



ACQUISITION RESEARCH PROGRAM SPONSORED REPORT SERIES

Services Acquisition in the Department of Defense: Analysis of Operational and Performance Data to Identify Drivers of Success

24 March 2015

Dr. Rene G. Rendon, Associate Professor

Dr. Uday Apte, Distinguished Professor

Dr. Michael Dixon, Assistant Professor

Graduate School of Business & Public Policy

Naval Postgraduate School

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14. ABSTRACT

The Department of Defense (DoD) acquires billions of dollars of supplies and services every year. In fiscal year (FY) 2013, the DoD obligated over \$258 billion for military-unique weapon systems as well as commercial supplies and services. An integral part of the DoD's contract management process is the source selection phase when offerors' proposals are evaluated and the contract award decision is made. A critical aspect of the source selection phase is the evaluation of contractor past performance information as part of the overall proposal evaluation process. The DoD uses the Past Performance Information Retrieval System (PPIRS), which consists of contractor report cards extracted from the Contractor Performance Assessment Reporting System (CPARS). In this research we examine the value of CPARS report card narratives for service contracts as they relate to their associated objective scores. Our primary focus in this research is to examine if the CPARS report card written narrative section provides value to the contractor performance evaluation process. Our data analysis includes sentiment and statistical analysis, as well as interviews with government agency contracting professionals. Using CPARS data, narrative analyses, and interviews, we answer the following research questions: (1) To what degree are government contracting professionals submitting to CPARS contractor performance narratives in accordance with the guidelines provided in the CPARS user's manual? (2) What is the added value of the contractor performance narratives beyond the value of the objective scores for performance? (3) What is the statistical relationship between the sentiment contained in the narratives and the objective scores for contractor evaluations? The research revealed that there are a variety of opportunities to improve the contracting process specifically related to the narrative portion of past performance assessment reports.

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Abstract

The Department of Defense (DoD) acquires billions of dollars of supplies and services every year. In fiscal year (FY) 2013, the DoD obligated over \$258 billion for military-unique weapon systems as well as commercial supplies and services. An integral part of the DoD's contract management process is the source selection phase when offerors' proposals are evaluated and the contract award decision is made. A critical aspect of the source selection phase is the evaluation of contractor past performance information as part of the overall proposal evaluation process. The DoD uses the Past Performance Information Retrieval System (PPIRS), which consists of contractor report cards extracted from the Contractor Performance Assessment Reporting System (CPARS). In this research we examine the value of CPARS report card narratives for service contracts as they relate to their associated objective scores. Our primary focus in this research is to examine if the CPARS report card written narrative section provides value to the contractor performance evaluation process. Our data analysis includes sentiment and statistical analysis, as well as interviews with government agency contracting professionals. Using CPARS data, narrative analyses, and interviews, we answer the following research questions: (1) To what degree are government contracting professionals submitting to CPARS contractor performance narratives in accordance with the guidelines provided in the CPARS user's manual? (2) What is the added value of the contractor performance narratives beyond the value of the objective scores for performance? (3) What is the statistical relationship between the sentiment contained in the narratives and the objective scores for contractor evaluations? The research revealed that there are a variety of opportunities to improve the contracting process specifically related to the narrative portion of past performance assessment reports.

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



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About the Authors

Dr. Uday Apte is Distinguished Professor of Operations Management at the Graduate School of Business and Public Policy (GSBPP), Naval Postgraduate School (NPS), Monterey, CA. He also serves as the associate dean of Research and Development at GSBPP. Before joining NPS, Dr. Apte taught at the Wharton School, University of Pennsylvania, Philadelphia, and at the Cox School of Business, Southern Methodist University, Dallas. He is experienced in teaching a range of operations management and management science courses in the executive and full-time MBA programs. Prior to his career in academia, Dr. Apte worked for over 10 years managing operations and information systems in the financial services and utility industries. Since then, he has consulted with several major U.S. corporations and international organizations.

