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Benchmarking contract management process maturity: a case study of the US Navy

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Abstract

Purpose – The purpose of this paper is to present the results of contract management process maturity assessments in the US Navy using a process capability maturity model. The maturity model is used to benchmark an organization's contract management process maturity and to use the assessment results to develop a road map for implementing process improvement as well as knowledge-sharing initiatives.

Design/methodology/approach – This is survey-based research on benchmarking contract management processes in the US Navy. A web-based assessment tool was deployed to US Navy contracting officers located at aeronautical systems, sea systems, and logistics support contracting agencies. The assessment tool consists of survey items related to the use of contracting best practices. The survey responses are then used to calculate the agency's contract management process maturity level.

Findings – The benchmarking results reflected higher maturity levels in the pre-award contracting processes (Procurement Planning, Solicitation Planning, and Source Selection), while lower maturity levels were reflected in the post-award contracting processes (Contract Administration and Contract Closeout). The research findings related to process capability enablers also reflected higher mean scores for the pre-award processes and lower mean scores for the post-award processes. These maturity levels and process capability enabler scores reflect the extent of the implementation of contracting best practices within the Navy contracting agencies.

Research limitations/implications – This research uses a purposeful sampling approach designed to acquire data on organizational contract management processes. The assessment survey was administered only to qualified Navy contracting officers. The Navy contracting agencies are responsible for procuring billions of dollars in supplies and services in support of the Navy mission. Although the assessed contracting agencies procure different types of systems, supplies, and services, the contract management processes used are common to all Navy, Army, Air Force, and other US federal government agencies. The conclusions based on the analysis of these benchmarking assessments may be applicable to Department of Defense (DoD) and other government agencies.

Practical implications – The findings suggest that benchmarking can be effective in measuring and improving contracting process capability within the Navy. Benchmarking contracting processes can have far-reaching effects throughout the DoD. The Under Secretary of Defense's has mandated initiatives related to improving both pre- and post-award contracting processes. The use of these benchmarking assessments can be instrumental in tracking the achievements of these process improvement initiatives. Additionally, the US Congress is leading the push for auditability in procurement operations. By benchmarking and improving its contracting processes, the DoD will be winning the battle toward integrity, accountability, and transparency of its financial operations.

Social implications – Benchmarking contracting processes can also have far-reaching effects in society. Many governments are focussing on integrity, accountability, and transparency in public procurement. International organizations such as Transparency International (TI) have identified process capability and process integrity as key for reducing the potential for procurement-related fraud, waste, and abuse. Additionally, NATO member countries and partner nations are focussing on the value of assessing and improving procurement processes for strengthening transparency and accountability. The value of benchmarking and improving contracting processes is gaining much attention in global public procurement agencies as they strive for accountability, integrity, and transparency in their governance processes.

Originality/value – There are multiple reports on deficiencies in DoD's contract management processes, identifying poor contract planning, and Contract Administration as just some of the critically deficient areas. In response, the DoD is increasing its emphasis on developing its workforce competence through education initiatives. However, very little attention is being paid to benchmarking contract management processes. This research reflects the value of benchmarking DoD's contract management process maturity and using the results for implementing process improvement initiatives. Using process benchmarking data, agencies can identify process improvement initiatives that will ensure government tax dollars are spent in the most effective and efficient ways.

1. Background

Contract management continues to be an increasingly important function for the US Department of Defense (DoD), in general, and more specifically, for the US Navy. The DoD, which is the federal government's largest contracting agency, continues to increase its level of public spending for goods and services. In fiscal year 2014, the DoD obligated approximately $290 billion in contracts for major weapon systems, supplies, and services, which included $84 billion obligated by the US Navy (Federal Procurement Data System-Next Generation, 2014). The DoD procurement workforce professionals are responsible for managing millions of contract actions for the procurement of critical supplies and services, ranging from commercial-type supplies, professional and administrative services, highly complex information technology systems, and major defense weapon systems (Federal Procurement Data System-Next Generation, 2014). The combination of the increasing defense contracting workload and the decreasing size of the defense procurement 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.

Both the DoD Inspector General (DoDIG) and the Government Accountability Office (GAO) have issued multiple reports on deficiencies in DoD's contract management processes, identifying poor contract planning, Contract Administration, and contractor oversight as just some of the critically deficient areas in DoD contract management (Department of Defense Inspector General (DoDIG), 2009, 2012a, b, 2013, 2014; Government Accountability Office (GAO), 2013b, 2014a, b, d). Because of these process deficiencies, the GAO has identified contract management as a "high risk" area for the federal government since 1992 and continues to identify it as high risk today (Government Accountability Office (GAO), 2013a). In response to these contract management deficiencies, the DoD is increasing its emphasis on developing its contracting workforce competence through initiatives in education and training (Government Accountability Office (GAO), 2011, 2014d). However, the DoD is focussing very little attention on organizational process maturity. By focussing only on developing individual competence, DoD is ignoring a critical area in the success of its contracting mission. Just as individual competence will lead to greater success in performing contract management tasks and activities, organizational process maturity will ensure consistent and improved results for the agency (Frame, 1999; Kerzner, 2013; Wysocki, 2004). A major challenge faced by public procurement organizations is the assessment of its contracting performance, and specifically, the measurement of its contracting processes (Cohen and Eimicke, 2008; Cooper, 2003). How can a public procurement organization assess its contracting processes and measure its process

maturity? How can a public procurement organization benchmark its process maturity against other public procurement agencies? These problems are the focus of this research. The research in this study aims to fill the literature gap reflecting the limited research in the use of maturity models for assessing and benchmarking public procurement processes. This research attempts to fill this gap by exploring the use of a process maturity model in assessing US Navy contracting process capability.

Given this backdrop, the purpose of this research was to explore the use of a process maturity model in assessing US Navy contracting process capability. Specifically, this paper discusses the results of contract management process maturity assessments in the US Navy using the Contract Management Maturity Model (CMMM). The CMMM is a web-based assessment tool that can be used to benchmark an organization's contract management process maturity, and the assessment results can be used to develop a road map for implementing improvement initiatives for contract management processes (Garrett and Rendon, 2005; Rendon, 2008). This research analyzes the assessment results in terms of contract management process maturity and discusses the implications of these results on organizational process improvement and workforce training opportunities. These research findings can guide the US Navy specifically, as well as the overall DoD contracting community, in efforts to increase contract management process maturity DoD-wide.

This paper is divided into four sections. In the first section, a brief literature review on government contract management with an emphasis on the contracting process is presented. Next, benchmarking organizational processes is discussed, with a focus on procurement and contracting. Finally, the use of maturity models in benchmarking organizational processes and their application to public procurement and contracting is covered. In the second section of this paper, the research methodology along with the web-based assessment tool and the CMMM are discussed. An analysis of the benchmarking findings and identification of process improvement and training opportunities is presented. Finally, the research findings' implications for the DoD and international public procurement agencies are discussed.

2. Literature review

2.1 Government contract management

Academic research in contract management is founded on several economic and management theories, such as transaction cost economics (Franck and Melese, 2008), resource-based view of the firm (Quintens *et al.*, 2006), and social exchange theory (Griffith *et al.*, 2006). Government contracting has often been examined through the lens of principal-agent theory (Eisenhardt, 1989; Brown *et al.*, 2009; Tate *et al.*, 2010; Gopal and Koka, 2010). A contract between the government and a contractor reflects a principal-agent relationship. The principal (government) contracts with the agent (contractor) to perform a specified level of effort, such as developing and 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 (Monczka *et al.*, 2016). The federal government also has the additional objective of ensuring that the product or service is procured in accordance with public policy and statutory requirements (Cooper, 2003; Cohen and Eimicke, 2008; Thai, 2004). Contractors, on the other hand, pursue the objectives of earning profits, insure company growth, maintaining or increasing market share, and improving cash flow, just to name a few.

