IN-SOURCING OR OUTSOURCING: WHAT MAKES SENSE IN TODAY'S OPERATING ENVIRONMENT

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TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

iv

ABSTRACT

In the past several years, reliance on the private sector, especially in the area of service contracts has increased. This increase is a result of various factors such as hiring restrictions (personnel ceiling), reduced budgets, the preference and policies of prior administrations, and increased requirements as a result of various overseas commitments and contingencies. To reduce the heavy reliance on contractors and balance the workforce mix, the Obama administration is energizing its forces to look for opportunities where in-sourcing of contracted functions is suitable and cost effective without impacting the operational efficiency of its various agencies and departments.

The CECOM Life Cycle Management Command (LCMC) Software Engineering Center (SEC), a recognized leader in life cycle software sustainment, is considering increasing its use of in-sourcing as an option to reduce contracted services and increase organic expertise. As part of SEC's approach to workforce management and strategic human capital planning, and the overall center's effort to manage more efficiently and effectively, SEC leadership is giving special consideration to using Department of Defense (DoD) civilian employees to perform new functions or functions that are performed by contractors. The SEC leadership understands the importance of a balanced workforce and realizes the potential of significant dollar savings by in-sourcing. The leadership further realizes the benefits of in-sourcing and how such implementation will allow for better control and oversight of various critical functions, resulting in efficiencies, accountability, and better management practices. This research will aid in the development of SEC's future operational model, including concepts and strategies for balancing SEC's contractor to government staffing ratio, maximizing productivity, and cost savings.

CHAPTER 1
INTRODUCTION

The past two decades have witnessed heavy outsourcing activities in the area of contract services. The reliance on contractors to perform various functions in support of the federal government has become the norm rather than the exception. Faith in the federal government to perform efficiently, deregulation and free market economy, the government's cumbersome hiring process, hiring restrictions, and emphasis on competitive sourcing were a few contributors to this phenomenon. In the President's Management Agenda for Fiscal Year 2002, the Bush administration identified five government-wide initiatives for improving the management and performance of the federal government, one of which was competitive sourcing (OMB, 2002). The Bush management agenda initiative declared that:

> To achieve efficient and effective competition between public and private sources, the administration has committed itself to simplifying and improving the procedures for evaluating public and private sources, to better publicizing the activities subject to competition, and to ensuring senior level agency attention to the promotion of competition. (OMB, 2002, p.17)

With competitive sourcing being one of the White House top priorities, the demands of two military conflicts, the insufficient level of forces in Iraq, and the small cadre of the civilian workforce to support surges, many governmental agencies as well as the military decided that contractors were the best choice to fill the personnel gap to execute various functions and tasks in support of the government. Take, for example, the State Department outsourcing of its security services, including protection in Iraq, to Blackwater Worldwide, now known as Xe. The State Department's heavy reliance on Blackwater to perform security services in Iraq was carried a bit too far. The incident of Sept. 16, 2007, that resulted in the

killing of 17 Iraqi civilians in Nisour Square, Baghdad, by security personnel employed by Blackwater Worldwide who were guarding a State Department convoy was a good indication of lack of government oversight or control of its contractor. Blackwater Worldwide security personnel were not under the control of government officials and had far greater latitude to perform their duties than a government civilian would have. Ignoring calls from the Iraqi government to suspend Blackwater operations in Iraq, in April 2008, the U.S. State Department extended the Blackwater contract through May 2009. According to an ABC Internet news article dated Sept. 1, 2009, the State Department agreed to temporarily continue using the subsidiary known as Presidential Airways to provide helicopter transport for embassy employees around Iraq until the new contract with Dyncorp International was fully in place. Presidential Airways is a subsidiary of the company Xe (Radia, 2009, para. 1).

To fix the challenge Blackwater caused in Iraq, the State Department awarded a contract to USIS Professional Services Division, a Virginia-based company, to investigate the use of force incident by Blackwater in Iraq. The contractor added additional resources to the State Department Force Integration Unit (FIU), a unit that was established in the aftermath of the Nisour Square incident to investigate the incident. This award caused many to question the department's thinking of outsourcing oversight of its security contracts. In a memorandum to Secretary of State Condoleezza Rice, Senator Russell D. Feingold (D-Wis.), who resides on the Senate Foreign Relation Committee, requested the Secretary to cancel the contract and staff the FIU with government staff. In his memo, he cited that criminal investigations are inherently governmental functions that should not be outsourced (Feingold, 2008). The department contract called for eight security specialist to serve as fully qualified investigators, two Arabic translators, and one fully qualified senior police advisor/liaison.

The period of performance of the contract was a base period of one year with four one-year option periods, with the base period started March 2008 and contining to February 28, 2009.

In contrast, the new administration of President Barack Obama has a different approach to government contracting and directed the Director of Office of Management and Budget (OMB), to clarify when governmental outsourcing for services is and is not appropriate (Obama, 2009). In January 2009, the State Department under the new administration fired Blackwater Worldwide.

Background

In his memorandum to the heads of the executives departments and agencies, dated March 4, 2009 Subject: Government Contracting, President Obama stated that:

> The line between inherently governmental activities that should not be outsourced and commercial activities that may be subject to private sector competition has been blurred and inadequately defined. As a result, contractors may be performing inherently governmental functions. Agencies and departments must operate under clear rules prescribing when outsourcing is and is not appropriate. (Obama, 2009, para. 10)

As a result of this action, on April 6, 2009, Secretary of Defense Robert Gates, outlined his plans for fiscal year 2010 and identified three goals, one of which is to ensure the department acquisition workforce is adequately staffed, trained, and able to provide the necessary oversight and support throughout the program's acquisition life cycle. To meet this goal, Secretary Gates announced that the department goal is to hire as many as 13,000 new civil servants in 2010 to replace contractors and up to 30,000 new civil servants in place of contractors over the next five years (Gates, 2009). He also stated that the number of support service contractors will be reduced from the current 39 percent of the Pentagon workforce to

the pre-2001 level of 26 percent, replacing them with DoD civilians. As a result of this, the comptroller signed Resource Management Decision (RMD) 802, which realigns resources for FY 2010-2014 to reduce funding for contractor support and increase funding for approximately 33,400 new civilian manpower authorizations (Lynn, 2009). This plan will increase the number of acquisition workforce professionals by 15 percent from 127,000 to 147,000, converting 11,000 existing contractor positions and hiring an additional 9,000 professionals by 2015. The DoD, Department of Commerce, Homeland Security, Veterans Affairs, and the Social Security Administration are all scheduled for large staffing increases next year. The federal workforce is expected to be 2.1 million in fiscal year 2010—about 141,300 more employees than in fiscal year 2009 (Losey, 2009).

Section 324 of Public Law 110-181, the National Defense Authorization Act for Fiscal Year 2008 (FY 2008 NDAA), added a new section 2463 to title 10, United States Code (U.S.C), which requires the Under Secretary of Defense for Personnel and Readiness (USD[P&R]) to develop guidelines and procedures to ensure that the department considers using DoD civilians to perform new functions or functions that are performed by contractors.

The Software Engineering Center (SEC), which is headquartered at Aberdeen Proving Ground (APG), Md., is recognized as a lead provider for coordinating the life cycle management for the Army as well as other branches of the DoD. SEC is part of the Army Material Command (AMC) CECOM Life Cycle Management Command (LCMC). Among its many responsibilities, the SEC produces and releases new software and software upgrades to improve the operation of current systems. The SEC also helps keep software systems up and running wherever they are used. This is accomplished through the SEC's field software engineers (FSEs) and digital system engineers (DSEs), who are deployed with military units to provide direct regional and embedded support to the warfighter during exercises,

contingencies, and combat operations. The SEC employs 4,998 employees, of which 3,835 (76 percent) are contractors. The SEC is looking for in-sourcing contracted services that can be performed more cost effectively by Department of Army civilians (DACs), including those functions that must be given "special consideration" under U.S.C. Functions that are to be given "special consideration" include:

- Functions performed by DoD civilian employees during the previous 10 years ;

- Activities closely associated with inherently government (IG) functions ;

- Contracts awarded on a non-competitive basis ; and

- Contracts that have been performed poorly.

The SEC does not appear to have any contracted functions that are inherently governmental or exempted from private sector, nor does it employ any contracted functions that provide personal services. The SEC leadership understands the importance of a balanced workforce and recognizes that significant dollar savings can be accomplished by giving special consideration to using DoD civilian employees to perform new functions or functions that are currently performed by contractors. The Software Engineering Center further realizes the benefits of in-sourcing and how such implementation will allow them to have better control and oversight of various critical functions, resulting in efficiencies, accountability, and better management practices.

Purpose of Study

The focus of this initiative is to determine whether in-sourcing of contracted functions or new functions is appropriate for the Center given the current operating environment. With today's environment of diminishing funds and resource contention for a relatively small pool of technically savvy manpower, Army organizations must review their resourcing options to

see where they can make improvements. In-sourcing can play a critical role meeting this need.

Research Methodology

The researcher used the applied research method and a directional hypothesis, where one can predict the direction for this study. The research design used mixed methods of known in-sourcing studies, survey of key individuals within the SEC, and analysis of lessons learned from successes in in-sourcing from SEC organizations. During the initial research, it was determined that starting in calendar year (CY) 2001, the SEC had implemented successful low-level in-sourcing in the area of certification and accreditation (C&A). Interviews with those involved in this approach were conducted to identify the benefits and limitations of that endeavor. The Director, Software Engineering Center, has endorsed this research and made available access to various members of the Center to collect the necessary data to support this study.

Research Question

In-sourcing or outsourcing: What makes sense in today's operating environment? Will in-sourcing for the SEC deliver qualities of better outcomes, faster delivery of services that is cost effective, a quality product, and an affordable price?

Research Hypothesis

The Software Engineering Center needs to adjust the current workforce mix of organic (in-house/government) versus contractor in order to meet its mission to provide life cycle software solutions and services that enable warfighting superiority and information dominance across the enterprise in a more effective and efficient manner. In-sourcing for the SEC will deliver qualities of better outcomes and faster delivery of services, reduces the risk caused by lack of proper government oversight of critical mission activities, and is cost effective, a quality product, and an affordable price.