Areas of Dr. Apte's research interests include managing service operations, supply chain management, technology management, and globalization of information-intensive services. He has completed over 10 sponsored research projects for the U.S. Department of Defense and has published over 60 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 (POM)*, *Journal of Operations Management (JOM)*, *Decision Sciences Journal (DSJ)*, *IIE Transactions*, and *MIS Quarterly*. He has co-authored two books, *Manufacturing Automation* and *Managing in the Information Economy*. Dr. Apte has served as a vice president of colleges at Production and Operations Management Society (POMS), as a founder and president of the POMS College of Service Operations, and as guest editor of POM journal. Currently he serves as the senior editor of POM and as associate editor of DSJ.

Dr. Apte holds a PhD in decision sciences from the Wharton School, University of Pennsylvania. His earlier academic background includes an MBA from the Asian Institute of Management, Manila, Philippines, and Bachelor of Technology (Chemical Engineering) from the Indian Institute of Technology, Bombay, India.

Uday Apte, PhD
Professor of Operations Management
Graduate School of Business and Public Policy
Naval Postgraduate School
Monterey, CA 93943-5197
Tel: (831) 656-3598
E-mail: umapte@nps.edu



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 U.S. Naval Postgraduate School (NPS), where he teaches in the MBA and Master of Science programs. Prior to his appointment at NPS, 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 NCMA, and he was recognized with the United States Air Force Outstanding Officer in Contracting Award. He has also received the NCMA National Education Award and the NCMA Outstanding Fellow Award. Dr. Rendon is a member of the ISM Certification Committee as well as on the Editorial Review Board for the ISM *Inside Supply Management* magazine. He is a member of the NCMA Board of Advisors as well as associate editor for its *Journal of Contract Management*. Dr. Rendon's publications include *Government Contracting Basics* (2007), *U.S. Military Program Management: Lessons Learned & Best Practices* (2007), and *Contract Management Organizational Assessment Tools* (2005). He has also published scholarly articles in *Contract Management* magazine, the *Journal of Contract Management*, *Program Manager* magazine, *Project Management Journal*, and *PM Network* magazine. He is a frequent speaker at universities and professional conferences and provides consulting to both government and industry.

Rene G. Rendon, DBA
Associate Professor
Graduate School of Business and Public Policy
Naval Postgraduate School



Monterey, CA 93945-5197
Tel: (831) 656-3464
E-mail: rgrendon@nps.edu

Dr. Michael Dixon is an assistant professor of Operations Management at the Graduate School of Business and Public Policy at the Naval Postgraduate School (NPS). He is interested in service operations management and specifically the effect of operational decisions and service design on customer experience. Dr. Dixon conducts management research from an analytical perspective and analyzes large archival data sets to model customer behavior, finding ways to represent the behavioral aspects of service design in quantitative and analytical ways. Specifically, he is interesting in understanding the role of experiential sequence on participant perception. In past research he analyzed season subscription ticket sales for a large performing arts venue and showed that season subscription re-purchases are influenced by event sequences from previous seasons leading to managerial direction for event planners to properly schedule performances across a season to maximize experiential effects. He teaches managerial statistics to MBA students at NPS and has been awarded the Liskin Teaching Award two times in the past two years for his teaching efforts.

Dr. Dixon is a co-editor of the Production and Operations Management Society (POMS) Chronicle newsletter and has been asked to serve as a session chair in Decision Sciences Conference in 2014. He has publications in the *Journal of Operations Management* and articles under review at the *Production and Operations Management*, *Journal of Service Management*, and *Journal of Service Research*. He has served as a reviewer for *Management Science*, *Production and Operations Management*, *Journal of Operations Management*, *Journal of Services Research*, *Service Science*, and the *Decision Sciences Journal of Innovative Education*.

Michael Dixon, PhD
Assistant Professor
Graduate School of Business and Public Policy
Naval Postgraduate School
Monterey, CA 93945-5197
Tel: (831) 656-2187
E-mail: mjdixon@nps.edu



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Introduction

The Government Accountability Office (GAO) reported that the poor management of service contracts has undermined the government's ability to obtain a good value for the money spent and has contributed to the GAO's decision to designate management of services contracts as a high-risk area for the DoD (GAO, 2013b). 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]), improving the efficiency of acquisition of products and services is of utmost importance to the DoD (USD [AT&L], 2010. More specifically, in a later memorandum, the USD (AT&L) focused on "improving tradecraft in services acquisition" (USD [AT&L], 2010, p. 5) by strengthening and improving the services contracting process. An important part of the services acquisition process is the evaluation of contractor past performance information using the Contractor Performance Assessment Reporting System (CPARS).