Additionally, in principal-agent relationships that involve higher levels of uncertainty, which result in higher risk, such as acquiring an advanced technology weapon system or procuring critical information technology services, the information

available to the government and contractor is typically asymmetrical. The government may have more information concerning its agency's mission, the procurement requirement, and the available budget, while the contractor may have more information concerning its technical capability, cost drivers, and return on investment requirements.

Because of the conflicting objectives and asymmetrical information between the principal and agent, each party is motivated to behave in a specific manner. Agency theory is concerned with the conflicting goals between the principal and agent in obtaining their respective objectives and is focussed on mechanisms related to obtaining information (e.g. about the marketplace, about the supply or service being procured, or about the potential contractor). Agency theory is also concerned with structuring the appropriate mechanisms for selecting the contractor (to counter the problem of adverse selection) and for monitoring the contractor's performance (to counter the effects of moral hazard) (Eisenhardt, 1989).

Thus, how contracts are planned, structured, awarded, administered, and closed out (i.e. the contract management process), has its basis in agency theory and the principal-agent problem. Since contracts are the end result of the processes that developed them, process maturity has a direct relationship on an organization's contract management processes and resulting outcomes. Therefore, contract management process maturity is crucial to an organization's mission success as well as process improvement efforts (Foti, 2002; Jugdev and Thomas, 2002). Methods for assessing process maturity include benchmarking and performance measurement, which will be discussed next.

2.2 Benchmarking procurement and contracting processes

Although research on procurement and contracting is not very extensive (Macbeth *et al.*, 2012), there is a growing stream of research in the area of benchmarking procurement and contracting processes. The need for measuring procurement processes and outcomes has been documented, as have been the challenges in developing such procurement metrics. Soni and Kodali (2010) used a supply chain case study to propose an internal benchmarking methodology for reducing the variability in performance among multiple supply chains of a focal firm. Recent benchmarking research has focussed on particular aspects of the contracting and purchasing decision-making process. Current and Weber (2003) proposed that benchmarking should be viewed as a customer/purchaser-based activity, which permits customers to select the product or process requirements and allows for better competitor information collection.

Lam *et al.* (2004) discussed the use of benchmarking to identify critical success factors in design-build procurement systems to increase project success. Lau *et al.* (2005) research used a virtual case-based benchmarking system which "incorporates computational intelligence technologies into partners' benchmarking process to support decision-making" which improves the contractor selection process (p. 61). In survey-based research, Brandmeier and Rupp (2010) identified procurement success factors including the use of cross-functional teams, cooperation with other functional offices, high organizational position of the procurement function, and training and development.

The literature also reflects an increasing flow in the research stream of public sector performance measurement and benchmarking (Maheshwari and Janssen, 2013). Braadbaart and Yusnandarshah (2008) provided an extensive analysis of public sector benchmarking literature from 1990 to 2005. Their findings indicate that "a theoretical and conceptual rift runs through the literature, with those advocating public sector benchmarking as a tool for managed competition on one side, and those promoting benchmarking as a voluntary and collaborative learning process on the other"

(Braadbaart and Yusnandarshah, 2008, p. 421). Raymond (2008) suggested that the need for public procurement best practices is increasing, especially in the areas of value for money, ethics, competition, transparency, and accountability. Hong *et al.* (2012) also identified a growing need for benchmarking studies of complex business practices and increased research in the area of benchmarking public sector processes. Hong and Kwon (2012) identified that public procurement policies and processes affect broad patterns of practices and play a key driver for improving manufacturing and services, as well as organizational financial performance.

Public sector performance measurement research includes Diggs and Roman's (2012) research on performance measurement in the public procurement process where they found that procurement specialists were "skeptical about the possibility that performance measurements can be useful or can increase the quality of decision-making in public procurement" (p. 308). Liu *et al.* (2014) research on performance measurement of public-private partnerships found that "conventional ex post evaluation is not robust enough to measure the performance of PPP projects" (Liu *et al.*, 2014, p. 499). They recommended using a life-cycle process-based evaluation approach to comprehensive and effective PPP performance measurement (Liu *et al.*, 2014).

The literature on public sector performance measurement has also focussed on the use of the federal government's Program Assessment Reporting Tool (PART). Koontz and Thomas (2012) presented a classification system for defining outputs and outcomes for different types of public sector programs. They used PART data to demonstrate the need for a consistent classification scheme and to illustrate program-based categories of output and outcome measures for both direct government provision and public-private partnerships. Terman and Yang's (2010) research addressed the use of PART data as a performance measurement framework for programs that involve contractors in performing the agency's mission. Their research found that "to the degree that PART accurately gauges government performance, having more professionals in government positively affects performance" (p. 424). Amirkhanyan's (2011) research focussed on state and local government contracts by evaluating the influence of performance measurement on accountability effectiveness. She examined the effect of performance measurement practices on contract accountability effectiveness by analyzing whether the performance monitoring systems were developed unilaterally by the government agency or resulted from a collaborative dialogue between government and the contractor.

Empirical research on defense procurement identified critical success factors such as workforce, relationships, processes, resources, polices, and requirements (Rendon, 2012). Bateman *et al.* (2014) in-depth study of the application of lean concepts to the British Royal Air Force procurement of the Tornado fighter aircraft offered a number of new insights which have implications for the future development and adoption of lean in public sectors, specifically in military organizations. Their research identified that "in military organisations the strong hierarchical structure can inhibit the conventional CI (continuous improvement) approach. Steps to reduce the influence of the command structure in CI activities needs to be taken to allow freer flow of ideas" (Bateman *et al.*, 2014, p. 565).

2.3 Benchmarking using maturity models

Maturity models are developed to represent stages or levels of maturity or process capability, as well as each stage's characteristics and relationship to other stages (Röglinger *et al.*, 2012, p. 4). Process capability is defined as "the inherent ability of a

process to produce planned results" (Ahern *et al.*, 2001, p. 4). As the capability of a process increases, it becomes predictable and measurable. As the organization steadily improves its process capability, organizational competence increases, and organizational processes become more mature (Ahern *et al.*, 2001). Competence, in this case, is defined as "an underlying characteristic that is causally related to effective or superior performance, as determined by measurable, objective criteria, in a job or in a situation" (Curtis *et al.*, 2001, p. 577). Maturity can be defined as "a measure of effectiveness in any specific process" (Dinsmore, 1998, p. 169). It is important to note that process maturity is not related to the passage of time. Process maturity is more reflective of how far an organization has progressed toward continuously improving its process capability in any specific area. Different organizations mature at different rates, depending on the nature of the business and the emphasis placed on process improvement. Maturity models typically serve three purposes: descriptive, prescriptive, and comparative. Descriptive purposes for maturity models include using them to conduct as-is assessments of organizational processes. Prescriptive purposes include using maturity models to identify desirable maturity levels and opportunities for process improvement. Comparative purposes include using maturity model assessment results for internal or external benchmarking. (Röglinger *et al.*, 2012).

There is no agreement in the literature on whether increased process maturity results in increased performance. For example, Mullaly's research found that although maturity models are used for improving project management practices, there is "minimal evidence that improvements in maturity correspond to improvements in performance or value" (Mullaly, 2014, p. 169). His research also found that project management practices vary and that these different practices result in different value. Mullaly concluded that "a contingent and contextual approach to assessment is required, which maturity models as currently defined may not be able to support" (Mullaly, 2014, p. 169). Furthermore, in their review of the development of maturity models García-Mireles *et al.* (2012) found that "most published maturity models are based on practices and success factors from projects that showed good results in an organization or industry, but which lack a sound theoretical basis and methodology" (p. 279). However, Nieto-Rodriguez and Evrard (2004) found that "a higher maturity level will in most cases deliver superior performance in terms of project delivery and business benefits" (p. 11). Additionally, Sanchez-Rodriguez *et al.* (2003) used structural equation modeling in their empirical study showing significant positive impact of benchmarking on procurement performance and an indirect positive impact on business performance.

