The questions are based on data obtained from the survey work. It is important to point out that every question posed to the AR\&SC user can be traced back through the Delphi verification process to its source in the initial literary research for the study. In other words, the questions, and the information they represent, have been seen twice before in the process of this
study. Because this information has been spoken about in detail previously, there will be no further detail provided on the questions content suffice to say that there is no new information to introduce.

A Likert Scale is used as the measurement interface between the tool and the AR\&SC user. Once again, it reflects a scale of agreement using the descriptions Disagree, Moderately Disagree, Neutral, Moderately Agree, and Agree. Although other versions of the Likert Scale were investigated for use, it was decided to use the same scale implemented in the survey process. This decision did two things. First, it lowered the risk of using an untried scale on a key deliverable of the study. Secondly, it ended up providing a standard response mechanism throughout all of the study's deliverables limiting potential complexity for any future reader.

At the end of each section, the Likert responses are totaled to obtain an average response for the subsection. The subsection averages are then totaled themselves to obtain an average for the entire key competitive factor. This is all done using the Microsoft excel program. Figure 11 displays an example of the PCAT. However, the entire PCAT can be viewed in Appendix D.

## POLITICS 1.0

> The following questions address the Factor of Politics. For competitive preparation, politics is defined as the protection of public entity self interests before and during a public-private competition. In other words, it is the intentional acts of influence to enhance or protect the self-interest of individuals or groups

## Sub Factor 1.1

Mobilization of ELECTED Officials
This first subsection deals with the mobilization of elected political pressure in favor of a public entity. This pressure is defined as political influence from Congressman, Senators, State Governors, State Legislators, and local politicians in support of constituencies' needs and wants.
1.1.1 Federal Political Pressure

| 1 | North Carolina Representatives are aware of the potential Deepwater Program <br> outsourcing threatening AR\&SC. | $\mathbf{2}$ |
| :---: | :--- | :---: |
| 2 | North Carolina Senators are aware of the potential Deepwater Program <br> outsourcing threatening AR\&SC. | $\mathbf{2}$ |
| 3 | Virginia Representatives are aware of the potential Deepwater Program <br> outsourcing threatening AR\&SC. | $\mathbf{2}$ |
| 4 | Virginia Senators are aware of the potential Deepwater Program outsourcing <br> threatening AR\&SC. | $\mathbf{2}$ |
|  | Total | 8 |

Figure 11. Example of PCAT

PCAT Summary. This Factor Average, along with the other two Factor Averages obtained using the same method described above, provides AR\&SC management with a high level assessment of where the organization stands in reference to it's competitiveness in a workload competition. These important statistics are summarized for the AR\&SC management team in the PCAT Summary Sheet. This particular display serves the users by providing a quick and userfriendly overview of the team's assessment. True to the strategic rule of design, it does not go into the details of each sub factor, however, this summary does not excuse the user from further investigation. The PCAT Summary Sheet simply points the AR\&SC user in a specific direction
for further study to find out why a sub factor might have a low score. As will be seen in the section, this investigation is incorporated into the PCAT system flow. An example of the PCAT Summary Sheet can be seen in Figure 12.


Figure 12. PCAT Summary Sheet

PCAT System Flow. A PCAT Flow Chart can be seen in Appendix E. Upon review of this system flow, the user is taken through a series of events eventually calumniating in the preparation of $A R \& S C$ to submit a competitive proposal. It must be noted that the PCAT system
flow emphasizes the use of this tool by a management team. This is to ensure that the allpertinent areas of AR\&SC are represented in the evaluation; this fact will ensure that the feedback provided by the tool is the most up to date and useful for all product lines.

As the chart continues to flow downward, the user is asked the question if any section or subsection was critical as defined by an average of 3.0 or below. This was selected as the critical point because the statistic 3.0 represents the neutral opinion on the Likert Scale. It was decided that any item rated as neutral or below, in the context of this assessment, would be considered noncomplying to the efforts associated with a competitive public organization. The fact that there are two levels below the neutral serves to provide a measurement on how badly the team is ignoring a particular competitive item.

If one of the subsections are critical, then the user would be obligated to review that subsection for individual critical items 3.0 or below. If the subsection was above 3.0 , then the user has the option of reviewing the individual items under a particular subsection; this would be done only if the user feels that there is room for improvement in some particular areas.

Upon identification, those critical items will then be set in a prioritized list for the purpose of developing Action Plans. It would be the goal of these plans to bring those critical items above a 3.0 in the next group assessment. Each plan would consist of management's specific directives on how it would address the critical item to be more competitive.

Prior to the execution of the Action Plans, a question has been purposely designed into the instrument's flow. This question forces the team to inquire, as a very last check prior to implementing the Action Plans, if there has been any recent changes in the IDS threat that would effect the assessment thus far. If there has not, then work on Action Plans would proceed as
scheduled. However, if there has been a significant change, it directs the group to quickly conduct another assessment prior to dedicating time and resources on any Action Plan.

After it is decided to implement the Action Plans, the user is asked if it has been one month since the beginning of the assessment. The purpose of this question is three fold. First, it ensures that the AR\&SC is not constantly in the assessment mode by forcing the user to forego additional evaluations for one month. Secondly, it ensures that the user reassesses AR\&SC's progress at a minimum of once a month. Finally, it ensures the tool's timeline is conducive to progressing action plans, while simultaneously, providing a catalyst to prevent those same projects from wither away due to lack of visibility or a perceived lack of commitment. This step can be considered a safety valve for long-term structure and continued effort.

If it has not been one month since the beginning of the evaluation, this could mean two things depending upon where the user is in the big picture process. First, it could simply indicate that the user has not cleared one month and should continue working on the Action Plans until one month passes. This would be indicated by sections and subsections of the PCAT still being at or below the critical value of 3.0. However, it could alternatively indicate that competitive preparation has been excellent implying there are no more critical items required to be addressed by AR\&SC management.

Having all PCAT sections above the critical value of 3.0 is a key indictor of successful public private competition preparedness. Once this point is reached in the PCAT process, AR\&SC's next step would be to submit a proposal for competitive consideration for the IDS program workloads. This is the goal of the Public Private Competition Assessment Tool for AR\&SC. If all these PCAT Factors are properly addressed, then AR\&SC can be considered highly competitive for a Deepwater workload.

## Testing of the PCAT

Upon completion of the PCAT prototype, it was then pilot tested utilizing two graduate students at the Air Force Institute of Technology. The purpose of this test was not to inquire about content, but to ensure the mechanical integrity and usability of the instrument. This test was completed without any significant changes to the instrument flow or readability. Of particular interest was a remark made by one of the of the student evaluators. In his remark, he mentions how easy it was to navigate the tool as an outsider for the first time. This was of particular interest to the researcher because ease of use was an original design guidance.

## Beta Use of the PCAT

Upon completion of the local testing, the PCAT was sent via electronic mail to key management representatives at AR\&SC. This was done two accomplish two objectives. First, it was done to beta test the PCAT instrument for appropriate content indigenous to the depot itself. The Beta PCAT contained locally oriented questions based on interviews and professional personal knowledge of AR\&SC workload processes and product lines. Because of this, every effort was made to ensure that potential AR\&SC users reviewed depot references for its accuracy.

Secondly, and most importantly, the Beta PCAT was sent to AR\&SC management to obtain an initial assessment of AR\&SC in reference to preparation for a public private competition. Completion of this initial assessment provided the answer to the second thesis question. To review, this question is the following:

What is the Aircraft Repair and Supply Center's overall position in addressing these key factors to create a competitive public proposal for a managed competition?

Upon obtaining the Beta PCAT, AR\&SC management was instructed to fill out the assessment individually. Feedback from the Beta PCAT was returned from AR\&SC management representatives via the electronic mail system. Upon receipt of the individual responses, a group average for each key factor was completed in a Microsoft Excel spreadsheet. Following this data review, a written assessment was finally completed to document this key deliverable, the competitive position of AR\&SC. The AR\&SC management participating in the Beta PCAT assessment is presented in Table 2.

Table 2. Participating AR\&SC Management Positions

| Position | Rank |
| :--- | :---: |
| Commanding Officer | $0-6$ |
| Executive Officer | $0-5$ |
| HH-65A/B Product Line Manager | $0-5$ |
| HC-130H Product Line Manager | $0-5$ |
| Chief Contracting Officer | $0-5$ |
| Chief Financial Officer | $0-5$ |

The feedback statistics along with the competitive position assessment will be further discussed in the next chapters.

## IV. Data Descriptions and Analysis

## Introduction

The first goal of this chapter is to provide the procedures utilized, and present the results obtained of the Delphi study. The raw data for each of the three rounds can be found in Appendix F, G, and H.

The second goal of this chapter is to present the content development of the Public-Private Competitive Assessment Tool (PCAT); the PCAT continuity with the Research Model, and, finally, the results of its Beta Use at the U.S. Coast Guard Aircraft Repair and Supply Center.

## Round One of the Delphi Process

There were two objectives for round one. The first objective was to validate the public private competition research model presented in chapter two of this study. The second objective was to interrogate experts in the field of managed competition to access additional information for incorporation into the model or to improve the existing model structure.

Every effort was made to exploit data gathering opportunities created by experts filling out the survey instruments. In this first round, the survey questions were directly traceable to the factors and sub factors creating the research model's structure. To capture the expert thoughts on a particular question, the expert was provided space allowing further explanation of their response position. In addition, to further this endeavor, there were open-ended questions located at the end of each segment; these simply asked if the expert wanted to add or present new information to the survey researcher. The first survey had seventy-four questions. As stated in chapter three, a five-point Likert scale was used for this survey and subsequent instruments.

## Results of Survey One

The rate of response on the first survey was $100 \%$; the use of electronic mail greatly facilitated this statistic. After an initial review, the survey data was entered into a previously prepared Microsoft Excel spreadsheet. As programmed, the spreadsheet computed the Mean, Median, and Standard Deviation for all questions. Table 3 below shows an example of this raw data spreadsheet. The complete spreadsheet can be found in Appendix F.

Table 3. Survey One Raw Data Example

| QUESTION <br> $\#$ | EXP 1 | EXP 2 |  | AVG | STD DEV | MEDIAN |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | 1 | 3 | $"$ | 4.000 | 1.414 | 4.500 |
| 2 | 1 | 3 | $"$ | 2.125 | 1.126 | 2.000 |
| 3 | 3 | 5 | $"$ | 4.375 | 0.916 | 5.000 |
| 4 | 5 | 4 | $"$ | 3.750 | 1.389 | 4.000 |
| 5 | 5 | 4 | $"$ | 3.250 | 1.669 | 4.000 |
| $"$ | $"$ | $"$ | $"$ | $"$ | $"$ | $"$ |

## Formulation of Survey Two

From the raw data for survey one, the data was further interrogated for information. First, the raw data set was sorted by each question's mean and median in descending order. Upon completion of the sort, a threshold value of 3.0 was applied to list. Both the mean and median sorts were compared after the threshold was applied; there were no significant differences that would have resulted in different question dismissals.

The differences that did exist consisted of an overlap of only two questions. A comparison conducted of round one threshold data shows that this entailed an overlap of questions \#9 and \#69. Both of these questions were, as will be explained later in this chapter, dismissed from the study. As a result, this effectively normalized the difference between the two mean and median
sorts. An example of this mean and median threshold comparison, including the overlap, is provided in Table 4.

Table 4. Example of the Threshold Spreadsheet

| SORTED BY MEAN |  |  |  | SORTED BY MEDIAN |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Q\# | AVG | STD DEV | MEDIAN | Q\# | AVG | STD DEV | MEDIAN |  |
| $"$ | $"$ | $"$ | $"$ | $"$ | $"$ | $"$ | $"$ |  |
| 27 | 3.125 | 1.808 | 3 | 27 | 3.125 | 1.808 | 3 |  |
| 9 | 2.875 | 1.808 | 3 | 9 | 2.875 | 1.808 | 3 |  |
| 69 | 2.75 | 1.035 | 3 | 69 | 2.75 | 1.035 | 3 |  |
| 21 | 2.625 | 1.598 | 2.5 | 21 | 2.625 | 1.598 | 2.5 |  |
| 2 | 2.125 | 1.126 | 2 | 2 | 2.125 | 1.126 | 2 |  |
| 36 | 2.125 | 1.553 | 1.5 | 36 | 2.125 | 1.553 | 1.5 |  |
| 10 | 1.75 | 1.165 | 1 | 10 | 1.75 | 1.165 | 1 |  |
| $"$ | $"$ | $"$ | $"$ | $"$ | $"$ | $"$ | $"$ |  |

Because there were no significant differences, and due to its use in previous studies, the mean designated as the primary threshold measurement. However, it must be pointed out that the median, because of its validity in previous Delphi studies, will continue to be used as a secondary statistic to compare the threshold sorts of future rounds.(Dickson and Leitheiser, 1984)

As a result of this threshold application, averages 3.0 and above were retained for the second round, and those below 3.0 mean were deleted from the active question list. As stated in chapter three, the value of 3.0 was selected due to its use in precedent Delphi studies.(Scheffler and Logan, 1999) This cut resulted in an initial loss of seven questions from the survey list. These deleted questions are presented in Figure 13.

```
2 Individually targeted congressional pressure can affect source selection team member
    decisions in a public private competition.
6 Congressional staffers, representing their superior's agenda, solicit individual members of
    the source selection team during a public private competition.
9 Public entities are unable to directly participate in the influential political tools available
    to interest groups.
0 Interest groups (other than congressional offices) solicit the source selection teams during
    a public private competition
21 Costs associated with overhead and other indirect costs, such as those associated with
    administrative support and capital setups, are not accounted for in the present public
    entity costing.
    Any ability to access outside assistance tends to tilt competitiveness in favor of the
    private sector.
    These post award, financial or contractual criteria can be a positive disrupter of a
    competition; the public entity can incorporate a well-developed criteria into the proposal
    effectively tilting the competition in favor of the public entry.
```

Figure 13. Questions below 3.0 Mean Thresholds

Although initially deleted from the active survey list, these seven questions did not lose all value to the survey process. These questions, and their accompanying expert comments, were reexamined to find out if any were written in too confusing a manner or in a manner misrepresentative of the intended question topic. Upon completion of this review, two questions were identified to be in need of rewrite. These were questions number 21 and number 36 .

Rewritten Questions. The first question, number 21 was presented to the expert responder in the following text and manner.

Costs associated with overhead and other indirect costs, such as those associated with administrative support and capital setups, are not accounted for in the present public entity costing.

The problem with this question existed entirely in the presentation. In other words, it was written in a manner that did not properly convey the researchers intent. The problem lies in the definition of not accounted for in the present public entity. The intent was to convey that public entities do not account for overhead and indirect costs in a standard manner. What came across to the expert respondent was that the public entity did not account for these costs at all. Feedback, both numerical and written, from five of the eight experts, pointed to this being a weakness of the question. As a result, the question was reworded in the following manner for inclusion into the second survey.

Overhead and other indirect costs, such as those associated with administrative support and capital setups, are accounted for by public entities, however, their non-standard methodologies are not widely accepted or trusted by the private business environment.

The question was renamed for survey two with the inclusion of an R after the number.
Question 21 from survey one became question $21 R$ for survey two.
Question number 36 also was identified as a potential rewrite candidate. It was presented in the following text and manner.

Any ability to access outside assistance tends to tilt competitiveness in favor of the private sector.

Upon review of the feedback for this question, it was clear what caused such low scores and unpopular comments. This question simply contained a typing error, however, the error was completely crucial to the meaning of the question. This resulted in confusion on the part of the experts. The mistake was in the word ability, it should have been written as inability. After review, the question was rewritten with the intended grammar in the following manner.

Inability of the Public Entity to access outside assistance tends to tilt competitiveness in favor of the private sector.

Once again, the renaming procedure was utilized. The question number 36 became 36R for survey two. It is important to point out that both renamed questions were kept with the same identification throughout the entire Delphi process. Upon completion of the rewrites of question $21 R$ and $36 R$, the remaining five questions were dropped permanently from the study.

New Questions. The experts, through their comments and question feedback, provided new topics for the study. Both types of written feedback, the question comments and the open-ended questions, produced a similar share of new factors pertinent to the study. As stated earlier, five questions were highly disagreed upon by the experts and dismissed from the study. It is, however, very interesting to note that the comments generated from these unpopular questions provided feedback for the many of the new topics as well.

All of the feedback was placed into aggregate lists and then grouped according to a common topic or factor. An interesting point is that the feedback did not necessarily reflect the question or area where it was found in the first survey. Although surprising in the mechanics, it does indicate that the survey instrument did what it was designed to do which was to tap into the expert's knowledge pool.

