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**Services Supply Chain in the Department of Defense:
Defining and Measuring Success of Services Contracts in the
U.S. Navy**

18 January 2013

by

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14. ABSTRACT

Department of Defense (DoD) spending on services has been trending upwards for over a decade and, as of 2011, it accounted for 56% of total contract spending. The increased reliance on services contractors has prompted the Government Accountability Office (GAO) to look more closely at the acquisition and contract management process. In this research we address the following questions (1) How do different stakeholders define successful services contracts within the Navy? (2) How do different stakeholders measure services contracts within the Navy? and (3) how should Navy services contracts be defined and measured? We conducted a survey of 168 key stakeholders. We discovered that when defining and measuring the success of a service contract all stakeholders tend to utilize outcomerelated factors over process-oriented factors. We believe this is because outcomes tend to drive perceptions of success more than processes and are more easily quantifiable. Metrics used to measure success are typically related to cost schedule, and performance. Based on these findings, we provide recommendations on establishing better internal control measures, putting in place an operational audit process, and creating a standardized reporting process.

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Abstract

Department of Defense (DoD) spending on services has been trending upwards for over a decade and, as of 2011, it accounted for 56% of total contract spending. The increased reliance on services contractors has prompted the Government Accountability Office (GAO) to look more closely at the acquisition and contract management process. In this research we address the following questions: (1) How do different stakeholders define successful services contracts within the Navy? (2) How do different stakeholders measure services contracts within the Navy? and (3) how should Navy services contracts be defined and measured? We conducted a survey of 168 key stakeholders. We discovered that when defining and measuring the success of a service contract all stakeholders tend to utilize outcome-related factors over process-oriented factors. We believe this is because outcomes tend to drive perceptions of success more than processes and are more easily quantifiable. Metrics used to measure success are typically related to cost, schedule, and performance. Based on these findings, we provide recommendations on establishing better internal control measures, putting in place an operational audit process, and creating a standardized reporting process.

Keywords: Services Acquisition, Services Contracts, Success of Services Contracts

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Dr. Apte's research interests include managing service operations, globalization of information-intensive services, supply chain management, and technology management. He has published over 50 research articles, five of which have won awards from professional societies. His research articles have been published in prestigious journals including *Management Science, Interfaces, Production and Operations Management, Journal of Operations Management, Decision Sciences, IIE Transactions, Interfaces,* and *MIS Quarterly*. He has

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Dr. Rene G. Rendon is a nationally recognized authority in the areas of supply management, contract management, and project management. He is currently on the faculty of the United States Naval Postgraduate School, where he teaches in the MBA and Master of Science programs. Prior to his appointment at the Naval Postgraduate School, he served for more than 22 years as an acquisition and contracting officer in the United States Air Force, retiring at the rank of lieutenant colonel. His Air Force career included assignments as a warranted contracting officer for the Peacekeeper ICBM, Maverick Missile, C-20 (Gulfstream IV), and the F-22 Raptor. He was also a contracting squadron commander for an Air Force pilot training base and the director of contracting for the Air Force's Space-based Infrared satellite system, and the Evolved Expendable Launch Vehicle rocket program.

Rendon has taught contract management courses for the UCLA Government Contracts program; he was also a senior faculty member for the Keller Graduate School of Management, where he taught MBA courses in project management and contract management. He is a graduate of the U.S. Air Force Squadron Officer School, Air Command and Staff College, Air War College, and the Department of Defense Systems Management College. Rendon is Level III certified in both program management and contracting under the Defense Acquisition Workforce Improvement Act (DAWIA) program. He is also a certified professional contracts manager (CPCM) with the National Contract Management Association (NCMA), a certified purchasing manager (C.P.M.) with the Institute for Supply Management (ISM), and a certified project management professional (PMP) with the Project Management Institute (PMI). He has received the prestigious Fellow Award from

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I. Introduction

The service sector represents the largest and the fastest growing segment of the economies of the U.S. and other developed countries. This growth of services in the overall economy is also mirrored by the growth of services acquisition in the Department of Defense (DoD). For example, the DoD obligations on contracts have more than doubled between fiscal years 2001 and 2008 to over $387 billion, with over $200 billion spent just for services in 2008 (Government Accountability Office [GAO], 2009). In conjunction with this increase in defense procurement is the reduction of the defense acquisition workforce. The size of the federal workforce decreased from 2.25 million in 1990 to 1.78 million in 2000 (GAO, 2002). The combination of the increasing defense procurement workload and the decreasing size of the government workforce, along with the complexities of an arcane and convoluted government contracting process, have created the perfect storm—an environment in which complying with government contracting policies and adopting contract management best practices has not always been feasible (Rendon, 2010). Between 2001 and 2009, the Government Accountability Office (GAO) issued 16 reports related to trends, challenges, and deficiencies in defense contracting. During this same time frame, the DoD Inspector General (DoDIG) issued 142 reports on deficiencies in the DoD acquisition and contract administration processes. These reports have identified poor contract planning, contract administration, and contractor oversight as just some of the critically deficient areas in DoD contract management. Because of these deficiencies, the GAO has identified contract management as a "high risk" area for the federal government since 1990 and continues to identify it as high risk (GAO, 2013).

As the DoD's services acquisition continues to increase in scope and dollars, the agency must give greater attention to proper acquisition planning, adequate requirements definition, sufficient price evaluation, and proper contractor oversight (GAO, 2002). In fact, as stressed in a recent memorandum for acquisition

professionals by the Under Secretary of Defense for Acquisition, Technology, and Logistics (USD[AT&L], 2010), improving the efficiency of the acquisition of products and services is of utmost importance to the DoD. In some ways, the issues affecting services acquisition are similar to those affecting the acquisition of physical supplies and weapon systems. However, the unique characteristics of services and the increasing importance of services acquisition offer a significant opportunity for conducting research in the management of services acquisition in the Department of Defense.

A.   Research Questions

This research project undertakes a focused, in-depth study of the services acquisition so as to understand how success of service acquisition contracts is being defined and measured in the Navy. The contract management process is performed with inputs from the different functional areas, using a cross-functional team or integrated project team (IPT) structure. The team members represent their functional areas such as program management, contracting, financial, logistics, and quality assurance. Each of these project team members represents the stakeholders, and their different goals and objectives, as discussed in the previous section. For example, project managers are generally focused on meeting the cost, schedule, and performance objectives of the contract. Yet these objectives could possibly be in conflict with the contracting officer's objectives of protecting the government's interest and ensuring that the contract is in compliance with statutory requirements (for example, providing for full and open competition) and public policy objectives (for example, supporting small and minority-owned businesses). In addition, the contract's end user may have contract objectives that are different from those of the project manager and contracting officer. Based on these potentially incongruent objectives, each functional area may consider a contract's success differently than the other functional areas. Hence, the first research question we investigated was as follows: How do different stakeholders define successful services contracts within the Navy? To develop a clear understanding of current

services acquisition practices, we also investigated the second research question: How do different stakeholders measure services contracts within the Navy? Investigating the previous two questions helped us develop recommendations regarding the third and final research question: How should the service contract's success be measured? The next section provides a literature review of some of the management theories informing service supply chain management, as well as some of our previous research on DoD services acquisition.

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II.   Literature Review

The academic research in the management of services acquisition is founded on several economic and management theories including agency theory (Eisenhardt, 1989), transaction cost economics (Williamson, 1979), contractual theory (Luo, 2002), service operations and supply management (Fitzsimmons & Fitzsimmons, 2006), and stakeholder theory (Freeman, 1984; Cleland ,1986; El-Gohary, Osman, & El-Diraby, 2006). In addition to providing a brief review of the agency theory and the stakeholder theory, we also provide a summary of research projects carried out by the authors in the area of services supply chain.

A.   Agency Theory

Agency theory is reflected in a contract between the government and a contractor forming a principal–agent relationship. The principal (government) contracts with the agent (contractor) to perform some level of effort, such as developing or manufacturing a product or providing a service. In this relationship, the government's objectives include obtaining the product or service at the right quality, right quantity, right source, right time, and right price (Lee & Dobler, 1971). The federal government also has the additional objective of ensuring the product or service is procured in accordance with public policy and statutory requirements (Federal Acquisition Regulation [FAR], 2012). Contractors, on the other hand, pursue the objectives of earning a profit, ensuring company growth, maintaining or increasing market share, and improving cash flow, just to name a few. Because of the different and conflicting objectives between the principal and agent, each party is motivated and incentivized to behave in a certain manner. This behavior includes either withholding or sharing information. In principal–agent relationships that involve higher levels of uncertainty, which result in higher risk (such as developing an advanced technology weapon system), the information available to the government and contractor is typically asymmetrical. Thus, agency theory is concerned with the conflicting goals between the principal and agent in obtaining their respective

objectives and is focused on mechanisms related to obtaining information (for example, about the marketplace, the supply or service, or the contractor), selecting the agent (to counter the problem of adverse selection), and monitoring the agent's performance (to counter the effects of moral hazard). Thus, decisions about how contracts are planned (for example, competitive or sole source), structured (fixed price or cost reimbursement, with or without incentives), awarded (based on lowest priced, technically acceptable offer, or the highest technically rated offer), and administered (centralized or decentralized, level and type of surveillance, and use of project teams, etc.) have their basis in agency theory and the principal–agent problem. Agency theory can also be applied to project management, specifically in the management of services acquisition projects (Moe, 1984). In services acquisition projects, the same principal–agent model exists. The principal in this perspective is the project manager, and the agents are the other members of the project team, for example, the contracting officer and financial manager. The project manager is faced with the problem of ensuring the agents, in this context the members of the project team, will choose to pursue the principal's best interests.

