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THESIS

**ANALYSIS OF CONTRACTING PROCESSES AND
ORGANIZATIONAL CULTURE AT NAVAL AIR
SYSTEMS COMMAND**

by

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June 2008

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**ANALYSIS OF CONTRACTING PROCESSES AND ORGANIZATIONAL
CULTURE AT NAVAL AIR SYSTEMS COMMAND**

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Submitted in partial fulfillment of the
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ABSTRACT

This study assesses contracting process capabilities at Naval Air Systems Command (NAVAIR) in Patuxent River, Maryland, using the Contract Management Maturity Model (CMMM). The primary purpose of this study is to analyze NAVAIR's contracting processes to identify key process area strengths and weaknesses and to provide a roadmap for improvement. This study also focuses on assessing organizational culture at the NAVAIR Contracting Directorate. Several studies have shown that organizational factors, such as organizational culture, are strong determinants of performance. Other studies have shown that when an organization is dominated by a culture type, the most effective leaders are those that demonstrate a matching leadership style. This study uses the Organizational Culture Assessment Instrument (OCAI) to identify the organization's current and preferred culture type as viewed by the leadership at the organization. The results will provide the NAVAIR leaders an awareness of culture type so they can match their leadership style to the assessed culture for optimum performance.

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LIST OF ACRONYMS AND ABBREVIATIONS

ACO	Administrative Contracting Officer
ASN(RDA)	Assistant Secretary of the Navy for Research, Development and Acquisition
CAO	Competency Aligned Organization
CMM	Capability Maturity Model
CMMAT	Contract Management Maturity Assessment Tool
CMMM	Contract Management Maturity Model
CVF	Competing Values Framework
DAS	Defense Acquisition System
DAU	Defense Acquisition University
DAWIA	<i>Defense Acquisition Workforce Improvement Act</i>
DFARS	<i>Defense Federal Acquisition Regulation Supplement</i>
DoD	Department of Defense
DON	Department of the Navy
EVM ³	Earned Value Management Maturity Model
FAR	<i>Federal Acquisition Regulation</i>
GAO	Government Accountability Office
IFB	Invitation for Bid
IPT	Integrated Program Teams
NAE	Naval Aviation Enterprise
NAVAIR	Naval Air Systems Command
NAVAIR 2.0	Naval Air Systems Command Contracting Directorate
NAVSEA	Naval Sea Systems Command
NAVSUP	Naval Supply Systems Command
OCAI	Organizational Culture Assessment Instrument
OSD	Office of the Secretary of Defense
PCO	Procuring Contracting Officer
PEO	Program Executive Office
PEO(A)	Program Executive Office for Assault & Special Mission Programs
PEO(JSF)	Program Executive Office for the Joint Strike Fighter Program
PEO(T)	Program Executive Office for Tactical Aircraft Programs
PEO(W)	Program Executive Office for Strike Weapons & Unmanned Aviation
PMMM	Project Management Maturity Model
RFP	Request for Proposal
SE CMM	Systems Engineering Capability Maturity Model
SEI-CMMI	Systems Engineering Institutes Capability Maturity Model Integration
SMC	Air Force Space and Missile Systems Command
SPAWAR	Space and Naval Warfare Systems Command
SW-CMM	Software Capability Maturity Model
SYSCOM	Systems Command

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EXECUTIVE SUMMARY

At the close of the Cold War, the Department of Defense (DoD) began a series of initiatives aimed at downsizing U.S. military forces. The resulting reforms slashed the acquisition and contracting workforce in half, but the size and complexity of contract actions and obligations nearly doubled over the same period. This created a capabilities gap and staffing imbalance which has had serious repercussions on the acquisition and contracting capabilities of the DoD.

This thesis presents a method of assessing contracting processes to determine baseline contracting capabilities, process strengths and weaknesses, and to provide a roadmap for process improvement. The study was conducted at the Naval Air Systems Command in Patuxent River, Maryland, and used the Contract Management Maturity Model (CMMM) as a contract management process-assessment tool. A focused evaluation of the organizational culture at the Naval Air Systems Command Contracting Directorate (NAVAIR 2.0) was also completed using the Organizational Culture Assessment Instrument (OCAI). The organizational culture assessment focused on identifying the culture type and strength of the organization as viewed by the Department Heads, Deputy Department Heads, and Division Officers. The goal of the culture assessment was to create awareness of the organization's culture type and to match leadership styles for optimal organizational performance.