Limitations to this Study

      This study is limited to the Software Engineering Center and its workforce and does not apply to any other government entity.

Definition of Terms

In-sourcing—In-sourcing is defined as the conversion of any currently contracted service or function to DoD civilian or military performance, or a combination thereof. The department conducts in-sourcing from a total force perspective, strategically assessing contracted services as part of its requirements determination process. The in-sourcing initiative does not target individual private sector companies or employees. In-sourcing is a collaborative effort across the department's core lines of business, bringing together key stakeholders from the personnel, financial management, acquisition, manpower, and various support communities (DoD In-Sourcing Initiative Clearinghouse).

Inherently Governmental Activity—Inherently governmental activity is an activity that is so intimately related to the public interest as to mandate performance by government personnel. These activities require the exercise of substantial discretion in applying government authority and/or in making decisions for the government. Inherently governmental activities normally fall into two categories: the exercise of sovereign government authority or the establishment of procedures and processes related to the oversight of monetary transactions or entitlements (Daniels, 2003).

Department of Defense (DoD) Directive—Department of Defense (DoD) Directive is a broad policy document containing what is required by legislation, the President, or the Secretary of Defense to initiate, govern, or regulate actions or conduct by the DoD components within their specific areas of responsibilities. DoD Directives establish or

describe policy, programs, and organizations; define missions; provide authority; and assign responsibilities. One-time tasking and assignments are not appropriate in DoD Directives (DTIC).

DoD Directive-Type Memorandum—DoD Directive-Type Memorandum is a memorandum issued by the Secretary of Defense, Deputy Secretary of Defense, or Office of the Secretary of Defense (OSD) Principal Staff Assistants (PSAs) that, because of time constraints, cannot be published in the DoD Directives System. Directive-type memoranda signed by PSAs are procedural in nature. They implement policy documents, such as DoD Directives, federal laws, and executive orders. Directive-type memoranda signed by the Secretary or Deputy Secretary of Defense are policy-making documents. A directive-type memorandum shall be converted into a DoD Directive or DoD Instruction within 180 days, unless the subject is classified with limited distribution or is material of limited or temporary relevance. A copy of the signed memorandum shall be forwarded to the Director, Directives and Records Division (DTIC).

Department of Defense (DoD) Instruction—Department of Defense (DoD) Instruction is a DoD issuance that implements the policy, or prescribes the manner or a specific plan or action for carrying out the policy, operating a program or activity, and assigning responsibilities (DTIC).

CHAPTER 2
LITERATURE REVIEW

Introduction

The chapter will present a review of the literature that addresses in-sourcing of contracted services and the rationale behind what appears to be a pendulum shift from outsourcing to in-sourcing. The literature review will also highlight some of the challenges certain organizations have experienced with outsourcing and the impact such endeavor has had on the operational effectiveness of the organization. The Defense Finance and Accounting Service (DFAS) Retired and Annuitant (R&A) pay functions is a good example of outsourcing went wrong and the ongoing effort by DFAS to rectify the situation.

President Obama's memorandum for the heads of executive departments and agencies, highlighted many areas of concerns in government contracting, especially spending on government contracts, which has more than doubled since 2001, reaching over $500 billion in the year 2008. The President cited a Government Accountability Office (GAO) study that was conducted in 2008 of 95 major defense acquisition projects that discovered cost overruns of 26 percent, totaling $295 billion over the life of the projects. As a result of these concerns, the President directed the OMB director, amongst many other contracting-related efforts, to clarify when governmental outsourcing of services is and is not appropriate (Obama, 2009).

Congress Letter to Secretary Robert M. Gates

The move by the DoD and Secretary Gates to determine the right balance between government and contracted personnel, and the department's implementation guidance for in-sourcing contracted services, has caused many, especially members in Congress to express their concerns with the department's implementation plan. In a letter dated July 31, 2009,

signed by 11 members of Congress (Congressional Letter, 2009), the members cited several concerns to the implementation guidance that was issued by Deputy Secretary of Defense William Lynn on May 28, 2009. First, the members expressed their concern with the lack of concrete service instructions for implementation, which leads to a lack of consistent implementation approach between installations and commands. It appears that the commands are left to exercise the "best judgment" approach to implementation, leading to unnecessary confusion between the contracting community and the federal workforce. The members stressed that the implementation of such initiative should be guided by a strategic assessment of the total workforce that best serve the interests of our military.

Second, the members highlighted their challenge with the flow diagram (See Appendix A) that was attached to Secretary Lynn's memorandum titled "Process for Prioritizing and Reviewing Contracted Services for In-Sourcing," which appears to show a very strong bias to in-sourcing. They asked that before the department continues with the in-sourcing process, that the department provides the total number envisioned to be in-sourced and the annual impact to the DoD budget as a result of that action.

Third, the members referenced paragraph 5.2.2 of Secretary Lynn's memorandum, which calls for cost analysis to be conducted in certain situations by the requiring official to determine whether DoD employee's or the private sector would be the cost-effective provider. The concern centered around the reference to the business rules in Office of the Secretary of Defense Program Analysis and Evaluation (OSD PA&E), Directive-Type Memorandum (DTM)-09-007, Estimating and Comparing the Full Costs Of Manpower and Contract Support, that needs to be followed once the DTM is issued and published. They recommended that all in-sourcing should only be conducted once the directive/guidance has been published. The members also stressed that total costs be fully considered and included

in the provided analysis. Total costs meaning government's total overhead costs, personnel, health and retirement benefits, facilities, equipment, and supplies.

The members stated that a clear message or vision does not appear to be communicated to many DoD installations, and urged the department to keep the in-sourcing process as transparent as possible and asked that Congress be kept well informed with the implementation strategy, metrics, timeline, and findings. Lastly, the members encouraged the department to keep in mind as they go through this process the impact this initiative will have on American industry, especially small businesses and their employees.

The Department of Defense Response to Congress

According to Pam Bartlett, OUSD(P&R) and lead for execution of the department's in-sourcing initiative (personal communication with attached documents, Oct. 15, 2009), the department responded to the members of Congress in a letter signed by Gail H. McGinn, Deputy Under Secretary of Defense (Plans) who is performing the duties of the Under Secretary of Defense (Personnel and Readiness). In the letter, McGinn stated that the concerns of the members of Congress provided the Department of Defense an opportunity to demonstrate and articulate how the department's in-sourcing initiatives are being used to help reduce costs, strengthen control of critical functions, lower risks to military personnel, establish and maintain essential skills and capabilities, and increases the Defense Acquisition Workforce capability and capacity.

In addressing the inquiry about the total number of positions that will be in-sourced and the annual impact to the Department of Defense budget, the department reiterated their goal for hiring approximately 33,000 new civil servants to perform currently contracted functions over the next five years, and expected a cost savings of $900 million in FY 2010 alone. The department reminded members of Congress that section 324 of Public Law 110-

181 (P.L. 110-181) precludes the department from setting limits on what can be in-sourced, and referenced May 28, 2009, implementation guidance, which requires all DoD elements to review all contracted services for possible in-sourcing. The department addressed the concern over the total cost, citing that the April 4, 2008, guidelines state that a cost analysis must account for the full costs and make a "like comparison" of all relevant costs (e.g., overhead, facilities, equipment, supplies, health, and retirement benefits) that are of a sufficient magnitude to influence the final decision (government vs. private sector).

Pertaining to the availability of the OSD(PA&E) business rules, the department indicated that the business rules would be available in September 2009; however the document was not made available until January 29, 2010. The department went on and explained that cost is not a deciding factor for all in-sourcing decisions and highlighted in-sourcing of unauthorized personal services and in-sourcing of functions that are needed to establish or build internal capacity to maintain control of missions and operations, as examples of actions that are not based on cost. The department also stressed that its shares the views of the members that transparency and communication are essential to the success of the in-sourcing initiative. The department articulated what it has done to date in communicating to the department components its message and vision as pertaining to this initiative. The department's issuance of the guidelines of April 4, 2008, as the initial in-sourcing actions; the May 28, 2009, implementation guide; department held and sponsored conferences; and working group meetings and seminars to share information and best practices are all prime examples of the department's commitment to spreading the message and ensuring its leadership and workforce are cognizant and aware of the ensuing and upcoming department changes.

As it relates to the members' concerns for the need of a strategic assessment of the workforce as a driver for the implementation process, the department agreed with this assertion, but explained that many in-sourcing actions and decisions are most appropriately made at the local level based on the nature of work performed, the manner in which the work is conducted, the risk to local operations, and the full costs to the department. These decisions entail "best judgments" and are guided by legal and regulatory requirements. With respect to American businesses, and especially small businesses and their employees, the department shares the same sentiment and stated that they were not targeting small businesses or any specific class of contractor employees. They highlighted that in-sourcing initiatives are focused on in-sourcing of services, not people.

Testimony Before the Defense Acquisition Reform Panel

In his testimony before the Defense Acquisition Reform Panel, Stan Soloway, President and Chief Executive Officer (CEO) of the Professional Services Council (PSC), the leading national trade association of the government professional and technical services industry, expressed his understanding of the DoD desire to improve its oversight of services contracts, but at the same time, stressed the need for the department to increase its insight into and understanding of the supplier base performing on those contracts. He stated that understanding is a key factor in the development of sound business practices and policies and optimizing competition, performance, and efficiency (Professional Services Council, 2009).

Mr. Soloway discussed how current policy initiatives could negatively impact the Services' industrial base and cited in-sourcing as a key issue of having a significant effects on the industrial base and on the department's dealings with industry. He highlighted three in-sourcing activities: one related to Secretary Gates workforce initiative; in-sourcing that is in response to legislative direction; and in-sourcing tied to budgetary goals. He expressed his

support to Secretary Gates' workforce initiatives and reminded the panel of his April 2009 recommended actions to the Secretary of Defense, which states:

> The initiative must be strategic, it must focus on the truly critical skills the department requires in order to control and manage its mission, and it must be conducted in a manner that is fair for both federal employees and contractor employees alike (Professional Services Council, 2009, para. 6).