B. Stakeholder Theory

Stakeholder theory can also be used to analyze DoD services acquisition. In stakeholder theory, the purpose of the organization (for example, a DoD agency) is to generate and dispense some form of wealth to various stakeholders (individuals that have a stake or interest in the agency), and, in order to achieve that purpose, all of the stakeholders cooperate (Freeman, 1984). Thus, stakeholder theory, as applied to DoD services acquisition, includes all of the major stakeholders concerned with the services acquisition project including the program/project manager (PM), contracting officer (CO), contracting officer representative (COR), financial manager, and the customers who use the service. The program/project manager is responsible for ensuring that the desired services acquisition results (in terms of cost, schedule, and performance) are achieved. The contracting officer is an agent of the government with the authority to enter into, administer, and/or

terminate contracts and make related determinations and findings (FAR, 2012). The contracting officer is responsible for making sure that contracts are planned, executed, and closed out in accordance with agency regulations and statutory requirements (Rendon & Snider, 2008). Contracting officers support the PM by providing contracting support to help achieve the contract objectives of cost, schedule, and performance. Due to the technical and complex nature of the DoD's acquired services, the contracting officer representative (COR) is an integral member of the acquisition team. The COR is the individual providing technical expertise of the service being procured and is formally appointed in writing by the contracting officer. The COR is involved in the entire acquisition and procurement process and assists the contracting officer in developing the technical documents associated with the procurement. Thus, the COR supports the PM and CO by monitoring all of the day-to-day technical aspects of the contract to include inspecting and accepting the services provided by the contractor. The finance manager is another stakeholder in DoD services acquisition, serving as the fiscal and budgetary advisor to the program manager. The finance manager is responsible for ensuring compliance with the statutory requirements of fiscal law (e.g., that proper authorization is granted for expending funds, the contract obligations occur during the time limits prescribed by appropriation, and adequate funding is available; Rendon & Snider, 2008). The customer's role in the services acquisition process is to have sufficient knowledge of the requirement so that it can be clearly communicated to industry through the contracting process. The customer plays a vital role in the services acquisition process because this is the stakeholder that determines how well the service requirement is documented in the contracting process. Although the PM, CO, COR, financial manager, and customer are all important stakeholders of a service acquisition, they each have differing roles and responsibilities, and their definitions of success may vary and may even be in conflict with each other.

C.   Services Supply Chain Management

We have addressed the need for research in this increasingly important area of services acquisition by undertaking six sponsored research projects over the past six years. The first two research projects (Apte, Ferrer, Lewis, & Rendon, 2006; Apte & Rendon, 2007) were exploratory in nature, aimed at understanding the types of services being acquired, the associated rates of growth in services acquisition, and the major challenges and opportunities present in the service supply chain .

The next two research projects were survey-based empirical studies aimed at developing a high-level understanding of how services acquisition is currently being managed at a wide range of Army, Navy, and Air Force installations (Apte, Apte, & Rendon, 2008; Apte, Apte, & Rendon, 2009). The analysis of survey data indicated that the current state of services acquisition management suffers from several deficiencies including deficit billet and manning levels (which are further aggravated by insufficient training and the inexperience of acquisition personnel), and the lack of strong project-team and life-cycle approaches. Our research (Apte, Apte, & Rendon, 2010) also analyzed and compared the results of the primary data collected in two previous empirical studies involving Army, Navy, and Air Force contracting organizations so as to develop a more thorough and comprehensive understanding of how services acquisition is being managed within individual military Services.

As a result of these research projects dealing with the service supply chain in the DoD, we have developed a comprehensive, high-level understanding of services acquisition in the DoD, have identified several specific deficiencies, and have proposed a number of concrete recommendations for performance improvement.

Based on the foundation of the previously mentioned management theories, conclusions of the GAO and DoDIG reports (Seifert & Ermoshkin, 2010), and findings of our own sponsored research projects on the topic, we believe that the success of service acquisition contracts is significantly influenced by four broadly defined factors: (1) the type and quantity of services being outsourced and the

associated amount of acquisition-related workload; (2) the characteristics of contracts being awarded; (3) the capacity available to carry out the contracting, project management, and surveillance work; and (4) various management practices such as use of project team or life-cycle approaches and so forth. A conceptual model indicating the interrelationship among these factors is shown in Figure 1.
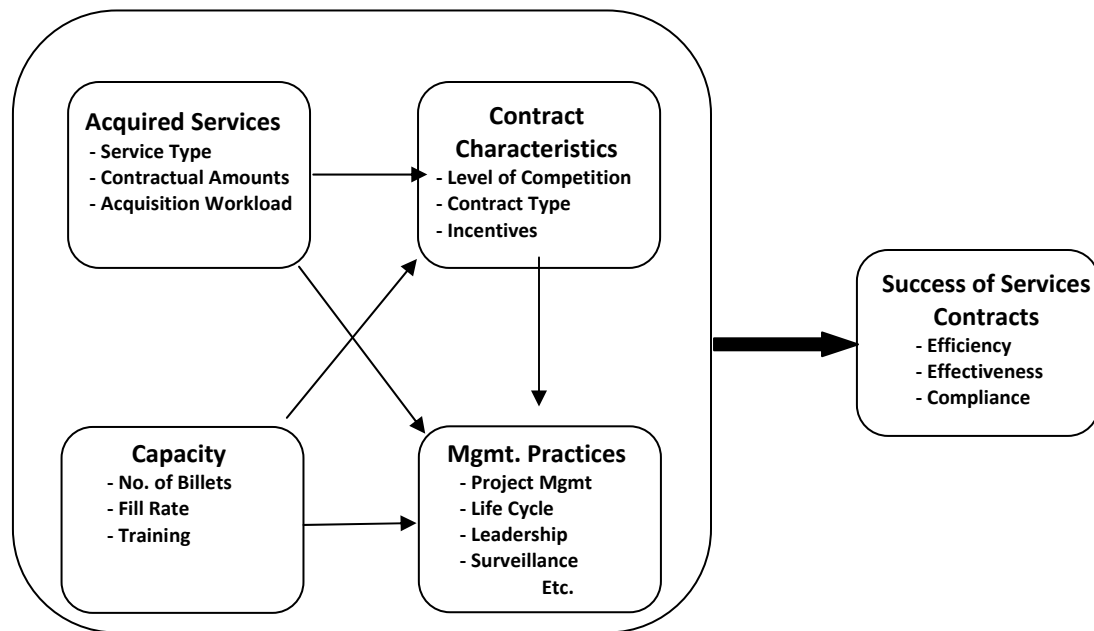
Figure 1. Drivers of Acquisition Practices and Success of Service Contracts

As shown in the conceptual diagram of Figure 1, the contract characteristics are affected by the type of service being acquired, while the management practices being used are influenced by the services being acquired, the contract characteristics, and, more importantly, the capacity available to perform the acquisition work. The success of services contracts, in turn, is affected by the previously mentioned four drivers. Underlying Figure 1 is the fundamental question motivating our in-depth research: what drives the success of services contracts? This fundamental question is, of course, critically important, and yet it is also not one that can be answered easily or quickly. We believe that, generally, in the case of questions related to complex systems, it is preferable to break down the overall

system in smaller parts, gain an understanding of the functioning of each part, and then put all the pieces together to better understand the overall system and answer the fundamental question.

The objectives of this research project are to (1) understand how the success of services contracts is being defined by different stakeholders, (2) identify how the success of services contracts is currently being measured, and (3) develop specific recommendations on how the success of services contracts should be measured. We address our research methodology in the next section.

III.   Research Methodology

With the assistance of our MBA thesis students (Hagan, Spede, & Sutton, 2012), we developed and deployed a data collection survey instrument to collect empirical data for answering our research questions. The survey was deployed to the various stakeholders at the participating commands. We then analyzed the data using descriptive statistics to provide recommendations and conclusions.

We developed and deployed a web-based survey using the SurveyMonkey website. The survey instrument included both demographic questions and core questions related to defining and measuring successful services contracts. The core questions were designed to establish the importance of different factors when defining and measuring the success of services contracts. These core questions were related to the contracting process, as well as to different outcomes such as cost, schedule, and performance (Hagan, Spede, & Sutton, 2012).