The CPARS report is initiated by DoD contracting officers during the contract closeout phase of the contract management process for documenting contractor performance information on the completed contract. It is also used by DoD contracting officers during the source selection phase as part of the evaluation of contractor proposals. The CPARS report contains contractor performance information using objective scores in five categories: Quality, Schedule, Cost Control, Business Relations, and Management of Key Personnel. In addition to these five objective categories, the CPARS reports also provide a subjective narrative section where the contracting officer provides a descriptive narrative of the contractor's performance.

Although the use of contractor past performance information is an important aspect of the DoD contract management process, the GAO has identified many process deficiencies in the documentation and management of CPARS reports. GAO reports have shown that DoD agencies do not always complete the required contractor past performance reports (GAO, 2007, 2009b, 2013a, 2014). The 2012 National Defense Authorization Act (NDAA) required the DoD to "develop a strategy to ensure that evaluations in past performance databases used for making source selection decisions are complete, timely, and accurate" (GAO, 2014, p. 4). Additionally, the 2013 NDAA required a "government-wide strategy to ensure that timely, accurate, and complete information on contractor performance is included in past performance databases used by executive agencies for making source selection decisions" (GAO, 2014, p. 1).

Subsequently, the DoD increased focus on training and education for contracting officers, which resulted in an increase in contractor performance



assessments being completed and submitted. In 2013, the GAO noted significant gains in CPARS completion rates: 56% of required reports were completed in 2011 while 74% were completed in 2013. However, according to the same GAO report, over half of the CPARS reports were submitted late. More importantly, many CPARS reports contain narratives that are either insufficiently detailed or are in conflict with their associated objective scores. Late reports lacking sufficient accurate information provide less-than-optimal information to the contracting professionals that rely on these report cards for source selection and contract administration purposes (GAO, 2013a).

The purpose of this research is to determine the value of the CPARS narratives in services acquisition by comparing the relationships between the subjective narratives and the associated objective scores. Our analysis allows us to suggest improvements to the CPARS management process, thus leading to greater and more effective utilization of the CPARS reports in services acquisition.

Research Methodology

This research examines the value of CPARS report card narratives for service contracts as they relate to their associated objective scores. Our primary focus in this research is to examine if the CPARS report card written narrative section provides value to the contractor performance evaluation process. Our data analysis includes sentiment and statistical analysis, as well as interviews with government agency contracting professionals. Using CPARS data collected by graduate students Wilhite, Stover, and Hart (2013), and narrative analyses and interviews conducted by graduate students Black, Henley, and Clute (2014), we answer the following research questions:

1. What is the added value of the contractor performance narratives beyond the value of the objective scores for performance?
2. What is the statistical relationship between the sentiment contained in the narratives and the objective scores for contractor evaluations?
3. To what degree do the interview findings contradict, support, or enhance the findings for our research questions?

Literature Review

Federal procurement policy requires that agencies collect information regarding a contractor's performance under previously awarded contracts for all contracts over \$100,000 and make that information available for use in future contract award decisions (Nash, Schooner, O'Brien-Debakey, & Edwards, 2007). The collection of contractor performance information occurs during the contract



closeout phase using the DoD Contractor Performance Assessment Reporting System (CPARS; Rendon & Snider, 2008).

The CPARS assessment data reflects the contractor's performance in specific areas including quality, schedule, cost control, business relations, management of key personnel, and utilization of small business. The "Quality" rating assesses the contractor's qualitative performance and compares it to the requirements stated in the contract. The "Schedule" rating assesses the contractor's ability to meet schedules outlined in the contract such as milestones, task orders, delivery schedules, and administrative requirements. The "Cost Control" rating assesses the contractor's ability to forecast, manage, and control the costs associated with performing contracted services. The "Business Relations" rating assesses the contractor's ability to coordinate its business activities such as cooperate behavior, customer satisfaction, management, and attitude towards customers. The "Management of Key Personnel" rating assesses the contractor's ability to maintain qualified individuals in key positions as outlined in the contract. The "Utilization of Small Business" rating assesses the contractor's ability to integrate small businesses in the execution of the contract (Wilhite et al., 2013).