The PSC President and CEO informed the panel that there are some early troubling signs with the department's initiative. He cited OMB policy guidance of July 29, 2009, and OMB's clear differentiation between inherently governmental functions and critical skills positions. He said that some elements of the department are using broad loose interpretation of the definition, and are in-sourcing functions that are fitting for contractor performance. He went on to say that OMB guidance identified four levels of work in the government and stated that there is little proof that the department components are making in-sourcing decisions based on the documented guidance.

In his testimony, Mr. Soloway mentioned that total cost must be considered in the decision process. He said that many organizations seem to compare the actual build contractor cost to the government employee salary and benefits only, giving the false impression that the contractor costs more than a government employee performing the same function. He indicated that many in the department ignore and fail to add the overhead costs of the government when conducting such comparisons, resulting in a mismatch comparison.

Mr. Soloway concluded with the industry concern over the government active and aggressive effort to recruit and hire contractor personnel into government positions. He added that in some cases, incentives and bonuses are offered to convince contractor personnel to convert to government employment, and the behavior exhibited in some of those

actions raises questions about the government's compliance with hiring practices, which industry believes are being disregarded or circumvented. He said that such practices where there exists a direct business relationship, such solicitation in either direction should be forbidden.

RAND Corporation

In their research paper prepared for the Office of the Secretary of Defense (OSD) dated 2008, subject: A Call to revitalize the Engines of Government, the RAND Corporation highlights the increased role that contractors play in support of the federal government and discusses the factors that contributed to the current situation. In his paper, Bernard Rostker, the author, highlighted that the re-shaping and re-sizing of the Department of Defense after the Cold War not only impacted the number of military personnel, but also had an impact on the size of the civilian workforce. In the early 1990s the number of new civilian hires was very small and the average age of the existing workforce became older. This meant that the new workforce was not being adequately developed to take on the challenges of the future. While the number of DoD civilians remained consistently stable since the 1990s, the increasing demands on the workforce due to the Global War on Terrorism and the two conflicts abroad resulted in the government reliance on the contractor workforce to fill the gap.

Preference for contracting was another factor contributing to the heavy reliance on the private sector for services. Policies that were developed during the Regan administration (1983 rewrite of Circular A-76), and during the George W. Bush administration (competitive sourcing) confirmed the preference for contracting services over in-house activities. Ease of contracting and leveraging task order contracts, which are contracts that are broad in their scope of work, permitted the government to add a new task to an existing contract bypassing

the A-76 process. This also played a role to increase reliance on contractors and resulted in a blended workforce. The Acquisition Advisory Panel reported that in FY 2004, almost one-third of the government's contracting dollars obligated were awarded without competition (Acquisition Advisory Panel, 2007).

Rostker stated that GAO found that contracting outside of A-76 can actually cost the government more than performing the tasks in-house. A comparison of the cost of contractors and government employees of 12 contracts at the Department of Energy in 1991 by GAO revealed that 11 out of 12 contractors were, on an average, 25 percent more costly (Peach, 1991). The Office of the Director of National Intelligence (ODNI) reported in 2008 that the cost for salary, benefits, as well as full life cycle costs, pension cost and health benefits into retirement for government employee was $125,000 compared to the $207,000 per-capita cost per contractor, which includes direct labor but does not include overhead (Sanders, 2008).

Pending retirements of many civil service workers is another contributing factor to this situation. According to the U.S. Office of Personnel Management (OPM), Division of Strategic Human Resources Policy, although historically not all employees retire when they become retirement eligible, 50 percent do retire four years after eligibility. Rostker states that contractors who actively and aggressively recruit could reverse the historic retirement pattern if those eligible for retirement do decide to accept lucrative offers from contracts and become a retiree and a contractor employee. This contradicts Soloway's declaration of the industry concerns with government actively recruiting and pursuing contractors to joining the government workforce ranks.

Both Soloway and Rostker present a good argument for their positions. Some believe that contractors provide flexibility, responsiveness, and unique expertise. Others argue that

although contractors are an essential element of the overall government workforce, the government should have more ownership and oversight of contracted services. The need for the right mix and balance between government and contractor workforce should help alleviate the concerns of both sides and presents what one would consider a solution that at the end benefits the taxpayers and results in efficiencies and economies of scale. The reforms that were released by OMB in July 2009 addressing improving acquisition, managing the multi-sector workforce, and contractor performance information should provide federal government with the capacity to carry out robust and thorough management and oversight of its contracts in order to achieve programmatic goals, avoid significant overcharges, and stop wasteful spending (Orszag, 2009, para. 2).

In-Sourcing Case Studies

The literature review revealed several case studies that highlighted the cost savings and productivity as a result of in-sourcing. Three cases will be presented to showcase the benefits of in-sourcing.

The Federal Aviation Administration (FAA) reported that its Air Traffic Organization team, known as the AJW-17 team, saved the American taxpayers anywhere from $52 million to $203 million on a new data sharing system (Federal Aviation Administration, 2009). The FAA employed a National Airspace Data Interchange Network (NADIN) to exchange critical information such as flight plan data, oceanic position reports, and weather forecast and observations, to mention a few. This network plays an important role of the global International Civil Aviation Organization (ICAO) Aeronautical Fixed Telecommunications Network (AFTN) of 245 communications centers in 189 countries and 26 international AFTN communication centers around the world. It was reported that estimates from outside contractors to replace ranged from $90 to $240 million over a 10-year service life. The FAA

17

decided to in-source this effort, creating the new NADIN Message Switch Rehost (NMR), based on best cost, technical approach and least risk. As a result of that, the AJW-17 team, replaced the system for just over $10 million, with a projected 10-year service life cost of $38 million, which resulted in a cost savings to the FAA between $52 and $203 million.

The Defense Finance and Accounting Office (DFAS) announcement in April 2009 to in-source its retired and annuitant (R&A) pay functions to be performed by DoD civilians workforce was a result of the many challenges the DFAS has had with the effort being performed by a contractor (Castelli, 2009). This is a good example of another outsourcing effort that went wrong.

In 2003 and 2004, Congress enacted a retroactive pay awards to eligible retired veterans with disabilities. Delays in delivering the new benefits were significant. As a result of that, an investigation by the Domestic Policy Subcommittee was launched in May 2008 to determine the root causes for the problem (Domestic Policy Subcommittee Majority Staff , 2008). Key findings of the investigation indicated that amongst many of the challenges, government mismanagement and poor performance by Lockheed Martin resulted in a delay of five and a half years to review the claims of eligible veterans. The investigation also revealed that up to 8,763 disabled veterans died before their cases were reviewed for VA retroactive eligibility. Poor contractor performance and ineffective government management also added to the delay. It was also noted that DFAS cut back quality control by suspending its internal practices of independently verifying the contractor's retro calculations. It was also discovered that DFAS had utilized government workers to supplement the contractors workforce to reduce payment backlog. The investigation also cited that at least 28,283 veterans were denied retroactive pay-based determination that was made without a quality assurance review.

The planned in-sourcing of R&A pay functions is reported to return 600 contractor-performed jobs to federal employees by 2010 and save more than $20 million over a 10-year period. This should provide for cost savings, greater flexibility, and government oversight. A request by the researcher was made via e-mail on October 27, 2009, to DFAS to obtain a copy of the business case analysis (BCA), and was informed by the program manager, Agency Sourcing Office, that until the conversion is complete in February 2010, the BCA is considered a pre-decisional and is not available for release.

In compliance with FY 2006 National Defense Authorization Act, the Fleet and Industrial Supply Center (FISC) Puget Sound, Bremerton, Wash., completed the first Navy conversion of contract operations to government work Feb. 11, 2009, saving the Navy $2.7 million over five years (Davis, 2009). The FISC Puget Sound's Naval Undersea Warfare Center (NUWC) Division Keyport had an oversight of a large material management and ordinance-handling contract, and this contract was to expire on Feb. 18, 2008.

According to Keith T. Button, FISC Puget Sound's Director of Business Support, the cost of work performed by contract personnel for NUWC Division Keyport was compared with the cost of similar work performed for other customers and determined to be higher and continue to grow at a greater rate in comparison to other areas. In August 2007, a BCA was conducted and the results supported in-sourcing of services with an estimated cost savings of approximately $500,000 per year. As a result of the case study, the Navy approved the in-sourcing action in September 2007 and the FISC Puget Sound hired and trained 65 civil service employees, replacing 77 contractors, in less than three months. A transition plan was developed to ensure the smooth transition of work from the contractor to the government. Button stated that the conversion of contract operations to government has resulted in cost savings, increasing effectiveness of supply chain management.

Summary

This chapter reviewed the literature associated with in-sourcing contracted serviced, highlighted the concerns Congress has regarding the DoD implementation plan for in-sourcing new and contracted-out functions, the DoD response to Congress' concerns, as well as industries' concerns with in-sourcing and its effect on the industrial base and the department's dealings with industry. This chapter also presented the RAND Corporation's study on the increased role the contractors play in executing the many functions of the federal government and the basis behind that trend. Although the literature review does not show it, the RAND study identified several actions that must be taken to revitalize the civil service. The literature review and the success of in-sourcing demonstrated by the three examples cited above provided the foundation to support the researcher's hypothesis that determining the optimum balance between the government and contractor workforce will reduce operating cost, reduce the risk caused by lack of proper government oversight of critical mission activities, and maximize the productivity and stability of the SEC workforce in supporting its mission.

CHAPTER 3
RESEARCH METHODOLOGY

Introduction

The purpose of this study is to determine whether in-sourcing of contracted functions or new functions is appropriate for the Software Engineering Center (SEC) given today's environment of diminishing funds and resource contention for a relatively small pool of technically savvy population, and to determine the right mix of contractor versus government personnel. As mentioned in Chapter 1, the researcher used the applied research method and a directional hypothesis for this study. The research design utilized mixed methods of known in-sourcing studies, survey of key individuals within the SEC, and analysis of lessons learned from successes in in-sourcing from the SEC's organizations.

To support this study, a survey was developed to help gather relevant information pertaining to ongoing and future in-sourcing activities within SEC and was provided to 10 organizational elements of the SEC that encompass two offices and eight directorates. This survey presented six questions—some contained a simple yes/no questions and some requested detailed supporting information. The researcher also asked two additional questions that were not part of the survey.