In terms of defining successful contracts, the core questions asked participants to rank various definitions relating to the four metrics (process, cost, schedule, and performance) in order of most important (1) to least important (5). We also asked participants to rate definition statements relating to process, cost, schedule, and performance. These questions use a Likert scale asking level of agreement, importance, and amount of time devoted by the participants. The Likert scale had a range of 1 to 5, with 1 representing a negative response and 5 representing a positive response (Hagan, Spede, & Sutton, 2012).

In terms of measuring successful contracts, the core questions asked participants to rank various measurements relating to the four metrics in order of most important (1) to least important (5). The last question in the section asks participants to rate on a Likert scale how often the organization conducts certain actions that pertain to the measurement of success concerning process, schedule,

cost, and performance. Figure 2 reflects our survey question approach (Hagan, Spede, & Sutton, 2012).

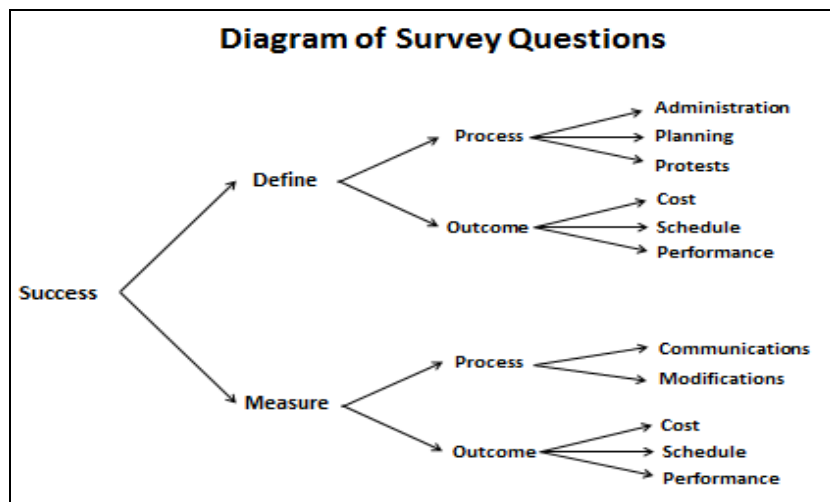**Figure 2.   Diagram of Survey Questions**

The survey was deployed to the major stakeholders (PMs, COs, and CORs) at the following major contracting commands: Fleet Logistics Center (FLC) Philadelphia, FLC Jacksonville, FLC Norfolk, FLC Puget Sound, FLC San Diego, Naval Sea Systems Command (NAVSEA), Military Sealift Command (MSC), and Space and Naval Warfare Systems Command (SPAWAR; Hagan, Spede, & Sutton, 2012).

IV.   Survey Results and Analysis

In this section, we present the results of the survey and discuss its major findings. As mentioned previously, the primary objective of this research is to empirically examine how the success of a service contract is being defined and measured by different stakeholders. We designed a survey containing 19 questions and distributed them to the major stakeholders in the services acquisition process to receive their responses. The survey was deployed at eight Navy installations identified previously. We distributed the survey to a total of 843 respondents responsible for various acquisition-related functions. Specifically, we surveyed the following stakeholders: program manager/project officer, contract officer/contract specialist, contracting officer representative, requirements manager, financial manager, contractor, and customer. The survey questions included both Likert-type as well as ranking-type questions. The Likert-type questions were used to assess favorable or unfavorable responses, while the ranking-type questions were used to assess the most important responses.   When we examine the ranking questions in this section, the term "most important" refers to the number of factors that received the highest rankings of 1 or 2. We believe that this is the best way to capture and succinctly represent the participants' responses. For example, a COR may feel that the outcome-related factors are extremely important and, therefore, should be given the highest ranking of 1 every time. However, the COR may also believe that the process-related factors are very important, too, and hence may assign the next highest rank of 2 to those factors. Hence, we believe that the percent of respondents giving a rank of 1 or 2 to a factor is the most effective way to capture and represent the importance of that factor while analyzing the data on ranking of factors.

The survey response rates we experienced for different categories of stakeholders are shown in Table 1. Unfortunately, we received only a small number of responses from requirements managers, financial managers, contractors, and

customers. Hence, their responses are not incorporated in this report for analysis purposes. These respondents are combined under the "other" category in Table 1.

Table 1.   Survey Response Rate

STAKEHOLDER	# SURVEYS DEPLOYED	# SURVEYS ANSWERED	RESPONSE RATE
PROGRAM MANAGER/PROJECT OFFICER	94	15	16%
CONTRACTING OFFICER REPRESENTATIVE	104	27	26%
CONTRACTING OFFICER/ CONTRACT SPECIALIST	280	126	45%
AGGREGATE DATA (PM, COR, PCO)	478	168	35%
OTHER	365	10	2.7%
TOTAL	843	178	21%

We present the survey results and analysis in three sub-sections: the first sub-section presents the aggregate data, the second sub-section presents the stakeholder-level data, and the third sub-section presents the service-type data. A set of tables summarizing the survey data is presented in Appendix A.

A.   Survey Results: Aggregate Survey Data

1.   Defining the Success of a Service Contract

In taking a high-level view of our survey findings, we did not differentiate between functional roles, DAWIA levels of certification, type of service being acquired, contract type, or the organization. However, we did separate our findings under the broad categories of process and outcome. Outcome results included the questions associated with cost, schedule, and performance. As shown in Table 1, collectively, there were 168 responses from PMs, CORs, or PCOs. The Likert scale responses were assigned a value of 1 through 5, with the higher value representing a more favorable response to a statement. A summary of aggregate data about defining and measuring the success of a service contract is presented in Tables 2

and 3 of Appendix A. We examined the mean of responses to each set of Likert scale-type questions. We found that when defining the success of a services contract, outcomes are considered slightly more important than processes. The overall mean of responses related to outcomes was 4.08, while process responses resulted in a mean of 3.97. Our findings are displayed graphically in Figure 3.

We then separated our findings further within the broad category of outcomes into the narrower categories of cost, schedule, and performance. Performance-related questions resulted in the highest mean of 4.29, while cost-related questions produced a mean of 4.03, and schedule-related questions produced a mean of 3.93.

One hundred and sixty-eight respondents were asked to rank different factors related to defining the success of a service contract. These questions also dealt with different aspects of processes and outcomes. Of the 168 respondents, 40% felt that process-related factors were the most important. Sixty percent felt that outcome-related factors were the most important. The distribution of highest ranked responses is displayed in Figure 4.

Breaking down the outcome-related factors further, 15% of respondents felt that cost-related factors were the most important, 19% felt that schedule-related factors were most important, and 26% felt that performance-related factors were most important.

Figure 3.   Means of Aggregate Stakeholder Definitions of Success

Figure 4.   Aggregate Stakeholder Ranking of Definitions of Success

2.   Measuring the Success of a Service Contract

Our survey also requested that participants rate on the Likert scale the various degrees of importance, and the extent to which they agreed or disagreed with, various factors when considering how they measure the success of a service

contract. Again, these factors related to either processes or outcomes. The overall Likert scale mean with relation to processes was 2.48, and the outcomes displayed an overall mean of 3.71. Clearly outcomes are deemed more important by our participants as a whole. Our findings are displayed graphically in Figure 5.

If we look at the distinct factors within outcome of cost, schedule, and performance, the overall Likert means were 3.96, 3.84, and 3.30, respectively.

One hundred and sixty-eight respondents were asked to rank different factors related to measuring the success of a service contract. Of the 168 respondents, 46% felt that process-related factors were the most important. Fifty-four percent felt that outcome-related factors were the most important. The distribution of highest ranked responses is displayed in Figure 6.