The CPARS assessment rates the contractor in these areas using the rating scales Exceptional, Very Good, Satisfactory, Marginal, and Unsatisfactory. It should be noted that the contractor is allowed to review the CPARS assessment and provide comments back to the government assessing official prior to the government finalizing the CPARS report.

During the source selection phase of government negotiated procurement, contractor performance information is used in evaluating offerors and in making a contract award decision (Rendon & Snider, 2008). In this phase, the government agency accesses the contractor performance information through the DoD Past Performance Information Retrieval System Report Cards (PPIRS-RC) database. During source selection in the evaluation of offeror's proposals, the government agency uses the contractor past performance information to determine if the offeror meets the required standards of responsibility as stated in the federal procurement policy, and, depending on the basis of award stipulated in the solicitation, uses the contractor's past performance ratings to justify an award to a higher-priced offeror.

The contractor performance information reported in CPARS and accessible through PPIRS provides outcome-based data that can be used to identify successful contracts. The successful contracts determined by using contractor performance information have been used in our previous research to identify the contract variables that lead to contract success.

In 2014, with the assistance of our graduate students (Wilhite, Hart, & Stover, 2013), we accessed the past performance database to collect contractor



performance ratings on 715 completed Army services contracts to determine if the contracts were successful or not successful. Using statistical analysis we investigated whether certain contracting variables such as type of service, contract dollar value, level of competition, and contract type affected the success of the contract. The detailed results of our analysis are presented in Rendon, Apte, & Dixon (2014), while the salient findings are summarized as follows:

- The S type services (Utilities and Housekeeping) had the highest failure rate of all the product service codes analyzed. The S type services had 11 contract failures resulting in a 3.77% failure rate. The reasons for contract failure included business relations and management of key personnel (Wilhite et al., 2013).
- Contracts with a dollar value from \$50 million to \$1 billion had the highest failure rate of all the contract categories. Contracts with dollar values between \$50 million to \$1 billion category consisted of 92 contracts with eight labeled failures, giving it a failure rate of 8.7%. This group's most common reason for failing was cost control (Wilhite et al., 2013).
- With respect to competition in contracting, we found that contracts competed competitively had the highest failure rate when compared to the other two forms of competition available. Of the 540 competitive contracts, 17 were labeled as failures, which yields a failure rate of 3.15%. The reasons that most often resulted in a contract failure were in the areas of schedule and cost control (Wilhite et al., 2013).
- Concerning type of contract, we found that contracts structured as a combination contract had the highest failure rate when compared to the other five types of available contracts. There were four Combination contracts examined in the database. Of these four contracts, two were labeled failures, which yields a failure rate of 50.0%. Schedule and cost were both referenced twice in the failed contracts while quality and management of key personnel were each referenced once (Wilhite et al., 2013). Furthermore, the results of our significance testing showed that Contractual Amounts and Contract Type were our only statistically significant variables (Wilhite et al., 2013).

We also looked at the relationships between percent of filled contract specialist (1102) billets and failure rates, and between workload dollars per filled billet and failure rates, and made some interesting observations. We found that as the percentage of 1102 filled billets increased, the contract failure rate decreased



(Wilhite et al., 2013). This would seem intuitive: that as the workforce increases, the contract success rate would also increase, since there would be sufficient resources to manage the contracting process. However, we also observed that as workload dollars per filled billet increased, contractor performance ratings also increased, and thus contract failure ratings decreased (Wilhite et al., 2013). This relationship seemed counterintuitive, since additional workload in the organization would typically place a higher demand on the workforce, thus resulting in fewer resources to manage the contracting process. One plausible hypothesis explaining this counterintuitive result is that “workload dollars per filled billet” are not good surrogate measures of the actual “average workload per billet.” We hope to investigate this hypothesis further in our future research.