Maturity models have been used in business process management (Röglinger *et al.*, 2012; Looy *et al.*, 2014; Object Management Group, 2008), information systems (Mettler *et al.*, 2010), software management (von Wangenheim *et al.*, 2010), and supply chain management (Estampe *et al.*, 2013). Even more extensive has been the evaluation and use of maturity models in assessing project management capability (Mullaly, 2014; Brookes and Clark, 2009; Levene *et al.*, 1995; Ibbs and Kwak, 2000; Crawford, 2001; Pennypacker and Grant, 2003; Hillson, 2003). Fettke *et al.* (2015) demonstrated the use of a business process maturity model to improve service response efficiency and effectiveness in public administration.

Just as maturity models have been used in benchmarking major organizational processes and practices, these models have also been developed for assessing organizational procurement and contracting process capability. Bemelmans *et al.* (2013) developed a purchasing maturity tool which provides an organization with insight into

its current level of purchasing maturity and possibilities for improving performance by increasing its maturity level (p. 342). They then applied the maturity model to construction projects and found that the maturity tool provides the organization with insight on purchasing process maturity as well as process improvement opportunities (Bemelmans *et al.*, 2013).

The use of maturity models to benchmark procurement and contracting processes has seen some, albeit limited, application in the public sector. Møller *et al.* (2010) developed and applied a public procurement maturity model for the government of Denmark. The use of their model will improve standardization, consistency, and transparency of Danish public procurement organization practices. Their model can also be used as a common frame of reference and communication tool within the government of Denmark to provide an assessment of public procurement strength and weaknesses. In their surveyed-based research on assessing public sector procurement process maturity in Botswana, Tembo and Rwelamila (2007) found an average process maturity level of 2.58 (on a scale of 5, where level 1 is the lowest level of maturity). They provided recommendations to the Botswana government for improving its procurement process such as formalizing the proposal evaluation process and contract award process. Waterman and Knight (2010) explored using a capability maturity model for conducting self-assessments in a case study on UK government procurement departments. Concha *et al.* (2012) introduced the e-Government Procurement Observatory Maturity Model (eGPO-MM) to measure government e-procurement portals status across the Latin American region and to identify experiences and practices that can be shared among the regional eGP network members. The eGPO-MM enables development of an improvement road map for eGP in each participating country (p. S50). Finally, Rendon (2008) applied a CMMM to assess and measure a US Air Force contracting agency's procurement processes and identified process improvement initiatives.

The literature review can be summarized by concluding that the government contract management process has a direct relationship on the agency's procurement mission and that contracting process maturity is crucial to its mission success. The literature also reflected a growing research stream in the benefits and challenges of measuring organizational processes and the use of benchmarking as an approach to performance measurement. Finally, the use of maturity models for benchmarking critical processes to include contracting and procurement were covered.

However, the literature review identified a research gap in that there is limited research in the use of maturity models for assessing and benchmarking public procurement processes. Of the research identified in the review, only one study was based on the US federal government, specifically the US Air Force. Additionally, the maturity models identified in the review were not based on key contract management process areas, but on other procurement and contracting functions. The research in this study aims to fill this gap by exploring the use of a process maturity model in assessing US Navy contracting process capability. The next section will discuss the research methodology used in this benchmarking case study.

3. Methodology

This was a qualitative case study which explored the application of a maturity model as a method for assessing the process capability of the Navy's contract management processes. One of the primary reasons for conducting a qualitative case study is to research a topic or population that not much has been written about or studied (Creswell, 2003). Although the concept of maturity models is not new, the application of

maturity models to the DoD, and specifically the Navy's contract management process, has not been extensively studied. The problem statement of this research was "How can a public procurement organization assess its contracting processes and benchmark its process maturity against other public procurement organizations?"

Descriptive statistics were used to analyze the assessment results. A factor analysis was conducted to support the validity of the survey design in terms of the contracting process variables and how these variables were operationalized by the survey instrument (Cooper and Schindler, 2003). "The broad purpose of factor analysis is to summarize data so that relationships and patterns can be easily interpreted and understood […] Hence, it helps to isolate constructs and concepts" (Yong and Pearce, 2013, p. 79). Cronbach's α, a reliability coefficient, was used to test whether survey items are measuring a particular idea or construct or have a common theme (McMillan and Schumacher, 2001).

The methodology used in this case study involved the deployment of an assessment tool associated with the CMMM. The assessment tool is a web-based survey comprised of 62 items related to each of the six contract management key process areas: Procurement Planning, Solicitation Planning, Solicitation, Source Selection, Contract Administration, and Contract Closeout (Rendon, 2008). Appendix 1 provides a description of each contract management key process area and related activities. The survey items are related to the organization's use of specific contract management best practices within each key process area. Each survey item is associated with a specific process capability enabler related to Process Strength, Process Results, Management Support, Process Integration, and Process Measurement.

The CMMM uses a purposeful sampling approach designed to acquire data on organizational contract management processes and best practices (McMillan and Schumacher, 2001; Creswell, 2003). Thus, the assessment survey is administered only to fully qualified contracting officers who are authorized to enter into, administer, or terminate contracts and make related determinations and findings on behalf of the US government. DoD contracting officers are required to meet specific education, training, and experience requirements before being given contracting authority as specified in the Defense Acquisition Workforce Improvement Act (DAWIA, 1990). The survey items use a Likert scale option response with associated numerical values from 0 to 5. The total numerical scores for the survey items are calculated for each of the contract management process areas and then converted to a maturity level. The CMMM consists of five levels of process maturity: Ad Hoc, Basic, Structured, Integrated, and Optimized (Rendon, 2008). Appendix 2 provides a description of each contract management process maturity level.

The survey link was e-mailed to three Navy contracting agency directors and then forwarded to the eligible contracting officers. Reminder e-mails were sent approximately two weeks into the survey period. The survey instrument included the appropriate provisions for confidentiality and the protection of human subjects.

The three Navy contracting agencies are responsible for procuring over $84 billion in supplies and services in support of the US Navy mission (Federal Procurement Data System-Next Generation, 2014). These supplies and services include aeronautical systems and related support services, shipbuilding and related support services, and shore-based installation and logistics support and related services. Although the assessed three contracting agencies acquire and procure different types of systems, supplies, and services, the contract management processes used are common to all Navy organizations (Rendon and Snider, 2008). Additionally, the contract management

processes used at these Navy contracting agencies are also common to Army, Air Force, and other US federal government agencies for the procurement of systems, supplies, and services. Thus, the conclusions based on the analysis of these contract management process assessments may be applicable to DoD and other US federal government agencies. The assessment results will be discussed in the next section.

4. Results

4.1 Validity and reliability

Of the total 369 eligible survey participants, 185 Navy contracting officers completed the survey, yielding a response rate of approximately 50 percent. In terms of validity and reliability, SPSS Version 19, a statistical software program, was utilized in this study. Using the 62 likert scale survey questions from the survey instrument, factor analysis was conducted on the data gathered from the 185 survey participants. As previously discussed, a factor analysis was conducted to determine if the survey items closely correlated with questions designed to operationalize each of the contract management process areas. "In general, the goal of factor analysis is parsimony: to reduce the large number of variables to as few dimensions or constructs as possible." "Each factor loading is a measure of the importance of the variable in measuring each factor" (Zikmund, 2003, pp. 587-588). The factor analysis identified groupings of highly correlated survey items based on the survey responses. The factor analysis showed that the survey items related to each of the six contracting process areas (Procurement Planning, Solicitation Planning, Solicitation, Source Selection, Contract Administration, and Contract Closeout) loaded together (0.6 and above). Ten survey items related to Procurement Planning loaded together. Ten survey items related to Solicitation Planning loaded together. Ten survey items related to solicitation loaded together. In all, 11 survey items related to Source Selection loaded together. In all, 11 survey items related to Contract Administration loaded together. Finally, ten survey items related to Contract Closeout loaded together.