Breaking down the outcome-related factors further, 19% of respondents felt that cost-related factors were the most important, 12% felt that schedule-related factors were most important, and 23% felt that performance-related factors were most important.
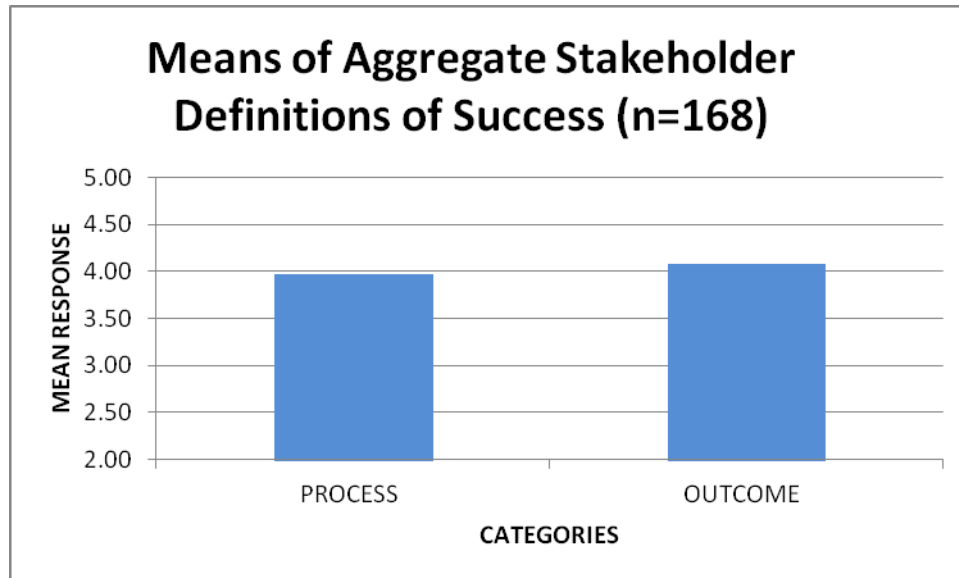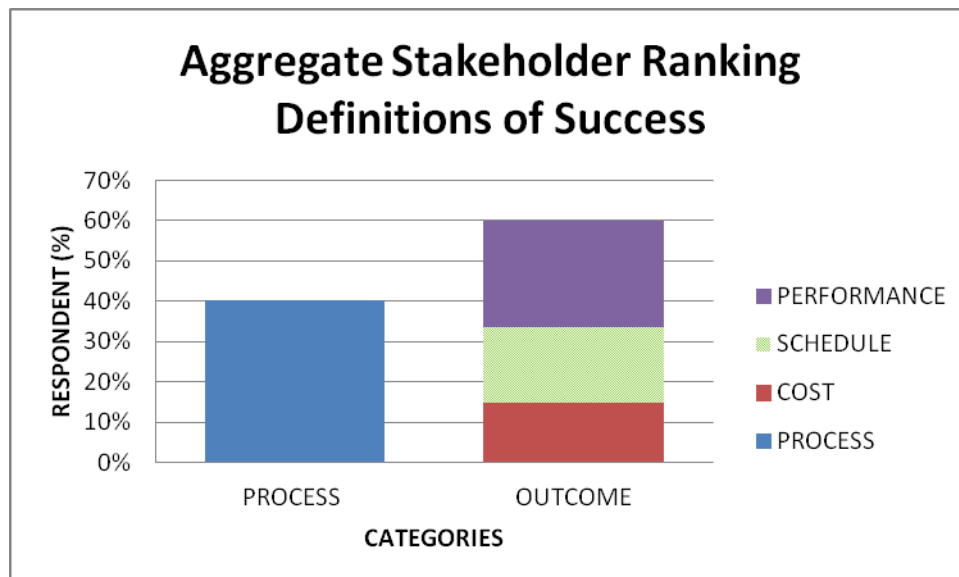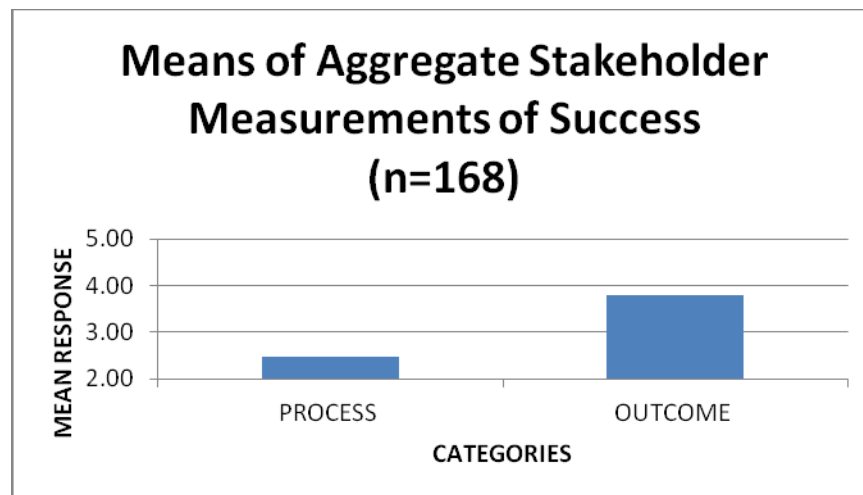

**Figure 5.   Means of Aggregate Stakeholder Measurements
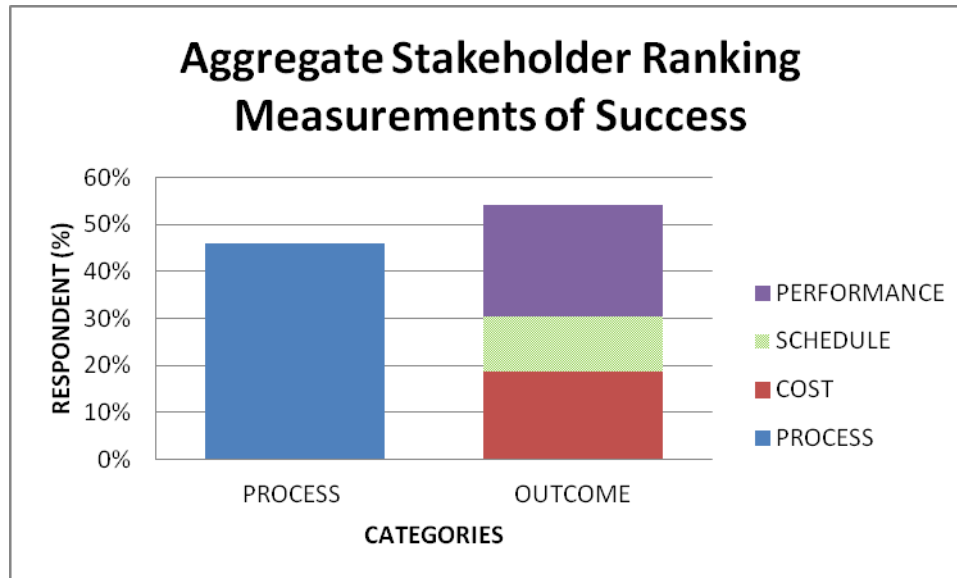of Success**

Figure 6. Aggregate Stakeholder Ranking of Measurements
of Success

3. Analysis of Aggregate Survey Data

The findings from the analysis of aggregate survey data show that when asked to respond on a Likert scale, different stakeholders find all aspects of processes and outcomes important when defining the success of a service contract. The means of the responses we collected are very close, and it does not seem that, as a whole, our population favors process or outcome when defining success. Perhaps this is due to the nature of Likert scale questions. When asked if something such as cost overruns, major milestones, or a lack of protests is important, all stakeholders will invariably say yes. That is why the overall mean of all responses, for both outcomes and processes, is fairly high at 4.03. When forced to rank, the responses differ and outcome-related responses received a high rank of 1 or 2 60% of the time. This is because outcomes such as keeping on schedule and budget adherence are easy to understand and define. Process-related factors such as administration and communication are relatively harder to quantify.

The findings also demonstrate that when measuring the success of a service contract, all stakeholders tend to focus on outcomes and do not take into

consideration the processes; this was true for both Likert scale responses and ranking responses. This is very evident in the Likert scale responses, where none of the process-related factors showed a mean of 3 or more. When forced to rank the different factors with respect to measuring success, the results were similar to defining success, with 56% of "most important" responses falling under the outcomes category.

In general our findings from the "other" category mirrored our aggregate results. While there were only 10 responses, all felt that outcomes were the most important factor when defining and measuring the success of a service contract. We found that our stakeholders in this category rated and ranked processes extremely low in both defining and measuring the success of a service contract. This is because these stakeholders are not terribly burdened by administration and other process-related factors so they feel that these factors are not important. For example, a contractor or end user does not necessarily conduct market research or choose the appropriate contract type. However, they are very concerned with staying within cost, keeping up with schedule, and maintaining a high level of performance.

B.   Survey Results: Stakeholder-Level Data

As a starting point in examining how different stakeholders define and measure the success of a service contract, we performed a statistical analysis of the data to determine if there were significant differences between the ratings on the Likert scale across the major stakeholders. We first performed an *F*-test for sample variances to determine the appropriate *t*-test to perform. In all instances, we found that there was an equal variance among stakeholders. The only statistically significant difference was between the CORs and CO/specialists when measuring success. This could be due to the fact that CORs view communication and other processes as a key factor when measuring the success of a service contract. The COR is also likely to view a protest as a serious issue when measuring success because it results in a delay of execution and CORs cannot perform their duties.

Otherwise, there was no statistically significant difference between any other of the stakeholders on the Likert scale. Given these results, we do not plan to present charts presenting and comparing how different stakeholders define and measure success of a service contract. However, a summary of how different stakeholders define and measure the success of a service contract is presented in Tables 4 and 5 of Appendix A. We discuss in the next section the results of the analysis of stakeholder-level data.