Upon completion of this review, these new topics were formulated into questions and then assigned according to the most pertinent factor area in the survey instrument. They were then integrated into the survey instrument being placed after each subsection's open-ended question. These new questions were named according to the open-ended question it trailed, and then by a numeral reflecting the number of the new question. This was then followed by the letter N signifying new. An example of this placement and numbering scheme can be seen in Figure 14.


Figure 14. Example of New Question Naming and Placement Convention

A detailed list of the new questions incorporated into survey two can be referenced in Figure
15. Please note that the particular factor areas were these questions are assigned are not represented. The entire second survey, with questions in their respective categories, can be referenced in Appendix B.

```
7-1-N Congressional policy decisions, which affect how competitions are conducted, could potentially influence the competition results.
7-2-N Congressional Oversight, such as in the form of the General Accounting Office (GAO), can influence the behavior of a source selection team.
13-1-N Public private consortiums may be able to put forth a stronger proposal than a public entity acting alone because: of the past performance, experience, and capability of the private partner.
13-2-N Public private consortiums may be able to put forth a stronger proposal than a public entity alone because: of the reduction of risk achievable through keeping the work in place vs. moving the workload to new facilities with a new workforce.
13-3-N Public entities need to pay attention to labor unions since the public entity may want to propose such techniques as, for example, multi-skilled job positions.
13-4-N State and Local legislatures should be considered as interest groups, in particular if the public entity proposal includes improvements to buildings or new facilities. For example, State and Local funding could offset these costs.
25-1-N Inability to get new systems on board (and integrated with older data bases) is a reason public entities fail to implement any system to account for costs.
37-1-N Consultants should be used alongside technical experts of the public entity to develop a proposal
74-1-N Outside consultants should not be driving the final product (proposal), they should be there to assist with identification of all potential proposal inputs only.
```

Figure 15. New Questions included in Survey Two

Feedback for the Experts. In a Delphi technique, feedback is important because it forms the sole means of internal group communications in the Delphi process.(Skutsch and Scheibe, 1975) During this and subsequent rounds of the survey process, each expert was provided an individually prepared survey. The group mean for each question, as well as the expert's previous round's answer, was included between the naming numeral and the text of the question. Of course, the new and rewritten questions did not include this feedback information. However, as will be seen in the upcoming third survey, these feedback statistics were eventually incorporated
into the questions. An example of this survey feedback integration can be seen in Figure 16. Please note the questions deleted from survey one are recognized with their previous number and a text stating Intentionally Left Blank. This provides information back to the expert, as well as, facilitates the integrity of the numbering scheme.

## Mobilization of Congressional Pressures

This first subsection deals with the mobilization of congressional pressures in favor of a public entity. Congressional pressure is defined as political influence from Congressman, Senators and their staff in support of constituencies' needs and wants.

Turf Protection Bureaucrats: those politicians actively seeking to gain an advantage for themselves and their constituents


Figure 16. Example of Feedback incorporated into Survey Two

Finally, a feedback tool was utilized in an attempt to capture those experts whose answers were outside of 1.25 standard deviations of the group mean for the particular question. This number had been selected due to its successful use in a previous Delphi study. (Barelka, 2001) A Microsoft Excel spreadsheet was programmed to accept the raw data from survey one and determine which expert input fell outside of these boundaries. Those experts whom answered a
question outside of this 1.25 standard deviation would be queried for an explanation during the next survey round. On survey two, an asterisk was used to indicate the subject question number. It was hoped that the results from these queries could be included in questions for future rounds. An example of this spreadsheet can be seen in Table 5. The expert's answer was outside of this boundary if, in the column on the far right, there was an indication of TRUE.

Table 5. Example of Round One Standard Deviation Test

| Round One Raw Data Breakout |  |  | 1.25 | Expert 1 |  | 1 OUT |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Question | AVG | STDEV |  | 1.25 | ANS |  |
| 1 | 4 | 1.414214 | 2.232233 | 5.767767 | 1 | TRUE |
| 2 | 2.125 | 1.125992 | 0.71751 | 4.78125 | 1 | FALSE |
| 3 | 4.375 | 0.916125 | 3.229843 | 9.84375 | 3 | TRUE |
| 4 | 3.75 | 1.38873 | 2.014087 | 8.4375 | 5 | FALSE |
| " | " | " | " | " | " | " |

## Round Two of the Delphi Process

The second round of this process had five objectives. The first was retest the sixty-eight questions surviving from round one. The second was to test the two rewritten questions. The third was to initiate testing of the new questions developed from the comments and open-ended questions of first round. The fourth objective was to generate new topics or factors that could improve the research model. Finally, the fourth objective was to obtain comments from those experts who answered outside the 1.25 standard deviation boundary. Once again, the scale on this survey used the five point Likert Scale.

## Results of Round Two

The survey was sent and received via the electronic mail system. Unfortunately, there was not a $100 \%$ response for this second round. One expert failed to respond to the second survey. Although an attempt was made to contact the particular expert, there was simply no interest on
his part in continuing with the survey study. This was unfortunate because this particular expert represented one of the largest civil federal branches in the Department of Transportation. However, as will be seen later in this chapter, this input loss was not a barrier to successful data gathering for public private competitions.

Once obtained, the raw data was input into the Microsoft Excel spreadsheet as had been done during the first round. An attempt was made to reduce the data as in the first round; however, there was no response that fell below the 3.0 threshold. This included both the rewritten and new questions incorporated from round one. Once again, both the mean and threshold were compared with no significant differences. This entire threshold evaluation is provided in Appendix I.

The following is considered a milestone in this Delphi study. By simply looking at the raw data in comparison with the raw data for round one, there appears to be the beginning of consensus taking place. The standard deviations for each question, with exception of the rewritten and new questions, have done one of two things. They have stayed the same indicating the experts may not get any closer in agreement, or they have actually decreased indicating more agreement on the particular topic. In chapter three, consensus was defined as a trend toward a decreasing standard deviation of zero or simply zero after three rounds.(Dickson and Leitheiser, 1984) Therefore, at this mid stage of the Delphi technique, there appears to be indications of this consensus taking place. An example of this trend toward consensus can be seen in Table 6. The differences between the first round and the second round are displayed. Please note that the first round data is reflective of the one less expert. This constitutes apples to apples comparison of data.

Table 6. Standard Deviation Delta from Round One and Round Two

| SURVEY <br> Mean |  | SURVEY 1 <br> Std Dev | SURVE <br> 2 <br> Mean | SURVEY 2 <br> Std Dev | Change in <br> Std Dev |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | 4.428571 | 0.78679579 | 4.428571 | 0.786795792 | 0 |
| 2 | 0 | 0 | 0 | 0 | 0 |
| 3 | 4.571429 | 0.78679579 | 4.428571 | 0.786795792 | 0 |
| 4 | 3.571429 | 1.39727626 | 3.857143 | 0.690065559 | 0.707211 |
| 5 | 3 | 1.63299316 | 3.571429 | 1.272418021 | 0.360575 |
| $"$ | $"$ | $"$ | $"$ | $"$ | $"$ |

To further display this trend toward consensus, Figure 17 has been presented. In it the first five items presented in Table 6 are displayed graphically for the reader. This clearly and visually indicates this trend toward zero in the standard deviations. Please note that question \#2 was dismissed from the survey earlier and, therefore, is not represented in Figure 17. An assessment using the spreadsheet was conducted for each question in the survey two. The entire spreadsheet assessing all round two differences in standard deviations may be found in Appendix J.


Figure 17. First Four Survey Questions and Trend Toward Consensus

## Preparation of Survey Three

The round two responses were reviewed for feedback in the form of comments.
Unexpected was the fact that the experts, whom were asked to comment on why they answered a question outside of the 1.25 standard deviations of the group mean, failed to provide the requested feedback. For those experts that did respond to the asterisk, it became unclear if their comment was about the previous rating or about the present rating they were giving the question. The same could be said if the expert simply did not respond with a comment at all. This confusion seemed to be the result of a design weakness in the survey.

Because the survey questions were producing written feedback, and the feedback was more positive than critical of the referenced questions, it was decided to simply drop the 1.25 boundary test limitation. It was determined that the experts' comments, from this round and the previous round, were already capturing the reasons behind selecting one Likert scale rating over another. So, the fact that they were inside or outside an imaginary boundary really did not matter; the experts were including the feedback commentary regardless of any particular instructions. Once again, this indicates that the survey instrument, in the macro sense, was doing exactly what it was designed to do, produce plausible knowledge comments on the managed competition concept.

Rewritten Questions. Upon review, there were no sorted questions below the threshold, as well as, no critical comments provided by the experts. As a result, there were no questions requiring editing or complete revision.

New Questions. Just as with the round one data, all of the comments for round two were put into an aggregate list. They were then grouped according to a common topic or factor. Once again, the feedback did not necessarily reflect the question or area where it was found in the first
survey. In the overall scheme of the study, this written feedback was exactly what was requested and hoped for from the experts, however, it was not conducive to quick review on the part of the researcher. Upon reflection, this could have been more organized simply by requesting from the beginning that the experts attempt to classify their own comments into the proper categories. However, the addition of this rule could have become a barrier for capturing the targeted tacit knowledge. If constrained, the experts may not have responded like they did had in the first round. This is something to keep in mind for future studies. Because of this fact, there will be no change in the methodology for obtaining expert comments during the third round.

Upon completion of this review, it was determined that there were no new topics or factors introduced by the experts. Again, the written comments received were basically providing additional, more in-depth information on the particular topic. In addition, there were also some comments that provided good insight on why the expert did not agree; this provided a good source of information as well. An example of the comments for question \# 7-2-N can be seen in Figure 18. As can be seen, the comments proved to be rich with additional information. Additional comments from the experts will be further explored in chapter five of this study.

```
Question
    7-2-N Congressional Oversight, such as in the form of the General Accounting
        Office (GAO), can influence the behavior of a source selection team.
Comments
Expert #
    5 "Absolutely, the most significant areas would be how to evaluate the
        Governments existing facilities and establishing minimum performance
        criteria."
6 "In the Air Force Depot Competitions language was included in the 98 DoD Authorization Act that permitted public private teaming, dealt with fair market value of facilities, land and equipment, etc."
6 "Under the 98 DoD Authorization Act, the GAO was required to review documentation during the source selection process for the depot competitions at Sacramento and San Antonio Air Logistics Centers. This caused the GAO discomfort because of a possible bias should a bid protest be filed with the GAO. In actuality, except for an irritation of having to provide the GAO with documentation, they were not that intrusive."
7 "Very much so, although one would trust that the integrity of the competition process would be the deciding factor, but don't bank on it."
```

Figure 18. Example of Comments from Second Survey

Because there were no new or rewritten questions, the decision was made to maintain the integrity of the last survey instrument; there would be no changes in the design and subject material.

Feedback to the Experts. Due to the lack of new or rewritten material, the survey instrument to be used in round three was easily prepared. As stated earlier, the last round's results indicated a trend toward consensus on the survey questions. Clearly, this was partly due to the experts reexamining their last answers in reference to the group means. Because of this successful use in round two, the group mean was again provided for each expert along with the expert's last
response. As before, the integration of the expert responses required individual survey instruments to be prepared for each participant. An example of Expert \#2's Survey Three can be seen in Appendix K.

## Round Three of the Delphi Process

There were four objectives for round three. The first, and foremost, was to gain further consensus on the topics and factors listed in the survey instrument. The second was to show a consensus trend among the new questions added to the survey instrument in round two. The third was to show a consensus trend among the rewritten questions added in round two. Finally, the fourth was to show that the Research model, representing the factors, Politics, Cost, and Organic, was validated as an accurate reflection of what is important for a public entity to pay attention to in preparation for a public private competition.

## Results

The raw data was collected and entered into the same Microsoft Excel spreadsheet used for each of the other rounds. The mean and median were once again compared against the threshold of 3.0 to maintain consistency. There was feedback provided by the experts on this third questionnaire, but once again, it provided only background information on the topics and factors already present in the survey. It is interesting to note that the amount of written feedback decreased on this round.

## Analysis and Findings of the Delphi Technique

In chapter 3, consensus was defined as being reached when the standard deviations decreased toward or became zero after three rounds of the Delphi Technique. As done after round two, the statistics were computed for all of the questions. Once again, the Standard Deviations were
compared from the second and the third round. An example of this can be seen in Table 7. The deltas for all questions were compared. The results can be seen in Appendix L.

Table 7. Standard Deviation Delta from Round Two and Round Three

| SURVEY | SURVEY <br> 2 <br> Mean | SURVEY <br> 2 <br> Std Dev | SURVEY <br> 3 <br> Mean | SURVEY <br> 3 <br> Std Dev | Change in <br> Std Dev |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | 4.428571 | 0.786796 | 4.428571 | 0.786796 | 0 |
| 2 | 0 | 0 | 0 | 0 | 0 |
| 3 | 4.428571 | 0.786796 | 4.428571 | 0.786796 | 0 |
| 4 | 3.857143 | 0.690066 | 4 | 0.57735 | 0.112715 |
| 5 | 3.571429 | 1.272418 | 3.571429 | 1.272418 | 0 |
| $"$ | $"$ | $"$ | $"$ | $"$ | $"$ |

For many questions, however, one can see that the standard deviations remained the same in between rounds. This indicates that the experts would not move either way on their previous positions; therefore, this represents the best, most consistent level of agreement for the particular topic or factor. This dynamic example of two levels of consensus is visually presented in Figure 19. Due to the number of questions required to plot, only the first five questions are compared below for the reader. Please note that question one and question three are plotted on top of one another.


Figure 19. First Four Survey Questions and Consensus

New Questions Revisited. The second objective was to show a trend toward consensus for the new questions introduced in the second round. The data that came back from the third round survey indicates that all the questions were on track to either have stable or decreasing standard deviations. Because these are following a similar trend as the core questions tested in three rounds, it will be assumed that the consensus would have been met if the seven were presented a third time to the experts. Table 8 displays the standard deviations and deltas of these new questions. It should be noted that comments received from these new question, in the second round, were very positive and agreeable in nature. This agreeableness can be seen quantitatively in the averages provided below.

Table 8. Standard Deviation Delta for New Questions
$\left.\begin{array}{|c|c|r|r|r|c|}\hline 2 & \begin{array}{c}\text { SURVEY } \\ 2 \\ \text { Mean }\end{array} & \begin{array}{c}\text { SURVEY } \\ \text { 2 } \\ \text { Std Dev }\end{array} & \begin{array}{l}\text { SURVEY } \\ 3\end{array} & \begin{array}{l}\text { SURVEY } \\ 3\end{array} & \begin{array}{l}\text { Mean } \\ \text { Std Dev }\end{array} \\ \text { Std Dev }\end{array}\right]$

Additionally, Figure 20 has been provided to graphically display this trend toward consensus of the new questions.


Figure 20. Standard Deviation Delta for New Questions

Rewritten Questions Revisited. To display that the third goal was met, Table 9 has been presented. These computations indicate that all the rewritten questions were headed toward the same conclusion as the core questions. Note that there was no change in the reponses for these two questions; the experts simply did not change their position. This lack of change, along with
the experience of the core questions, indicates that responses for these two questions would most likely stay the same. Therefore, it can be assumed that if these two questions were reviewed a third time by the experts, they would have obtained consensus as defined in chapter three.

Table 9. Standard Deviation Delta for Rewritten Questions

| 2 | SURVEY <br> 2 <br> Mean | SURVEY <br> 2 <br> Std Dev | SURVEY <br> 3 | Mean <br> 3 | Std Dev |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 21 | 4.285714 | 0.7559 | 4.285714 | 0.755929 | 0.0000 |
| 36 | 3.857143 | 1.0690 | 3.857143 | 1.069045 | 0.0000 |

Additionally, Figure 21 has been provided to graphically display this information. Once again, it must be remembered that these two questions were only tested for two rounds.


Figure 21. Standard Deviation Delta for Rewritten Questions

## Verification of the Research Model

As a result of this consensus, those experts most qualified to do so, verified the Research Model. The three factors, along with listed sub factors, of Politics, Organic, and Cost can now be considered the three top factors a public entity must allocate resources and managerial time in
order to be competitive in a public private competition. This successful conclusion of the Delphi process has, therefore answered the first question presented in chapter one:

1. What factors must a Public Entity allocate resources in order to prepare a competitive proposal for a Public Private Competition?

## Content Development of the Public-Private Competitive Assessment Tool

The PCAT content was based on the three, expert verified, key factors of Politics, Cost, and Organic. Upon completion of the PCAT's design, the content was developed, and then integrated into the tool's underlying Microsoft Excel spreadsheet. The key to this integration was the transition of Delphi survey questions into statements localized to the environment of AR\&SC. This was done at the survey's item level. As each item was reviewed, local titles and concepts, indigenous to the Coast Guard depot, were applied providing AR\&SC a customized PCAT product.