Based on the factor analysis, operationalized variables were created and used to perform reliability tests using Cronbach's α for each of the operationalized variables in this study (McMillan and Schumacher, 2001). Reliability tests suggest the extent to which the survey's design is sound in terms of its selection of survey items supporting the variables to be operationalized and the extent to which the survey instrument can be perceived as generating measurements of operationalized variables with high degrees of consistency and dependability (Cooper and Schindler, 2003). As reflected in Table I, the results of the reliability test indicated Cronbach's α values for each of the six key contracting process areas ranging from 0.91 to 0.94. These reliability coefficients are above 0.80, and thus, the survey instrument is considered to have high reliability and internal consistency (McMillan and Schumacher, 2001).

Contracting process area scale factor	No. of items	M (SD)	Valid n	Cronbach's α
Procurement planning	10	3.79 (0.88)	185	0.91
Solicitation planning	10	3.74 (0.87)	178	0.92
Solicitation	10	3.61 (0.93)	174	0.92
Source selection	11	3.85 (0.90)	172	0.93
Contract administration	11	3.37 (1.03)	169	0.94
Contract closeout	10	2.46 (1.59)	168	0.94

Table I.
Descriptive statistics
for the contracting
process area scale
factors

4.2 Process maturity ratings
The results of the assessments are reflected in Table II and Figure 1. Table II lists the contract management process area, survey item number, and item description. As previously stated, each survey item is associated with a specific maturity enabler and best practice related to Process Strength, Process Results, Management Support, Process Integration, or Process Measurement. Table I shows the mean responses for each survey item, the standard deviation for each survey item, and the total number of responses for each survey item. The mean responses are based on the Likert Scale's numerical value range from 5 (Always) to 1 (Never) and 0 (I Do not Know) for each survey item in each contract management process area. The mean responses are totaled, and the resulting score is converted to its associated process maturity level. Figure 1 reflects the maturity level for each contract management process area based on the assessment results.

5. Discussion
Figure 1 reflects the maturity level for each contract management process area. With these assessment results, the maturity levels across the contract management process areas are compared, and consistencies and differences in maturity levels are clearly identified. The purpose for this analysis is to discuss the implications that these consistencies have on contract management process maturity within the US Navy. The implications of these assessment results are discussed in the areas of contract management maturity levels, process capability enablers, process improvement opportunities, and training opportunities.

5.1 Contract management maturity levels
As reflected in Figure 1, the contracting process areas of Procurement Planning, Solicitation Planning, and Source Selection are rated at the Structured level of process maturity. This indicates that for these process area activities (see Appendix 1 for process area activities), the processes are fully established, institutionalized, and mandated throughout the entire organization. These processes are supported by formal documentation and some processes may even be automated. Furthermore, the organization allows for the tailoring of these processes and documents in consideration for the unique aspects of each contract, such as contracting strategy, contract type, terms and conditions, dollar value, and type of requirement (product or service). Finally, senior organizational managers are involved in providing guidance, direction, and even approval of key process area strategy, decisions, and documents. However, since these process areas are rated at the Structured level, this also shows that these processes are not fully integrated with other organizational processes that are part of the organization's contract management effort, such as financial management, schedule management, performance management, and technical management. Additionally, for these processes, the procurement team does not include representatives from other functional areas nor does it include the contract requirement end-user.

Also reflected in Figure 1, the contracting process areas of Solicitation, Contract Administration, and Contract Closeout are rated at the Basic level of process maturity. This indicates that for these process area activities, some contract management processes have been established, but these processes are required only on selected contracts. Furthermore, there is no organizational policy establishing the consistent use of these processes and standards on all contracts awarded by the organization. Finally, although there may be some documentation of these processes and standards, not all

Key process area/item number and description	Mean	SD	n
Procurement planning			
1.1 Process strength	4.32	1.04	187
1.2 Process strength	3.87	1.28	187
1.3 Process strength	3.72	1.13	187
1.4 Process results	3.88	1.08	187
1.5 Management support	4.21	1.00	187
1.6 Process integration	3.90	1.13	187
1.7 Process integration	3.65	1.21	187
1.8 Process integration	3.90	1.12	187
1.9 Process measurement	2.95	1.65	187
1.10 Process measurement	3.49	1.15	187
Total	37.89		
Solicitation planning			
2.1 Process strength	4.12	1.09	180
2.2 Process strength	3.76	1.31	180
2.3 Process strength	3.87	1.17	180
2.4 Process results	4.11	0.94	180
2.5 Management support	3.99	1.03	180
2.6 Process integration	3.79	1.07	180
2.7 Process integration	3.67	1.14	180
2.8 Process integration	3.67	1.04	180
2.9 Process measurement	2.92	1.65	180
2.10 Process measurement	3.54	1.22	180
Total	37.44		
Solicitation			
3.1 Process strength	4.01	1.22	176
3.2 Process strength	3.61	1.43	176
3.3 Process strength	3.74	1.29	176
3.4 Process results	3.71	0.92	176
3.5 Management support	3.94	1.03	176
3.6 Process integration	3.72	1.14	176
3.7 Process integration	3.63	1.12	176
3.8 Process integration	3.42	1.11	176
3.9 Process measurement	2.87	1.65	176
3.10 Process measurement	3.49	1.20	176
Total	36.14		
Source selection			
4.1 Process strength	4.25	1.03	174
4.2 Process strength	3.92	1.23	174
4.3 Process strength	3.80	1.20	174
4.4 Process results	4.23	1.04	174
4.5 Management support	4.15	1.04	174
4.6 Process results	3.60	1.17	174
4.7 Process results	4.23	1.04	174
4.8 Process integration	3.89	1.20	174
4.9 Process integration	3.74	1.25	174
4.10 Process measurement	3.04	1.71	174
4.11 Process measurement	3.52	1.26	174
Total	42.37		

Table II.
US Navy CMMM
assessment results

Key process area/item number and description	Mean	SD	n
Contract administration			
5.1 Process strength	3.63	1.28	171
5.2 Process strength	3.37	1.32	171
5.3 Process strength	3.48	1.25	171
5.4 Process results	3.48	1.16	171
5.5 Management support	3.47	1.25	171
5.6 Process integration	3.73	1.12	171
5.7 Process integration	3.48	1.20	171
5.8 Process integration	3.32	1.31	171
5.9 Process integration	3.28	1.67	171
5.10 Process measurement	2.70	1.66	171
5.11 Process measurement	3.15	1.39	171
Total	37.10		
Contract closeout			
6.1 Process strength	3.10	1.82	170
6.2 Process strength	2.80	1.89	170
6.3 Process strength	2.71	1.86	170
6.4 Process results	3.05	1.99	170
6.5 Management support	2.39	1.82	170
6.6 Process integration	2.26	1.87	170
6.7 Process integration	2.36	1.86	170
6.8 Process measurement	2.04	1.85	170
6.9 Process measurement	2.11	1.81	170
6.10 Process measurement	1.83	1.76	170
Total	24.65		

Table II.

Figure 1.
US Navy CMMM
maturity levels

processes are fully documented throughout the organization. However, since these process areas are rated at the Basic level, this also indicates that these processes are not fully established, institutionalized, and mandated throughout the entire organization. Additionally, these processes are not supported by formal documentation nor are there any automated processes for these activities. Lastly, senior organizational managers are not involved in providing guidance, direction, or approval of key process area strategy, decisions, and documents.