1. Analysis of Stakeholder-Level Data

Consistent with the abovementioned results of statistical analysis, we found that PMs, CORs, COs, and contract specialists all agree that outcome is slightly more important than processes, based on participants' ratings of separate factors on a Likert scale. Each functional role rated outcome slightly over 4.00, while rating processes just below 4.00. The mean of the functional roles combined was 3.94 for processes, and 4.11 for outcomes. Within outcome, performance-related factors received the highest average rating, while schedule-related factors received the lowest average rating. All functional roles showed an upward trend from schedule, to cost, to performance. A comparison of our Likert scale findings for defining success across functional roles is displayed graphically in Figure 7.

When stakeholders were asked to rank different factors concerning their definition of success, we found that there was clear agreement that outcomes are more important than processes. There was, however, some disagreement within the outcome factors of cost, schedule, and performance. CORs felt that cost was the most important factor, while PMs, COs, and specialists placed performance at the top of their rankings. Examined collectively, the major stakeholders provided 168 responses when ranking their definition of the success of a service contract. Sixty percent of respondents felt that outcome-related factors were most important, while 40% felt that process-related factors were the most important when defining success. The distribution of highest ranked responses is displayed in Figure 8.

Figure 7. Definitions of Success Across Major Stakeholders
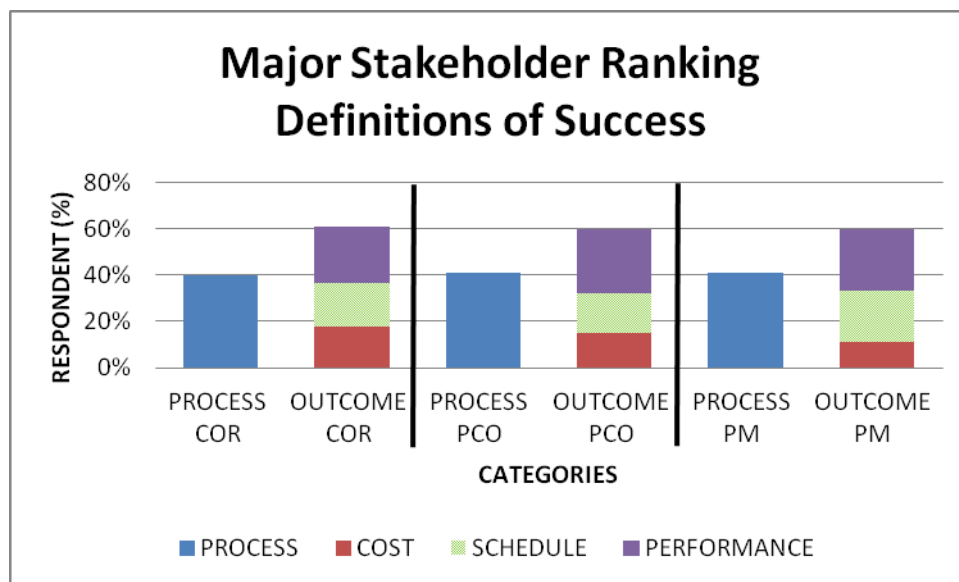
Figure 8. Major Stakeholder Ranking of Definitions of Success

According to the survey data, stakeholders also tend to measure success in almost the same way. When asked to rate different factors on the Likert scale related to stakeholders' measures of success, all respondents agreed that outcomes far outweigh processes. When looking at the mean across stakeholders, processes received a rating of 2.56, while outcomes received a rating of 3.78. Within outcome-related factors, stakeholders showed an upward trend from performance, to

schedule, to cost. A comparison of our findings for defining success on the Likert scale across functional roles is displayed graphically in Figure 9.

Our ranking data shows that, again, major stakeholders prefer outcome-related factors when measuring the success of service contracts. When examined in aggregate, the major stakeholders provided 168 responses to our ranking questions. Of these responses, 43% of respondents felt process factors were most important, while 57% were in favor of factors related to outcomes. The distribution of highest ranked responses is displayed in Figure 10.

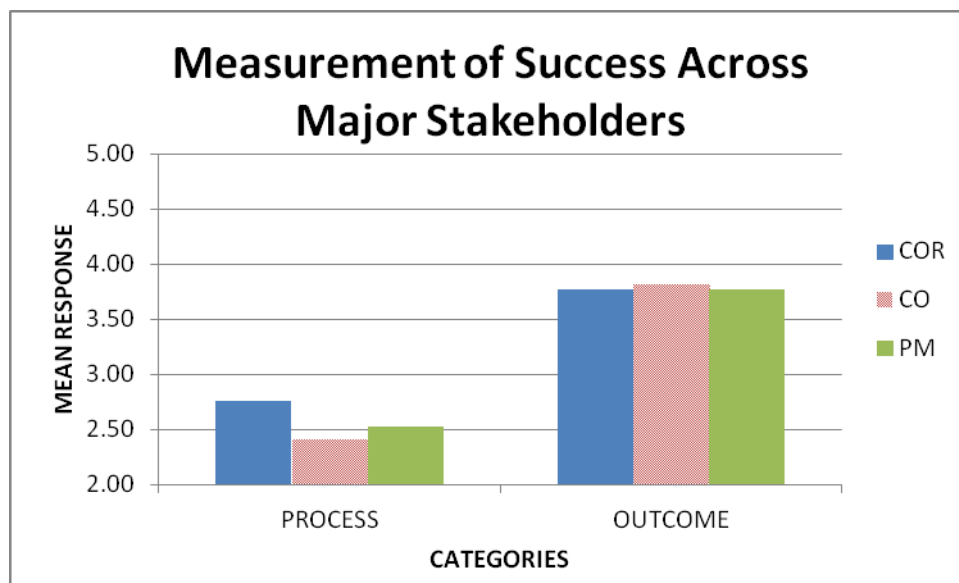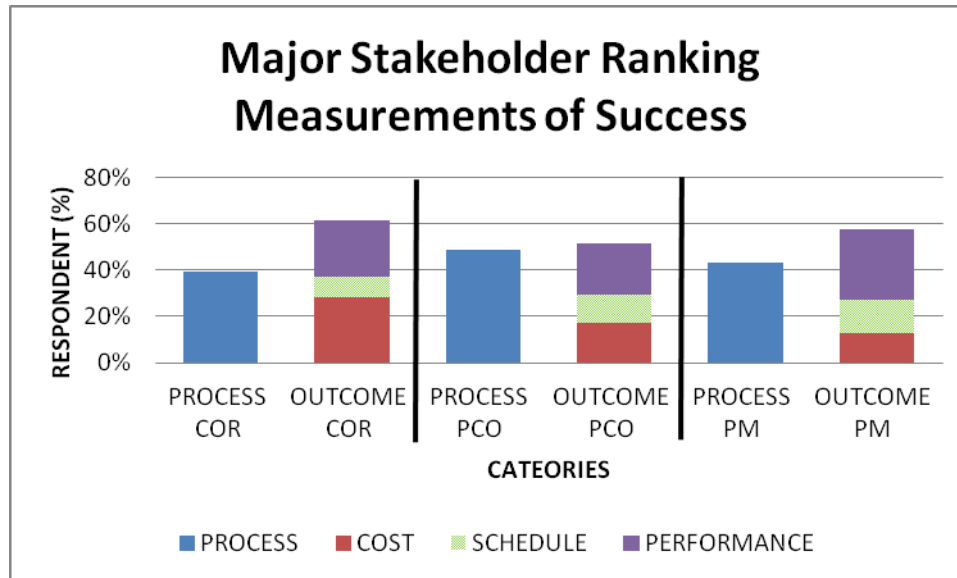**Figure 9.   Measurement of Success Across Major Stakeholders**

Major Stakeholder Ranking Measurements of Success

Figure 10. **Major Stakeholder Ranking of Measurements of Success**

The Likert scale responses for definitions of success were, again, relatively high, and this was due to the reason explained earlier. It is interesting that in both defining and measuring success, CORs ranked cost highest out of the three stakeholders.

Another interesting result is that COs tended to place nearly equal importance on process and outcomes when forced to rank factors concerning measuring success. This is probably due to the administrative nature of the COs' role. For example, their functional role has to deal with modifications, COR reports, and exercising options. The other functional roles of PMs and CORs are not overly concerned with processes and are focused on the requirement and outcomes. The data reflect this fact.

It is interesting to note that every demographic consistently rated processes significantly higher on the Likert scale when defining success versus measuring success. We feel that this is because stakeholders view measures as a tangible entity associated with post-award functions. Measures such as cost, schedule, and performance are fairly straightforward in as much as either a goal is met or it is not.

Processes such as communication flow and overall management are more obscure and subjective. The stakeholders rated processes higher for defining success because they are closely associated with mainly pre-award functions. Processes such as choosing the correct contract type and appropriately evaluating the proposal are crucial for success. Because these are pre-award activities, it is easier to define success rather than measure it.