One at a time, every item evaluated in Delphi process was carefully addressed and transitioned into the required PCAT content. As all items in the Politics factor were addressed, the Cost factor was then transitioned into customized PCAT statements. This was conducted until all three Delphi survey factors were completely transferred into an aggregate list of customized evaluation points.

Upon completion of their development, the customized statements were then integrated into the PCAT Excel spreadsheet. This procedure closely followed the content flow used in the Delphi survey; it was completed in the exact order that each factor and sub factor appeared in the Delphi surveys. As a result, the managerial tool read similar to the survey instrument. One benefit of this procedure was the standardization of presentation flows between the Delphi survey format and the PCAT.

It must be remembered that those survey questions in the Delphi process were directly representative of the factors and sub factors making up the Research Model. Therefore, being based on the survey questions, the PCAT content is directly representative of that same model. The PCAT instrument, in its entirety, can be found in Appendix D.

## The POLITICS Content of the PCAT

Of all the factors represented in this tool, this section required the most transitioning into local aspects. Every effort was made to ensure that all political arenas, in particular those even remotely effected by possible depot outsourcing, were included for AR\&SC management review.

## Mobilization of Congressional Pressures. The Delphi survey asked questions regarding the

 public entities use of Turf Protection Bureaucrats. As defined in the Delphi process, Turf Protection Bureaucrats are those politicians actively seeking to gain an advantage for themselves and their constituents. They are best able to publicly highlight issues associated with continued public entity existence. In addition to Congressional members, it was also established that state and local elected officials are members of this same bureaucracy. Further, the point was made that elected officials, as a whole, are primarily interested in protecting their district's economy, infrastructure, and financial worth. Therefore, they are interested in protecting a major public entity if it fell in their jurisdiction. Because of these facts, it was decided to base this subsection on the political awareness of politicians in regards to the Integrated Deepwater Program threat.This particular subsection was then further broken into four areas representing Congressional, State, County, and Local political levels. In each minor section, the same statement was asked of the AR\&SC manager:

Are the elected officials aware of the potential Deepwater Program outsourcing threatening AR\&SC?

Representatives, Senators, and Governors of two states, Virginia and North Carolina, were represented in this subsection. In addition, six North Carolina and two Virginia counties were represented, as well as, the three major communities of Elizabeth City, NC, Virginia Beach, VA, and Norfolk, VA. Lastly, a final statement was included regarding all other local townships that surround the Elizabeth City limits.

Utilization of Private Interest Groups. The next sub factor addressed the utilization of private interest groups to support the selection of AR\&SC in a managed competition. As defined in the survey, private interest groups are politically motivated entities whose membership can include organizations such as businesses and unions. In particular, the participation of interest groups in a public private consortium was a key concept for this study. In the Delphi process, the public private consortium was identified as a multimember organization able to put forth a stronger proposal than simply the single public entity.

The subsection was then divided up into two areas indigenous to AR\&SC and its relationship to businesses and contractors. These were labled Original Equipment Manufactures (OEMs), and Equipment Repair Subcontractors, and finally, other interest groups. OEMs include those companies associated with airframes, engines, and avionics. The statements included in the PCAT asked two questions:

1. Has AR\&SC approached the particular OEM
2. Has AR\&SC obtained agreement from the particular OEM

In addition to the OEM, those same two statements were asked in regards to repair subcontractors. These would be the AR\&SC contractors charged with repairing sub components such as landing gear actuators.

Finally, the last statements in this subsection referenced other interest groups. Here, AR\&SC managers were asked if the labor unions, and state legislators had been contacted about participating in a competitive proposal.

## The COST Content of the PCAT

Upon completion, the Cost Factor of the PCAT closely reassembled the Cost Section of the Delphi Survey process. All four-sub factors from the Delphi Cost Section were included in the PCAT section. Once again, the only difference was the customization of each statement toward AR\&SC issues.

The AR\&SC Cost System. The cost system statements were all based on Delphi survey questions from the subsection Applying a Managerial Cost System. Although modified with AR\&SC customization, the PCAT statements maintained their integrity to the original questions asked in the Delphi process.

Other than minor grammar revisions, the only difference between the Delphi survey questions and the PCAT statements lay in the use of the term Activity Based Cost System (ABC). Because AR\&SC had already begun to implement an ABC system, the term Cost System was used at the beginning of each question in place of Activity Based Costing. For AR\&SC management, their cost system was an ABC system.

Integrating a Cost System. This subsection measures the depth which AR\&SC management has avoided common mistakes associated with integrating a cost system into a public organization. Once again, this subsection mirrors what was represented in the Delphi survey.

## Use Consultants to help Integrate and Use a Cost System. AR\&SC's use of outside

 assistance to develop a competitive cost proposal was the issue being measured in this subsection. As with the previous subsection, these PCAT statements closely followed the questions from the Delphi survey. Inclusion of the term AR\&SC was the only major difference between the statements and the survey questions.Reengineer Processes to become Cost Competitive. This subsection measured the depot's managerial efforts to implement Business Process Reengineering (BPR) to become cost competitive. There were no content modifications made to the Delphi questions representing this subsection. However, customization and minor grammar changes were completed to ensure the format was conducive to a localized assessment tool.

Transition Cost System into a Competitive Cost Proposal Structure. This PCAT subsection measured the capability of AR\&SC management teams to take competitive cost outputs and create a competitive cost proposal. As compared to the Delphi survey questions, there were no differences between them and the PCAT statements. Again, the statements did have AR\&SC specific terms purposely integrated for tool customization.

There was a deletion of the Delphi survey item represented by question \#51. It was determined that this question would not translate well into a strategic assessment tool. The question went far deeper than required into the complexities of the Request for Proposal (RFP). The PCAT did not need to be that microscopic in its assessment of established contracting concepts.

## The ORGANIC Content of the PCAT

As with the other two factors, the Organic Factor of the PCAT closely resembled the Organic Section of the Delphi survey.

Identification of Core Competencies. This particular section was based on one Delphi survey question referencing the value of core competencies in a highly competitive environment. The Delphi question simply asked if core competencies, and business practices based on the core competencies, were important to a competitive proposal.

However, in the PCAT, this question was further broken down into two statements.

1. $\mathrm{AR} \& S C$ has identified its core competencies
2. AR\&SC management is consolidating its business functions around these core competencies.

The reason for this topic breakdown was to ensure that the user team had, in fact, identified the core competencies of AR\&SC. Unless AR\&SC can identify its core competencies, there will continue to be uncertainty over its business processes properly maximizing the organization's inherent competitiveness.

Highlight Overhead and Excess Capacity. This PCAT subsection measures AR\&SC management's use of unused capacity in labor, facilities, and capital. This was included in the PCAT to ensure that AR\&SC management teams thought about the organic potential it may have presently within the depot product lines. With the exception of the customization factor for AR\&SC, there were no changes from the original Delphi survey questions.

Utilize Expertise and Corporate Knowledge. This subsection dealt with the utilization of AR\&SC's knowledge of conducting depot maintenance and support of Coast Guard aircraft. All the PCAT statements had their origin in the Delphi survey questions based on corporate knowledge. For the assessment, three questions were asked in regards to this knowledge. The first inquired about the presence of a system to capture this data. The second asked AR\&SC if they had spoken with the depot workforce in regards to capturing their specialty knowledge base.

Finally, the third question inquired about AR\&SC's position to include this corporate knowledge in a competitive proposal.

## Highlight Readiness Capability of $A R \& S C$. This PCAT section measured AR\&SC's ability

 to promote its readiness capability. In this context, readiness was defined as maintaining sufficient internal capability (personnel, equipment, and facilities) to provide the necessary technical competence and resources for a timely response to mobilization or defense emergency. Based on the Delphi survey questions, three statements were presented to the AR\&SC management team. The first asked about the level of readiness advertisement. The second statement asked about management's effort to present the risks associated with losing the depot's product line responsiveness. The third statement simply asked if this information was being included in a competitive proposal.Advertise Reliable Support Infrastructure of a Public Entity. AR\&SC 's ability to present the reliability of its support infrastructure was evaluated in this section. This would be the support infrastructure as defined by supply channels, contractor relationships, and management information systems. Two statements, based on the Delphi survey process, were included for this section. First, AR\&SC management was asked if this support infrastructure is aggressively advertised as a low risk alternative to potentially cheaper, private sponsored system. Secondly, the management was tasked to rate the level of proposal integration of this reliability.

## Develop Public Performance Guarantees to be Competitive in a Public Private Competition.

This is the shortest section of the PCAT because only one statement was presented to the AR\&SC management team. This statement directly asked if AR\&SC expected to be subject to any downside financial, or contractual criteria with appropriate penalties. As with all others, it was developed from a similarly named section of the Delphi survey. This statement was
included to explore the depot's understanding of possible downsides in a public private competition.

## Preparing a Competitive Public Entity Proposal for a Public Private Competition. As the

 final piece of the PCAT instrument, this section inquired about AR\&SC management's position in reference to the actual level of proposal preparation. The four statements presented were taken directly from the Delphi survey. As with the other statements, they were customized for AR\&SC local use.During this stage, AR\&SC management was asked if it recognized inexperience as a roadblock to developing a competitive proposal. It was then asked if consultants were being used to assist directly with proposal development. After this statement, management was then queried at what level the consultants, if active with AR\&SC, are assisting in proposal preparation. Finally, a statement was presented asking about the level of participation in preproposal conferences.

## Results of the PCAT Beta Use

The results of the PCAT Beta Use were put into a Microsoft Excel spreadsheet. The averages of each of the main factors and sub factors were then computed to obtain a strategic overview of the depot's position. It was decided that this was the most conducive way to obtain a preparatory baseline due to the limitations of the study. To have each of these PCAT beta use participants combine their individual answers in a consensus, as per the flow chart, proved too difficult to control as a distant researcher and nonmember of the AR\&SC management team. It was simply easier to have the individual participants, during their own time, fill out the instrument.

During this alternative process, the participants were asked to fill out the PCAT and then send the instrument back as an electronic mail attachment. The individual responses were then input
into the spreadsheet programmed to obtain a group average for each factor and sub factor. Once computed, this data was then reviewed to obtain the baseline assessment of AR\&SC's position for participation in a public private competition. Table 10. presents an example of this raw data collection spreadsheet.

Table 10. Example PCAT Beta Use Data Sheet


Again, it must be noted that an AR\&SC management team would normally take the PCAT tool as individuals. As previously mentioned, the group would then meet to obtain a consensus answer for each factor and sub factor. The fact that this study utilized an Excel spreadsheet to compute averages is indigenous only to this study; this spreadsheet was merely simulating the consensus portion of the PCAT instrument flow. In the real managerial world, it would be left up to the AR\&SC team members on how they would best obtain consensus. The AR\&SC management team should feel free to develop their own methodology according to the capabilities and needs of the membership.

The results of the PCAT Beta Use are summarized in Table 11 for review. This summary sheet is representative of what the AR\&SC management team would produce upon completion of the PCAT assessment. As stated in chapter three, it is this sheet which would provide the strategic direction for eventual placement of resources.

Table 11. Summary of AR\&SC Baseline Evaluation

| SUMMARY OF AR\&SC COMPETITIVE EVALUATION |  |
| :---: | :---: |
| POLITICS FACTOR | 2.0 |
| 1.1 Mobilization of ELECTED Officials | 2.2 |
| 1.2 Utilization of Private Interest Groups | 1.8 |
| COST FACTOR | 3.5 |
| 2.1 Applying a Managerial Cost System | 3.2 |
| 2.2 Integrating a Cost System | 4.1 |
| 2.3 Reengineer Processes to Become Cost Competitive | 3.8 |
| 2.4 Transition Cost System into a Competitive Cost Proposal Structure | 2.8 |
| ORGANIC FACTOR | 3.4 |
| 3.1 Identification of Core Competencies | 4.3 |
| 3.2 Highlight Overhead and Excess Capacity | 3.2 |
| 3.3 Utilize Expertise and Corporate Knowledge | 3.8 |
| 3.4 Highlight Readiness Capability of the Public Entity | 3.6 |
| 3.5 Advertise Reliable Support Infrastructure of a Public Entity | 3.3 |
| 3.6 Develop Public Performance Guarantees to be Competitive in a Public Private Competition | 2.8 |
| 3.7 Preparing a Competitive Public Entity Proposal for a Public Private Competition | 3.0 |

## The High Level Baseline Review of AR\&SC

Politics Baseline. The Politics factor has distinguished itself as being the lowest scoring factor of the three in this initial assessment of AR\&SC. With an average score of 2.0, this area demands the attention of the AR\&SC management. Highlighted is the lack of contact with key interest groups which, according to this study's Research model, is a major factor in the
competitiveness of the public entity. The beneficial fact about this entire section, however, is that it can be improved though simply an investment in time on the part of management. In other words, the only cost to $\mathrm{AR} \& S C$ would be the time required to conduct presentations to the political entities most beneficial of AR\&SC's continued operation.

Whether AR\&SC management wants to further investigate this factor's PCAT data and invest the necessary resource is left up entirely to their decision. However, there must be no avoiding the importance and potential benefit of having political horsepower working as an ally of the depot in a public private competition. Being attentive to politics is an easy way to improve the organization's competitive position. Properly recruited with key information, politicians could be considered maintenance free defenders of the AR\&SC organization.

Cost Baseline. This factor obtained the highest PCAT rating for Beta Use. The reason is particularly simple in explanation. Through unsolicited PCAT feedback, AR\&SC management admitted it was in the process of integrating an Activity Based Cost (ABC) System. Though still in the early stages, the system is being employed to capture cost information and map overhead allocation to airframe resources. This is why the overall factor has a rating of 3.5 ; it is accurately reflecting this early ABC integration effort. Clearly, the highly rated sub factor of cost integration was the key.

The other sub factor ratings suggest that there is more to this story. Looking at sub factors 2.1 and 2.3, each one is hovering close to, yet above, the critical value of 3.0. This indicates there is much room for improvement in areas of cost system application and process reengineering. It would be to the benefit of AR\&SC management to investigate these areas for further improvement. One area in particular would be ensuring this ABC system integration takes into consideration these other sub factors. For example, a cost effective organization is one that can
identify high cost areas ( ABC ) and take proper measures (possibly reengineer) to decrease this excessive cost. AR\&SC management must remember that these cost sub factors all relate to one another.

The lowest scoring sub factor measured the use of cost information in proposal preparation. This was the expected initial response due to a known Coast Guard unfamiliarity with public private competition concepts. As the preparation process continues, this factor will become more and more important to AR\&SC's success in a managed competition The introduction of this sub factor simply provides AR\&SC management teams with a new topic to further research and dedicate resources.

Overall, this factor assessment presents AR\&SC as having to improve in several areas before being cost competitive in a public private competition. It is interesting to note that, with the exception of sub factor 2.4 , these mid level scores mirror an organization early in a cost system implementation. This fact verifies that data coming from the PCAT instrument is reflective of an organizations actual position.

The initial strategic assessment for cost is extremely encouraging. Because AR\&SC is moving in the direction of ABC cost management, it is expected that the Cost factor will continue to score higher with time.

Organic Baseline. This factor was the second highest scoring Research model factor. This reflects that AR\&SC management is addressing the Organic sub factors. However, as with the previous factors, the resulting scores are just above the critical value 3.0. This indicates room for improvement to be organizationally competitive. Of particular interest is AR\&SC's position in regards to Core Competencies.

The strongest sub factor measured the identification of Core Competencies. It is clear from all AR\&SC respondents that this was not a new topic. In other words, the scores imply that AR\&SC has a good grasp on the concept of core competencies. Additionally, this indicates that management has organized business process around these identified core competencies. Of particular interest to this study is that fact these core competencies have been verified by private industry. Through research contact with AR\&SC management, it has been learned that private industry representatives have visited AR\&SC to study how it uses an integrated product lines concept to depot Coast Guard aircraft; this is a systems approach to maintenance that integrates supply function, operational functions, and maintenance functions. The bottom line is that AR\&SC management is positioned well and very competitive in this sector.

Of interest to this evaluation is the sub factor of 3.2, highlighting excess capacities. During the Delphi process, expert feedback indicated that excess capacities are commonly thought of as competitive liabilities. This was because active excess capacity in any area generally indicates a poorly managed, non-competitive organization. The experts did admit that, in the short run as part of a competitive preparation effort, this excess capacity could become a competitive advantage. It is arguable that, during a managed competition, the government could be convinced it made sense to ensure the complete utilization of already owned public facilities. In general, the response of AR\&SC management presents this attitude. The fact that the score is above the 3.0 critical mark indicates $A R \& S C$ management simply needs to further explore its excess capacity to take advantage of its competitive potential.