Survey

To expedite the data collection process, the researcher decided to use a Microsoft® Excel spreadsheet as the tool to collect the necessary data for this study. The questions contained in the Excel spreadsheet were determined based on the literature review and were developed with the aid of the project advisor (PA), the Chief of the SEC Strategy, Technology and Operations Office (STO2), and input from the Defense Acquisition University (DAU) subject matter expert (SME). Once the draft survey was developed, the survey was exercised as a pilot by the researcher, the PA, the STO Chief, and a couple of

members in the SEC to determine suitability. The input collected by the participants helped refine the survey and produced the final product that was sent out to all participants in the SEC. Through member checking, the researcher was able to ensure the validity of the pilot. Content validity was achieved through the use of peer scrutiny of the data to minimize and eliminate researcher bias. The researcher collaborated with one of the members of the DAU Senior Service College Fellows (SSCF) to ensure validity. Reliability was evaluated by comparing the data responses between the SEC organizational elements to determine data consistency.

The survey was distributed on Nov. 3, 2009, as a formal SEC tasking by the STO2 to all SEC offices and directorates. The task identified to all participants the purpose of the survey; the importance of the collected data, and highlighted the SEC Director's interest and support of the effort. The participants were given a period of two weeks to provide their input to the STO2 for consolidation, which was done in a timely and a professional manner. The survey instructed the participants to provide pertinent information on past, ongoing, and future in-sourcing efforts; and requested the participants to provide any additional supporting documentation, such as statistical data, briefings, or technical white papers (TWPs) that they considered necessary or fit to support this study. As mentioned in the introduction to this chapter, the survey was sent to the 10 organizational elements of the Center (offices and directorates) and all responded.

The survey contained six questions, some with branches. The six questions addressed if the organization considered any contracted-out or potentially new functions for in-sourcing; if any functions that currently being performed by support contractors could be considered an inherently government function; if there are any in-sourcing efforts in progress and the criteria used to determine if the function(s) should be in-sourced; if future in-sourcing

efforts are planned and the criteria used to determine suitability; if a function was considered for in-sourcing and then a decision was made not to in-source and the rationale that led to that decision; and finally, if the organization has in-sourced any functions in the past five years. The survey also contained questions about the return on investment, the benefits, and the risks involved. Question six was very extensive and requested information and supporting data on in-sourcing efforts and activities that were performed in the past five years. The entire survey is provided in Appendix B. Detailed metrics from successful in-sourcing efforts provided as a response to the survey were used to provide objective information to support the analysis and conclusions in this study.

Population

The selected population for this study was the CECOM LCMC SEC, which is headquartered at Aberdeen Proving Ground, Md. SEC is recognized as a lead provider for coordinating the life cycle management of software products for the Army as well as other branches of the DoD. Among its many responsibilities, the SEC produces and releases new software and software upgrades to improve the operation of current systems. Figure 1 below shows the SEC organizational chart as of Oct. 31, 2009. The SEC encompasses eight directorates that reports directly to three mission area directors (MADs). The three MADs report to the SEC Director's office and are responsible for supporting the Director in the overall Center strategic planning as well as providing management oversight and direction to their respective line directorates. The eight line directorates involved in this study are the Command & Control Solutions Directorate (C2SD); Communications Directorate (COMMD); Intelligence, Surveillance, and Reconnaissance Directorate (ISRD); Tactical Logistics Directorate (TLD); Logistics Enterprise Directorate (LED); Enterprise Solutions Directorate (ESD); Software Support Services Directorate (S3D); and the Field Support

Directorate (FSD). The two offices involved in this study are represented by the STO2 and the Business Management Office (BMO), which report directly to the SEC Director's. At the time of the study, SEC employed 4,998 employees, of which 3,835 are contractors.
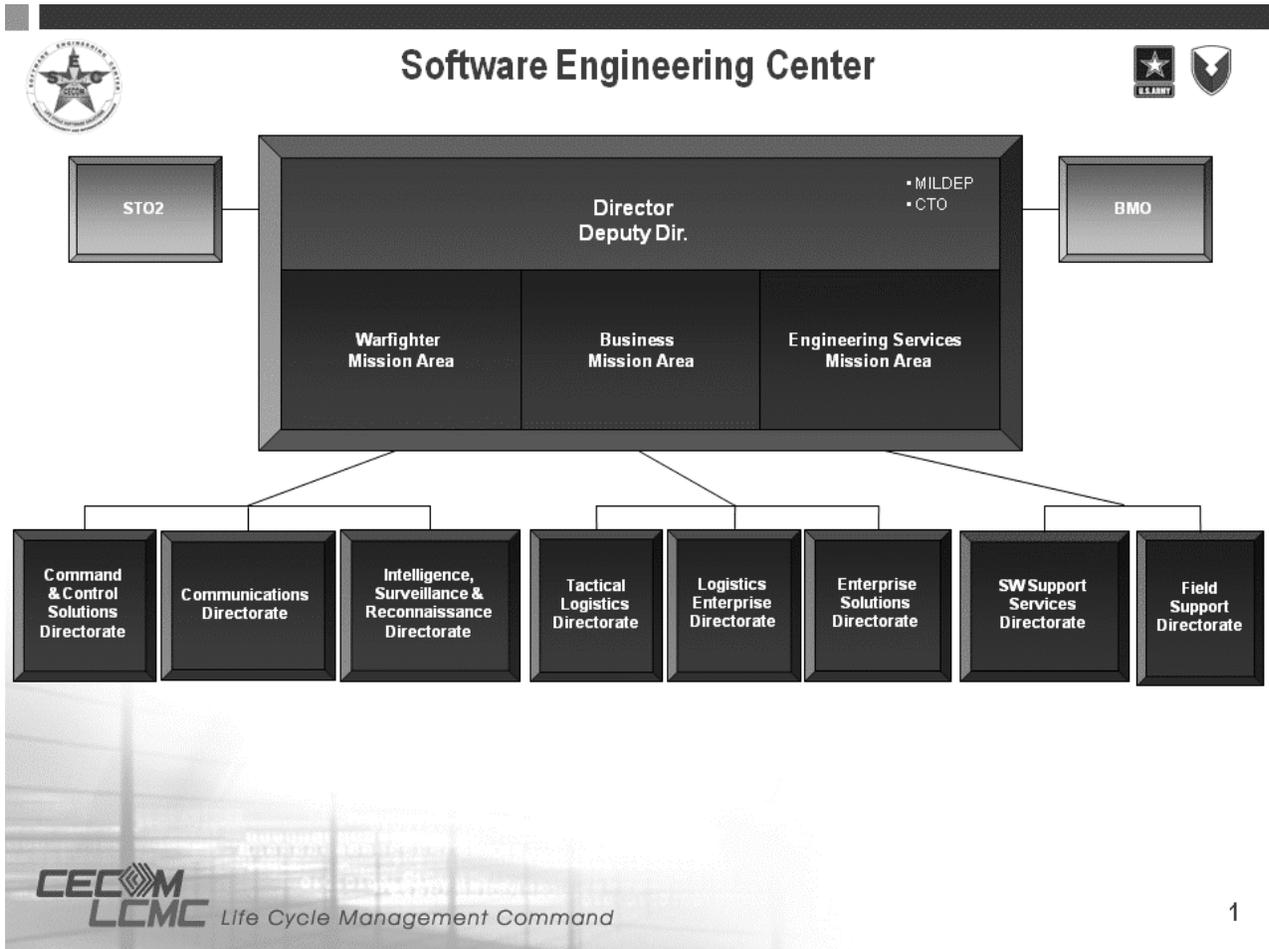
Figure 1. Software Engineering Center Organization

Research Question

In-sourcing or outsourcing: What makes sense in today's operating environment? Will in-sourcing for the SEC deliver qualities of better outcomes, faster delivery of services, that is cost effective, a quality product, and an affordable price?

Research Hypothesis

The Software Engineering Center needs to adjust the current workforce mix of organic (in-house/government) versus contractor in order to meet its mission to provide life cycle software solutions and services that enable warfighting superiority and information dominance across the enterprise in a more effective and efficient manner. In-sourcing for the SEC will deliver qualities of better outcomes, faster delivery of services, reduces the risk caused by lack of proper government oversight of critical mission activities, and it cost effective, a quality product, and an affordable price.

Limitations of this Study

This study is limited to the SEC and its workforce and does not apply to any other government entity.

Summary

This chapter highlights the research methods used by the researcher to satisfy the intent of this study. The chapter discussed the purpose of the study, the methodology and design utilized the research instrument, and the subject participant and population that were studied under this research. The next chapter will discuss the results of this study. These results reflect the data collected by the researcher through the instrument and interaction with various members of the SEC.

CHAPTER 4
DATA ANALYSIS AND RESULTS

Introduction

The previous chapter described the research design and methodology used in this study, the subject participants, population, the research instrument, and the data collection procedures. In this chapter, the results of the research are presented and key points are highlighted based on the data collected via the survey. The goal of this analysis was to evaluate and determine whether in-sourcing of contracted functions or new functions is appropriate for the SEC, and to hopefully aid the SEC in developing its future operational model in particular, balancing SEC's contractor to government ratio by determining the right mix of contractor versus government personnel.

As mentioned in Chapter 3, a survey was developed to help gather relevant information pertaining to ongoing and future in-sourcing activities within the SEC and was provided to 10 organizational elements of the SEC that encompass two offices and eight directorates. The survey contained six questions, some with branches. The six questions addressed if the organization considered any contracted-out or potentially new functions for in-sourcing; if any functions that currently being performed by support contractors could be considered an inherently government function; if there are any in-sourcing efforts in progress and the criteria used to determine if the function(s) should be in-sourced; if future in-sourcing efforts are planned and the criteria used to determine suitability; if a function was considered for in-sourcing and then a decision was made not to in-source and the rationale that led to that decision; and finally, if the organization has in-sourced any functions in the past five years. The survey also contained questions about the return on investment, the benefits, and the risks involved. Question six was very extensive and requested information and supporting

data on in-sourcing efforts and activities that were performed in the past five years. In addition to the survey, the researcher asked two additional follow-up questions to the survey participants. The two questions were:

1) *Were you aware of President Obama's memorandum for the heads of executive deparments and agencies reference government contracting dated March 4, 2009? The memoandum can be found at:*

    http://www.whitehouse.gov/the_press_office/memorandum-for-the-heads-of-executive-departments-and-agencies-subject-government

2) *Were you aware of Secretary of Defense Gates' initiative to reduce the number of support service contractors from the current 39 percent of the department workforce to the pre-2001 level 26 percent, and replace them with full-time government employees? The goal is to hire as many as 13,000 new civil servants in FY10 to replace contractors and up to 30,000 new civil servants in place of contractors over the next five years.*

The answers provided to the two additional questions demonstaretd the awareness of the Center Directors with both the President Memorandum and the Secretary of Defense initiative.