Figure 2 reflects the CMMM summary-level survey response mean scores for each of the contract management process areas. It should be noted that the Source Selection and Contract Administration process areas contain 11-survey items, while the remaining process areas contain ten-survey items. As reflected in Figure 2, the Navy's highest scoring survey response means were in the process areas of Procurement Planning and Source Selection. The Navy's lowest scoring survey response means were in the process areas of Contract Administration and Contract Closeout.

Additionally, Figure 2 reflects that some survey items, regardless of the associated process area, consistently had higher means scores. This can be seen in survey item 1 for all process areas. Survey item 1 contains the highest scoring means for all process areas except Contract Administration. Figure 2 also reflects that some survey items, regardless of the associated process area, consistently had lower means scores. This can be seen in survey item 9 for the first three process areas and in survey item 10 for the last three process areas. This will be discussed more in the next section on process capability enablers.

5.2 Process capability enablers

These maturity assessment results can be analyzed from the perspective of contract management process capability enablers. These process capability enablers are Process Strength, Process Results, Management Support, Process Integration, and Process Measurement. As previously stated and reflected in Table I (under the column key process area/item number and description), each CMMM survey item relates to the use of best practices in these capability enablers.

5.2.1 Process strength. Figure 3 reflects the CMMM summary-level survey response mean scores for the survey items related to Process Strength. As reflected in Figure 3, the Navy's process areas with the highest scoring survey response means for Process Strength-associated survey items were in the process areas of Procurement Planning (survey item 1.1), Solicitation Planning (survey item 2.1), and Source Selection (survey item 4.1). These results indicate a stronger use of Process Strength best practices such as ensuring standardized, mandatory, and documented processes.

Additionally, as reflected in Figure 3, the Navy's process areas with the lowest scoring survey response means for Process Strength-associated survey items were in the process areas of Contract Administration (survey items 5.1, 5.2, and 5.3) and Contract Closeout (survey items 6.1, 6.2, and 6.3). These results indicate weaker use of Process Strength best practices in these specific contract management process areas.

5.2.2 Process results. Figure 4 reflects the CMMM summary-level survey response mean scores for the survey items related to Process Results. As reflected in Figure 4, the Navy's process areas with the highest scoring survey response means for Process Results-associated survey items were in the process areas of Source Selection (survey items 4.4 and 4.7). These results indicate a stronger use of Process Results best practices in ensuring appropriate evaluation standards and criteria and in maintaining integrity in the proposal evaluation process.
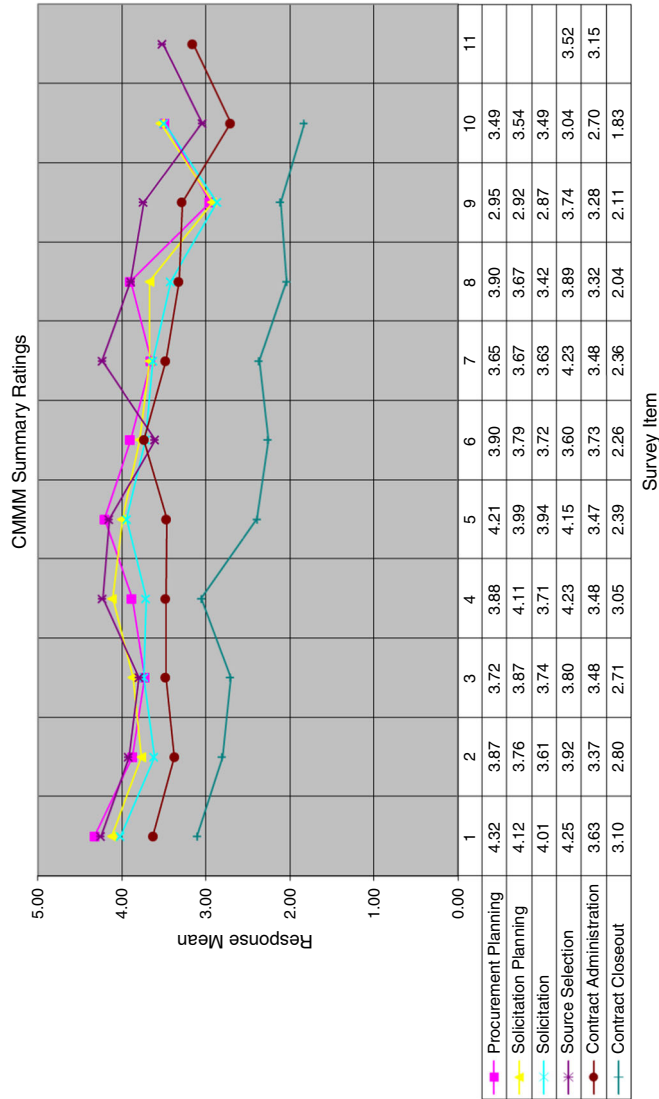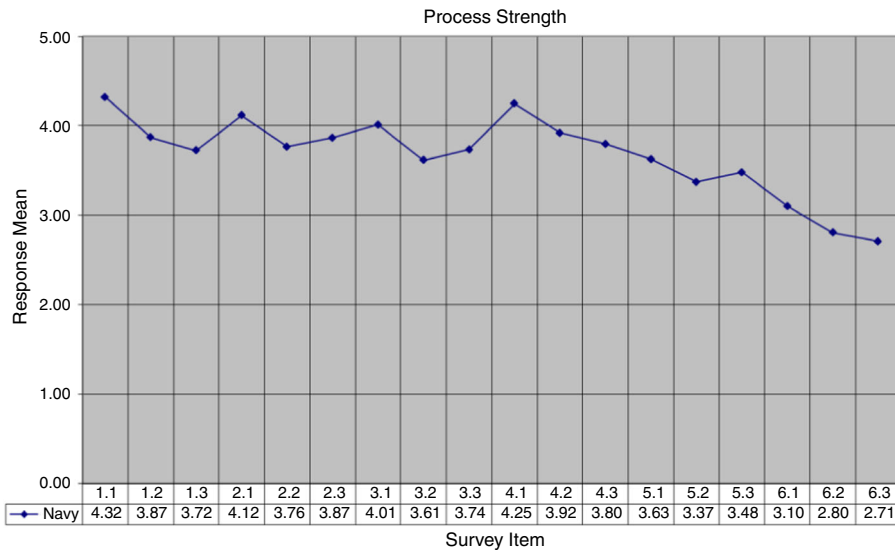
1494

Figure 2.
Navy CMMM survey
response mean
scores

Figure 3.
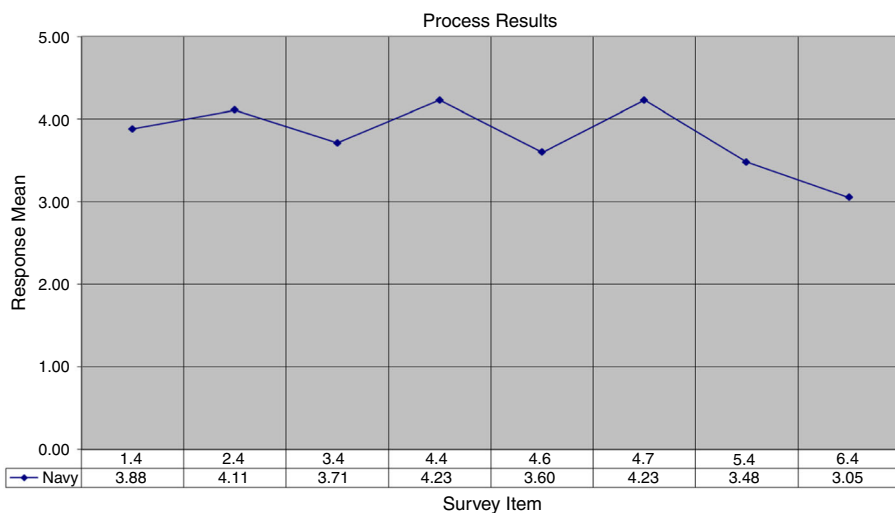Navy CMMM survey
response mean
scores Process
Strength