Corporate knowledge was another average scoring concept for AR\&SC. It is well known in Coast Guard aviation that the workforce of AR\&SC contains a comprehensive tacit knowledge base of aircraft maintenance. Although the military management routinely changes, the civilian
workforce stays the same. This is a benefit. In some AR\&SC product lines, some workers have maintained aircraft since they were first introduced into service use. A perfect example is the Eurocopter HH-65A Dolphin helicopter program. Although the backbone of Coast Guard aviation today, this aircraft has led a twenty year service life with its own list of trouble areas with appropriate fixes. Because of workforce stability, there are some AR\&SC members whom have seen all of these issues. This type of knowledge cannot be duplicated by a competing private corporation. Therefore, it is a good idea for $A R \& S C$ management to aggressively capture this knowledge and present it as a competitive asset. The PCAT information indicates AR\&SC has room for improvement in this area.

As far as highlighting the readiness aspect of AR\&SC, the management team provided more middle of the road answers here as well. The AR\&SC readiness capability is very visible to the operational user whom is the key customer of AR\&SC. Due to the nature of Coast Guard aviation, the need to have finely tuned logistics channels and procedures is a necessity for search and rescue (SAR) operations. Without it, aviation response may not be successful resulting in conceivable humanitarian catastrophes.

AR\&SC does a truly superior job at readiness; however, it does a mediocre job of advertising this strength to those whose opinion can possibly sway the outcome of a managed competition. Having the parts and support at the right place, the right time, in the right amount is the only way aging Coast Guard airframes can remain SAR ready twenty four hours a day, seven days a week, 52 weeks a year. Because the assessment assumes this, the PCAT statements are more oriented toward measuring the level of advertisement of these strengths. Once again, this strength is very hard to duplicate in private industry without paying a lot for the service. AR\&SC needs to
ensure that this strength is highlighted in any future competitive proposal. Just as in politics, AR\&SC management simply has to expend the time.

Dovetailing into this subject of readiness, AR\&SC management was asked about highlighting the lower risks associated with keeping a successful public support infrastructure vice switching to an unproven private contract. It is extremely important that an organization, such as AR\&SC, proactively advertise the competitor downsides to make more visible the public entity strengths. This is the exact information that should be provided to politicians and private interest groups such as those mentioned earlier in this section. Because AR\&SC scored close to the critical factor of 3.0, it can be assumed that this advertisement was only being considered and not aggressively pursued. Once again, this would cost AR\&SC nothing but time to increase the score and its competitiveness in this sub factor.

The next statement considered AR\&SC expectations in regards to the risk of downside penalties in a public private competition. This was the lowest scoring area in the PCAT Beta Use; it fully indicates that AR\&SC management must address this area of contracting concepts. Unless they accomplish all work according to the letter of the contract, AR\&SC must completely understand they will be subject to penalties such as operating budget decreases or loss of future bidding opportunities It is important that the organization ensures its procedures and corporate attitude properly reflect this downside potential. In other words, the workforce should be finely tuned to complete the work assignments without having to suffer penalties prior to competing.. This is not particularly crucial in the first competition, but extremely important during the conduct of the contract workloads. It must be assumed that private competitors will not disappear from the market; they will be there bidding against AR\&SC for future workloads. To continue operation, AR\&SC must ensure that it is competitive during and after the competitions.

Finally, AR\&SC was measured to obtain a baseline of proposal preparation. This section feedback resulted in a critical value of 3.0. Although low, this was an expected result. Presently, the Integrated Deepwater System (IDS) is still on the horizon, and it's exact relationship with Coast Guard support facilities remains in question. However, this study has operated on a very plausible assumption; IDS will aggressively seek to disassemble AR\&SC through piecemeal outsourcing of its product line workloads.

Clearly, it is in AR\&SC's best interest to begin the process of competition preparation. It should aggressively attend all Deepwater pre-proposal conferences to listen, learn, and ask questions; this should be done with the express goal of obtaining competitive advantage. Additionally, the use of consultants needs to be further investigated to specifically assist with preparation of proposal inputs and competition preparations. AR\&SC must recognize that it does not have all the expertise to do this alone.

Public private competitions are a recent phenomenon for government entities; however, government bidding is an age-old practice for private corporations. The sooner AR\&SC understands it is does not have the upper hand nor experience in large scale contract competitions, the better for the organization. What AR\&SC does have is an extremely successful aircraft repair and supply center deserving of a chance to compete and win a contract award. AR\&SC can be extremely competitive, but only if it conducts preparations ahead of time. The time for preparation is now while the IDS program is still in its infancy. This Beta utilization of the PCAT is only AR\&SC management's first step toward a well-planned, highly competitive workload proposal.

## Final Thoughts on the Strategic Baseline Results

This strategic baseline, and the datum obtained from the PCAT, serves to answer the second question to this study:

What is the Aircraft Repair and Supply Center's overall position in addressing these key factors to create a competitive public proposal for a managed competition?

From the outset of the study, this baseline was meant to provide a high level snapshot of AR\&SC's competitive position. Although clearly available for review, the study did not want to delve too deeply into the lower level assessment data also available by the PCAT. As a researcher, there was a clear temptation to study the item level scores and provide preparatory recommendations to AR\&SC management. However, it was decided this might come across as unqualified and unsuitable due to the researchers position as an outsider. The key to successful PCAT use is the depot's management team. AR\&SC process owners are the only ones able to effectively apply all the information provided by the PCAT.

This is where the PCAT instrument comes into focus. This tool has become a truly useful product of this thesis effort. The potential to obtain worthwhile, real time competitive assessment data is unlimited. The value of the PCAT is in its ability to provide a variance within each major factor; this is done through the evaluation and presentation of sub factors. The PCAT simply has to be used by AR\&SC management as it was designed: as a quick, iterative strategic compass for public private competition preparation.

## V. Summary Discussion

## Introduction

This chapter is presented with the express goal of providing a strategic, high altitude summary of this research product. In addition to a summary, there will be a discussion on the study's limitations and its potential for use in other areas. Finally, a discussion will take place recommending areas for follow-on research.

## Background

The sponsor of this research is the U.S. Coast Guard Aircraft Repair and Supply Center (AR\&SC) located at Elizabeth City, North Carolina. This center's mission is to depot maintenance Coast Guard aircraft and helicopters, support the airframes through an extensive parts supply infrastructure, and engineer aircraft modifications necessary for upgraded operations. AR\&SC's customers include U.S. Coast Guard air stations, the U.S. Navy, and the U.S. Air Force.

To cut support costs and modernize assets, the U.S. Coast Guard initiated the largest acquisition program in its history. Called the Integrated Deepwater System or IDS, it is designed to be a system of systems approach integrating surface, land, and air assets of the service. Once awarded, the IDS program will partner with a world class Systems Integration and Management Contractor to design, construct, deploy, operate, support and dispose of this system of systems. The Coast Guard will be responsible for managing operational requirements, responding to mission demands and environment changes, and operating the system; the IDS Contractor will be responsible for designing and constructing the system, as well as, sharing responsibility for supporting and disposing of it.

Because the IDS program is still in its infancy, this study is operating on a very plausible premise that the IDS will aggressively seek to disassemble AR\&SC through piecemeal outsourcing of its product line workloads. As a defensive strategy to this IDS philosophy of reducing ownership costs, AR\&SC must ensure that its streamlined, cost effective public organization is prepared to participate as a highly competitive team in any potential publicprivate competition for aircraft depot workloads. It is the hope that the thesis effort will assist AR\&SC in this endeavor.

## Research Question

There were two research goals for this thesis. The first was identification of key factors a generic public entity needs to address to be competitive in a public private competition. The second was the establishment of an overall competitive position of AR\&SC. These two goals were transitioned into the following research questions:

1. What factors must a Public Entity allocate resources in order to prepare a competitive proposal for a Public Private Competition?
2. What is the Aircraft Repair and Supply Center's overall position in addressing these key factors to create a competitive public proposal for a managed competition?

## Summary of the Overall Study

From extensive literary research, a Research Model was built utilizing identified factors of Politics, Cost, and Organics. This model was then verified through a Delphi survey process. The selected respondents for the surveys were experts representing academia, commercial industry, and government. The Delphi process resulted in a consensus amongst the experts that the key factors were in fact Politics, Cost, and Organic. This answered the first research question.

Once verified, the factors and sub factors were transitioned into an assessment tool customized for use by AR\&SC management teams. Called the Public Private Competitive Assessment Model or PCAT, this tool was designed for use as an iterative preparatory planning tool for management teams. The PCAT was beta used with selected AR\&SC management members to gain an initial data set. Once completed, the PCAT datum was developed into a baseline of AR\&SC's competitive position. This answered the second research question.

## Discussion of the Delphi Technique

One of the most extensive parts of this thesis study was the utilization of the Delphi technique to provide verification of the Research Model. Although very straight forward in its concept, the technique required more coordination and groundwork than had been originally anticipated in the research planning. For example, it took almost three weeks to research, contact, and sign up experts in the field of public private competition.

Each expert was personally contacted via telephone and provided a briefing on the thesis effort. This proved to be challenging because most of the experts, due to their high level positions, were very constrained by time limitations and workload. Sometimes, these briefings took place on the expert's cell phone as they drove home from offices in Washington, DC. It must be noted, however, that during the Delphi process, all the experts proved extremely agreeable and truly excited about expressing their views on this controversial subject. This level of cooperation proved to be strength of the study. Each participant had definitive views on the topics and, in particular, enjoyed providing them via the open feedback portions of the survey. This excitement and self-motivation was the key to the study's low respondent casualty rate.

The Delphi surveys also proved to be a challenge. The first survey was a very straightforward development effort. It was simply created from the Research model research and then sent to the
experts for their review. The challenge came from expert written feedback obtained through the open-ended questions. The amount and quality of this feedback was completely unexpected to the researcher. Although plans were in place to capture and review written survey feedback, the procedures did not anticipate the sheer amount, as well as, continuous quality of the feedback. Almost every comment had something to contribute to the study; there was never any complaints or professional ramblings. As a result, Excel spreadsheets were reprogrammed to capture this data and sort it according to topic. Once the topic sorts were completed, the data could be sorted for repeated subjects and finally developed into a possible new idea or question for the next survey iteration.

Finally, it must be stated that the Delphi process was a very time consuming procedure. Although the entire process was completed in one month, this month required daily maintenance of the study effort. During this crucial period, not one day went by which was free for other aspects of the thesis; there was always some part of the Delphi to monitor or complete. Tasks ranged from data collection to making reminder phone calls to experts, whom, although participating, were very focused on their jobs. They simply required a memory jog for survey completion.

## Discussion of the PCAT

This proved to be just as complicated as the Delphi effort, yet less constrained in its development and utilization. The development of the PCAT instrument was an exercise in motivation, adaptability of information, and utilization of past managerial experience. Each of these issues will be briefly touched upon for review.

The motivation to develop the PCAT instrument was simply not driven by an academic requirement. It was completely based on the desire to fulfill a need within the Coast Guard naval
aviation. With the advent of the IDS program, there appears to be an ingrained philosophy that service support entities are ineffective to operate and not conducive to the future of the Coast Guard. Clearly from this study's analysis, this philosophy is untrue. With proper competitive preparation, AR\&SC can prove this in a public private competition for aviation workloads. Adaptability of information was key to development of the PCAT. The goal was to give AR\&SC a tool that provided utility, yet provided it in a manner reflective of the Research model. Although a lengthy process, it took only a fraction of the time used in the Delphi survey preparation. The greatest challenge to this adaptability was the customization of each key factor and sub factors to the needs of AR\&SC management. This required the expertise of an AR\&SC team member to ensure proper terms and concepts were actively being used on the management team.

The integration of past managerial experience proved to be strength in the PCAT development. This past experience was completely reflected in the tool's design and procedural flow. It was known the PCAT would not be integrated into daily use if proven difficult and complicated to the user. Additionally, the PCAT's data output had to be in a format conducive to quick, easily understood summaries. It was decided that these two aspects of the instrument were required; therefore, they became the baseline constraints for the PCAT mechanical design. The result was an easy to use, non-threatening instrument capable of providing simple, effective feedback.

## Limitations of this Thesis Effort

There was only one limitation to this thesis effort. There was simply not enough time to do the study as had been planned in the beginning. For example, a second consensus methodology was in the planning stages but was deleted due to timeline constraints of the AFIT program.

Although not required to determine the consensus of the experts, it would have been academically pleasing if two different methods were deployed to show the same result.

Time was also a constraint in the development of the PCAT instrument. During planning for this thesis effort, the PCAT was to be deployed multiple times instead of simply once with AR\&SC management. It had been hoped that the PCAT could be implemented into the daily workload of AR\&SC management. This implementation would have included the development and use of an AR\&SC management Quality Action Team (QAT). Through this effort, it was anticipated the PCAT could have become a permanent part of AR\&SC, as well as, begin the process of competitive preparation. For now, it will be left up to AR\&SC to properly integrate the PCAT on its own schedule.

## Discussion of Alternative Uses for Research

There should be no mistaking the goals of the Integrated Deepwater System; it is a threat to the traditional Coast Guard infrastructure. Because of this fact, this research is completely applicable to the service's remaining depots and support facilities such as the Coast Guard Shipyard in Curtis Bay, Maryland. However, the PCAT and its concepts are completely not limited to the Coast Guard.

An interesting fact of the PCAT is its ability to be modified for use in any public organization in danger of outsourcing. Because it is based on key factors of a generic public entity, the PCAT can be considered a generic template. It just happens the PCAT in this study was customized for AR\&SC. In fact, with appropriate customization, the PCAT could very well be employed at the Air Force Institute of Technology.

## Follow-on Research

As mentioned earlier, one area for research is the continued integration of the PCAT instrument into a government organization. This PCAT implementation would include the formation and cooperation of a management team to conduct preparations for a public private competition. The overall goal would be to further prove the usefulness of the PCAT as a managerial instrument. A second goal would be to document how the public entity would pursue this preparation given its resource availability. It must be remembered that the PCAT was designed to provide strategic direction; it does not provide feedback in the form of tactical decisions. This is a function of the organizations management.

## Conclusion

Public private competition is a concept with growing popularity in the United States and overseas. With the ever-shrinking budgets and the popularity of finding new ways to do better business, public organizations can no longer afford to be blind to the threat from private corporations; the result could be catastrophic for the pubic entity and its workforce. In this study, it has been established that public entities, on the whole, do not have same level the business experience as potential private competitors. This translates into a handicap for the public organization in a competition for workloads. Clearly, it is left up to the public organization to decide if it wants to prepare for competition or if it seeks to risk disestablishment.

This thesis has provided the public entity with a study and tool for this purpose. It is hoped that public organizations will use this thesis to further build upon their own raw competitive foundations.

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## Appendix A: Survey One and Cover Letter

This is a copy of the very first survey sent out to the Delphi experts. It consists of information based strictly on the literary research and Research Model. The Cover Letter and Survey One were both sent to each expert as electronic mail attachments.

## Subject: Public Private Competition Survey

Hello All,
Thank you very much for contributing to this research. This study explores the key factors which would enable a public offeror to be competitive in a public private competition. Simply, I am looking to identify the most important factors a public team would need to devote resources in preparation for a competition against private offerors.

From my research, I have been able to develop a causal model which represents some of these key factors; however, a validation of these key factors is required. This is where your expertise comes in to play. It is hoped that through direct contact by survey, you and other subject experts can assist in validating and improving upon this model.

To accomplish this, there will be a series of three surveys. This first survey consists of 74 questions. The questions are grouped under three main factors identified thus far: Organic, Politics, and Cost. A scale between 1 and 5 is used to describe the level of agreement with each statement. Please ensure that you read the first page of the survey; this gives you a more detailed description of the number scale, as well as, some key definitions used throughout the instrument itself.

Please complete the survey as a word document using the highlight function to identify you choice. You will notice there are areas for comments after each question and after each section. Please feel free to include any thoughts that would further the understanding of the particular statement, subject, or introduce a new factor not mentioned.

Upon completion, please rename the document with your name included in the title: YOURNAMEsurvey 1
Then just simply email it back to me as an attachment. Timothy.Gilbride@afit.edu
If you choose, you can mail the survey to:
AFIT/ENV BLDG 640
2950 P STREET
WRIGHT PATTERSON AFB OH 45433-7765
ATTN: LCDR Gilbride, U.S. Coast Guard
If you have any questions, feel free to contact me at (937) 236-0212 (h) or via email.
Sincerely,
Timothy J. Gilbride, LCDR, USCG
Graduate Student, AFIT

| For each question, please highlight the number that best describes your level of agreement. <br> Rate between 1 and 5 <br> 1 = Disagree <br> 2 = Moderately Disagree <br> 3 = Neutral <br> 4 = Moderately Agree <br> 5 = Agree <br> Please provide comments directly under each question if it is necessary to clarify your answer or further discuss the questions <br> Definitions of Frequently Used Terms <br> Public Entity: A government department that produces a product or service for a parent government agency. It has potential to outsourced. <br> Overarching Agency: The parent government agency of a public entity. (Ex. Air Force Service is parent to the Fighter Aircraft <br> Source Selection Team: A team of specialists tasked with conducting competitive evaluations to find the best value source for service. <br> The Level Playing Field: The lack of inherent competitive advantage to either the public or private sector during a public private competition |
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This Concludes the Survey, Thank You Verv Much for your Participation!