Our past research using CPARS data identified some interesting areas worthy of further exploration. These areas include analyzing the narrative portion of the CPARS ratings to determine alignment with the objective ratings, as well as the value added, not only in the narrative portions, but also in the usefulness of the CPARS as a contractor assessment tool. This is the focus of our current research project.

Research Design

Our research examines the value of the CPARS report card narratives for service contracts as they relate to their associated objective scores. The primary focus in this research is examining if the CPARS report card written narrative section provides value to the contractor performance evaluation process. Our data analysis included a sentiment analysis and statistical analysis, as well as interviews with government agency contracting professionals.

With the assistance of our most recent MBA thesis students (Black, Henley, and Clute), we performed a sentiment analysis of the 715 Army service contract CPARS report card narratives accessed in our previous research (Rendon et al., 2014). Our students used the CPARS Quality Checklist as a basis for developing the criteria for the categories and values for the sentiment analysis (CPARS Best Practices, Quality Checklist, n.d.). In the sentiment analysis, the student researchers scored each narrative along the dimensions of quality, robustness, compliance with directions in the CPARS Quality Checklist, and its value and content compared to its related objective scores from the CPARS report cards. Independent researchers' scores were compared across a small sample to ensure inter-rater reliability.

We conducted a statistical analysis of the relationship between the sentiment analysis scores and their associated objective rating scores. This analysis investigated correlating relationships between the sentiment scores and the objective rating scores for the same CPARS report. Our purpose was to explore the



relationships between the sentiment scores and the objective rating scores to reveal the extent of the value of the narratives.

Our students (Black et al., 2014) also conducted interviews with contracting professionals from two DoD contracting agencies. These interviews focused on the agencies' use of CPARS and other sources of contractor past performance information and agencies' value of the CPARS narratives compared to the objective rating scores.

Findings and Analysis

In this section, we present an analysis of our findings. The primary purpose of this research was to determine the value of the CPARS narratives in services acquisition by comparing the relationships between the subjective narratives and the objective scores. We first present the findings of the sentiment and statistical analysis by focusing on each of the criteria used in the analysis.

1. Do the narratives address all performance areas assessed? Overall, the narratives address all performance areas assessed ~82% of the time. This is less problematic with unsuccessful contracts at ~95% than with successful contracts at ~81%. The difference in the proportion of times that the narrative addresses all performance areas assessed in successful and unsuccessful contracts is statistically significant ($p < .05$; Black et al., 2014, p. 41).

2. Are narratives based on objective data? Overall, the narratives are based on objective data ~77% of the time. However, in unsuccessful contracts, the narratives are based on objective data 100% of the time. This is significantly different from the ~77% in successful contracts ($p < .01$; Black et al., 2014, p. 41).

3. Are narratives free of statements to avoid? Overall, the narratives are free of statements to avoid ~97% of the time. This is slightly more problematic with unsuccessful contracts at ~86% than with successful contracts at ~97% ($p < .01$; Black et al., 2014, p. 41).

4. Are narratives robust and comprehensive? Overall, the narratives are robust and comprehensive ~63% of the time. This is less problematic with unsuccessful contracts at ~91% than with successful contracts at ~62% ($p < .01$; Black et al., 2014, p. 41).

5. Could a layman understand the description of the work performed? Overall, the narratives are written so that a contracting layman should understand the work performed ~64% of the time. This is less problematic with unsuccessful contracts at ~82% than it is with successful contracts at ~64% ($p < .05$; Black et al., 2014, p. 41).



6. Is the narrative beneficial above and beyond objective scores? Using a Chi Square Test, we determined that there was a difference between successful and unsuccessful contracts in whether the narratives were beneficial above and beyond the objective scores. Unsuccessful contracts tended to have more beneficial CPARS report card narratives than successful contracts (Black et al., p. 42). Overall, the narrative provides an unsatisfactory amount of beneficial data to the user ~12% of the time. However, there were no unsuccessful contracts that provided an unsatisfactory amount of beneficial data. The narrative provides a marginal amount of beneficial data ~22% of the time. There were no unsuccessful contracts that provided a marginal amount of beneficial data. The narrative provides a satisfactory amount of beneficial data ~28% of the time. The narrative provides a very good amount of beneficial data ~21% of the time. The narrative provides an exceptional amount of beneficial data ~18% of the time. This is much more likely to occur with unsuccessful contracts than with successful contracts at ~17% (Black et al., 2014, p. 42).