Data for both assessments were obtained from five NAVAIR 2.0 departments and evaluated at the departmental level and Enterprise level. At the Enterprise level, the contract management maturity assessment resulted in a "structured" maturity level for the key process areas of Procurement Planning, Solicitation Planning, Solicitation, Source Selection, and Contract Administration. The key process area of Contract Closeout was rated as having a maturity level of "basic." The overall results of the OCAI revealed that the Enterprise currently has a mixed culture with a Hierarchy-type culture dominance while the preferred culture type is also mixed with a slight preference for a Hierarchy-type culture.

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I. INTRODUCTION

A. BACKGROUND

At the close of the Cold War in 1991, the Department of Defense (DoD) began a series of initiatives and reforms to downsize U.S. military forces. The fall of the Soviet Union eliminated all substantial military peers; thus it was theorized that the size of the military could be reduced and defense spending could be reallocated to other neglected or under-funded programs. With no military superpowers challenging U.S. primacy, it was anticipated that the need for technologically and numerically superior weapon systems would decrease. Inherent in this supposition was a decrease in military acquisition programs and a reduction of the acquisition workforce—including members of the contracting and program management workforce. Between 1989 and 2000, the acquisition workforce underwent a series of workforce reductions that ultimately slashed the workforce in half. Since 2000, the size of the acquisition workforce has remained relatively constant, but the size and complexity of contract actions and obligations has increased by 89% (GAO, 2006). These reductions had serious implications on the acquisition capabilities of the DoD. Primarily, the reduction in workforce created staffing imbalances. DoD organizations found that they have inadequate resources and staffing to meet workload requirements and are faced with the potential loss of highly specialized knowledge due to the impending retirement of many acquisition specialists over the next several years. This contract management paradox and the ensuing acquisition workforce knowledge gap has been the source of political debate, GAO reports, and public scrutiny. Additionally, the reduction of the acquisition workforce prompted the notion that contracting and program management are not critical functions and should not be considered a core competency. This perception has encouraged managers to shift scarce resources to perceive more critical contract processes (including active contract administration and pre-award work in preparation for new contracts) while taking resources away from processes perceived to be relatively unimportant, such as contract closeout.

In a resource-limited environment, DoD managers are left with two options to overcome budgetary and workforce deficiencies: 1) to request additional funding and/or manpower resources, or 2) to find ways to improve process efficiency and effectiveness without sacrificing quality. The former is not a feasible solution, as any flex in discretionary funds are being used to support the Global War on Terrorism and the war in Iraq. This leaves organizations, particularly those whose primary mission is to support the weapon systems acquisition function, to seek methods that change and improve internal processes.

The research presented in this study employs an assessment method that DoD organizations may apply to their contracting processes to determine their programs' current level of process maturity and to provide a roadmap for improvement. This research applied the Contract Management Maturity Assessment Tool (CMMAT)—the survey element of the Contract Management Maturity Model (CMMM)—to the contract management processes at the Naval Air Systems Command (NAVAIR). Additionally, for lasting process change to occur, an organization must revise its values and goals and adjust its organizational culture to support these changes. The leadership must first measure and understand the organization's culture. Using this information, they can lead the change effort and take actions to help the effort succeed. This research uses a fundamental, yet highly functional, assessment tool—the Organizational Culture Assessment Instrument (OCAI)—to evaluate the current and future state of organizational culture at the NAVAIR Contracting Directorate. The research identifies the culture type and strength and then makes recommendations to improve leadership capabilities and enable sustained process change.

Naval Air Systems Command (NAVAIR), located in Patuxent River, MD, is the Navy's premier organization for developing, testing, fielding, and supporting naval airborne weapons systems. NAVAIR 2.0, the Contracting Directorate,¹ is charged with administering billions of dollars in contracts annually for the organization. Its goal is to deliver effective solutions to the Naval Aviation Enterprise at optimal costs; however, the

¹ NAVAIR 2.0, Contracting Directorate, and Enterprise are used interchangeably throughout this research to denote the NAVAIR organization responsible for contracting as a collective.

decreasing acquisition workforce and the increasing complexity and size of government contracts has made this goal difficult to achieve.