A total of 10 complete surveys were received from the SEC organizational elements. All participants provided sufficient information detailing their past, ongoing, and future in-sourcing activities. Based on the results of the survey, it appears that the SEC's leadership is aware of the advantages and disadvantages of in-sourcing and has past and present experiences of in-sourcing certain functions to support their mission areas.

Survey Results

Pertaining to the survey and as a point of reference, questions 1-2 were addressed by all participants. Question 3 was addressed by eight organizational elements, question 4 was answered by nine organizational elements, question 5 was answered by six organizational elements, and question 6 was answered by seven organizational elements. The following summarizes the answers to the questions asked in the survey:

1) *Have you considered any of your organization's contracted out functions or potential new functions for in-sourcing (Y/N)? If yes, please identify the functions.*

Ninety percent of the participants stated that they have considered existing contracted out functions or potential new functions for in-sourcing. Software development; software engineering; configuration management (CM); replication, distribution, installation, training (RDIT); mission application administration; database administration (DBA); software testing, specifically certification and accreditation (C&A) and mission application (also called independent software quality assurance [iSQA]) testing; information assurance (IA); quality assurance (QA); data service development; operations; security support services; writing and editing; operations; and public relations (PR) were the functions highlighted for in-sourcing consideration. The ISR directorates expanded on this question, citing that they were addressing and evaluating all functions within their directorate for potential in-souring opportunities. Their approach is to re-evaluate what functions and duties should be performed by a government employee first. Second, they were to look at dependencies to ensure they do not have contractors managing, providing oversight, or evaluating the work of government employees. They indicated that they have

identified several functions as possible targets for in-sourcing in FY10. Independent test and validation/verification, configuration management, test lab management, beta-site testing, and security engineering were amongst the functions they are currently considering.

2) *Do you have any functions being performed by support contractors that could be considered an inherently government (IG) function (Y/N)? If yes, please identify the functions.*

Twenty percent responded that they have functions that are currently being performed by their support contractors that could be considered IG. Tactical Logistics Directorate (TLD) cited CM and QA, while Field Support Directorate (FSD) cited operations, CM, field support and IA as functions performed by support contractors that could be considered IG. The responses provided conflicts with the information received from the Chief of the BMO, who stated that SEC does not have any functions that could be conisered as IG.

3) *If you have in-sourcing efforts in progress:*
   a) *What criteria are you using to determine if a function should be in-sourced?*
   b) *What benefits do you expect from implementing this course of action?*
   c) *What are the risks to the mission if work is brought in-house?*
   d) *What risks are avoided if work is brought in-house?*
   e) *Do you plan for a return on investment by implementing this change?*

The criterion participants highlighted to determine if a function should be in-sourced were performance (better quality/capability); overall cost; employee

satisfaction; Base Realignment and Closure (BRAC) and retaining of government workforce; cost of labor (government vs. contractor), level of subject matter expertise (SME) required to perform function(s); and contractor responsiveness to mission requirements. In addition, it was highlighted that a function that yields the Army a core capability, which in turn increases Post Production Software Support (PPSS) efficiencies, tactical responsiveness, and cost advantage over the long term and has a positive return on investment, has to be balanced with the costs of keeping current with product development and industry research. It will take a multilayered cost benefit analysis (CBA) to determine whether organic sustainment meets all three criteria mentioned above. In addressing the benefits, ownership; better control and oversight; reduce operating cost; reduce risk; flexibility; improved contract management; and faster delivery of services were amongst the benefits that were highlighted. As to risks if the work was brought in-house, the participants stated that BRAC and its impact on the ability to obtain and maintain the skill set required in the face of the upcoming move to the APG is a high risk. Also, the difficulty in finding qualified personnel due to pay parity concerns and lack of in-house capabilities to test some emerging technologies were considered as potential risks. Risk avoided with in-sourcing varied from eliminating monopoly of software sustainment to reducing schedule risks and improved consistency of products and services delivery. Long delays in the execution of tactical requirements due to acquisition requirements and uncontrolled technology development (planned obsolescence) will also be avoided, and the impact of change in contract and staff changes will be minimized and, in some instances, eliminated. All agreed that there was a return on investment.

31

4) *If you are planning future in-sourcing efforts:*

  a) *What criteria are you using to determine if a function should be in-sourced?*

  b) *What benefits do you expect from implementing this course of action?*

  c) *What are the risks to the mission if work is brought in-house?*

  d) *What risks are avoided if work is brought in-house?*

  e) *Do you anticipate a return on investment by implementing this change?*

  In addressing question 4, the participants identified performance (better quality/capability); cost of labor (government vs. contractor); responsiveness to implementing requirements; employee's experience and interest; schedule and responsiveness; BRAC impact on incumbent contractors; and criticality of the function for sustained continuity of operations as the criteria they have selected to determine if the function should be in-sourced. As to the benefits, the responses were similar to those in question 3 above. With respect to the risks to the mission if the work is brought in-house, they cited adequate funding; initial loss of contractor expertise in selected functional areas; acquiring the necessary expertise to fulfill mission requirements; lag of time between hiring and achieving the required experience; and the lack of in-house capability to test some emerging technologies as possible risks for in-sourcing. As to risk avoidance, schedule risks will be greatly reduced and cost and schedule are better controlled. Finally, all agreed that they anticipate a return on investment.

5) *If you have considered in-sourcing but decided it would not benefit your organization:*

  a) *What were the risks to the mission if the work was brought in-house?*

  b) *What were the drawbacks (be specific)?*

c) What were potential benefits even though you decided against in-sourcing?

d) Was the decision based, in whole or in part, on a lack of return on investment?

The participants identified reduced funding; loss of legacy contractor expertise; and consistency and competency of staff available to work night shift as the risks to the mission. They identified reduced sustainment dollars; timeliness in obtaining the resources; and the lack of realized efficiencies or return on investment as the drawbacks for such action. With respect to the benefits realized, the theme was reducing operating cost and better control and oversight as to the benefits gained. One of the organizations stated that while they were considering in-sourcing deployment and training functions, it was decided that using contractor resources as the means for this capability provided them more flexibility in ramping up as well as ramping down support without placing government personnel resources and budgets at risk. As to whether their decision was based in whole or in part on the lack of return on investment, four answered yes and two answered no.

Question 6 was very detailed and branched into many areas to capture all efforts that were in-sourced and the cost savings resulted from in-sourcing.

6) If you have in-sourced function(s) in the past five years:

a) What criteria did you use to determine if a function(s) should be in-sourced?

b) What function(s) did you in-sourced?

c) What were the benefits of this action?

d) Do you have the total cost to complete from an equivalent work package completed solely with in-house government labor? If so, how did government versus contractor total cost to complete for like efforts compare?

e) How was the responsiveness of the contractor compared to the government team?

f) How was the quality of the contractor work compared to the government effort?

g) Does the contractor provide a capability that the government just cannot provide? If so, can you describe it please?

h) What level of investment did it take in terms of time and money to bring the government workforce up to the level necessary so that it could provide what the contractor was providing?

i) What additional tools and other infrastructure were required to allow the government to do the work the contractor was doing?

j) Was there a return on investment when you brought the work in-house?

k) What were the risks to the mission when the work was brought in-house

l) What risks were avoided?

m) What risks did you need to take and overcome when you brought the work in-house?

n) Were any risks realized?

o) How did you manage these risks?

Of those responded to this question, they cited operational requirements; overall cost; contract award timetables; software complexity and degree of proprietary ownership of software; determination of IG functions being performed by contractors; and responsiveness to implementing requirements, as the criteria they have used for in-sourcing functions in the past five years. The S3 Directorate stated that responsiveness to implementing security requirements was critical in making this decision. The S3 Directorate employs an Agent of Certification Authority (ACA) whose responsibility is to certify that the information assurance testing and analysis results for a given system, are accurate and comply with DoD and Army security

rules, policies, and regulations. The S3 certification results are provided to the Army Information Assurance chain of command for review and, finally, are given to the system's Designated Accreditation Authority (DAA) for final accreditation. The Army's Senior Information Assurance Officer/Certification Authority (SIAO/CA) has given the Army ACA's 30 calendar days to submit their certification results. The Army's CA chain of command recognizes that the timeliness of the test results is critical. When the test results are delivered outside the 30-calendar-day timeline, the system owner has a risk that the system will fail to achieve the needed authorization to operate signature from the DAA. As a result, the system owner will have to pay additional money to retest the system and submit timely report. This will be further discussed in Chapter 5.

In reference to the functions they have in-sourced in the past five years, they have cited software development, Communications Security (COMSEC) Custodian, project management support, software testing, and field support regional leads for Command, Control, Communications, Computers, Intelligence, Surveillance, Reconnaissance Plans (C4ISR Plans) and regional coordinators for C4ISR Operations. These in-sourcing activities resulted in reduced operating cost, reduced risk, improved efficiencies, faster delivery of services, ownership, and provided for better control and oversight over government activities. In the case of the regional leads and regional coordinators, in-sourcing eliminated the possible legal ramifications associated with contractors directing the efforts of other contractors. Five of the seven elements that addressed question 6 provided financial data to demonstrate the difference between the government total costs to completing an effort versus the contractor total cost to completing like effort. Table 1 below depicts the

cost savings stated by several SEC organizational elements as a result of in-sourcing specific functions in the past five years.