## Appendix B: Survey Two and Cover Letter

This is a copy of the second survey sent out to the Delphi experts. It consists of information based strictly on Survey One and expert feedback. The Cover Letter and Survey Two were both sent to each expert as electronic mail attachments.

Subject: Public Private Competition Survey
Hello All,

Thank you very much for your prompt response to the first round! Your inputs have been great and the results look very interesting. Based on the scores provided in the last round, each question with an average value of less than 3.0 was dropped. This represented a total loss of 7 questions. However, after researching your comments, two questions were identified as being confusing in their presentation. As a result, I rewrote these two to better represent the question; these are reflected in the numbering sequence as an " $R$ " after the question number.

Of the remaining 5 questions, 9 additional questions were formulated from the comments. Those of you who included new information will hopefully see those ideas represented in this new set. Your feedback only improves the study, and makes it that much more meaningful to the customer of this effort. This new question set is presented to you after the last open-ended question for each pertinent section. They are identified in the following manner: ex. $7-1-\mathrm{N}$

In Survey 2, you will also see that the average score for the group and your previous score for each question have been included. Please consider this information and rescore as you see fit. Once again, a scale between 1 and 5 is used to describe the level of agreement with each statement. Please ensure that you read the first page of the survey; this gives you a more detailed description of the number scale, as well as, some key definitions used throughout the instrument itself.

Please complete the survey as a word document using the highlight function to identify you choice. If you have no highlight function, then please bold the number. You will notice there are areas for comments after each question and after each section. Again, please feel free to include any thoughts that would further the understanding of the particular statement, subject, or introduce a new factor not mentioned.

## Due date: $\underline{20 \text { Nov } 01}$

Then just simply email it back to me as an attachment. Timothy.Gilbride@afit.edu If you have any questions, feel free to contact me at (937) 236-0212 (h) or via email.

Sincerely,
Timothy J. Gilbride, LCDR, USCG
Graduate Student, Air Force Institute of Technology

| For each question, please highlight the number that best describes your level of agreement. <br> Rate between 1 and 5 <br> 1 = Disagree <br> 2 = Moderately Disagree <br> 3 = Neutral <br> 4 = Moderately Agree <br> 5 = Agree <br> Please provide comments directly under each question if it is necessary to clarify your answer or further discuss the questions <br> Definitions of Frequently Used Terms <br> Public Entity: A government department that produces a product or service for a parent government agency. It has potential to outsourced. <br> Overarching Agency: The parent government agency of a public entity. (Ex. Air Force Service is parent to the Fighter Aircratt <br> Source Selection Team: A team of specialists tasked with conducting competitive evaluations to find the best value source for service. <br> The Level Playing Field: The lack of inherent competitive advantage to either the public or private sector during a public priv competition |
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| 6 |  | Intentionally left blank |  |
| :---: | :---: | :---: | :---: |
| 7 |  | In your past experiences or studies are there any other points in Congressional mobilization that should be mentioned or addressed to be included in this study? |  |
| 7-1-N |  | Congressional policy decisions, which affect how competitions are conducted, could potentially influence the competition results. <br> Comments: | $\begin{array}{lllll}1 & 2 & 3 & 4 & 5\end{array}$ |
| 7-2-N |  | Congressional Oversight, such as in the form of the General Accounting Office (GAO), can influence the behavior of a source selection team. <br> Comments: | $\begin{array}{lllll}1 & 2 & 3 & 4 & 5\end{array}$ |
| The next sub section deals with Utilization of Private Interest Groups to support the selection of a public entity. These private inter groups are defined as politically motivated entities whose membership can include organizations like businesses, unions, ideol groups, and retirees' organizations ... all of whom are stakeholders in the public entity's continued existence. <br> Influential political tools: Those tools used by interest groups to further their efforts ex. Political Action Committees (PACs) |  |  |  |
| Group  <br> AVG  <br> AVG  <br> Previous  |  |  |  |
| 8 | 4.675 | Incumbent Industries, as well as other local interest groups, are viewed as major players with interest at stake in any public policy changes associated with outsourcing and public private competitions <br> Comments: | $1 \begin{array}{lllll}1 & 3 & 4\end{array}$ |
| 9 |  | Intentionally left blank |  |
| 10 |  | Intentionally left blank |  |




| 16 | 4.75 | In addition to the total cost, identifying the true costs associated with the product is necessary to ensure the source selection team can conduct a fair evaluation during a public private competition. <br> Comments: |  | 2 |  | 4 | 5 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 17 | 4.75 | In addition to the total cost, identifying the true costs associated with the service is necessary to ensure the source selection team can conduct a fair evaluation during a public private competition. <br> Comments: |  | 2 |  | 4 | 5 |
| 18 | 4.125 | In addition to the total cost, identifying the true costs associated with the customer is necessary to ensure the source selection team can conduct a fair evaluation during a public private competition. <br> Comments: |  | 2 | 3 | 4 | 5 |
| 19 | 4.25 | Without proper allocation of overhead costs to the service or products (which consume the resources), costs will tend to be distorted and unreliable for evaluation purposes during a public private competition. <br> Comments: | 1 | 2 | 3 | 4 | 5 |
| 20 | 3.125 | A public entity generally has no concept of what a service or product costs them. <br> Comments |  | 2 | 3 | 4 | 5 |
|  | 21R | Overhead and other indirect costs, such as those associated with administrative support and capital setups, are accounted for by public entities, however, their non-standard methodologies are not widely accepted or trusted by the private business environment. <br> Comments: | 1 | 2 | 3 | 4 | 5 |
| 22 | 4.0 | An ABC cost system would be an appropriate managerial system for a public entity to account for true costs of providing a service or product. <br> Comments: | 1 | 2 | 3 | 4 | 5 |





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| $\checkmark \downarrow$ ¢ $\quad \downarrow$ |  | SL8't | $6 \varepsilon$ |




|  | 62 | Is there anything you would like to add in regards to corporate knowledge and expertise? |  |
| :---: | :---: | :---: | :---: |
| Highlight Readiness Capability of the Public Entity <br> The next subsection addresses the competitive strength of highlighting readiness capabilities <br> Readiness: is defined as maintaining sufficient internal capability (personnel, equipment, facilities ect.) to provide the necessary competence and resources for a timely response to a mobilization or defense emergency <br> Group Your <br> AVG Previous |  |  |  |
| 63 | 3.375 | There is instantaneous response from the public entity to the needs of the overarching agency giving it a competitive advantage in a public private competition. <br> Comments: | $1 \begin{array}{lllll}1 & 2 & 3 & 4\end{array}$ |
| 64 | 4.0 | Outsourcing the workload of a public entity indicates a clear risk of losing this ability to have timely responses (readiness) unhindered by contract limitations. <br> Comments: | $1 \begin{array}{lllll}1 & 2 & 3 & 4 & 5\end{array}$ |
|  | 65 | Is there anything you would like to add in regards to highlighting readiness capabilities? |  |



| 69 |  | Intentionally left blank |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 70 |  | Is there anything you would like to add in regards to performance guarantees for the public entity? |  |  |  |  |  |
| Preparing a Competitive Public Entity Proposal for a Public Private Competition <br> The final subsection addresses the use of a conduct of proposal preparation. <br> Group Your <br> AVG Previous |  |  |  |  |  |  |  |
| 71 | 4.875 | Lack of experience and knowledge of the competitive business environment is a problem for public teams attempting to develop competitive proposals. <br> Comments: |  | 2 | 3 |  |  |
| 72 | 3.75 | Outside consultants should be hired for assistance with proposal development and creating the basis for a level playing field to compete with more experienced private entities. <br> Comments: |  | 2 | 3 |  | 5 |
| 73 | 4.875 | Pre-proposal Conferences should be attended by the public management teams. <br> Comments: |  | 2 | 3 |  |  |
| 74 |  | Is there anything you would like to add in reference to proposal preparations? |  |  |  |  |  |
| $74-1-\mathrm{N}$ |  | Outside consultants should not be driving the final product (proposal), they should be there to assist with identification of all potential proposal inputs only. <br> Comments: |  | 2 | 3 |  | 5 |

This Concludes the Survey, Thank You Very Much for your Participation!

## Appendix C: Survey Three and Cover Letter

This is a copy of the third survey sent out to the Delphi experts. It consists of information based strictly on Survey Two and expert feedback. The Cover Letter and Survey Three were both sent to each expert as electronic mail attachments.

Subject: Public Private Competition Survey
Hello All,

Well, we are finally at the last Survey, number 3! Thank you very much for your prompt response to the Second round! Once again, your inputs have been great, as well as, your comments. I appreciate each of you taking time to ensure that I understand why you agree or disagree with a statement. This is extremely important because, remember, I am using your inputs to strengthen and improve the causal model.

Speaking of the causal model, it appears that you all, as a group, have preliminarily indicated that the three categories (Organic, Cost, Politics) are satisfactory. This is nice to know because it concurs with a lot of literature written on these topic areas. Once again, what makes this study interesting is the level of "comment data" that I am receiving from you referencing issues within these categories.
*Round 2 Data Examination witnessed no loss of questions due to low score.

* There were no new questions (topics) added to the Survey..

In Survey 3, you will also see the average score for the group and your previous score (from Survey 2) for each question have been included. Please consider this information and re-score as you see fit. You have seen ALL the questions on Survey 3 previously.

Once again, a scale between 1 and 5 is used to describe the level of agreement with each statement. Please ensure that you read the first page of the survey; this gives you a more detailed description of the number scale, as well as, some key definitions used throughout the instrument itself.

Please complete the survey as a word document using the highlight function to identify you choice. If you have no highlight function, then please bold the number. You will notice there are areas for comments after each question and after each section. Again, please feel free to include any thoughts that would further the understanding of the particular statement, subject, or introduce a new factor not mentioned.

## Due date: 4 Dec 01

Then just simply email it back to me as an attachment. Timothy.Gilbride $(a)$ afit.edu If you have any questions, feel free to contact me at (937) 236-0212 (h) or via email.

Sincerely,
Timothy J. Gilbride, LCDR, USCG
Graduate Student, Air Force Institute of Technology

| For each question, please highlight the number that best describes your level of agreement. <br> Rate between 1 and 5 <br> 1 = Disagree <br> 2 = Moderately Disagree <br> 3 = Neutral <br> 4 = Moderately Agree <br> 5 = Agree <br> Please provide comments directly under each question if it is necessary to clarify your answer or further discuss the questions <br> Definitions of Frequently Used Terms <br> Public Entity: A government department that produces a product or service for a parent government agency. It has potential to outsourced. <br> Overarching Agency: The parent government agency of a public entity. (Ex. Air Force Service is parent to the Fighter Aircraft <br> Source Selection Team: A team of specialists tasked with conducting competitive evaluations to find the best value source for service. <br> The Level Playing Field: The lack of inherent competitive advantage to either the public or private sector during a public private competition |
| :---: |
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| 6 |  | Intentionally left blank |  |
| :---: | :---: | :---: | :---: |
|  | 7 | In your past experiences or studies are there any other points in Congressional mobilization that should be mentioned or addressed to be included in this study? |  |
| $\stackrel{7-1}{\mathrm{~N}}$ | 4.71 | Congressional policy decisions, which affect how competitions are conducted, could potentially influence the competition results. <br> Comments: | $1 \begin{array}{lllll}1 & 2 & 3 & 4\end{array}$ |
| $\stackrel{7-2-}{\mathrm{N}}$ | 3.57 | Congressional Oversight, such as in the form of the General Accounting Office (GAO), can influence the behavior of a source selection team. <br> Comments: | $\begin{array}{lllll}1 & 2 & 3 & 4 & 5\end{array}$ |
| Utilization of Private Interest Groups <br> The next sub section deals with Utilization of Private Interest Groups to support the selection of a public entity. These private in groups are defined as politically motivated entities whose membership can include organizations like businesses, unions, ideol groups, and retirees' organizations ... all of whom are stakeholders in the public entity's continued existence. <br> Influential political tools: Those tools used by interest groups to further their efforts ex. Political Action Committees (PACs) |  |  |  |
| $\begin{array}{ll}\text { Group } & \text { Your } \\ \text { AVG } & \text { Previous }\end{array}$ |  |  |  |
| 8 | 4.71 | Incumbent Industries, as well as other local interest groups, are viewed as major players with interest at stake in any public policy changes associated with outsourcing and public private competitions <br> Comments: | $1 \begin{array}{lllll}1 & 2 & 3 & 4 & 5\end{array}$ |
| 9 |  | Intentionally left blank |  |
| 10 |  | Intentionally left blank |  |


| 11 | 4.0 | A public/private consortium is defined as private companies teamed up with existing public entities to bid against other private entries. This consortium could field a powerful political lobby resulting in the selection of the public entity in a public private competition. <br> Comments: |  | 2 | 3 |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 12 | 3.43 | In particular, if a public/private consortium is made up of original equipment manufactures (such as in a armed service depot competition), this could swing the competition playing field in the direction of the public entity. <br> Comments: | 1 | 2 | 3 |  |  |
| 13 |  | In your experiences or studies are there any other points involving Interest Groups which you feel may be important for the Public Entity to pay attention to prior to a Public Private Competition? |  |  |  |  |  |
| $\begin{aligned} & 13- \\ & 1-\mathrm{N} \end{aligned}$ | 4.43 | Public private consortiums may be able to put forth a stronger proposal than a public entity acting alone because: of the past performance, experience, and capability of the private partner. <br> Comments: |  | 2 | 3 | 45 |  |
| $\begin{aligned} & 13- \\ & 2-N \end{aligned}$ | 4.71 | Public private consortiums may be able to put forth a stronger proposal than a public entity alone because: of the reduction of risk achievable through keeping the work in place vs. moving the workload to new facilities with a new workforce. <br> Comments: |  | 2 | 3 | 45 |  |
| $\begin{aligned} & 13- \\ & 3-N \end{aligned}$ | 4.71 | Public entities need to pay attention to labor unions since the public entity may want to propose such techniques as, for example, multi-skilled job positions. <br> Comments |  | 2 | 3 | 4 | 5 |
| $\begin{aligned} & 13- \\ & 4-1 \end{aligned}$ | 4.29 | State and Local legislatures should be considered as interest groups, in particular if the public entity proposal includes improvements to buildings or new facilities. For example, State and Local funding could offset these costs. <br> Comments: |  | 2 | 3 | 45 |  |



| 16 | 4.71 | In addition to the total cost, identifying the true costs associated with the product is necessary to ensure the source selection team can conduct a fair evaluation during a public private competition. <br> Comments: |  | 2 | 3 | 4 | 5 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 17 | 4.71 | In addition to the total cost, identifying the true costs associated with the service is necessary to ensure the source selection team can conduct a fair evaluation during a public private competition. <br> Comments: | 1 | 2 | 3 | 4 | 5 |
| 18 | 4.43 | In addition to the total cost, identifying the true costs associated with the customer is necessary to ensure the source selection team can conduct a fair evaluation during a public private competition. <br> Comments: |  | 2 | 3 | 4 | 5 |
| 19 | 4.29 | Without proper allocation of overhead costs to the service or products (which consume the resources), costs will tend to be distorted and unreliable for evaluation purposes during a public private competition. <br> Comments: |  | 2 | 3 | 4 | 5 |
| 20 | 3.43 | A public entity generally has no concept of what a service or product costs them. <br> Comments | 1 | 2 | 3 | 4 | 5 |
| 21R | 4.29 | Overhead and other indirect costs, such as those associated with administrative support and capital setups, are accounted for by public entities, however, their non-standard methodologies are not widely accepted or trusted by the private business environment. <br> Comments | 1 | 2 | 3 | 4 | 5 |
| 22 | 3.71 | An ABC cost system would be an appropriate managerial system for a public entity to account for true costs of providing a service or product. <br> Comments: | 1 | 2 | 3 | 4 | 5 |