Process Strength

	1.1	1.2	1.3	2.1	2.2	2.3	3.1	3.2	3.3	4.1	4.2	4.3	5.1	5.2	5.3	6.1	6.2	6.3
Navy	4.32	3.87	3.72	4.12	3.76	3.87	4.01	3.61	3.74	4.25	3.92	3.80	3.63	3.37	3.48	3.10	2.80	2.71

Survey Item

Figure 4.
Navy CMMM survey
response mean
scores Process
Results

Process Results

	1.4	2.4	3.4	4.4	4.6	4.7	5.4	6.4
Navy	3.88	4.11	3.71	4.23	3.60	4.23	3.48	3.05

Survey Item

Additionally, as reflected in Figure 4, the Navy's process areas with the lowest scoring survey response means for Process Results-associated survey items were in the process areas of Contract Administration (survey item 5.4) and Contract Closeout (survey item 6.4). These results indicate a weaker use of Process Results best practices in conducting surveillance of contractor performance, processing accurate and timely contractor payments, controlling contract changes, verifying final delivery, and obtaining seller's release of claims.

5.2.3 Management Support. Figure 5 reflects the CMMM summary-level survey response mean scores for the survey items related to Management Support. As reflected in Figure 5, the Navy's process areas with the highest scoring survey response means for
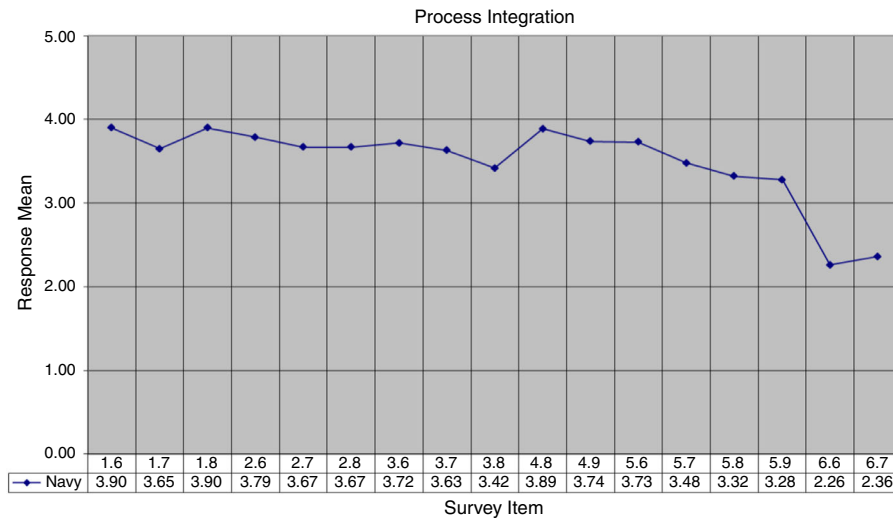
Management Support
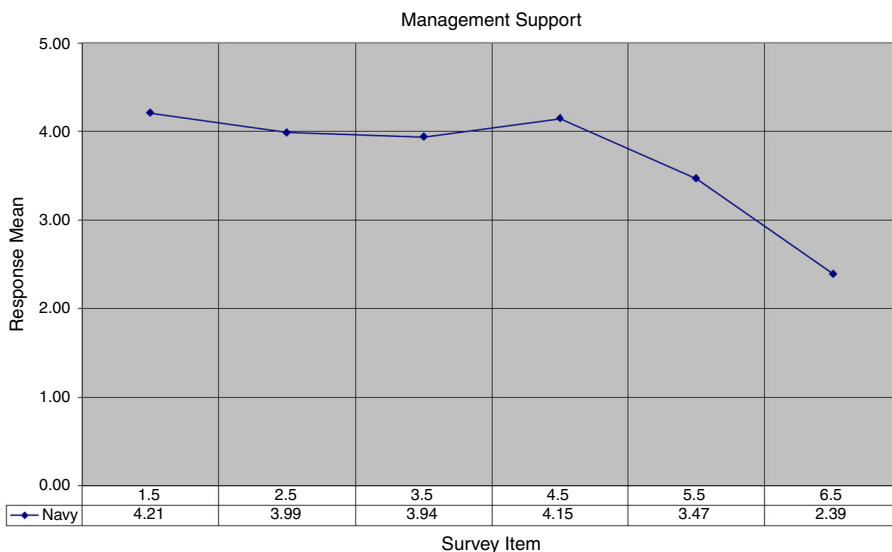
Management Support-associated survey items were in the key process areas of Procurement Planning (survey item 1.5) and Source Selection (survey item 4.5). These results indicate a stronger use of Management Support best practices in ensuring senior organizational management are involved in providing input and, if required, approval of Procurement Planning and Source Selection decisions and documents.

Additionally, as reflected in Figure 5, the Navy's key process areas with the lowest scoring survey response means for Management Support-associated survey items were in the process areas of Contract Administration (survey item 5.5) and Contract Closeout (survey item 6.5). These results indicate a weaker use of Management Support best practices in ensuring that senior organizational management are involved in providing input and, if required, approval of Contract Administration and Contract Closeout related decisions and documents.

5.2.4 Process Integration. Figure 6 reflects the CMMM summary-level survey response mean scores for the survey items related to Process Integration. As reflected in Figure 6, the Navy's process areas with the highest scoring survey response means for Process Integration-associated survey items were in the process areas of Procurement Planning (survey items 1.6 and 1.8) and Source Selection (survey item 4.8). These results indicate a stronger use of Process Integration best practices such as using integrated project teams and conducting an integrated assessment of contract type, risk management, and terms and conditions during Procurement Planning, and using integrated projects teams in the evaluation of proposals during contract Source Selection.

Additionally, as reflected in Figure 6, the Navy's process areas with the lowest scoring survey response means for Process Integration-associated survey items were in the process areas of Contract Administration (survey item 5.8 and 5.9) and Contract Closeout (survey item 6.6 and 6.7). These results indicate a weaker use of Process Integration best practices such as integrating Contract Administration processes with other functional processes and using an integrated project team approach for monitoring and evaluating the contractor's performance and making related award fee and incentive fee determinations.

Figure 6.
Navy CMMM survey
response mean
scores Process
Integration

5.2.5 *Process Measurement.* Figure 7 reflects the CMMM summary-level survey response mean scores for the survey items related to Process Measurement. As reflected in Figure 7, the Navy's process areas with the highest scoring survey response means for Process Measurement-associated survey items were in the process areas of Procurement Planning (survey item 1.10), Solicitation Planning (survey item 2.10), Solicitation (survey item 3.10), and Source Selection (survey item 4.11). These results indicate a stronger use of Process Measurement best practices such as adopting lessons learned and best practices for continuously improving the planning of procurements, issuing the procurement solicitation, evaluating contractor proposals, and awarding the contract.
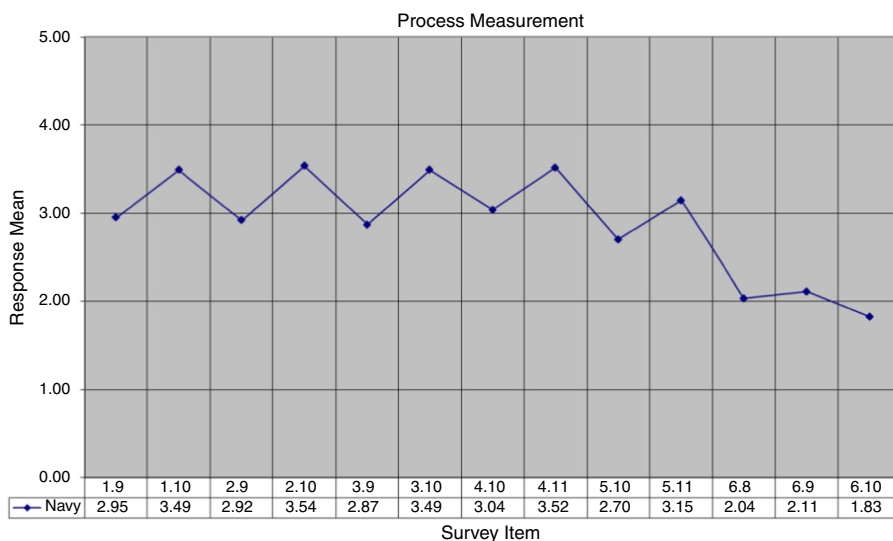