Office/Dir.	In-Sourced Function	Government Man-Years	Contractor Man-Years	Government Cost	Contractor Cost	Cost Savings
STO	COMSEC Custodian	1	1	$81,991	$135,596	$53,605
C2SD	Software Development	8	8	$1,100,000	$1,600,000	$500,000
ISRD	Software Development	2.5	8	$450,000	$4,000,000	$3,550,000
S3D	Software Testing	< 1	< 1	$21,650	$38,912	$17,262[1]
FSD	Regional Leads/Coord.	6	6	$741,694	$1,125,000	$383,306

Table 1. SEC Organization Element Cost Savings

The data in Table 1 suggests that SEC has been very successful in-sourcing several functions and was able to demonstrate its return on investment. The ISR and S3 directorates both provided additional supporting information that further explains their numbers. The data and the two in-sourcing cases will be discussed in details in Chapter 5.

In addressing and comparing the quality of contractor work as compared to that of the government, four responded about the same, two stated it was worse, and one stated it was better than the government. In answering the responsiveness of the contractor as compared to the government, five stated about the same and the other two said it was worse. As to the level of investment each of the organizational elements invested in time and money to bring the government staff up to the level

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[1] Cost savings is for each software security certification and accreditation testing activity performed.

necessary to perform the tasks, five cited less than one man-year at a cost of approximately less than $50 thousand dollars. The ISR Directorate cited an investment of approximately four man-years at a cost ranging from $500,000 to $1,000,000. Relating to the capability the contractor provides that the government does not provide, the answer centered on the level of expertise and the ability to test very large and complex systems that the government does not have the capacity or the resources to conduct.

In responding to mission risks as a result of in-sourcing, several identified delaying the delivery of new capabilities and critical software fixes to include security improvements to the field, while the government was building its capacity to perform the work in-house, as a primary risk. Others stated that in-sourcing reduced the risk to the government by ensuring ownership of the process and products. The respondents also highlighted the risks avoided by in-sourcing certain functions. They claimed that conflicts of interest due to the possibility of a contractor obtaining privileged information due to his/her proximity to certain information was avoided. Another example that was mentioned referenced the known delays in acquiring vendor services via the lengthy acquisition process as a risk that they have avoided. The S3 Directorate pointed out the difficulties of placing work on contract as a risk they have avoided, citing the complexity and the cumbersome contracting process that almost cost them to lose their C&A mission since they were at risk of losing their Army ACA designation. By in-sourcing they prevented the risk of losing their core mission capability. Several of the organizations discussed the risk they took by in-sourcing. One was the anticipated showdown between the government and the Original Equipment Manufacturer (OEM) reference software rights. In one instance, it appears

that the OEM challenged the government on the software rights as well as on some developmental tool rights in the ISR Directorate. Through diligence and working through the contracting officer, the government was able to prove that the government did, indeed, own the data rights. All agreed that in-sourcing return on investment was worth the risk and cited improved efficiencies, more control, and oversight over their program as the value added of in-sourcing.

Summary

The discussion and data presented in this chapter, highlighted the Center's in-sourcing successes and further demonstrated that determining the right mix between contractor and government personnel by in-sourcing certain functions, will reduce operating cost, reduce the risk caused by lack of proper government oversight of critical mission activities, and maximize the productivity and stability of the SEC workforce in supporting its worldwide mission. The data analysis provided insight to the SEC experiences in in-sourcing, and the strategies used by the various organizational elements in improving and enhancing their business processes. Five SEC organizational elements highlighted their successes with in-sourcing. Table 1 above depicts the cost savings claimed by the five elements. The questions that guided this study were, in-sourcing or outsourcing: What makes sense in today's operating environment? Will in-sourcing for the SEC deliver qualities of better outcomes, faster delivery of services, that is cost effective, a quality product, and an affordable price? Chapter 5 will address the above questions and will provide recommendations for future research.

CHAPTER 5
CONCLUSIONS AND RECOMMENDATIONS

Introduction

As described in Chapter 1, the Software Enginneering Center (SEC) is considering in-sourcing as one of many management tools for its approach to workforce management and strategic human capital planning. Given today's environment of diminishing federal resources and troubled world economy, many agencies view in-sourcing as a mechanism to build the internal organic capacity to address, support, and sustain the many emerging and challenging requirements.

The Obama administration's call for contracting reform as highlighted in the president memorandum of March 4, 2009 identified four initiatives, one of which was to ensure that functions considered inherently governmental are not contracted out. The administration push for contracting reform signals a change in policy towards increase use of DoD civilians to perform specific functions that are currently being performend by the private industry. Many in industry are concerned about this shift in policy as compared to the Bush administration, which embraced competitive sourcing as one of its top priorities, and certainly worried that various government departments and agencies will move forward with in-sourcing implementation without regard to the impact such initiative, if used excessively, might have on the industrial base. Regradless of which side of the aisle you are on and whether you represent the government or private industry, the debate over in-sourcing is contentious, alive, and dominates the political circles.

The debate centers on what lies in the details. Stan Soloway, PSC President and CEO, continues to raise his concerns and urges the DoD and its various departments and agencies to use a deliberate and strategic approach to in-sourcing instead of an arbitrarily approach to achieve a specific target or number. In an article dated Oct. 29, 2009, subject: Insourcing

Benefits are all Smoke and Mirrors, Soloway stated that the military departments have already communicated to their field activities that for every insourced position, a 30 to 40 percent savings is being realized. He also highlights that each activity was provided an insourcing number to achieve. As a result of such action, one can see more arbitrary insourcing of purely commercial activities rather than a focus on the critical skills that the government most needs (Soloway, 2009). Soloway challenges the proclaimed saving by the DoD of $44,000 a year for each position they bring in-house calling it savings based on fuzzy math that does not take into consideration or capture the total cost of a federal employee, including benefit, salary, and all the infrastructure and supporting systems, to include personnel and travel systems, training, office equipments, and pay systems.

Another concern of Soloway is that competition was not even considered as an option for cost savings in the DoD budget or the in-sourcing guidance of May 28, 2009, that was issued by the Deputy Secretary of Defense William Lynn. However, he expressed relief by the guidance OMB provided in their July 2009 memo to the department heads and agencies on managing the multi-sector workforce. The OMB guidance, if followed, sets the right conditions for the various agencies and direct them to fully and efficiently consider their program's goals and priorities and the associated human capital needs so that they can accurately identify the best mix of public and private labor resources and help improve their management of the federal government multi-sector workforce (Orszag, OMB Memoranda M-09-26, Managing the Multi-Sector Workforce, 2009).

Interpretation and Implications of the Results

The present study focused on the question of whether in-sourcing for the SEC is the appropriate measure to deliver the best mix of government and private labor forces. As expected, evidence emerged from the study that supports the stated hypothesis that in-

sourcing for the SEC will deliver qualities of better outcomes, faster delivery of services, reduces the risk caused by lack of proper government oversight of critical mission activities, and is cost effective, a quality product, and an affordable price. This was demonstrated in the survey results and in the financial data that was depicted in Table 1 of Chapter 4, where five different SEC organizational elements identified in-sourcing savings in the areas of software development, software testing, field support, and COMSEC custodian. The next section takes a closer look at the savings claimed by the ISR and S3 Directorates and presents two cases where the SEC demonstrated its in-sourcing successes in the areas of software development in the ISR Directorate and software testing in the S3 Directorate.

SEC In-Sourcing Successes

In this section the researcher highlights the software development case that was successfully in-sourced by the ISR Directorate for the AN/APR-48A Radar Frequency Interferometer System (RFIS) and the in-house software testing capability that was established by the S3 Directorate. The cost data provided by both directorates were total costs to ensure equivalent and fair comparison. These in-sourcing success stories should be considered as a stepping stone for other organizational elements within the SEC who are considering in-sourcing as a tool to balance their workforce mix.

The AN/APR-48A Radar Frequency Interferometer System (RFIS) provides situational awareness and threat warning aboard Apache/Apache Longbow helicopters. It does so by passively detecting, accurately identifying, and precisely locating radar emitters. The RFIS performs target acquisition and cueing of radar frequency threat systems, such as surface-to-air missile sites or radar-guided anti-aircraft artillery. Currently, more than 330 APR-48s have been produced for the U.S. military and international military customers worldwide. RFIS-equipped Apache attack helicopters have been serving in modern military

conflicts such as Desert Storm, Operation Iraqi Freedom (OIF), and Operation Enduring Freedom (OEF).

Prior to the SEC assuming the sustainment role for the AN/APR-48A system, the prime contractor, Lockheed Martin, was responsible for the software development and sustainment of the system. Their mission as defined by their contract with the government program manager (PM) was to produce one global Mission Data Set (MDS) software release to support the users of the system. Lockheed employed eight engineers to perform this task at a cost of $4 million dollars per software release. Due to the high cost of the effort, the PM could only fund the release every third fiscal year (FY). The challenge with this approach, funding every third FY, was that it adversely impacted the system's ability to operate within the electronic warfare spectrum; simply stated, the system was not being used.

The ISR leadership saw this as an opportunity for in-sourcing and quickly developed and presented a business case to the PM detailing the benefits and the efficiencies that will be realized by transitioning the software responsibility role from the prime contractor to the SEC. Based on the approach presented in the business case, the PM agreed to give the SEC an opportunity at sustaining the system, which permitted the SEC in 2006 to establish an operation and maintenance (OMA) funding profile for the system. With the support of the PM and the SEC's internal talent, the SEC ISR team was able to reduce the MDS software cost by 89 percent, down to $450,000 dollars per release, expending a total of two and a half man-years on this effort. In a telephone conversation conducted with Mr. Michael Crapanzano, Deputy Director ISR, Crapanzano stated that the cost will be further reduced by leveraging in-house developed tools and process improvements. The releases were produced at a rate of one every three month period, and were regionalized (developed 10 regions for the world) to accommodate tactical requirements, which also improved system performance.

He further added that in the end state, the SEC is producing more data sets to cover the global threat problem, but that was more of a tactical decision than a funding decision. In the past, the $4 million dollar global data set was a funding decision, meaning the PM could only fund for one data set every three years. It would take the contractor two and a half years to produce that data set, which is why PM had no choice but to make one data set for the world. Even if the contractor was tasked to produce a regional data set, their cost would have still been around 80-90 percent cost of the global data set and still more expensive than that of the government produced regional data set. Crapanzano added that Lockheed Martin could not compete with SEC's organic costs or quality. He highlighted the benefits to the warfighter to be better software, reduced operating cost, increased efficiencies, and government oversight and ownership.