C.   Survey Results: Type of Service

While examining our data, we found that the majority of responses were from participants who procured two types of services. Of the 168 total responses, the equipment-related service portfolio grouping accounted for 72 responses and the knowledge-based service portfolio grouping for 77 responses. The equipment-related service portfolio grouping includes the procurement of maintenance, repair and overhaul, equipment modification, installation, and quality control. The knowledge-based services portfolio grouping is composed of professional and administrative services, engineering management, program management, logistics management, and education and training. Given that the majority of responses were from these two groups, we examined and compared how stakeholders involved with equipment-related services and knowledge-based services, respectively, define and measure success of services contracts. We only differentiated by type of service and made no other demographic distinctions for mean and ranking results. A summary of survey data regarding how stakeholders acquiring these two services define and measure the success of a service contract is presented in Tables 6 and 7 of Appendix A.

An analysis of responses showed that 40% of knowledge-based service participants were involved with cost reimbursement-type contracts as compared to only 6% for equipment-related services. The higher percentage of cost reimbursement-type contracts for knowledge-based service participants is most likely due to the increased challenges and uncertainties in defining requirements associated with these types of services. Equipment-related services are generally

more concrete in terms of requirements definition and would be more suitable for a fixed-price contractual instrument.

1. Defining the Success of a Service Contract

In response to our questions asking participants to classify different factors related to defining the success of a service contract, we received 149 responses from participants who work on knowledge-based and equipment-related services. When differentiating between types of service, we found that equipment-related service participants rated both processes and outcomes higher on all Likert scale questions than knowledge-based service participants. Equipment-related participants displayed a mean rating on process and outcome factors of 4.05 and 4.10, respectively. Knowledge-based participants displayed a mean rating on process and outcome factors of 3.92 and 4.02, respectively. This shows that participants segregated by type of service may rate processes and outcomes slightly differently; however, they both indicated that outcomes are slightly more important than processes for defining success. Our results are displayed graphically by type of service in Figure 11.

The respondents were also asked to rank definitions of success concerning a service contract. The questions asked dealt with different aspects of defining success—some were related to process while others were related to outcome. Of the 72 respondents involved with procurement of equipment-related services, 42% believe that process factors are most important, while 58% felt that outcomes more accurately define the success of a service contract. Breaking down the outcome-related factors further, 15% felt that cost-related factors were the most important, 18% felt that schedule-related factors were most important, and 25% felt that performance-related factors were most important.

Seventy-seven respondents involved with knowledge-based services provided responses when asked to rank definitions of success concerning a service contract. Of the 77 respondents, 39% believed that process factors were most

important, while 61% felt that outcomes more accurately defined the success of a service contract. The results show that equipment-related service participants rated processes higher and outcomes lower than knowledge-based participants, but they both indicated that outcomes are more important than processes for defining success, based on their responses to ranking questions. The distribution of highest ranked responses is displayed in Figure 12. Breaking down the outcome-related factors further, 16% felt that cost-related factors were the most important, 18% felt that schedule-related factors were most important, and 28% felt that performance-related factors were most important.
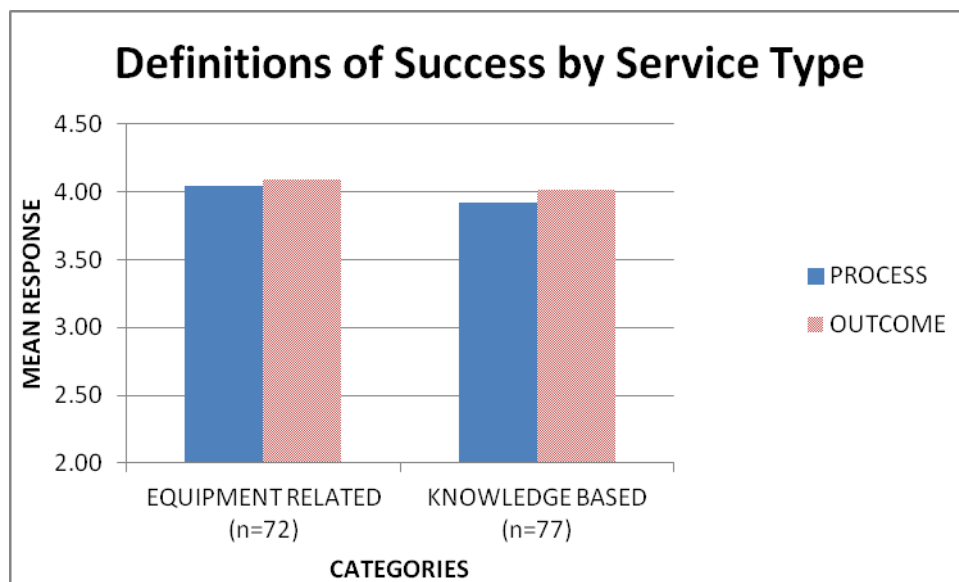
Figure 11.   Definitions of Success by Service Type
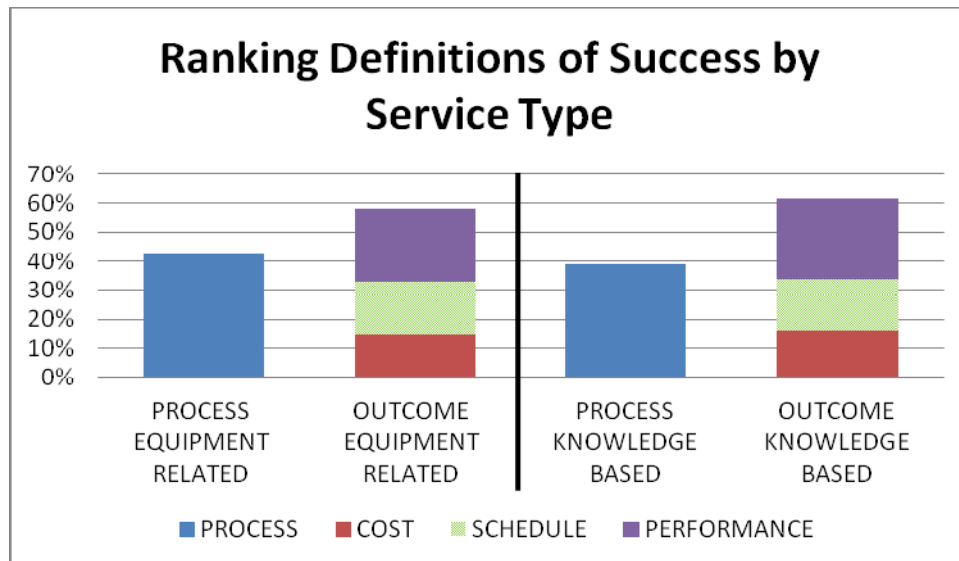
Figure 12. Ranking of Definitions of Success by Service Type

2. Measuring the Success of a Service Contract

In measuring the success for different types of services, the equipment-related service participants rated processes much higher on Likert scale questions than knowledge-based service participants. Equipment-related service participants also rated outcomes as being of lower importance than did knowledge-based service participants. Equipment-related participants displayed a mean rating on process and outcome factors of 2.68 and 3.76, respectively. Knowledge-based participants displayed a mean rating on process and outcome factors of 2.29 and 3.82, respectively. The results show that equipment-related service participants rated processes higher and outcomes lower than knowledge-based participants, but they both indicated that outcomes are more important than processes for measuring success, based on their responses to Likert scale questions. Our results are displayed graphically by type of service in Figure 13.

Of the 72 respondents involved with equipment-related services, process-related factors were ranked most important 44% of the time, while outcome-related factors were ranked as most important 56% of the time. Breaking down the outcome-related factors further, 21% of respondents felt that cost-related factors

were the most important, 12% felt that schedule-related factors were most important, and 21% felt that performance-related factors were most important.