Figure 7.
Navy CMMM survey
response mean
scores Process
Measurement

Additionally, as reflected in Figure 7, the Navy's process areas with the lowest scoring survey response means for Process Measurement-associated survey items were in the process areas of Contract Administration (survey item 5.10) and Contract Closeout (survey items 6.8, 6.9, and 6.10). These results indicate a weaker use of Process Measurement best practices such as using efficiency and effectiveness metrics in administering the contract and closing out the contract. Additionally, these results also indicate a weaker use of practices such as adopting lessons learned and best practices for continuously improving the closing out of contracts and maintaining a lessons learned and best practices database for use in planning future procurements.

It is interesting to note that the CMMM summary-level survey response mean scores for the survey items related to each of the four process capability enablers show a clear distinction in the levels of the use of best practices. The relatively higher uses of best practices are identified in the pre-award process areas of Procurement Planning and Source Selection. The relatively lower uses of best practices were identified in the post-award phases of Contract Administration and Contract Closeout. Of course, the true value of this benchmarking assessment is realized when the results are used in developing a road map for implementing contract management process improvement initiatives. The next section discusses process improvement opportunities for the US Navy.

5.3 Process improvement opportunities

The Navy was assessed at the Structured maturity level for Procurement Planning, Solicitation Planning, and Source Selection. In order for the Navy to progress to the Integrated maturity level, it should ensure these process areas are integrated with other organizational core processes, such as requirements management, financial management, schedule management, performance management, and risk management. The Procurement Planning process activities that need to be integrated with other organizational core processes include requirements analysis, acquisition planning, and market research. For the Solicitation Planning process, the activities include determining procurement method, developing evaluation strategy, and developing solicitation documents. The Navy should integrate Source Selection process activities such as evaluating proposals, applying evaluation criteria, negotiating contract terms, and selecting contractors. In addition to integrating these process areas with other organizational core processes, the Navy should also ensure that the procurement project's end users and customers are included as integral members of the project procurement team and are engaged in providing input and recommendations for key contract management decisions and documents.

The Navy was assessed at the Basic maturity level for the Solicitation, Contract Administration, and Contract Closeout process areas. To progress to the Structured maturity level, the Navy should ensure that Contract Administration, Solicitation, and Contract Closeout processes are fully established, institutionalized, and mandated throughout the organization. Additionally, formal documentation should be developed for these process area activities. Also, senior management should be involved in providing guidance, direction, and even approval, when required, of key Solicitation, Contract Administration, and Contract Closeout strategies, decisions, related contract terms and conditions, and documents. The Solicitation process activities include advertising procurement opportunities, conducting solicitation and pre-proposal conferences, and amending solicitation documents as needed. The Contract Administration activities

include monitoring and measuring contractor performance, managing the contract change process, and managing the contractor payment process. The Contract Closeout activities include verifying contract completion, verifying contract compliance, and making final payment.

In addition to developing a road map for implementing contract management process improvement initiatives, the assessment results can also be used to identify training opportunities for increasing the process capability levels of the agency. The next section discusses contract management training opportunities for the US Navy.

5.4 Training opportunities

The Navy CMMM assessment results indicate a need for an increased emphasis on the Navy's contract management training program. Training in each of the contract management process areas should also be part of the Navy's process improvement initiatives. The discussion below provides an overview of each of the contract management process areas and related activities that should be accentuated in the Navy's contract management training program.

Procurement Planning process training should include activities such as conducting outsourcing analysis and performing market research. This training should focus on subjects such as determining the availability of funds, making preliminary cost and schedule estimates, assessing and managing procurement risk, determining manpower resources, conducting assessments of market conditions, selecting the appropriate contract type, developing contract incentive plans, and developing contract terms and conditions (Rendon and Snider, 2008).

Training in the Solicitation Planning process should focus on activities such as developing solicitations (e.g. Request for Proposals), structuring solicitation documents, and developing appropriate criteria for contractor proposal evaluation (Rendon and Snider, 2008). This training should include the different procurement methods such as acquiring commercial items, using sealed bidding procedures, and contracting by competitive negotiations.

Training in the Solicitation process should include areas such as developing an integrated approach to establishing qualified bidders' lists, conducting market research, advertising procurement opportunities, and conducting pre-proposal conferences (Rendon and Snider, 2008). Training related to this process area should also include publicizing contract actions and conducting pre-solicitation and pre-proposal conferences.

Source Selection training should include subjects such as developing proposal evaluation standards and criteria as well as establishing evaluation criteria weighting systems. Training in this area should also include conducting proposal evaluations and contract negotiations, as well as cost estimating techniques (Rendon and Snider, 2008).

Contract administration training should focus on areas of conducting integrated assessments of contractor performance, such as integrated cost, schedule, and performance evaluations. Specific topics should include managing contract changes, processing contractor invoices and payments, monitoring contractor incentives and award fees, and assessing subcontractor performance (Rendon and Snider, 2008). Additional training should include the management of government furnished property for complying with terms and conditions, and quality assurance for monitoring and measuring contractor performance.

Contract Closeout training should focus on subjects such as contract termination, closeout planning and considerations, and closeout standards and documentation (Rendon and Snider, 2008). Additional training should include verifying contract

completion and contractor compliance and ensuring contract completion documentation as well as documenting contractor past performance assessments.

A critical note concerning contract management training should be discussed at this point. It is important for contracting officers to receive the appropriate training to ensure sufficient competency in each of the contract management process areas. However, it is also important for senior organizational management (e.g. supervisors, division chiefs, and higher level executives) to understand their roles and responsibilities in support of the contract management process. This is especially true for senior executives that have specific authorities for making contracting-related decisions and approving contract management documents. These authorities include approval of non-competitive contracting justifications, use of a high-risk contract type, or waiver of statutory contracting requirements. Senior executives should understand not only their roles and responsibilities in the contract management process, but also the implications of their decisions on public policy objectives such as integrity, accountability, and transparency of the contracting process. Past DoDIG reports and investigations have identified a number of instances in which senior management may have made contracting-related decisions resulting in a negative impact on the contract management process, specifically in terms of achieving public policy objectives (Department of Defense Inspector General (DoDIG), 2010, 2012a). As reflected in Table I, the mean scores of contract management process area survey items related to Management Support indicate that senior managers may not understand their roles, responsibilities, and implications of their contracting decisions. Based on the Navy CMMM assessment results, this seems to be the case in the Contract Administration and Contract Closeout process areas.