The Software Assurance Division (SwAD), an element of the S3 Directorate, has the responsibility, amongst many other responsibilities, to provide C&A services to its internal SEC sister organizations and to external Army customers. This effort is conducted using two different support structures, an in-house government teams, and contracted teams. The in-house teams are fully staffed by government employees who are fully responsible for the end-to-end execution of the activities. On the other hand, the contracted teams are led by at least one government employee, and a sub-set of the C&A service activities are sub-contracted out to providers who specialize in technical testing and analysis activities.

As previously mentioned under question six in Chapter 4, the S3 Directorate stated that responsiveness to implementing security requirements was critical in making their in-sourcing decision. The S3 Directorate employs an Agent of Certification Authority (ACA) whose responsibility is to certify that the information assurance testing and analysis results for a given system are accurate and comply with DoD and Army security rules, policies, and

regulations. The S3 certification results are provided to the Army Information Assurance chain of command for review and finally given to the system's Designated Accreditation Authority (DAA) for final accreditation. The Army's Senior Information Assurance Officer/Certification Authority (SIAO/CA) has given the Army ACA's 30 calendar days to submit their certification results. The Army's IA chain of command recognizes that the timeliness of the test results is critical. When the test results are delivered outside the 30-calendar-day timeline, the system owner has a risk that the system will fail to achieve the needed authorization to operate signature from the DAA. As a result, the system owner will have to pay additional money to retest the system and submit timely report.

The S3 SwAD commissioned a Lean Six Sigma (LSS) project to determine whether or not they met the 30-calendar-day requirement, and, if not, to improve their process to be in line with the 30-calendar-day requirement. The project approach was to examine the Ddivision's overall process; isolate and individually examine the in-house and contracted team's processes; and isolate and examine a finer granularity of minor milestones activity for both in-house and contracted processes. To support this effort, the division used baseline data that was collected over the past four years, which illustrate how the C&A process was actually performing. After a thorough analysis is performed on the baseline data and improvements are made to the division processes, a second set of data will be collected and examined. The end result is to improve the delivery process and meet the imposed 30-day-calendar timeline and, therefore, avoid having the systems spend additional money to retest the system.

In a phone interview with Mr. Bruce Weimer, the division's Lean Six Sigma C&A execution project lead (PL), Weimer stated that the initial baseline data suggests that the C&A contracted work efforts take longer and are less likely to have a consistent delivery

time. Therefore, it is highly likely that a contracted work effort will result in the C&A test result failing to be timely, and the system owner will need to spend additional dollars to retest the system. In short, contracted work efforts are likely to be more expensive in the long run because the system owner will need to spend additional money to retest the system. He also stated that the baseline data for the in-house work efforts suggests consistency in performing the task and timely delivery of the test data. In other words, in-house work efforts are less likely to cost the system owner additional money to retest the system. To ensure fairness in presenting the facts, in general, the in-house efforts are hand-picked/controlled based on the complexity, staffing, and resources, which could be a contributing reason for in-house work efforts delivering timely results. This is done because the in-house work has its limitations. The team has limited infrastructure to support the testing of large, complex systems. Furthermore, the in-house efforts are performed on shorter timelines than contracted efforts.

What does this all means for the SEC? The data suggests that elements within the Center have broken the code by leveraging in-sourcing as a management tool to reduce their reliance on contractors, improving efficiencies, and reducing the overall cost for specific programs. This demonstrated success is no different than the successes claimed by DFAS, FAA, and FISC as a result of their in-sourcing actions. Since the claimed SEC success stories represent a very small portion of the Center, the SEC leadership should further exploit the processess and the procedures that were followed and/or implemented by the separate elements and identify opportunities to further reduce cost and increase ownership of products and services throughout the SEC.

Recommendations for Future Research

The decision to in-source specific functions should not come at the expense of the industrial base. Determining the right mix and balance of government and contractor workforce to achieve mission success is very important and is not a simple task. This effort requires deliberate, purposeful, and strategic approach based on careful examination and thorough analysis of facts. Specifically related to the SEC, although tempting, the Center should not make decisions on in-sourcing certain functions based on an arbitrary numbers; instead, SEC should conduct an analysis of priorities, objectives, and goals to determine its true needs. The Center leadership must identify the human capital needs necessary to effectively execute the Center's mission and ensure its operational readiness and effectiveness. Balancing short-term needs with overall long-term goals and objectives is essential to success. To determine its need, the researcher recommends that the Center works on addressing the following questions:

- Which functions should be in-sourced and why?

- How should these functions be in-sourced?

- Are these functions considered valid mission requirements?

- Are these functions considered enduring mission requirements necessary to sustain continuity of operation and extends beyond the terms of the existing contract?

- What core capabilities does the Center intend to in-source?

- What cost model(s) will be used to account for the cost of manpower and make "like comparison" of all relevant costs?

- Once in-sourced, how does the Center plan on retaining these positions/functions?

- What incentive programs currently exist within the Center that could attract special skills to joing the federal government workforce, given pay parity concerns?

- How does the Center plan to avoid critical service gaps if in-sourcing is used?

To ensure effective execution of in-sourcing, a significant amount of planning, coordination, and collaboration with all stakeholders within the Center is cruicial and required. The SEC must identify an in-sourcing lead/coordinator that is empowered and provided with the necessary tools to lead, manage, and effectively coordinate the Center in-sourcing initiatives. The in-sourcing lead/coordinator will engage human resources (HR), security personnel, facilities, and budget officers to ensure the interests, expectations, and requirements of all stakeholders are addressed, and realistic timelines are established to effectively execute and achieve the desired in-sourcing outcome. Perhaps a stakeholder management plan needs to be established to gain a better understanding of all parties and aid in managing the expectations of all.

With the aid and input of all stakeholders, the SEC lead/coordinator should develop an in-sourcing plan that takes into considerations the in-sourcing implementation guidance provided by the DoD and the guidance on managing the multi-sector workforce by OMB. Both documents provide detail information on what an organization must do to support and execute an effective in-sourcing effort. The Center must determine when out-sourcing is or is not appropriate and establish its in-sourcing guidelines and criteria to ensure there is no miscommunication or mis-interpretation among SEC leaders on what should or should not be in-sourced. A common understanding of the vision and outcome is a critical element of success.

Once the in-sourcing plan is in place and the in-sourcing guidelines and criteria have been established, SEC must review all of its contracts and identify the functions to be in-sourced and the number of additional civil servants to be hired. Before proceeding with any

recruitment actions, the Center must insure the availability of funds to support the recruitment for the additional government positions. As part of its annual budget preparation and defense, SEC should reprogram some contractual dollars to support the staffing requirement as a result of its planned in-sourcing initiative. Due to the lag of time between the decision to in-source and the reprogramming of funds, proper planning will minimize service gaps and will ensure smooth transition of functions from the contractor to the government.

Finally, following the guidance provided in the OMB memorandum on managing the multi-sector workforce, the researcher recommends that the SEC conduct a pilot human capital analysis in the Field Support Directorate and the Tactical Logistics Directorate where concerns over IG functions being performed by support contractors were identified. Although the claim of IG functions being perfomed by support contractors conflicts with the input provided by the BMO; SEC does not appear to have any contracted functions that are inherently governmental or exempted from private sector, nor does it employ any contracted functions that provide personal services; the Center still must investigate this issue, and if contractors are in fact performing functions that could be considered IG, those services should be in-sourced as expeditiously as possible.

Summary

In-sourcing is a management tool an organization can utilize to help right-size the organization and provide the balance between government and contractor staff. This process is complex and requires planning, coordination, and an overall comprehensive strategy that addresses the what, the how, and the resources necessary to achieve the end state. The Software Engineering Center has demonstrated in-sourcing successes in the area of software development, software testing, field support, and COMSEC custodian. This demonstrated

success supported the stated hypothesis that in-sourcing for the SEC will deliver qualities of better outcomes, faster delivery of services, and cost effective, that is a quality product and an affordable price. To further take advantage of this success, the researcher suggests that the SEC in-source future positions where it sees the greatest benefit for the organization, not based on numbers or arbitrary goals, but on its true mission needs. This, of course, will require a clear plan of actions that maps to the Center's strategic goals and objectives. Through deliberate planning, analysis, and collaboration, the Software Engineering Center, should be able to staff the right government skills, achieving the right balance between government and contractors, and be able to address the numerous challenges of today and the future.

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GLOSSARY OF ACRONYMS AND TERMS

AAP	Acquisition Advisory Panel
ABC	American Broadcast Company
ACA	Agent of Certification Authority
AFTN	Aeronautical Fixed Telecommunications Network
AMC	Army Material Command
BCA	Business Case Analysis
BMO	Business Management Office
BRAC	Base Realignment and Closure
C&A	Certification and Accreditation
CBA	Cost Benefit Analysis
C4ISR	Command, Control, Communications, Computers, Intelligence, Surveillance, Reconnaissance
C2SD	Command and Control Solutions Directorate
CECOM	Communications-Electronics Command
CEO	Chief Executive Officer
CM	Configuration Management
COMSEC	Communications Security
DAA	Designated Accreditation Authority
DAC	Defense of Army Civilian
DAU	Defense Acquisition University
DBA	Data Base Administration
DFAS	Defense Finance and Accounting Office
DoD	Department of Defense

DSE	Digital System Engineer
DTIC	Defense Technical Information Center
DTM	Directive-Type Memorandum
ESD	Enterprise Solutions Directorate
FAA	Federal Aviation Administration
FISC	Fleet and Industrial Supply Center
FIU	Force Integration Unit
FSD	Field Support Directorate
FSE	Field Software Engineer
FY	Fiscal Year
GAO	Government Accountability Office
HR	Human Resources
IA	Information Assurance
ICAO	International Civil Aviation Organization
IG	Inherently Governmental
iSQA	Independent Software Quality Assurance
ISRD	Intelligence, Surveillance & Reconnaissance Directorate
LCMC	Life Cycle Management Command
LED	Logistics Enterprise Directorate
LSS	Lean Six Sigma
MAD	Mission Area Director
MDS	Mission Data Set
NADIN	National Airspace Data Interchange Network
NDAA	National Defense Authorization Act