7. Do the narratives correlate to the objective scores assigned? Using the Chi Square Test, we determined that there was not a difference between successful and unsuccessful contracts in whether the narrative correlates to the objective scores assigned. Overall, the narrative sentiment is contradictory to more than one of the objective scores assigned ~2% of the time. The narrative sentiment is contradictory to one of the objective scores assigned ~6% of the time. The narrative sentiment is satisfactory in describing accurately why the objective scores are assigned as they are ~28% of the time. The narrative sentiment is very successful in describing accurately why the objective scores are assigned as they are ~40% of the time. The narrative sentiment is exceptionally successful in describing accurately why the objective scores are assigned as they are ~24% of the time (Black et al., 2014, p. 42).



Figure 1 summarizes the results of the statistical analysis.

	Result	Overall	Unsuccessful Contract	Successful Contract	Successful vs Unsuccessful Statistically Significant?	P Value
Narrative Addresses All Performance Areas Assessed?	No	18.46%	4.55%	18.90%	Yes	0.043
	Yes	81.54%	95.45%	81.10%		
Narrative Based On Objective Data?	No	22.52%	0.00%	23.23%	Yes	<.01
	Yes	77.48%	100.00%	76.77%		
Narrative Is Free Of Statements To Avoid?	No	3.08%	13.64%	2.74%	Yes	<.01
	Yes	96.92%	86.36%	97.26%		
Narrative Is Robust & Comprehensive?	No	37.48%	9.09%	38.38%	Yes	<.01
	Yes	62.52%	90.91%	61.62%		
Could A Layman Understand Work Performed?	No	35.52%	18.18%	36.08%	Yes	0.042
	Yes	64.48%	81.82%	63.92%		
Is The Narrative Beneficial Above & Beyond Objective Scores?	Score 1	11.61%	0.00%	12.12%	Yes	<.01
	Score 2	21.68%	0.00%	22.37%		
	Score 3	27.97%	18.18%	28.28%		
	Score 4	20.84%	27.27%	20.63%		
	Score 5	17.76%	54.55%	16.59%		
Does The Narrative Correlate To Objective Scores Assigned?	Score 1	1.82%	4.55%	1.88%	No	0.141
	Score 2	6.43%	4.55%	6.49%		
	Score 3	27.83%	9.09%	28.43%		
	Score 4	40.42%	40.91%	40.40%		
	Score 5	23.36%	40.91%	22.80%		

Figure 1. Results of Statistical Database Analysis
(Black et al., 2014)

As previously discussed, our students also conducted interviews with contracting professionals from two DoD contracting agencies (Black et al., 2014). These interviews focused on the agencies' use of CPARS and other sources of contractor past performance information as well as these agencies' value of the



CPARS narratives compared to the objective rating scores in the source selection process. The findings of these interviews are summarized as follows:

1. CPARS is still often not reliable, robust, or comprehensive enough. This results in source selection officials not placing a significant amount of weight on the past performance evaluation criteria (Black et al., 2014, p. 44).
2. Unsuccessful contracts tend to have more reliable, robust, and comprehensive past performance information available in their CPARS/PPIRS reports (Black et al., 2014, p. 45).
3. The appropriate amount of weight that should be assigned to the past performance evaluation criteria in making a source selection decision should be correlated to the source, availability, quality, and relevancy of the past performance information (Black et al., 2014, p. 45).
4. The information found in PPIRS sometimes contains information in the narrative that is either contradictory or does not quite match up with the objective scores. When the objective scores and narrative sentiment in PPIRS is mismatched, contracting professionals tend to give more weight to the narrative versus the objective scores (Black et al., 2014, p. 46).
5. Contracting professionals are not always applying due diligence in identifying the appropriate contractor entity (e.g., CAGE Code or DUNS number) in the CPARS reports. This is resulting in contractor past performance information not being fully accessible in PPIRS (Black et al., 2014, p. 46).
6. There is a lack of reliable, robust, and comprehensive amount of past performance information available in PPIRS. This results in source selection officials soliciting contractors for references or asking contractors to fill out a past performance questionnaire (Black et al., 2014, p. 47).
7. The results of the interviews also identified recommendations for improving the quality of CPARS reports, incorporating data analytics tools into the PPIRS database, enhancing the monitoring of Contracting Officer Representative (COR) workload, improving acquisition workforce training on developing CPARS narratives, and improving the disclosure of CPARS program office Audit results (Black et al., 2014, pp. 48–49).