B. PURPOSE

The primary purpose of this study is to analyze NAVAIR's contracting processes across five departments to identify process consistencies and strengths and to recommend areas for improvement by applying the Contract Management Maturity Model (CMMM). The results of the assessment provide the level of maturity of six steps in the contracting process: procurement planning, solicitation planning, solicitation, source selection, contract administration and contract closeout. A supplemental assessment evaluating NAVAIR's organizational culture was also administered. The Organizational Culture Assessment Instrument (OCAI) and the Competing Values Framework (CVF) was used to assess the type and strength of NAVAIR Contracting Directorate's organizational culture. The results were analyzed to help foster cultural change resulting from the implementation of several ongoing process improvement initiatives and insights gained from this study. The results can be used to help NAVAIR leaders improve their leadership skills for optimal organizational performance by matching leadership style with the dominant culture type.

This study is not intended to unilaterally and unequivocally change the contract management or organizational culture at NAVAIR. Instead, it is designed to explain and demonstrate valuable tools that can be used to assist managers in initiating and facilitating sustained process change. These tools provide data that can guide focused efforts within the NAVAIR Contracting Directorate to address strengths, weaknesses and areas for improvements. This study attempts to identify challenges to NAVAIR's contracting processes and obstacles to the effective achievement of contracting efforts and offers recommendations to overcome these issues.

C. RESEARCH QUESTIONS

The key element to improving contract management processes is an understanding of the organization's current capabilities. Before implementing process change, an organization should embark on a series of assessment efforts aimed at

identifying the baseline maturity of current contracting processes. While the desired end-state is obviously the highest achievable level of process maturity, the goal of the assessment is to ascertain the extent of real and/or perceived gaps to achieve such an end-state.

1. Primary Research Question

- a. What level of maturity are the contracting processes at the NAVAIR Contracting Directorate?

2. Supplementary Research Questions

- a. How can the results of the study be used for process improvement at NAVAIR's Contracting Directorate?
- b. What are the dominant culture types and strengths of NAVAIR's Contracting Directorate?
- c. Can the leaders at NAVAIR's Contracting Directorate improve or maintain organizational performance by understanding its dominant culture type?

D. BENEFITS AND LIMITATIONS

In a resource-scarce environment, DoD organizations must seek process efficiency without sacrificing process effectiveness or the quality of the final result. This research provides a baseline for contract management process improvement. It determines the level of process maturity for each of six process steps and provides the capability to complete future assessments to determine process change progress. It also identifies process strengths and weaknesses within each department. These data can enable the exchange of best practices that may, in turn, afford overall organizational synergistic improvement.

The organizational culture assessment provides an intuitively appealing and easily interpretable way to characterize the organization's culture or guide a culture change process (Cameron & Quinn, 2006). The OCAI identifies fundamental dimensions of organizational culture, creating a foundation for organizational discussion that can foster change and improvement. The OCAI is practical, time efficient, manageable and involving (Cameron & Quinn, 2006). It is practical because it captures key dimensions of

culture that have been found to make a difference in an organization's success. The assessment is time efficient because a team within the organization can feasibly complete the process of diagnosing and creating a strategy for change in a reasonable amount of time. Lastly, it allows for involvement because the model facilitates interaction and discussion from every member of the organization—but most importantly from those who have a responsibility to establish direction and guide fundamental change. The assessment has the potential to uncover aspects of the organization's culture that might otherwise not be identified or articulated by organizational members. It helps an organization identify where it is now and where it wants to be in the future. Without an initial cultural diagnosis, “organizational resistance emanating from an entrenched, but outdated culture would have subverted any efforts to implement sustaining process changes” (Cameron & Quinn, 2006, p. 87).

This study can also benefit the leaders at NAVAIR. The results of the OCAI will provide a baseline of the organization's culture that establishes the beginning point for improvements. It also identifies the current dominant culture type and permits the alignment of leadership style and organizational culture to achieve optimal performance.