The contracting process benchmarking assessment results also present an opportunity for knowledge-sharing initiatives within the Navy contracting offices for the purpose of increasing their contract management process maturity level. The implementation of knowledge-sharing had been previously identified as the number one goal in the DoD Acquisition, Technology, and Logistics, Human Capital Strategic Plan. The overarching goal is to promote DoD-wide sharing of workforce contracting best practices by the military department (Department of Defense (DoD), 2007). It is also interesting to note that recent GAO reports have identified the need for improving the training management of the contracting workforce and for creating a culture of knowledge-sharing for improving federal contracting as an opportunity in federal contract management (Government Accountability Office (GAO), 2011, 2014c). The Navy CMMM assessment results can be used as the key driver in implementing DoD's training improvement and knowledge-sharing initiatives. The opportunities for knowledge-sharing initiatives in contract management will only increase in importance as the DoD contracting workforce continues to decline due to workforce retirements which would result in having to replace highly experienced contracting personnel with more junior and less-experienced contracting professionals.

5.5 Implications for the DoD

The research findings in this study suggest that benchmarking can be effective in measuring and improving contracting process capability in the US Navy. The federal government contracting processes used in the Navy are the same processes and related activities as used in the Army and Air Force, and other DoD agencies. Therefore, these research findings can also be applied to other military departments within the DoD. Benchmarking and improving contracting processes can have far-reaching effects

throughout the DoD. The US Under Secretary of Defense's Better Buying Power mandate includes initiatives related to improving Procurement Planning, Solicitation Planning, Source Selection, and Contract Administration processes (United States Under Secretary of Defense, 2014). The use of benchmarking assessments such as the CMMM can be instrumental in tracking the achievements of these contract management process improvement initiatives.

Another current DoD initiative is its focus on improving auditability in its financial operations (Federal News Radio, 2013). As highlighted by the GAO, "DOD is one of the few federal entities that cannot accurately account for its spending or assets and is one of three major impediments that prevent GAO from rendering an opinion on the annual consolidated financial statements of the federal government" (GAO, 2013b, p. 134). The US Congress is leading the push for auditability by stating "In this era of shrinking budgets and growing commitments, our men and women in uniform and the American taxpayers deserve to know how every dime appropriated for the Department of Defense is spent" (United States Congress, 2013, p. 2). A critical component of auditability in the DoD is capable and mature contracting processes (Rendon and Rendon, 2015). By benchmarking and improving its contracting processes, the DoD will be winning the battle toward integrity, accountability, and transparency of its financial operations.

5.6 Implications for international public procurement

Benchmarking and improving public contracting processes can also have far-reaching effects in international public procurement organizations as well. International public procurement agencies value mature contracting processes as a means for ensuring integrity, accountability, and transparency in public procurement. Mature contracting processes act as a deterrence to procurement fraud and corruption. For example, to ensure integrity, accountability, and transparency in public procurement, TI has created international anti-corruption conventions as well as instituted Integrity Pacts for preventing corruption in public contracting (Transparency International, 2014). Additionally, the Geneva Centre for the Democratic Control of Armed Forces, a global leading institution in the areas of security sector reform and governance, has identified process capability as well as process integrity as key for reducing the potential for procurement-related corruption (Geneva Centre for the Democratic Control of the Armed Forces (DCAF), 2010). Furthermore, during a recent NATO Building Integrity Conference, discussions among NATO member countries and partner nations focussed on the value of assessing and improving procurement processes for strengthening transparency and accountability (NATO Conference Report, 2011, pp. 9-30).

As can be seen from these initiatives, the value of benchmarking and improving contracting processes is gaining much attention in global public procurement agencies as they strive for auditability, accountability, integrity, and transparency in their governance processes.

6. Conclusion

This paper analyzed the results of contract management process maturity assessments conducted within the Navy contracting agencies. Although the CMMM assessment results indicated different contract management process maturity levels, ranging from Level 2 Basic to Level 3 Structured, for each contract management process area, some consistencies were identified. Generally, the assessment reflected higher maturity levels in the Procurement Planning, Solicitation Planning, and Source Selection process areas,

while lower maturity levels were indicated in the Contract Administration and Contract Closeout process areas. These maturity levels reflect the extent of the implementation of contracting best practices in the areas of Process Strength, Process Results, Management Support, Process Integration, and Process Measurement. The assessment results identified opportunities for increasing contract management process maturity, improving contract management training, and implementing knowledge-sharing initiatives. The Navy assessment results also identified consistencies in DoD and federal government contract management. These consistencies include problem areas within the Contract Administration and Contract Closeout process areas, procurement process integration issues, and contract management training and knowledge-sharing issues. As the body of knowledge on government contract management process maturity continues to emerge, the use of maturity models will continue to gain wider acceptance as a tool for benchmarking public procurement organizational contract management process maturity and for providing a road map for implementing process improvement initiatives.

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Appendix 1. Contract management processes

Procurement Planning: the process of identifying which organizational needs can be best met by procuring products or services outside the organization. This process involves determining whether to procure, how to procure, what to procure, how much to procure, and when to procure. Key process activities include conducting outsourcing analysis, determining, and defining the procurement requirement, conducting market research, and developing preliminary budgets and schedules.

Solicitation Planning: the process of preparing the documents needed to support the solicitation. This process involves documenting program requirements and identifying potential sources.

Solicitation: the process of obtaining bids or proposals from prospective sellers on how organizational needs can be met.

Source Selection: the process of receiving bids or proposals and applying evaluation criteria to select a contractor.

Contract Administration: the process of ensuring that each contract party's performance meets contractual requirements.

Contract Closeout: the process of verifying that all administrative matters are concluded on a contract that is otherwise physically complete. This involves completing and settling the contract, including resolving any open items. Contract Closeout also includes contract termination.

Appendix 2. Contract management maturity levels

Level 1 Ad Hoc: organizations at this maturity level do not have established organization-wide contract management processes. However, some established contract management processes do exist and are used within the organization, but these processes are applied only on an Ad Hoc and sporadic basis to various contracts. There is no rhyme or reason as to which contracts these processes are applied. Furthermore, there is informal documentation of contract management processes existing within the organization, but this documentation is used only on an Ad Hoc and sporadic basis on various contracts. Finally, organizational managers and contract management personnel are not held accountable for adhering to, or complying with, any basic contract management processes or standards.

Level 2 Basic: organizations at this level of maturity have established some basic contract management processes and standards within the organization, but these processes are required only on selected complex, critical, or high-visibility contracts, such as contracts meeting certain dollar thresholds or contracts with certain customers. Some formal documentation has been developed for these established contract management processes and standards. Furthermore, the organization does not consider these contract management processes or standards established or institutionalized throughout the entire organization. Finally, at this maturity level, there is no organizational policy requiring the consistent use of these contract management processes and standards on contracts other than the required contracts.

Level 3 Structured: organizations at this maturity level have contract management processes and standards that are fully established, institutionalized, and mandated throughout the entire organization. Formal documentation has been developed for these contract management processes and standards, and some processes may even be automated. Furthermore, since these contract management processes are mandated, the organization allows the tailoring of processes and documents in consideration for the unique aspects of each contract, such as contracting strategy, contract type, terms and conditions, dollar value, and type of requirement (product or service). Finally, senior organizational management is involved in providing guidance, direction, and even approval of key contracting strategy, decisions, related contract terms and conditions, and contract management documents.

Level 4 Integrated: organizations at this level of maturity have contract management processes that are fully integrated with other organizational core processes such as financial management, schedule management, performance management, and systems engineering. In addition to representatives from other organizational functional offices, the contract's end-user customer is also an integral member of the buying or selling contracts team. Finally, the organization's management periodically uses metrics to measure various aspects of the contract management process and to make contracts-related decisions.

Level 5 Optimized: organizations at this maturity level systematically use performance metrics to measure the quality and to evaluate the efficiency and effectiveness of the contract management processes. At this maturity level, continuous process improvement efforts are also implemented to improve the contract management processes. Furthermore, the organization has established programs for lessons learned and best practices in order to improve contract management processes, standards, and documentation. Finally, contract management process streamlining initiatives are implemented by the organization as part of its continuous process improvement program.

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