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|  | ext su Group AVG | Cost System into a Competitive Cost Proposal Structure <br> section regards the Transition of a Cost System into a Competitive Cost Proposal. Your <br> Previous |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 46 | 4.29 | Source selection officials strive to ensure there is a level playing field for competitive evaluation to include having apples to apples cost comparison. <br> Comments: |  | 2 | 3 | 4 | 5 |
| 47 | 4.0 | The overarching agency (in charge of the source selection team) attempts to reach this goal of a level playing field by utilizing a standardization vehicle called the Request for Proposal or RFP. <br> Comments: |  | 2 | 3 | 4 | 5 |
| 48 | 3.57 | An RFP provides potential public private competitors a common, standardized cost template for inputting cost proposal data to the Source Section Team. <br> Comments: |  | 2 | 3 | 4 | 5 |
| 49 | 4.71 | If available, proven cost comparability guidance should be used to develop the public entity's cost response to an RFP. (Proven, in this context, means that the guidance had been previously and successfully used by public entities in similar public private competitions.) <br> Comments: |  | 2 | 3 | 4 | 5 |
| 50 | 4.29 | A cost comparability guidance tool would have to provide standardized procedures and techniques to ensure cost comparability in competition of like workloads. <br> Comments: |  | 2 | 3 | 4 | 5 |
| 51 | 3.43 | Worthwhile cost comparability guidance would have to provide an indication of the differences between a public proposal and a private proposal to the public management team. This could give the public team an idea of their potential strengths and weaknesses. <br> Comments: |  | 2 | 3 | 4 | 5 |
| 52 | 4.29 | To be used by the public entity successfully, worthwhile cost comparability guidance would have to represent the same procedures that the RFP was developed and based on by the overarching agency. (the Source Selection Team would be evaluating the RFP responses based on the same cost comparability guidance.) <br> Comments: |  | 2 | 3 | 4 | 5 |


|  | 53 | Is there anything else you would like add in regards to transitioning a cost system? |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| The next set of questions deals with the Organic Factors enabling a public entity to be competitive in a public private competit in this context means internal to the public entity. In other words, those factors internally to the public entity that should be cap or highlighted to ensure competitiveness in a public private competition. <br> Core Competencies: considered to be those activities that make it an industry leader. In the public sector, this definition can be indicate the work, equipment, and procedures that produce a valuable product or service consumed by an overarching agency. |  |  |  |  |  |
| 54 | 4.57 | By identifying its core competencies, the public entity can further improve their operations and, therefore, their value to the overarching agency. <br> Comments: |  | 234 | 5 |
| Highlight Overhead and Excess Capacity <br> The next subsection addresses excess capacity as a strength in a public private competition. |  |  |  |  |  |
| 55 | 3.71 | Highlighting unused skilled labor capacity is a competitive strength in a public private competition. <br> Comments: |  | 234 | 5 |
| 56 | 3.71 | Highlighting unused facility capacity is a competitive strength in a public private competition. <br> Comments: |  | 234 | 5 |





This Concludes the Survey, Thank You Very Much for your Participation!

## Appendix D: Public Private Competitive Assessment Tool (PCAT)

This is a copy of the PCAT instrument. It was sent to each AR\&SC management representative as electronic mail attachment. There are representative "zero" numbers in the response cells to display that this was an active Microsoft Excel Spreadsheet.

Gentlemen,
Attached you will find an Evaluation of AR\&SC in regards to its preparedness for a public private competition. I would appreciate you taking approximately 15 minutes and filling out this survey then sending it back to me as an email attachment.

Definition: A public private competition is when a government organization and a private company compete for traditionally completed government workloads. Example would be Falcon Jet Corp and AR\&SC competing for HU-25 depot work.

For the past 15 months, I have been assigned to the Air Force Institute of Technology in Dayton, Ohio studying Systems Management on a TAB from G-SEA. As part of this curriculum, I am required to complete a Thesis project. During the past year, I have identified, and verified through experts in the field of public private competitions, three main factors, and multiple sub factors, which a public organization, like AR\&SC, must pay attention in order to field a competitive workload proposal. (Some of you have already participated in the first part of this study.) With these identified factors, I have come up with an assessment tool attached via this email.

The underlying motivation of this study is the threat to AR\&SC from the Integrated Deepwater System (IDS) program. This threat consists of outsourcing workloads presently conducted by E-city, with the worse scenario being the outsourcing of all activities of AR\&SC.....meaning the conceivable shutdown of the organization. Although this complete closure is a remote possibility, IDS Acquisition personnel have mentioned that AR\&SC owns key workloads targeted by the IDS Support Cost Reduction efforts.

The focus of my thesis is the following: AR\&SC does an excellent, and probably cost effective, job in their core competencies. To be competitive against an IDS outsourcing effort, AR\&SC would need to allocate resources toward certain factors that have historically been the foundations of competitive Public Private proposals.

This Evaluation tool attached is the last part of the study. It is hoped the information gained from this tool can provide a strategic assessment of AR\&SC in regards to its ability to compete today against the Lockheed Martin and Boeings of the private industrial world.

LCDR Jewess has been my point of contact at AR\&SC during the study. If you have any questions please contact his office or send me email at

## Timothy.Gilbride@afit.edu.

I would appreciate your inputs by COB Monday, ......January 14, 2001. Again, simply fill out the survey and send it back as an attachment to the afit.edu email address.

Thank you,
Tim Gilbride
LCDR USCG
Graduate Student
Air Force Institute of Technology
PUBLIC-PRIVATE COMPETITIVE ASSESSMENT TOOL (PCAT)
For each question, please assign the number that best describes your level of agreement.
Rate Between 1 and 5 .

$$
\begin{array}{l}1 \text { - Disagree } \\ 2-\text { Moderately Disagree } \\ \\ \text { 3- Neutral } \\ \text { 4- Moderately Agree } \\ \text { 5- Agree }\end{array}
$$

## Sub Factor 1.1


This first subsection deals with the mobilization of elected political pressure in favor of a public entity. This pressure is defined as political influence from Congressman, Senators, State Governors, State Legislators, and local politicians in support of constituencies' needs and wants .
1.1.1 Federal Political Pressure

| 1 | North Carolina Representatives are aware of the potential Deepwater Program outsourcing threatening AR\&SC. | 0 |
| :---: | :---: | :---: |
| 2 | North Carolina Senators are aware of the potential Deepwater Program outsourcing threatening AR\&SC. | 0 |
| 3 | Virginia Representatives are aware of the potential Deepwater Program outsourcing threatening AR\&SC. | 0 |
| 4 | Virginia Senators are aware of the potential Deepwater Program outsourcing threatening AR\&SC. | 0 |
|  |  | 0 |


| 1.1.2 State Political Pressure |  |  |  | 0 |
| :--- | :--- | :---: | :---: | :---: |
| 1 | North Carolina Governor is aware of the potential Deepwater outsourcing threatening AR\&SC. | 0 |  |  |
| 2 | North Carolina State Representatives are aware of the potential Deepwater outsourcing threatening AR\&SC. | 0 |  |  |
| 3 | Virginia Governor is aware of the potential Deepwater outsourcing threatening AR\&SC. | 0 |  |  |
| 4 | Virginia State Representatives are aware of the potential Deepwater outsourcing threatening AR\&SC. | Total |  |  |
|  | 0 |  |  |  |



\footnotetext{
1.1.2 Local Political Pressure

| 1 | Elizabeth City (NC) Community Officials are aware of the potential Deepwater outsourcing threatening AR\&SC. | 0 |
| :---: | :---: | :---: |
| 2 | Norfolk (VA) Community Officials are aware of the potential Deepwater outsourcing threatening AR\&SC. | 0 |
| 3 | Virginia Beach (VA) Community Officials are aware of the potential Deepwater outsourcing threatening AR\&SC. | 0 |
| 4 | Smaller Township Councils outside Elizabeth City limits aware of the potential Deepwater outsourcing threatening AR\&SC. | 0 |
|  |  | 0 |

## Sub Factor 1.2

## Utilization of Private Interest Groups

The next sub section deals with Utilization of Private Interest Groups to support the selection of AR\&SC in a Public Private Competition. These private interest groups are defined as politically motivated entities whose membership can include organizations like businesses, unions, ideological groups, and retirees' organizations...all of which are stakeholders in the AR\&SC's continued existence. Their participation with AR\&SC in a public private consortium would increase the competitiveness of AR\&SC in a Public Private Competition.

### 1.2.1 Original Equipment Manufacturers


1.2.2. Equipment Repair Subcontractor

1.2.3 Other Interest Groups


| 2 | State and Local Legislators have been contacted to be a partner in proposal development. (Example. State <br> and Local funding could offset cost of improvements in buildings or new facilities.) | $\mathbf{0}$ |
| :---: | :--- | :---: |
| 3 | AR\&SC Labor Unions have agreed to be a partner in developing a competitive proposal for Public Private <br> Competition. | $\mathbf{0}$ |
| 4 | State and Local Legislators have agreed to be a partner in proposal development. (Example. State and Local <br> funding could offset cost of improvements in buildings or new facilities.) | $\mathbf{0}$ |
|  | Total |  |

COST 2.0
This section deals with Cost issues as a factor enabling $A R \& S C$ to be competitive in a public private competition

## Some Terms:

Total Cost: Defined as the sum of applicable direct costs and indirect or overhead costs of a Public Entity
Reasonableness: determining whether a cost is appropriate or allowable for the evaluation. it does not exceed that which would be normally incurred by a prudent person in conduct of competitive business

Realism: The compatibility of proposal costs with proposal scope and effort.
Completeness: The level of detail the offeror provides in cost information required by the Request for
Proposal or RFP

## Sub Factor 2.1

Applying a Managerial Cost System
This first sub-section deals with applying a managerial cost system to a public entity to ensure its competitiveness in a public private competition. A key to being competitive is reliable, highly accurate cost information.
True costs: Those costs that accurately reflect resource usage by the product or service.
Activity Based Cost System (ABC): A managerial system based on goals of understanding and controlling indirect costs. ABC assigns costs of activities such as machine setups, and then traces these activities to a particular product or customer that triggers the activity. As a result, the product or service cost embodies the total cost of these activities

### 2.1.1 The AR\&SC Cost System

| 1 | The Cost System can trace all costs of the facility to a product, service or customer of AR\&SC. | 0 |
| :---: | :---: | :---: |
| 2 | The Cost System used can identify the true costs associated with the products of AR\&SC. | 0 |
| 3 | The Cost System used can identify the true costs associated with the services of AR\&SC. | 0 |
| 4 | The Costs System used can identify the true costs associated with the customer of AR\&SC. | 0 |
| 5 | Overhead costs are properly allocated to the AR\&SC service or product which consumes the resources. | 0 |
| 6 | Other indirect costs, such as those associated with administrative support and capital setups, are accounted for in the cost system. | 0 |
| 7 | Total Costs are not distorted and unreliable for evaluation purposes (during a public private competition). | 0 |
| 8 | At any given time, the cost system can report what a service or product costs AR\&SC. | 0 |
| 9 | The cost system provides AR\&SC management with reliable, true cost information from which it is improving business processes to better meet customer's needs. | 0 |
| 10 | AR\&SC Management is a champion of the cost system ensuring its daily use in all levels of the organization. | 0 |
|  |  |  |

Sub Factor 2.2

## Integrating a Cost System

This next subsection engages the factors associated with developing and utilizing a Cost System in the organization.
2.2.1 Recognizing Potential Missteps when Integrating a Cost System This section deals with common mistakes involved in integrating a cost system into a public entity. private competition?
Cross subsidization: occurs when costs of a target department are borne by other departments in the same
Failure to allocate overhead: simply the failure to properly identify the consumer of the indirect resource Failure to disclose all costs: the lack of inclusion of all costs elements in the cost estimate.

| 1 | Cross Subsidization is recognized (and addressed daily by AR\&SC Management) as a potential "Show <br> Stopper" in properly accounting for Total Costs. | 0 |
| :---: | :--- | :--- | :--- |
| 2 | Failure to properly allocate overhead is recognized (and addressed daily by AR\&SC Management) as a <br> potential "Show Stopper" in properly accounting for Total Costs. | 0 |
| 3 | Failure to disclose all costs is recognized (and addressed by AR\&SC Management) as a potential "Show <br> Stopper" in properly accounting for Total Costs. | 0 |
| 4 | AR\&SC Management has obtained universal worker buy-in to the operating ABC cost system. | 0 |
| 5 | The AR\&SC workforce is aware of the negative ramifications if cost system procedures are not followed in <br> the long run. ( If AR\&SC is not able to competitively defend itself against outsourcing, then the workforce <br> could face mass layoffs and job loss.) | 0 |
|  |  | Total |

2.2.2 Use Consultants to help Integrate and Use a Cost System
The next section addresses the use of outside assistance in the preparation of a competitive public cost
proposal for a public private competition. The purpose of consultants would be to integrate their knowledge of business reengineering, cost systems, and competitive proposal development with the $A R \& S C$ Management Team experience level.

| 1 | AR\&SC Management recognizes that "lack of expertise" is one of the top reasons why other public entities <br> have failed to implement any system to account for costs properly. |  |
| :---: | :--- | :--- |
| 2 | AR\&SC implements outside assistance or business consultants for guidance in preparing, operating, and <br> monitoring its cost system. | 0 |
| 4 | Consultants are assisting, not just training, AR\&SC management teams in the cost system operations. |  |
| 5 | AR\&SC Management recognizes that any inability of the organization to access outside assistance tends to tilt <br> Cost Competitiveness in favor of the private Deepwater Competitors. | 0 |
| 5 | AR\&SC Consultants are being used alongside AR\&SC technical experts to develop a competitive cost <br> proposal. | 0 |
|  | Average | 0 |

## Sub Factor 2.3

1 AR\&SC is becoming more efficient by redesigning processes.
AR\&SC is ensuring it's competitiveness in a public private competition by utilizing the BPR principles of lowering business costs and increasing the value-added to the customer.
nt efforts


BPR: the fundamental rethinking and radical redesign of business processes to achieve dramatic
BPR: the fundamental rethinking and radical redesign of business processes to achieve dramatic
improvements in critical, contemporary measures of performance, such as cost, quality, service, and speed.
Reengineer Processes to Become Cost Competitive
The next subsection addresses the value of conducting Business Process Reengineering (BPR) in becoming cost competitive in preparation for a public private competition.


Sub Factor 2.4
Transition Cost System into a Competitive Cost Proposal Structure
The next subsection regards the Transition of a Cost System into a Competitive Cost Proposal.
Apples to Apples: A proposal which is equal in presentation points to the Private Competitors (ex. AR\&SC cost proposal would be similar in structure to the Boeing's cost proposal)

| 1 | AR\&SC management strives to provide the Coast Guard Deepwater Source Selection Team with a <br> competitive apples to apples based proposal for comparison with private competitors. |  |
| :---: | :--- | :--- |
| 2 | AR\&SC management uses the Deepwater RFP to provide a common, standardized cost template for inputting <br> cost proposal data to the Coast Guard Source Section Team. |  |
| 3 | AR\&SC management uses a proven cost comparability guidance reference to assist in preparing a cost <br> proposal required by the RFP. (Proven, in this context, means that the guidance had been previously and <br> successfully used by public entities in similar public private competitions.) |  |
| 4 | The cost comparablity guidance reference used by AR\&SC management provides standardized procedures <br> and techniques to ensure cost comparability in competition of like workloads. |  |
| 5 | The cost comparability guidance reference used by AR\&SC management teams represents the same <br> procedures that the RFP was developed and based on by the Coast Guard Deepwater Program Office (the <br> Coast Guard Source Selection Team would be evaluating the RFP responses based on the same cost <br> comparability guidance.) | $\mathbf{0}$ |

ORGANIC FACTOR 3.0
The next set of questions deals with the Organic Factors enabling AR\&SC to be competitive in a public private competition. Organic in this context means internal to the public entity. In other words, those factors internal to the public entity that should be capitalized on or highlighted to ensure competitiveness in a public private competition.
Sub Factor 3.1
Identification of Core Competencies
Core Competencies: considered to be those activities that make it an industry leader. In the public sector,
this definition can be refined to indicate the work, equipment, and procedures that produce a valuable product or service consumed by an overarching agency.