Finally, the research will provide a deeper understanding of contracting process and organizational culture to the leaders at NAVAIR. This will contribute to greater awareness by the leadership of the organization's capabilities and facilitate aligning leadership skills with culture type to improve performance. This thesis will contribute to the existing body of knowledge on the subject of organizational culture and contracting process assessment. The results will also contribute to the database of best practices. Other organizations, especially other Systems Commands, can use this thesis as a basis of comparison against their own contracting process.

The primary limitation of this research lies in the fact that the CMMM does not identify particular problematic elements within each key process area or provide explicit solutions to the problems identified in the assessment results. Instead, it provides an assessment of contracting process capability for the purpose of identifying weak

processes or problem areas. This makes it difficult for the researcher to generate specific recommendations or identify particular types of training or policy that can improve contracting processes.

The limitations of the OCAI are similar to those of the CMMM. The OCAI provides a foundation, not a comprehensive strategy, for cultural change. First, the results of the OCAI only identify an organization's culture type and strength; they do not provide explicit details for improvement or change. Further analysis must be conducted to determine the key areas in which training or additional policies and standards could be employed to improve organizational capabilities. Second, the limited sample size of the organizational culture research does not permit the use of statistical analysis to conduct comparisons among multiple cultures. Lastly, for process or organizational culture change to occur, the organizational leadership must review the results of this research and make a concerted effort to implement change that will foster processes improvement and culture change.

E. SCOPE AND ORGANIZATION

The study centers on contracting process maturity and elements of organizational culture. The general focus identifies the maturity level of NAVAIR's contracting processes and provides the organization with a roadmap for process improvement. Using survey assessments, the researcher investigates six contract management processes. The causality for the level of process maturity is not part of the scope of this study.

This study is arranged in five chapters. Chapter I defines general information, including the thesis research purpose, scope and organization, the primary and subsidiary research questions, the benefits and limitations of the research, and the methodology for data collection and analysis.

Chapter II, the Literature Review, provides a summary of the challenges facing the DoD acquisition workforce, a historical perspective on the origins, variations, and uses of maturity models, background information on the CMMM, the importance of organizational culture and culture change, and information on the Competing Values Framework (CVF) and OCAI.

Chapter III provides an overview of Department of Defense (DoD) and Department of the Navy (DON) acquisition organizations and contract management processes. It also provides background information on the Naval Air Systems Command (NAVAIR) organizational structure. Lastly, the chapter describes the methodology used to select questionnaire participants at the NAVAIR Contracting Directorate.

Chapter IV presents the data collected via the Contract Management Maturity Assessment Tool, which is included as Appendix A, and the Organizational Culture Assessment Instrument as revealed in Appendix B. It also discusses recommendations for process improvement and methods for matching leadership skills with organizational culture.

Chapter V summarizes the research conducted in this study, answers the primary and secondary research questions, provides a statement of conclusion, and discusses recommended areas for further research.

F. METHODOLOGY

This study assesses the process capabilities and competencies of Naval Air Systems Command (NAVAIR) using a cross-sectional survey covering key contracting processes and procedures at a specific point in time (Garrett & Rendon, 2005). A standardized 60-question survey entitled the Contract Management Maturity Assessment Tool (CMMAT) was used to assess contract management process maturity. The study does not use descriptive statistics to explain process maturity. Rather, qualitative data gathered through a purposive survey is analyzed to assess the organization's contract management maturity level in order to identify process consistencies and strengths and to recommend areas for improvement.

Additionally, a six-section OCAI survey derived from the CVF was used to identify culture type and strength at the Contracting Directorate. This portion of the study provides both an assessment of the culture at the individual departmental level and a holistic view of organizational culture at the NAVAIR Contracting Directorate. The results are analyzed for opportunities of leadership development and organizational improvement.

G. SUMMARY

This chapter discusses background information on the current contracting environment, purpose of the study, research questions, scope and organization, and research methodology. The next chapter provides a summary of the challenges facing the DoD acquisition workforce and provides a historical perspective on the origins, variations, and uses of maturity models. Additionally, it discusses the importance of organizational culture and culture change and provides a detailed description of the CMMM, CVF, and the OCAI Survey.