Summary, Conclusions, and Recommendations

Summary

The Department of Defense (DoD) acquires billions of dollars of supplies and services every year. In FY 2013, the DoD obligated over \$258 billion for military-unique weapon systems as well as commercial supplies and services (USA Spending, 2013). An integral part of the DoD's contract management process is the source selection phase when offerors' proposals are evaluated and the contract award decision is made. A critical aspect of the source selection phase is the evaluation of contractor past performance information as part of the overall proposal evaluation process. The DoD uses the Past Performance Information Retrieval Systems (PPIRS) which consists of contractor report cards extracted from the Contractor Performance Assessment Reporting System (CPARS). Although the use of contractor past performance information is an important aspect of the DoD contract management process, the Government Accountability Office (GAO) has identified many process deficiencies in the documentation and management of CPARS reports. GAO reports have shown that DoD agencies do not always complete the required contractor past performance reports (GAO, 2007, 2009b, 2013a, 2014). More importantly, many CPARS reports contain narratives that are either insufficiently detailed or conflict with their associated objective scores. Late reports lacking sufficient accurate information provide less-than-optimal information to the contracting professionals that rely on these report cards for source selection decisions.

The purpose of this research was to determine the value of the CPARS narratives in services acquisition by comparing the relationships between the subjective narratives and the objective scores. Our primary focus in this research was examining if the CPARS report card written narrative section provides value to the contractor performance evaluation process. Our data analysis included sentiment and statistical analysis, as well as interviews with government agency contracting professionals.

Conclusions

Using CPARS data collected by graduate students Hart, Stover, and Wilhite, (2013), and narrative analyses and interviews conducted by graduate students Black, Henley, and Clute (2014), we answered the following research questions:

1. What is the added value of the contractor performance narratives beyond the value of the objective scores for performance? Contracting professionals are doing a better job at providing beneficial CPARS data in the narrative when the contract is unsuccessful versus when it is successful. Only 38.6%



of the observed CPARS narratives, whether successful or unsuccessful, provided a very good or exceptional amount of beneficial data above and beyond what could be gleaned from looking over the objective scores assigned (Black et al., 2014, p. 51).

2. What is the statistical relationship between the sentiment contained in the narratives and the objective scores for contractor evaluations?

Contracting professionals are developing CPARS narratives that contradict at least one of the objective scores assigned ~8.3% of the time. Contracting professionals were slightly better at matching the narrative sentiment to the objective scores in unsuccessful contracts (~81.8% scoring either very good or exceptional) than in successful contracts (~63.2% scoring either very good or exceptional; Black et al., 2014, p. 51).

3. To what degree do the interview findings contradict, support, or enhance the findings for our research questions? The results of the interviews found that the CPARS database is still often not reliable, robust, or comprehensive enough. We also found that unsuccessful contracts tend to have more reliable, robust, and comprehensive past performance information available in their CPARS/PPIRS reports. Additionally, the appropriate amount of weight that should be assigned to the past performance evaluation criteria in making a source selection decision should be correlated to the source, availability, quality, and relevancy of the past performance information. Our interviewees also stated that the information found in the PPIRS database sometimes contains information in the narrative that is either contradictory or does not quite match up with the objective scores. We also found that contracting professionals are not always applying due diligence in identifying the appropriate contractor entity in the CPARS reports, which is resulting in a lack of reliable, robust, and comprehensive amount of past performance information available in PPIRS. Finally, the interview results also identified recommendations for improving the quality of CPARS reports, incorporating data analytics tools into the PPIRS database, enhancing the monitoring of COR workload, improving acquisition workforce training on developing CPARS narratives, and improving the disclosure of CPARS program office audit results (Black et al., 2014, pp. 44–49).