Forty-eight percent of the 77 respondents associated with knowledge-based services felt that process-related factors were the most important when measuring success. Fifty-two percent of respondents felt that outcome-related factors were the most important. The results show that equipment-related service participants rated processes lower and outcomes higher than did knowledge-based participants, but they both indicated that outcomes are more important than processes for measuring success, based on their responses to our ranking questions. The distribution of highest ranked responses is displayed in Figure 14. Breaking down the outcome-related factors further, 16% of respondents felt that cost-related factors were the most important, 11% felt that schedule-related factors were most important, and 25% felt that performance-related factors were most important.
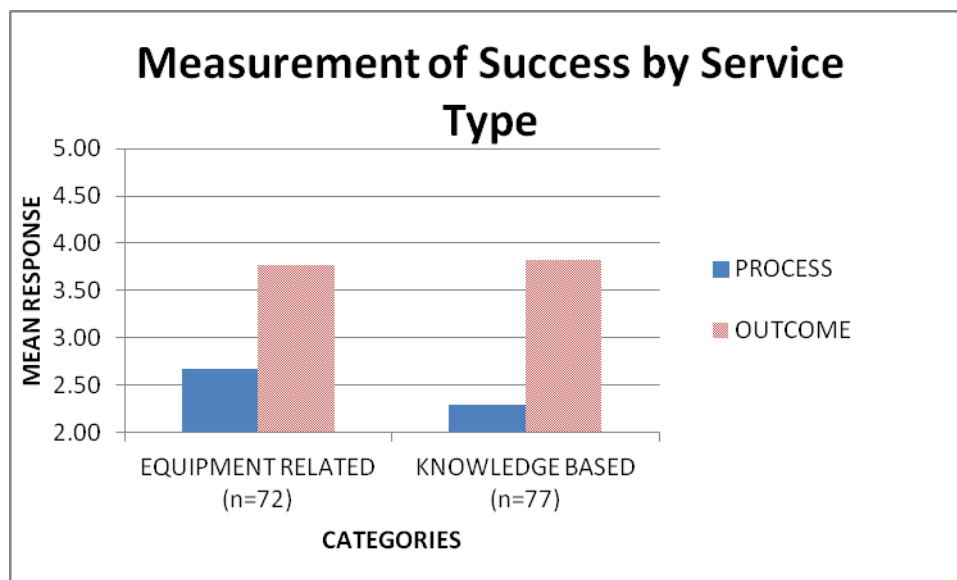
Figure 13.   Measurement of Success by Service Type
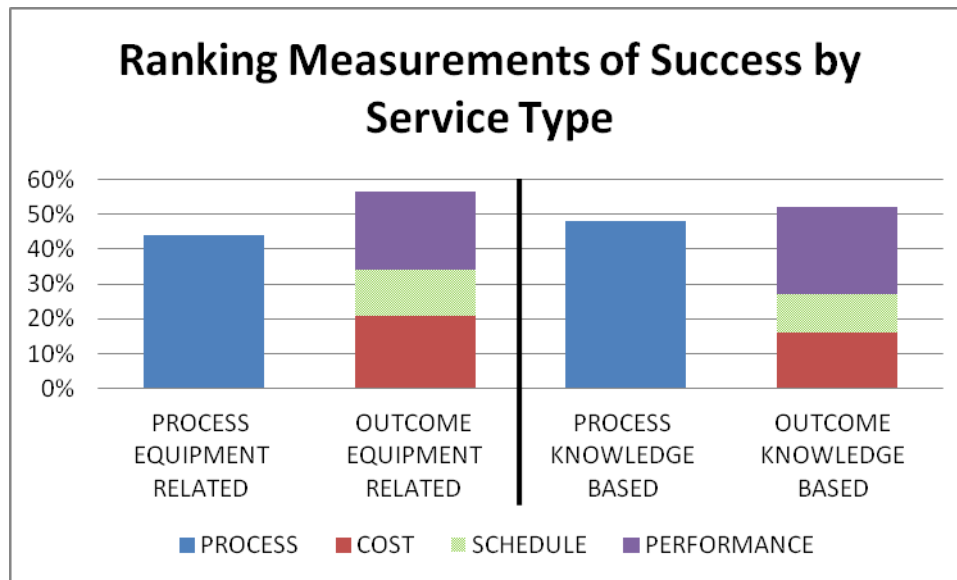
Figure 14.   Ranking of Measurement of Success by Service Type

3.   Analysis of Service-Type Data

The findings based on type of service showed no substantial deviation for defining the success of a services contract. Both equipment-related and knowledge-based groups rated outcomes slightly higher than processes, based on their responses to the Likert scale questions. Ranking questions for definitions of success showed outcomes as more important than processes for both groups and corroborated the Likert scale mean findings. Both Likert scale and ranking question results show performance to be the most important component of outcomes. For example, performance had means of 4.28 and 4.24, compared to 3.97 and 3.82 for schedule. In their responses to the ranking questions, 25-28% of respondents in both groups ranked performance-related factors highest, while 18% ranked schedule-related factors highest. Perhaps ranking results, due to the limitation of choices, provide the most precise definitions of success. When participants were forced to rank, they emphasized the importance of outcomes (cost, schedule, and performance) over processes more definitively when defining characteristics of successful service contracts.

The findings for measuring success also showed no substantial deviation based on type of service. Both equipment-related and knowledge-based groups rated outcomes significantly higher than processes on the Likert scale questions. Ranking questions for measuring success showed outcomes as more important than processes for both groups and corroborated the Likert scale mean findings. Participants who work on equipment-related services rated cost as more important and performance as less important on both Likert and ranking questions compared to knowledge-based participants. This finding seems to indicate that for knowledge-based services, stakeholders were more willing to trade cost for enhanced performance. This may be attributable to the highly specialized and technical nature of functions such as engineering management and program management, which the government lacks the crucial internal capacity to perform.

V. Summary, Conclusions, and Recommendations

A. Summary

The DoD's obligations on contracts have more than doubled between fiscal years 2001 and 2008 to over $387 billion, with over $200 billion spent just for services in 2008 (GAO, 2009). In conjunction with this increase in defense procurement is the reduction of the defense acquisition workforce. The combination of the increasing defense procurement workload and the decreasing size of the government workforce, along with the complexities of an arcane and convoluted government contracting process, have created the perfect storm—an environment in which complying with government contracting policies and adopting contract management best practices has not always been feasible (Rendon, 2010). The contract management process is performed with inputs from the different functional areas, using a cross-functional team or integrated project team (IPT) structure. The team members represent their functional areas such as program management, contracting, financial, logistics, and quality assurance. Each of these project team members represents the stakeholders, and their different goals and objectives. The first research question we investigated was as follows: How do different stakeholders *define* successful services contracts within the Navy? To develop a clear understanding of current services acquisition practices, we also investigated a second research question: How do different stakeholders *measure* services contracts within the Navy? Investigating the above two questions helped us develop recommendations regarding the third and final research question: How should the service contract's success be measured?

B. Conclusions

On the aggregate level, our research indicated that, when defining a successful service contract, stakeholders considered outcomes (in the order of

performance, cost, and schedule) slightly more important than processes. Stakeholders also ranked outcome-related factors as most important. On the aggregate, our research indicated that, when measuring a successful service contract, stakeholders considered outcomes (in the order of cost, schedule, and performance) more important than processes. Stakeholders also ranked outcome-related factors as most important.

On the stakeholder level, our research indicated that, when defining a successful service contract, PMs, CORs, and COs considered outcomes (in the order of performance, cost, and schedule) slightly more important than processes. PMs, CORs, and COs also ranked outcome-related factors as most important. On the stakeholder level, our research indicated that, when measuring a successful service contract, PMs, CORs, and COs considered outcomes (in the order of performance, schedule, and cost) more important than processes. PMs, CORs, and COs also ranked outcome-related factors as most important.

On the equipment-related service type, our research indicated that, when defining a successful service contract, stakeholders considered outcomes (in the order of performance, schedule, and cost) slightly more important than processes. Stakeholders also ranked outcome-related factors as most important. On the equipment-related service type, our research indicated that, when measuring a successful service contract, stakeholders considered outcomes (in the order of cost, performance, and schedule) more important than processes. Stakeholders also ranked outcome-related factors as most important.

On the knowledge-based service type, our research indicated that, when defining a successful service contract, stakeholders considered outcomes (in the order of performance, schedule, and cost) slightly more important than processes. Stakeholders also ranked outcome-related factors as most important. On the knowledge-based service type, our research indicated that, when measuring a successful service contract, stakeholders considered outcomes (in the order of

performance, cost, and schedule) more important than processes. Stakeholders also ranked outcome-related factors as most important.

C.   Recommendations

Our research findings have several implications for the Navy, as well as the DoD. All stakeholders surveyed identified and ranked outcome-related factors as more important than process-related factors, in both defining and measuring the success of service contracts. This may be because outcome-related factors (cost, schedule, and performance) are more easily defined and measured using available metrics, compared to contracting processes, which are more difficult to define and many agencies have no available metrics. However, as discussed in the earlier sections of this paper, many of the contracting deficiencies identified by the GAO and DoDIG are related to contracting processes, such as conducting market research, determining item commerciality, selecting contract type, negotiating fair and reasonable prices, and monitoring contractors through surveillance. Thus, our first recommendation is that the U.S. Navy should develop and implement process-related metrics to define and measure critical contracting processes, such as conducting market research, determining item commerciality, selecting contract type, negotiating fair and reasonable prices, and monitoring contractors.

Our literature review identified that acquisition stakeholders (PMs, CORs, and COs) have different procurement goals and objectives, and these goals and objectives may in fact conflict with each other. Our second recommendation is that the U.S. Navy should establish internal controls to ensure the contracting processes are being followed and that the different stakeholders place sufficient importance on the value of these contracting processes.