Sub Factor 3.4
Highlight Readiness Capability of AR\&SC
The next subsection addresses the competitive strength of highlighting readiness capabilities
Readiness: is defined as maintaining sufficient internal capability (personnel, equipment, facilities ect.) to provide the necessary technical competence and resources for a timely response to a mobilization or defense emergency

| 1 | AR\&SC management aggressively advertises that it can provide instantaneous response to the needs of the <br> Coast Guard Air Stations, therefore, giving it a competitive advantage in a public private competition. | 0 |
| :---: | :--- | :---: |
| 2 | AR\&SC managenent aggressively advertises that outsourcing product line workloads increases the risk to <br> Coast Guard Air Stations of losing established and timely maintenance/support (readiness) unhindered by <br> contract limitations. | 0 |
| 3 | AR\&SC management is including this information into the competition proposal. | 0 |

[^0]
## Sub Factor 3.6

Develop Public Performance Guarantees to be Competitive in a Public Private Competition The next subsection addresses performance guarantees and the ability of them being a public entity competitive strength during a public private competition. An example of potential "downside financial risk" is the public entity being assessed as "less competitive" in the very next Source Selection for the same workload.


| 1 | AR\&SC Management recognizes that it has a lack of experience and knowledge of the competitive business <br> environment; this is a roadblock for AR\&SC developing a competitive proposal. |  |
| :---: | :--- | :--- |
| 2 | AR\&SC has hired outside consultants to assist with proposal development and creating the basis for a level <br> playing field to compete with more experienced private entities. |  |
| 3 | AR\&SC Management teams have attended a Pre-proposal Conference sponsored by the Coast Guard <br> Deepwater Program Office. | 0 |
| 4 | AR\&SC management assures that outside consultants are not driving the final product (proposal). It is well <br> known that they are there to assist with identification of all potential proposal inputs only. |  |

## Sub Factor 3.7

Preparing a Competitive Public Entity Proposal for a Public Private Competition
The final subsection addresses the use of a conduct of proposal preparation .

## SUMMARY INFORMATION



## Appendix E: PCAT Flow Chart

This is a copy of the PCAT Flow Chart. It was sent to each AR\&SC management representative as electronic mail attachment. It is a key part of the PCAT instrument. When the PCAT file is opened, this is the first figure that is presented to the user.


## Appendix F: Raw Data Survey One

This is a copy of the Microsoft Excel Spreadsheet containing the raw data collected from Survey One responses.
ROUND ONE RAW DATA SHEET

ROUND ONE RAW DATA SHEET

ROUND ONE RAW DATA SHEET


## Appendix G: Raw Data Survey Two

This is a copy of the Microsoft Excel Spreadsheet containing the raw data collected from Survey Two responses.
ROUND TWO RAW DATA SHEET

| QUESTIONS | EXP 2 | EXP 3 | EXP 4 | EXP5 | EXP6 | EXP7 | EXP8 | AVG | STD DEV |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | 3 | 4 | 4 | 5 | 5 | 5 | 5 | 4.429 | 0.786796 |
|  |  |  |  | 2 | 0 |  |  | 0.000 | 0 |
| 3 | 5 | 5 | 5 | 4 | 5 | 4 | 3 | 4.429 | 0.786796 |
| 4 | 4 | 4 | 3 | 4 | 5 | 4 | 3 | 3.857 | 0.690066 |
| 5 | 4 | 4 | 1 | 4 | 5 | 4 | 3 | 3.571 | 1.272418 |
|  |  |  |  |  | 6 |  |  | 0.000 | 0 |
| 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.000 | 0 |
| 8 | 4 | 5 | 5 | 5 | 5 | 5 | 4 | 4.714 | 0.48795 |
| 4 |  |  | c | 0 | 0 |  | \% | 0.000 | 0 |
| 2-8 |  |  |  | 0 |  | , |  | 0.000 | 0 |
| 11 | 4 | 4 | 4 | 3 | 3 | 5 | 5 | 4.000 | 0.816497 |
| 12 | 3 | 5 | 1 | 5 | 3 | 4 | 3 | 3.429 | 1.397276 |
| 13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.000 | 0 |
| 14 | 5 | 5 | 5 | 5 | 5 | 4 | 5 | 4.857 | 0.377964 |
| 15 | 5 | 5 | 4 | 5 | 5 | 2 | 4 | 4.286 | 1.112697 |
| 16 | 5 | 5 | 5 | 5 | 5 | 4 | 4 | 4.714 | 0.48795 |
| 17 | 5 | 5 | 5 | 5 | 5 | 4 | 4 | 4.714 | 0.48795 |
| 18 | 5 | 5 | 4 | 5 | 5 | 4 | 3 | 4.429 | 0.786796 |
| 19 | 3 | 5 | 5 | 5 | 4 | 4 | 4 | 4.286 | 0.755929 |
| 20 | 5 | 4 | 3 | 5 | 4 | 2 | 1 | 3.429 | 1.511858 |
| 21 | 4 | 5 | 4 | 5 | 4 | 5 | 3 | 4.286 | 0.755929 |
| 22 | 4 | 4 | 2 | 5 | 4 | 4 | 3 | 3.714 | 0.95119 |
| 23 | 5 | 4 | 4 | 5 | 4 | 4 | 3 | 4.143 | 0.690066 |
| 24 | 3 | 4 | 4 | 5 | 4 | 4 | 3 | 3.857 | 0.690066 |
| 25 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.000 | 0 |
| 26 | 3 | 2 | 5 | 5 | 5 | 5 | 1 | 3.714 | 1.704336 |
| 27 | 4 | 2 | 5 | 5 | 5 | 2 | 1 | 3.429 | 1.718249 |
| 28 | 4 | 4 | 5 | 5 | 5 | 2 | 1 | 3.714 | 1.603567 |
| 29 | 5 | 5 | 5 | 5 | 5 | 4 | 5 | 4.857 | 0.377964 |
| 30 | 3 | 5 | 4 | 4 | 5 | 4 | 4 | 4.143 | 0.690066 |
| 31 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.000 | 0 |
| 32 | 5 | 4 | 3 | 3 | 3 | 2 | 5 | 3.571 | 1.133893 |
| 33 | 4 | 4 | 4 | 5 | 5 | 3 | 5 | 4.286 | 0.755929 |
| 34 | 5 | 4 | 4 | 5 | 5 | 2 | 5 | 4.286 | 1.112697 |
| 35 | 4 | 4 | 4 | 5 | 5 | 2 | 5 | 4.143 | 1.069045 |

ROUND TWO RAW DATA SHEET

| 36 | 5 | 4 | 3 | 5 | 4 | 2 | 4 | 3.857 | 1.069045 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 37 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.000 | 0 |
| 38 | 5 | 5 | 5 | 5 | 5 | 4 | 5 | 4.857 | 0.377964 |
| 39 | 5 | 5 | 5 | 5 | 5 | 4 | 5 | 4.857 | 0.377964 |
| 40 | 5 | 5 | 5 | 5 | 5 | 5 | 4 | 4.857 | 0.377964 |
| 41 | 5 | 5 | 5 | 5 | 5 | 4 | 5 | 4.857 | 0.377964 |
| 42 | 5 | 5 | 5 | 5 | 4 | 4 | 5 | 4.714 | 0.48795 |
| 4 | 4 |  | - | 4 | - | \% | 4 | 0.000 | 0 |
| 44 | 3 | 5 | 4 | 4 | 3 | 3 | 4 | 3.714 | 0.755929 |
| 45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.000 | 0 |
| 46 | 4 | 4 | 5 | 4 | 4 | 5 | 4 | 4.286 | 0.48795 |
| 47 | 1 | 4 | 5 | 5 | 5 | 5 | 3 | 4.000 | 1.527525 |
| 48 | 1 | 2 | 4 | 5 | 5 | 4 | 4 | 3.571 | 1.511858 |
| 49 | 4 | 5 | 4 | 5 | 5 | 5 | 5 | 4.714 | 0.48795 |
| 50 | 3 | 5 | 4 | 5 | 5 | 5 | 3 | 4.286 | 0.95119 |
| 51 | 1 | 5 | 2 | 5 | 2 | 5 | 4 | 3.429 | 1.718249 |
| 52 | 3 | 5 | 5 | 5 | 5 | 4 | 3 | 4.286 | 0.95119 |
| 53 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.000 | 0 |
| 54 | 5 | 5 | 4 | 5 | 4 | 4 | 5 | 4.571 | 0.534522 |
| 55 | 4 | 5 | 2 | 3 | 4 | 4 | 4 | 3.714 | 0.95119 |
| 56 | 4 | 5 | 2 | 5 | 4 | 4 | 2 | 3.714 | 1.253566 |
| 57 | 4 | 5 | 2 | 3 | 4 | 4 | 3 | 3.571 | 0.9759 |
| 58 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.000 | 0 |
| 59 | 3 | 4 | 4 | 3 | 1 | 5 | 3 | 3.286 | 1.253566 |
| 60 | 5 | 5 | 1 | 5 | 2 | 2 | 3 | 3.286 | 1.704336 |
| 61 | 5 | 5 | 5 | 5 | 4 | 2 | 4 | 4.286 | 1.112697 |
| 62 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.000 | 0 |
| 63 | 3 | 5 | 3 | 5 | 3 | 2 | 1 | 3.143 | 1.46385 |
| 64 | 3 | 5 | 2 | 5 | 2 | 5 | 5 | 3.857 | 1.46385 |
| 65 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.000 | 0 |
| 66 | 3 | 5 | 4 | 4 | 5 | 3 | 1 | 3.571 | 1.397276 |
| 67 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.000 | 0 |
| 68 | 3 | 2 | 1 | 5 | 5 | 5 | 4 | 3.571 | 1.618347 |
|  |  |  |  | \% | 析 |  | 0 | 0.000 | 0 |
| 70 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.000 | 0 |
| 71 | 5 | 5 | 5 | 5 | 5 | 4 | 5 | 4.857 | 0.377964 |

ROUND TWO RAW DATA SHEET


## Appendix H: Raw Data Survey Three

This is a copy of the Microsoft Excel Spreadsheet containing the raw data collected from Survey Three responses.
ROUND THREE RAW DATA SHEET

| QUESTIONS | EXP 2 | EXP 3 | EXP 4 | EXP5 | EXP6 | EXP7 | EXP8 | AVG | STD DEV | MEDIAN |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | 3 | 4 | 4 | 5 | 5 | 5 | 5 | 4.429 | 0.786796 | 5 |
| 3 | 4 | 9 | 4 | 3 | \% | - | \% | 140820 |  |  |
| 3 | 5 | 5 | 5 | 4 | 5 | 4 | 3 | 4.429 | 0.786796 | 5 |
| 4 | 4 | 4 | 4 | 4 | 5 | 4 | 3 | 4.000 | 0.57735 | 4 |
| 5 | 4 | 4 | 1 | 4 | 5 | 4 | 3 | 3.571 | 1.272418 | 4 |
| 2 | , | 3 | d | 4 | 20 | \% | 絡 | - 0 , | , | \% |
| 7 | $\bigcirc$ | 0 | $\bigcirc$ | $\bigcirc 0$ | $\square 0$ | 0 | $\bigcirc$ | 0.000 | $\bigcirc$ | 0 |
| 8 | 4 | 5 | 5 | 5 | 5 | 5 | 4 | 4.714 | 0.48795 | 5 |
|  | 4 | 2 | $4=$ | , | 23 | \% | \% | 8,4014 |  |  |
| 34* | , | , | 4 | 10, | - ${ }^{2}$ | \% | \% | 3x |  |  |
| 11 | 4 | 4 | 4 | 3 | 3 | 5 | 5 | 4.000 | 0.816497 | 4 |
| 12 | 3 | 5 | 3 | 5 | 3 | 4 | 3 | 3.714 | 0.95119 | 3 |
| 13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.000 | 0 | 0 |
| 14 | 5 | 5 | 5 | 5 | 5 | 4 | 5 | 4.857 | 0.377964 | 5 |
| 15 | 5 | 5 | 4 | 5 | 5 | 3 | 4 | 4.429 | 0.786796 | 5 |
| 16 | 5 | 5 | 5 | 5 | 5 | 4 | 4 | 4.714 | 0.48795 | 5 |
| 17 | 5 | 5 | 5 | 5 | 5 | 4 | 4 | 4.714 | 0.48795 | 5 |
| 18 | 5 | 5 | 4 | 5 | 5 | 4 | 3 | 4.429 | 0.786796 | 5 |
| 19 | 3 | 5 | 5 | 5 | 4 | 4 | 4 | 4.286 | 0.755929 | 4 |
| 20 | 5 | 3 | 3 | 4 | 4 | 2 | 1 | 3.143 | 1.345185 | 3 |
| 21 | 4 | 5 | 4 | 5 | 4 | 5 | 3 | 4.286 | 0.755929 | 4 |
| 22 | 4 | 4 | 2 | 5 | 4 | 4 | 3 | 3.714 | 0.95119 | 4 |
| 23 | 5 | 4 | 4 | 5 | 4 | 4 | 3 | 4.143 | 0.690066 | 4 |
| 24 | 3 | 4 | 4 | 5 | 4 | 4 | 3 | 3.857 | 0.690066 | 4 |
| 25 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.000 | 0 | 0 |
| 26 | 3 | 2 | 4 | 5 | 5 | 5 | 2 | 3.714 | 1.380131 | 4 |
| 27 | 4 | 2 | 4 | 4 | 4 | 2 | 2 | 3.143 | 1.069045 | 4 |
| 28 | 4 | 4 | 5 | 4 | 5 | 2 | 2 | 3.714 | 1.253566 | 4 |
| 29 | 5 | 5 | 5 | 5 | 5 | 4 | 5 | 4.857 | 0.377964 | 5 |
| 30 | 3 | 5 | 4 | 4 | 5 | 4 | 4 | 4.143 | 0.690066 | 4 |
| 31 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.000 | 0 | 0 |
| 32 | 5 | 4 | 3 | 3 | 3 | 2 | 5 | 3.571 | 1.133893 | 3 |
| 33 | 4 | 4 | 4 | 5 | 4 | 3 | 5 | 4.143 | 0.690066 | 4 |
| 34 | 5 | 4 | 4 | 5 | 5 | 2 | 5 | 4.286 | 1.112697 | 5 |

ROUND THREE RAW DATA SHEET

ROUND THREE RAW DATA SHEET


## Appendix I: Threshold Evaluation Data

This is a copy of the Microsoft Excel Spreadsheet containing the Threshold Evaluation Data from Survey One responses.



## Appendix J: Raw Data Standard Deviation Delta Round One to Round Two

This is a copy of the Microsoft Excel Spreadsheet containing standard deviation delta computations from survey round one to survey round two.