NUWC	Naval Undersea Warfare Center
ODNI	Office of the Director of National Intelligence
OEF	Operation Enduring Freedom
OEM	Original Equipment Manufacturer
OIF	Operation Iraqi Freedom
O&M	Operation and Maintenance
OMB	Office of Management and Budget
OPM	Office of Personnel Management
OSD	Office of the Secretary of Defense
OSD PA&E	Office of the Secretary of Defense Program Analysis and Evaluation
PA	Project Advisor
P.L.	Public Law
PL	Project Lead
PM	Program Manager
PPSS	Post Production Software Support
PR	Public Relation
PSA	Principal Staff Assistant
PSC	Professional Services Council
QA	Quality Assurance
R&A	Retired and Annuitant
RDIT	Replication, Distribution, Installation, Training
RFIS	Radar Frequency Interferometer System
RMD	Resource Management Decision
SEC	Software Engineering Center

SIAO/CA	Senior Information Assurance Officer/Certification Authority
SME	Subject Matter Expert
SSCF	Senior Service College Fellowship
S3D	Software Support Services Directorate
STO2	Strategy, Technology and Operations Office
SwAD	Software Assurance Division
TLD	Tactical Logistics Directorate
TWP	Technical White Paper
U.S.C	United States Code
USD(P&R)	Under Secretary of Defense for Personnel and Readiness

APPENDIX A: IN-SOURCING FLOW DIAGRAM

PROCESS FOR PRIORITIZING AND REVIEWING CONTRACTED SERVICES FOR IN-SOURCING

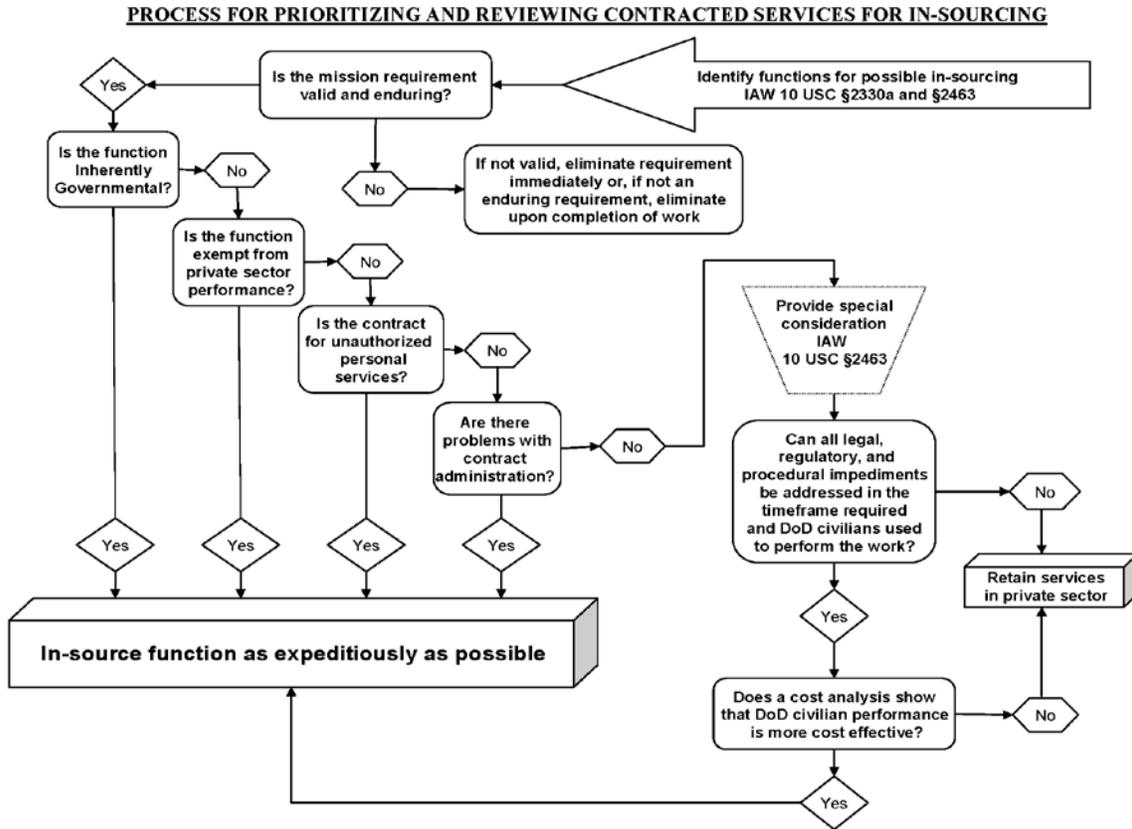**Figure 2. Insourcing Flow Diagram**

APPENDIX B: SURVEY INSTRUMENT

	Survey Questions	Please provide your answers in the columns below
1	A) Have you considered any of your organization's contracted out functions or potential new functions for in-sourcing (Y/N)?	Select (Y/N) from drop down menu
	B) If yes, please identify the functions	Select Function from drop down menu
2	A) Do you have any functions being performed by support contractors that could be considered an inherently government (IG) function (Y/N)?	Select (Y/N) from drop down menu
	B) If yes, please identify the functions	Enter functions in this cell. Free Form, no drop down menu is provided.
3	A) If you have in-sourcing efforts in progress: What criteria are you using to determine if a function should be in-sourced?	Select Criteria from drop down menu
	B) If you have in-sourcing efforts in progress: What benefits do you expect from implementing this course of action?	Select Benefit from drop down menu
	C) If you have in-sourcing efforts in progress: What are the risks to the mission if work is brought in-house?	Enter risks in this cell. Free Form, no drop down menu is provided.
	D) If you have in-sourcing efforts in progress: What risks are avoided if work is brought in-house?	Enter risks in this cell. Free Form, no drop down menu is provided.
	E) If you have in-sourcing efforts in progress: Do you plan for a return on investment by implementing this change?	Select (Y/N) from drop down menu
4	A) If you are planning future in-sourcing efforts: What criteria are you planning on using to determine if a function should be in-sourced?	Select Criteria from drop down menu
	B) If you are planning future in-sourcing efforts: What benefits do you expect from implementing this course of action?	Select Benefit from drop down menu
	C) If you are planning future in-sourcing efforts: What risks to the mission do you anticipate if work is brought in-house? What risks do you think will be avoided?	Enter risks in this cell. Free Form, no drop down menu is provided.

Survey Questions	Please provide your answers in the columns below	
D) If you are planning future in-sourcing efforts: What risks do you think will be avoided?	Enter risks in this cell. Free Form, no drop down menu is provided.	
E) If you are planning future in-sourcing efforts: Do you anticipate a return on investment?	Select (Y/N) from drop down menu	
5 A) If you have considered in-sourcing but decided it would not benefit your organization: What were the risks to the mission if the work was brought in-house?	Enter risks in this cell. Free Form, no drop down menu is provided.	
B) If you have considered in-sourcing but decided it would not benefit your organization: What were the drawbacks (be specific)?	Enter drawbacks in this cell. Free Form, no drop down menu is provided.	
C) If you have considered in-sourcing but decided it would not benefit your organization: What were potential benefits even though you decided against in-sourcing?	Select Benefit from drop down menu	
D) If you have considered in-sourcing but decided it would not benefit your organization: Was the decision based, in whole or in part, on a lack of return on investment?	Select (Y/N) from drop down menu	
6 A) If you have in-sourced a function(s) in the past five years: What criteria did you use to determine if a function(s) should be in-sourced?	Select Criteria from drop down menu	
B) If you have in-sourced a function(s) in the past five years: What function(s) did you in-source?	Select Function from drop down menu	
C) If you have in-sourced a function(s) in the past five years: What were the benefits of this action?	Select Benefit from drop down menu	
D) If you have in-sourced a function(s) in the past five years: Do you have the total cost to complete from an equivalent work package completed solely with in-house government labor? If so how did government versus contractor total cost to complete for like efforts compare?	Select (Y/N) from drop down menu; if yes, Complete sentence to the right	The cost to complete the work using government resources was ___ Manyear for $____.__; However, the contractor cost of like effort would have been ____ Manyear for $_____.__.

Survey Questions	Please provide your answers in the columns below	
E) If you have in-sourced a function(s) in the past five years: How was the responsiveness of the contractor compared to the government team?	Select Comparison from drop down menu	
F) If you have in-sourced a function(s) in the past five years: How was the quality of the contractor work compared to the government effort?	Select Comparison from drop down menu	
G) If you have in-sourced a function(s) in the past five years: Does the contractor provide a capability that the government just cannot provide? If so can you describe it please?	Select (Y/N) from drop down menu; if yes, Explain to the right	
H) If you have in-sourced a function(s) in the past five years: What level of investment did it take in terms of time and money to bring the government work force up to the level necessary so that it could provide what the contractor was providing?	Select Manyears from drop down menu	Select Cost from drop down menu
I) If you have in-sourced a function(s) in the past five years: What additional tools and other infrastructure were required to allow the government to do the work the contractor was doing?	Enter tools and infrasrructurer in this cell. Free Form, no drop down menu is provided.	
J) If you have in-sourced a function(s) in the past five years: Was there a return on investment when you brought the work in-house?	Select (Y/N) from drop down menu	
K) If you have in-sourced a function(s) in the past five years: What were the risks to the mission when the work was brought in-house?	Enter your risk anlysis in this cell. Free Form, no drop down menu is provided.	
L) If you have in-sourced a function(s) in the past five years: What risks were avoided?	Enter your risk anlysis in this cell. Free Form, no drop down menu is provided.	
M) If you have in-sourced a function(s) in the past five years: What risks did you need to take and overcome when you brought the work in house?	Enter your risk anlysis in this cell. Free Form, no drop down menu is provided.	
N) If you have in-sourced a function(s) in the past five years: Were any risks realized?	Enter your risk anlysis in this cell. Free Form, no drop down menu is	

Survey Questions	Please provide your answers in the columns below
	provided.
O) If you have in-sourced a function(s) in the past five years: How did you manage these risks?	Enter your risk anlysis in this cell. Free Form, no drop down menu is provided.