Finally, as previous research has determined that contracts are only as successful as the processes used to plan, award, and administer these contracts, our final recommendation is for the U.S. Navy to implement a program for continuously assessing its contracting process capability and using the assessment

results to improve its organizational contract management process capability. Once the U.S. Navy, as well as the DoD, implement contracting process-related metrics to define and measure services contracts, internal controls to ensure contracting process compliance, and periodical assessments of organizational contracting process capability, the importance of process-related factors in defining and measuring the success of service contracts will increase among stakeholders and thus start addressing some of the contracting deficiencies identified by the GAO and the DoDIG.

Appendix A. Tables of Survey Results

Table 2. Aggregate Stakeholders Means With Distributions

Aggregate Stakeholders	Define						Measure					
	Likert Mean	1	2	3	4	5	Likert Mean	1	2	3	4	5
Process	3.97	31	103	147	348	419	2.47	85	83	57	44	26
Outcome	4.08	9	58	161	537	437	3.80	46	119	219	363	198
Cost	4.03	3	19	49	158	106	4.04	0	3	27	90	39
Schedule	3.93	2	29	56	164	96	4.00	1	5	23	96	36
Performance	4.29	4	10	56	215	235	3.36	45	111	169	177	123

Table 3. Aggregate Stakeholders Highest Ranking %

Aggregate Stakeholders	Define Highest Rank %	Measure Highest Rank %
Process	40%	46%
Outcome	60%	54%
Cost	15%	19%
Schedule	19%	12%
Performance	26%	24%

Table 4.   Stakeholder Means With Distributions

Stakeholders	Define						Measure					
	Likert Mean	1	2	3	4	5	Likert Mean	1	2	3	4	5
PM												
Process	3.87	1	11	11	30	30	2.52	4	8	8	4	1
Outcome	4.13	0	4	10	40	39	3.78	8	8	21	25	18
Cost	4.24	0	0	3	15	9	4.15	0	0	1	10	3
Schedule	3.63	0	4	6	9	7	3.92	0	1	2	8	3
Performance	4.51	0	0	1	16	23	3.25	8	7	18	7	12
COR												
Process	3.97	8	12	19	55	62	2.76	6	15	7	11	3
Outcome	4.15	0	9	15	52	68	3.77	10	22	39	49	23
Cost	4.16	0	3	5	23	19	4.23	0	0	3	11	8
Schedule	4.06	0	4	8	21	19	4.08	0	1	2	16	6
Performance	4.23	0	2	2	8	30	2.99	10	21	34	22	9
CO												
Process	3.97	22	75	112	239	307	2.41	71	56	40	28	21
Outcome	4.06	7	43	122	390	305	3.81	28	82	149	271	153
Cost	3.98	3	16	40	106	76	3.98	0	3	23	63	27
Schedule	3.91	2	20	39	127	63	3.98	1	3	19	67	26
Performance	4.27	2	7	43	157	166	3.47	27	76	107	141	100

Table 5.   Stakeholders Highest Ranking %

Stakeholders	Define	Measure
	Highest Rank %	Highest Rank %
PM		
Process	41%	43%
Outcome	59%	57%
Cost	11%	13%
Schedule	22%	14%
Performance	27%	30%
COR		
Process	39%	39%
Outcome	61%	61%
Cost	17%	28%
Schedule	19%	9%
Performance	24%	24%
CO		
Process	40%	49%
Outcome	60%	51%
Cost	15%	17%
Schedule	17%	12%
Performance	28%	23%

Table 6.   Service Type Means With Distributions

Service Type	Define						Measure					
	Likert Mean	1	2	3	4	5	Likert Mean	1	2	3	4	5
Equipment Related												
Process	4.05	7	25	69	147	159	2.68	27	25	23	17	14
Outcome	4.10	2	13	70	221	160	3.76	17	44	94	143	72
Cost	4.03	1	5	21	64	39	4.08	0	0	12	39	17
Schedule	3.97	0	6	25	70	33	3.87	0	2	14	39	10
Performance	4.28	1	2	24	87	88	3.34	17	42	68	65	45
Knowledge Based												
Process	3.92	15	59	52	138	179	2.29	43	37	20	19	7
Outcome	4.02	6	38	60	223	180	3.82	20	46	88	155	88
Cost	4.00	1	11	19	65	45	3.97	0	2	12	39	14
Schedule	3.82	2	21	20	63	41	4.07	1	2	8	37	20
Performance	4.24	3	6	21	95	94	3.41	19	42	68	79	54

Table 7.   Service Type Highest Rank %

Service Type	Define	Measure
	Highest Rank %	Highest Rank %
Equipment Related		
Process	42%	44%
Outcome	58%	56%
Cost	15%	21%
Schedule	18%	13%
Performance	25%	22%
Knowledge Based		
Process	39%	48%
Outcome	61%	52%
Cost	16%	16%
Schedule	18%	11%
Performance	28%	25%

List of References

Apte, U., Ferrer, G., Lewis, I., & Rendon, R. (2006). *Managing the service supply chain in the US Department of Defense: Opportunities and challenges* (Technical Report NPS-AM-06-032). Retrieved from Naval Postgraduate School, Acquisition Research Program website: http://www.acquisitionresearch.net

Apte, U., & Rendon, R. (2007). *Managing the service supply chain in the US Department of Defense: Implications for the program management infrastructure* (Technical Report NPS-PM-07-126). Retrieved from Naval Postgraduate School, Acquisition Research Program website: http://www.acquisitionresearch.net

Apte, A., Apte, U., & Rendon, R. (2008). *Managing the services supply chain in the Department of Defense: An empirical study of current management practices* (Technical Report NPS-AM-08-137). Retrieved from Naval Postgraduate School, Acquisition Research Program website: http://www.acquisitionresearch.net

Apte, A., Apte, U., & Rendon, R. (2009). *Managing the services supply chain in the Department of Defense: Empirical study of the current management practices in the Army* (Technical Report NPS-AM-09-136). Retrieved from Naval Postgraduate School, Acquisition Research Program website: http://www.acquisitionresearch.net

Apte, U., Apte, A., & Rendon, R. (2010). *Services supply chain in the Department of Defense: A comparison and analysis of management practices in Army, Navy, and Air Force* (Technical Report NPS-CM-10-161). Retrieved from Naval Postgraduate School, Acquisition Research Program website: http://www.acquisitionresearch.net

Cleland, D. I. (1986). Project stakeholder management. *Project Management Journal*, *17*(4), 36–44.

Eisenhardt, K. M. (1989). Agency theory: An assessment and review. *Academy of Management Review*, *14*(1), 57–74.

El-Gohary, N. M., Osman, H., & El-Diraby, T. E. (2006). Stakeholder management for public private partnerships. *International Journal of Project Management*, *24*, 595–604.

Federal Acquisition Regulation (FAR), 48 C.F.R. ch. 1 (2012).

Fitzsimmons, J. A., & Fitzsimmons, M. J. (2006). *Service management: Operations, strategy, and information technology* (5th ed.). New York, NY: McGraw-Hill.

Freeman, R. E. (1984). *Strategic management: A stakeholder approach.* Boston, MA: Pitman.

Government Accountability Office (GAO). (2002). *Best practices: Taking a strategic approach could improve DoD's acquisition of services* (GAO-02-230). Washington, DC: Author.

Government Accountability Office (GAO). (2009). *Defense acquisitions: Actions needed to ensure value for service contracts* (GAO-09-643T). Washington, DC: Author.

Government Accountability Office (GAO). (2013). High Risk: An Update (GAO-13-283). Washington, DC: Author.

Hagan, P., Spede, J., & Sutton, T. (2012). Defining and measuring the success of services contracts in the United States Navy. Naval Postgraduate School, NPS-CM-12-201 December 2012.

Lee, L., & Dobler, D. W. (1971). *Purchasing and materials management: Text and cases.* New York: McGraw-Hill. Lee & Dobler. (1971).

Luo, Y. (2002). Contract, cooperation, and performance in international joint ventures. *Strategic Management Journal*, *23*(10), 903–919.

Moe, T. M. (1984). The new economics of organization. *American journal of political science*, 739-777.

Rendon, R.G. (2010). *Assessment of Army Contracting Command's Contract Management Processes,* Naval Postgraduate School, NPS-CM-10-154, June 2010.

Rendon, R. G., & Snider, K. F. (Eds.). (2008). *Management of defense acquisition projects.* Reston, VA: American Institute of Aeronautics and Astronautics.

Seifert, A. J., & Ermoshkin, I. K. (2010). *Analysis of Government Accountability Office and Department of Defense Inspector General reports and commercial sources on service contracts* (MBA Professional Report). Monterey, CA: Naval Postgraduate School.

Under Secretary of Defense, Acquisition, Technology, and Logistics (USD[AT&L]). (2010, June 28). *Better buying power: Mandate for restoring affordability in defense spending* [Memorandum for Acquisition Professionals]. Washington, DC: Author.

Williamson, O. E. (1979). Transaction-cost economics: The governance of contractual relations. *The Journal of Law and Economics*, *22*(3), 233–261.

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