STANDARD DEVIATION DELTA BETWEEN ROUND ONE AND TWO

|  | SURVEY 1 |  |  | SURVEY 2 |  |  | Round 1-2 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Mean | Std Dev |  | Mean | Std Dev |  | Std Dev Delta |
| 1 | 4.4286 | 0.7868 | 1 | 4.428571 | 0.7868 | 1 | 0.0000 |
| 2 | 0.0000 | 0.0000 | 2 |  |  | 2 |  |
| 3 | 4.5714 | 0.7868 | 3 | 4.428571 | 0.7868 | 3 | 0.0000 |
| 4 | 3.5714 | 1.3973 | 4 | 3.857143 | 0.6901 | 4 | 0.7072 |
| 5 | 3.0000 | 1.6330 | 5 | 3.571429 | 1.2724 | 5 | 0.3606 |
| 6 | 1.4286 | 0.7868 | 6 |  |  | 6 |  |
| 7 | 0.0000 | 0.0000 | 7 | 0 | 0.0000 | 7 | 0.0000 |
| 8 | 4.5714 | 0.5345 | 8 | 4.714286 | 0.4880 | 8 | 0.0466 |
| 9 | 2.7143 | 1.8898 | 9 |  |  | 9 |  |
| 10 | 1.8571 | 1.2150 | 10 |  |  | 10 |  |
| 11 | 3.1429 | 1.3452 | 11 | 4 | 0.8165 | 11 | 0.5287 |
| 12 | 3.2857 | 1.4960 | 12 | 3.428571 | 1.3973 | 12 | 0.0988 |
| 13 | 0.0000 | 0.0000 | 13 | 0 | 0.0000 | 13 | 0.0000 |
| 14 | 4.7143 | 0.4880 | 14 | 4.857143 | 0.3780 | 14 | 0.1100 |
| 15 | 4.0000 | 1.2910 | 15 | 4.285714 | 1.1127 | 15 | 0.1783 |
| 16 | 4.7143 | 0.4880 | 16 | 4.714286 | 0.4880 | 16 | 0.0000 |
| 17 | 4.7143 | 0.4880 | 17 | 4.714286 | 0.4880 | 17 | 0.0000 |
| 18 | 4.2857 | 0.9512 | 18 | 4.428571 | 0.7868 | 18 | 0.1644 |
| 19 | 4.1429 | 0.8997 | 19 | 4.285714 | 0.7559 | 19 | 0.1438 |
| 20 | 2.8571 | 1.7728 | 20 | 3.428571 | 1.5119 | 20 | 0.2610 |
| 21 | 2.4286 | 1.6183 | 21 | 4.285714 | 0.7559 | 21 | 0.8624 |
| 22 | 3.8571 | 1.0690 | 22 | 3.714286 | 0.9512 | 22 | 0.1179 |
| 23 | 4.1429 | 0.6901 | 23 | 4.142857 | 0.6901 | 23 | 0.0000 |
| 24 | 3.4286 | 0.7868 | 24 | 3.857143 | 0.6901 | 24 | 0.0967 |
| 25 | 0.0000 | 0.0000 | 25 | 0 | 0.0000 | 25 | 0.0000 |
| 26 | 3.7143 | 1.7043 | 26 | 3.714286 | 1.7043 | 26 | 0.0000 |
| 27 | 3.4286 | 1.7182 | 27 | 3.428571 | 1.7182 | 27 | 0.0000 |
| 28 | 3.7143 | 1.6036 | 28 | 3.714286 | 1.6036 | 28 | 0.0000 |
| 29 | 4.7143 | 0.4880 | 29 | 4.857143 | 0.3780 | 29 | 0.1100 |
| 30 | 4.1429 | 0.6901 | 30 | 4.142857 | 0.6901 | 30 | 0.0000 |
| 31 | 0.0000 | 0.0000 | 31 | 0 | 0.0000 | 31 | 0.0000 |
| 32 | 3.4286 | 1.5119 | 32 | 3.571429 | 1.1339 | 32 | 0.3780 |
| 33 | 4.2857 | 0.7559 | 33 | 4.285714 | 0.7559 | 33 | 0.0000 |
| 34 | 4.2857 | 1.1127 | 34 | 4.285714 | 1.1127 | 34 | 0.0000 |
| 35 | 4.0000 | 1.4142 | 35 | 4.142857 | 1.0690 | 35 | 0.3452 |
| 36 | 2.2857 | 1.6036 | 36 | 3.857143 | 1.0690 | 36 | 0.5345 |
| 37 | 0.0000 | 0.0000 | 37 | 0 | 0.0000 | 37 | 0.0000 |
| 38 | 4.8571 | 0.3780 | 38 | 4.857143 | 0.3780 | 38 | 0.0000 |
| 39 | 4.8571 | 0.3780 | 39 | 4.857143 | 0.3780 | 39 | 0.0000 |
| 40 | 4.8571 | 0.3780 | 40 | 4.857143 | 0.3780 | 40 | 0.0000 |
| 41 | 4.8571 | 0.3780 | 41 | 4.857143 | 0.3780 | 41 | 0.0000 |
| 42 | 4.7143 | 0.4880 | 42 | 4.714286 | 0.4880 | 42 | 0.0000 |
| 43 | 0.0000 | 0.0000 | 43 |  |  | 43 |  |
| 44 | 3.5714 | 0.7868 | 44 | 3.714286 | 0.7559 | 44 | 0.0309 |
| 45 | 0.0000 | 0.0000 | 45 | 0 | 0.0000 | 45 | 0.0000 |
| 46 | 4.2857 | 0.4880 | 46 | 4.285714 | 0.4880 | 46 | 0.0000 |
| 47 | 4.0000 | 1.5275 | 47 | 4 | 1.5275 | 47 | 0.0000 |
| 48 | 3.1429 | 1.5736 | 48 | 3.571429 | 1.5119 | 48 | 0.0617 |
| 49 | 4.7143 | 0.4880 | 49 | 4.714286 | 0.4880 | 49 | 0.0000 |
| 50 | 4.2857 | 0.9512 | 50 | 4.285714 | 0.9512 | 50 | 0.0000 |
| 51 | 3.4286 | 1.7182 | 51 | 3.428571 | 1.7182 | 51 | 0.0000 |
| 52 | 4.2857 | 0.9512 | 52 | 4.285714 | 0.9512 | 52 | 0.0000 |

STANDARD DEVIATION DELTA BETWEEN ROUND ONE AND TWO


## Appendix K: Expert \#2 Survey Three

This is a copy of the Expert \#3 Survey Three. It is presented to show what a survey product looks like after customization with expert feedback from previous survey inputs.

| For each question, please highlight the number that best describes your level of agreement. <br> Rate between 1 and 5 <br> 1 = Disagree <br> 2 = Moderately Disagree <br> 3 = Neutral <br> 4 = Moderately Agree <br> 5 = Agree <br> Please provide comments directly under each question if it is necessary to clarify your answer or further discuss the questions <br> Definitions of Frequently Used Terms <br> Public Entity: A government department that produces a product or service for a parent government agency. It has potential to outsourced. <br> Overarching Agency: The parent government agency of a public entity. (Ex. Air Force Service is parent to the Fighter Aircraft <br> Source Selection Team: A team of specialists tasked with conducting competitive evaluations to find the best value source for service. <br> The Level Playing Field: The lack of inherent competitive advantage to either the public or private sector during a public private competition |
| :---: |
|  |  |
|  |  |
|  |  |




| 11 | 4.0 | 4 | A public/private consortium is defined as private companies teamed up with existing public entities to bid against other private entries. This consortium could field a powerful political lobby resulting in the selection of the public entity in a public private competition. <br> Comments: |  |  |  |  | 5 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 12 | 3.43 | 5 | In particular, if a public/private consortium is made up of original equipment manufactures (such as in a armed service depot competition), this could swing the competition playing field in the direction of the public entity. <br> Comments: | 1 |  | 3 | 4 | 5 |
| 13 |  |  | In your experiences or studies are there any other points involving Interest Groups which you feel may be important for the Public Entity to pay attention to prior to a Public Private Competition? |  |  |  |  |  |
| $\begin{aligned} & 13- \\ & 1-\mathrm{N} \end{aligned}$ | 4.43 | 5 | Public private consortiums may be able to put forth a stronger proposal than a public entity acting alone because: of the past performance, experience, and capability of the private partner. <br> Comments: |  | 2 | 3 | 45 |  |
| $\left\lvert\, \begin{aligned} & 13- \\ & 2-N \end{aligned}\right.$ | 4.71 | 5 | Public private consortiums may be able to put forth a stronger proposal than a public entity alone because: of the reduction of risk achievable through keeping the work in place vs. moving the workload to new facilities with a new workforce. <br> Comments: |  | 2 | 34 |  |  |
| $\left\lvert\, \begin{aligned} & 13- \\ & 3-N \end{aligned}\right.$ | 4.71 | 5 | Public entities need to pay attention to labor unions since the public entity may want to propose such techniques as, for example, multi-skilled job positions. <br> Comments |  |  | 3 | 4 | 5 |
| $\begin{aligned} & 13- \\ & 4-1 \end{aligned}$ | 4.29 | 5 | State and Local legislatures should be considered as interest groups, in particular if the public entity proposal includes improvements to buildings or new facilities. For example, State and Local funding could offset these costs. <br> Comments: |  | 2 | 34 |  | 5 |



| 16 | 4.71 | 5 | In addition to the total cost, identifying the true costs associated with the product is necessary to ensure the source selection team can conduct a fair evaluation during a public private competition. <br> Comments: |  | 2 | 3 | 4 | 5 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 17 | 4.71 | 5 | In addition to the total cost, identifying the true costs associated with the service is necessary to ensure the source selection team can conduct a fair evaluation during a public private competition. <br> Comments: |  | 2 | 3 | 4 | 5 |
| 18 | 4.43 | 5 | In addition to the total cost, identifying the true costs associated with the customer is necessary to ensure the source selection team can conduct a fair evaluation during a public private competition. <br> Comments: |  | 2 | 3 | 4 | 5 |
| 19 | 4.29 | 5 | Without proper allocation of overhead costs to the service or products (which consume the resources), costs will tend to be distorted and unreliable for evaluation purposes during a public private competition. <br> Comments: |  | 2 | 3 | 4 | 5 |
| 20 | 3.43 | 4 | A public entity generally has no concept of what a service or product costs them. <br> Comments |  | 2 | 3 | 4 | 5 |
| 21R | 4.29 | 5 | Overhead and other indirect costs, such as those associated with administrative support and capital setups, are accounted for by public entities, however, their non-standard methodologies are not widely accepted or trusted by the private business environment. <br> Comments | 1 | 2 | 3 | 4 | 5 |
| 22 | 3.71 | 4 | An ABC cost system would be an appropriate managerial system for a public entity to account for true costs of providing a service or product. <br> Comments: | 1 | 2 | 3 | 4 | 5 |





|  |  | St |  |  |
| :---: | :---: | :---: | :---: | :---: |
| $G \downarrow$ ¢ $\quad$ ¢ |  | G | LL® | $\downarrow \square$ |
|  |  |  |  | $\varepsilon \downarrow$ |
| $\checkmark \downarrow$ ¢ $\quad \downarrow$ |  | G | レL゙も | で |
| $\bigcirc \downarrow$ ¢ $\quad$ ¢ |  | G | $98{ }^{\circ} \mathrm{t}$ | $\downarrow$ |
| $G \downarrow$ ¢ $\quad \downarrow$ |  | G | $98^{\circ} \downarrow$ | Ot |
| $G \downarrow$ ¢ $\quad \downarrow$ |  | G | $98^{\circ} \mathrm{t}$ | $6 \varepsilon$ |

Transition Cost System into a Competitive Cost Proposal Structure The next subsection regards the Transition of a Cost System into a Competitive Cost Proposal. $\begin{array}{ll}\text { Group } & \text { Your } \\ \text { AVG } & \text { Previous }\end{array}$






| 69 |  |  | Intentionally left blank |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 70 |  |  | Is there anything you would like to add in regards to performance guarantees for the public entity? |  |  |  |  |  |
| Preparing a Competitive Public Entity Proposal for a Public Private Competition <br> The final subsection addresses the use of a conduct of proposal preparation. |  |  |  |  |  |  |  |  |
| 71 | 4.86 | 5 | Lack of experience and knowledge of the competitive business environment is a problem for public teams attempting to develop competitive proposals. <br> Comments: |  | 2 | 3 | 4 | 5 |
| 72 | 4.0 | 5 | Outside consultants should be hired for assistance with proposal development and creating the basis for a level playing field to compete with more experienced private entities. <br> Comments: |  | 2 | 3 | 4 | 5 |
| 73 | 4.86 | 5 | Pre-proposal Conferences should be attended by the public management teams. <br> Comments: |  | 2 | 3 | 4 | 5 |
|  | 74 |  | Is there anything you would like to add in reference to proposal preparations? |  |  |  |  |  |
| $\begin{gathered} 74 \\ -1- \\ \mathrm{N} \end{gathered}$ | 4.57 | 5 | Outside consultants should not be driving the final product (proposal), they should be there to assist with identification of all potential proposal inputs only. <br> Comments: |  | 2 | 3 | 4 | 5 |

This Concludes the Survey, Thank You Very Much for your Participation!

## Appendix L: Raw Data Standard Deviation Delta Round Two to Round Three

This is a copy of the Microsoft Excel Spreadsheet containing standard deviation delta computations from survey round two to survey round three.
STANDARD DEVIATION DELTA BETWEEN ROUND TWO AND THREE

|  | SURVEY 2 |  |  | SURVEY 3 |  |  | Round 2-3 | Round 1-3 Dev Delta |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Mean | Std Dev |  | Mean | Std Dev |  | Std Dev Delta | Std Dev Delta |
| 1 | 4.428571 | 0.7868 | 1 | 4.428571 | 0.786796 | 1 | 0.0000 | -0.7868 |
| 2 | 0 | 0.0000 | 2 | 0 | 0 | 2 | 0.0000 | 0.0000 |
| 3 | 4.428571 | 0.7868 | 3 | 4.428571 | 0.786796 | 3 | 0.0000 | -0.7868 |
| 4 | 3.857143 | 0.6901 | 4 | 4 | 0.57735 | 4 | 0.1127 | -0.5774 |
| 5 | 3.571429 | 1.2724 | 5 | 3.571429 | 1.272418 | 5 | 0.0000 | -1.2724 |
| 6 | 0 | 0.0000 | 6 | 0 | 0 | 6 | 0.0000 | 0.0000 |
| 7 | 0 | 0.0000 | 7 | 0 | 0 | 7 | 0.0000 | 0.0000 |
| 8 | 4.714286 | 0.4880 | 8 | 4.714286 | 0.48795 | 8 | 0.0000 | -0.4880 |
| 9 | 0 | 0.0000 | 9 | 0 | 0 | 9 | 0.0000 | 0.0000 |
| 10 | 0 | 0.0000 | 10 | 0 | 0 | 10 | 0.0000 | 0.0000 |
| 11 | 4 | 0.8165 | 11 | 4 | 0.816497 | 11 | 0.0000 | -0.8165 |
| 12 | 3.428571 | 1.3973 | 12 | 3.714286 | 0.95119 | 12 | 0.4461 | -0.9512 |
| 13 | 0 | 0.0000 | 13 | 0 | 0 | 13 | 0.0000 | 0.0000 |
| 14 | 4.857143 | 0.3780 | 14 | 4.857143 | 0.377964 | 14 | 0.0000 | -0.3780 |
| 15 | 4.285714 | 1.1127 | 15 | 4.428571 | 0.786796 | 15 | 0.3259 | -0.7868 |
| 16 | 4.714286 | 0.4880 | 16 | 4.714286 | 0.48795 | 16 | 0.0000 | -0.4880 |
| 17 | 4.714286 | 0.4880 | 17 | 4.714286 | 0.48795 | 17 | 0.0000 | -0.4880 |
| 18 | 4.428571 | 0.7868 | 18 | 4.428571 | 0.786796 | 18 | 0.0000 | -0.7868 |
| 19 | 4.285714 | 0.7559 | 19 | 4.285714 | 0.755929 | 19 | 0.0000 | -0.7559 |
| 20 | 3.428571 | 1.5119 | 20 | 3.142857 | 1.345185 | 20 | 0.1667 | -1.3452 |
| 21 | 4.285714 | 0.7559 | 21 | 4.285714 | 0.755929 | 21 | 0.0000 | -0.7559 |
| 22 | 3.714286 | 0.9512 | 22 | 3.714286 | 0.95119 | 22 | 0.0000 | -0.9512 |
| 23 | 4.142857 | 0.6901 | 23 | 4.142857 | 0.690066 | 23 | 0.0000 | -0.6901 |
| 24 | 3.857143 | 0.6901 | 24 | 3.857143 | 0.690066 | 24 | 0.0000 | -0.6901 |
| 25 | 0 | 0.0000 | 25 | 0 | 0 | 25 | 0.0000 | 0.0000 |
| 26 | 3.714286 | 1.7043 | 26 | 3.714286 | 1.380131 | 26 | 0.3242 | -1.3801 |
| 27 | 3.428571 | 1.7182 | 27 | 3.142857 | 1.069045 | 27 | 0.6492 | -1.0690 |
| 28 | 3.714286 | 1.6036 | 28 | 3.714286 | 1.253566 | 28 | 0.3500 | -1.2536 |
| 29 | 4.857143 | 0.3780 | 29 | 4.857143 | 0.377964 | 29 | 0.0000 | -0.3780 |
| 30 | 4.142857 | 0.6901 | 30 | 4.142857 | 0.690066 | 30 | 0.0000 | -0.6901 |
| 31 | 0 | 0.0000 | 31 | 0 | 0 | 31 | 0.0000 | 0.0000 |
| 32 | 3.571429 | 1.1339 | 32 | 3.571429 | 1.133893 | 32 | 0.0000 | -1.1339 |
| 33 | 4.285714 | 0.7559 | 33 | 4.142857 | 0.690066 | 33 | 0.0659 | -0.6901 |
| 34 | 4.285714 | 1.1127 | 34 | 4.285714 | 1.112697 | 34 | 0.0000 | -1.1127 |
| 35 | 4.142857 | 1.0690 | 35 | 4.142857 | 1.069045 | 35 | 0.0000 | -1.0690 |




## STANDARD DEVIATION DELTA BETWEEN ROUND TWO AND THREE


STANDARD DEVIATION DELTA BETWEEN ROUND TWO AND THREE


## Vita

Lieutenant Commander Timothy J. Gilbride graduated from Jefferson High School in Shenandoah Junction, West Virginia in 1986. In the fall, he entered Grove City College, Grove City, Pennsylvania obtaining a Bachelor of Arts degree in Economics in May 1990. Upon graduation, he attended the U.S. Coast Guard Officer Candidate School located in Yorktown, Virginia; he was commissioned an Ensign in September 1990.

His first assignment was U.S. Naval Flight Training located in Pensacola, Florida. Upon receiving his wings in 1992, he transitioned into the Eurocopter HH-65A Dolphin helicopter at the USCG Aviation Training Center in Mobile, Alabama. His first aviation assignment was USCG Air Station Detroit where he served as a Duty Standing Pilot, Assistant Operations Officer, and Supply Department Head.

In 1996, he was reassigned to USCG Air Station New Orleans, Louisiana. While in New Orleans, he again served as a Duty Standing Pilot and completed training as an Aeronautical Engineering Officer. In early 1998, he was reassigned to Air Station New Orleans as the unit's Assistant Engineering Officer. In September 2000, he entered the Graduate School of Engineering and Management, Air Force Institute of Technology. Upon graduation, he will be assigned to U.S. Coast Guard Headquarters Office of Aviation Engineering.

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