Recommendations

Based on our conclusions, we identified the following five recommendations:

Recommendation 1: Training. Training should be implemented for all services acquisition members that interact with the CPARS and PPIRS databases. Training should focus on developing comprehensive narratives ensuring that acquisition team members can fully understand the work performed, address all



performance areas assessed in their objective scores, and ensure the narratives are based on objective data (Black et al., 2014, pp. 54–55).

Recommendation 2: Process Improvement. The DoD needs to improve the quality of past performance report submissions in CPARS and PPIRS, improving the source, availability, quality, relevancy, and accuracy of the past performance information. This will allow acquisition teams to assign higher weights to past performance evaluation criteria in source selection decisions (Black et al., 2014, pp. 54–55).

Recommendation 3: Data Analytics. Additional data analysis tools should be incorporated into the CPARS and PPIRS database to better assist contracting professionals in identifying past performance trends for a particular contractor or specific type of service (Black et al., 2014, pp. 54–55).

Recommendation 4: Customer Feedback. The CPARS process should include customer feedback on contractor performance. Currently, only the acquisition team provides input to the CPARS report card. Customer input into CPARS will encourage the submission of more accurate and robust CPARS report cards (Black et al., 2014, pp. 54–55).

Recommendation 5: COR Manning levels. Contracting Officer Representative (COR) manning levels should be reviewed throughout the DoD to ensure that organizations have sufficiently filled COR billets to manage the CPARS process (Black et al., 2014, pp. 54–55).



References

- 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., 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, 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>
- Black, S., Henley, J. and Clute, M. (2014). Determining the value of Contractor Performance Assessment Reporting System (CPARS) narratives for the acquisition process. Monterey, California: Naval Postgraduate School.
- Cleland, D. I. (1986). Project stakeholder management. *Project Management Journal*, 17(4), 36–44.
- CPAR quality checklist. (n.d.). Retrieved from
<http://www.cpars.gov/cparsfiles/pdfs/CPARSQualityChecklist.pdf>
- 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). (2007). *Federal contracting: Use of contractor performance information* (GAO-07-1111T). Washington, DC: Author.

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

Government Accountability Office (GAO). (2009b). *Federal contractors: Better performance information needed to support agency contract award decisions* (GAO-09-374). Washington, DC: Author.

Government Accountability Office (GAO). (2013a). *Contractor performance: DOD actions to improve the reporting of past performance information* (GAO-13-589). Washington, DC: Author.

Government Accountability Office (GAO). (2013b). *High risk: An update* (GAO-13-283). Washington, DC: Author.

Government Accountability Office (GAO). (2014). *Contractor performance: Actions taken to improve reporting of past performance information* (GAO-14-707). Washington, DC: Author.

Hagan, P., Spede, J., & Sutton, T. (2012). *Defining and measuring the success of services contracts in the United States Navy* (Technical Report NPS-CM-12-201). Retrieved from Naval Postgraduate School, Acquisition Research Program website: <http://www.acquisitionresearch.net>

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



- 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.
- Nash, R., Schooner S., O'Brien-DeBakey, K., & Edwards, V. (2007). The government contracts reference book: A comprehensive guide to the language of procurement (3rd ed.). Riverwoods, IL: CCH.
- Rendon, R. G. (2010). *Assessment of Army Contracting Command's contract management processes* (Technical Report NPS-CM-10-154). Retrieved from Naval Postgraduate School, Acquisition Research Program website: <http://www.acquisitionresearch.net>
- Rendon, R. G., Apte, U., & Dixon M. (2014). *Services supply chain in the Department of Defense: Drivers of success in services acquisition* (Technical Report NPS-CM-14-001). Retrieved from Naval Postgraduate School, Acquisition Research Program website: <http://www.acquisitionresearch.net>
- 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.
- USA Spending, retrieved November 1, 2013 from <http://www.usaspending.gov/>
- Wilhite, T., Stover, A., & Hart, J. (2013). *Management levers that drive services contracting success*. (MBA thesis). Monterey, CA: Naval Postgraduate School.
- 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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