II. LITERATURE REVIEW

A. INTRODUCTION

This literature review is presented in seven sections. The first discusses how recent reforms have negatively impacted the federal acquisition workforce. The second section focuses on contract management process weaknesses. The third discusses the benefits derived through assessment. The fourth section reviews the origins and variations of maturity models and their role in process improvement. The fifth section provides a synopsis of the Contract Management Maturity Model (CMMM) and an example of its implementation. The sixth section is devoted to the importance of organization culture and how it relates to organizational change and cultural change. The final section describes the Competing Values Framework (CVF) as a tool to measure organizational culture.

B. FEDERAL ACQUISITION WORKFORCE

The Department of Defense is the largest buyer in the world (Humily, Taylor & Roller, 1999). It spent over \$450 billion in fiscal year 2005 buying items that ranged from complex weapon systems, such as the Joint Strike Fighter, to rubber stamps and pencils (Bush, 2006). Despite efforts to streamline and improve federal acquisition processes, failures of federal contract management have become the focus of congressional debate, GAO reports, and public scrutiny. Inefficient and ineffective contracting processes undermine the public's confidence and wastes taxpayers' dollars. This includes cost overruns, schedule delays, late deliveries, quality and performance issues, and unethical behavior by top-ranking civilian and military members of the acquisition workforce. The growing social security and health care budgets have squeezed discretionary spending and the defense budget, further limiting the amount of acceptable error for defense acquisitions.

A quality workforce is essential if Americans are to have an efficient and responsive federal government (GAO, 1994). Technological advances and electronic enhancements have sped up the acquisition timeline, forcing contracting processes to be

better, faster, cheaper, and more responsive. The federal government has also increased the size and complexity of its contracting requirements while reducing the size of the acquisition workforce. In the absence of available acquisition workforce members, organizations must rely on efficient and effective contract management processes to compensate for labor and knowledge gaps. As the government increasingly outsources requirements, the need for contracting organizations to refine and improve contracting processes becomes more crucial.

The acquisition workforce's workload and complexity of responsibilities has increased while the size, skills and knowledge of the workforce has decreased (Figure 1). This incongruent combination has led to inefficiency, mismanagement, and susceptibility to fraud, waste, and abuse. The GAO added contract management to its High-Risk List in 1992 after identifying contract management as a high-risk and vulnerable area for the DoD and other federal agencies (GAO, 2007).

The importance of the federal acquisition workforce was realized in the early 1990s with the implementation of the *Defense Acquisition Workforce Improvement Act* (10 U.S.C. 1701). This act stemmed from criticisms of the weapon system acquisition process. It sought to improve the acquisition process and to more effectively manage DoD resources by professionalizing DoD's acquisition workforce. Specifically, the act called for formalized training, education, and qualification requirements for acquisition workforce members (GAO, 1992).

The GAO first addressed the problems facing the acquisition workforce in a November 1995 report to the House of Representatives Chairman, Committee on the Budget. The report identified a disparity between the total obligation authority of the DoD and the decreasing size of the acquisition workforce. The report concluded that a commensurate increase in workforce would provide opportunities to improve efficiencies in contracting and budgeting (GAO, 1995). However, workforce reductions continued, as the fiscal year 1996 *Defense Authorization Act* required the DoD to plan for a 25% reduction and restructure of its acquisition workforce by the year 2000 in order to reduce redundancies, maximize opportunities to consolidate, and streamline the acquisition process (GAO, 1997). Workforce reductions and its interconnection to the need for better

acquisition outcomes continued to be examined throughout the 1990s until the present. The GAO has issued numerous reports addressing acquisition workforce issues that must be corrected in order to produce better outcomes, including the “looming human capital crisis” (GAO, 2000; GAO, 2002; GAO 2007a), the impending knowledge gap (GAO, 2000), the imbalance of skills and experience in the acquisition workforce (GAO, 2000; GAO, 2002; GAO, 2007a), the transformation of federal acquisition training and recruiting programs (GAO, 2002; GAO, 2007a), inefficient contractor oversight (GAO, 2007a), and the use of employee incentive programs to attract and retain new recruits (GAO, 2002). Each GAO report outlines actions required to reshape the acquisition workforce (GAO, 2002). Driven by the challenges of facing the acquisition workforce, strategic human capital management was placed on the GAO High-Risk List in 2001 (GAO, 2007b).

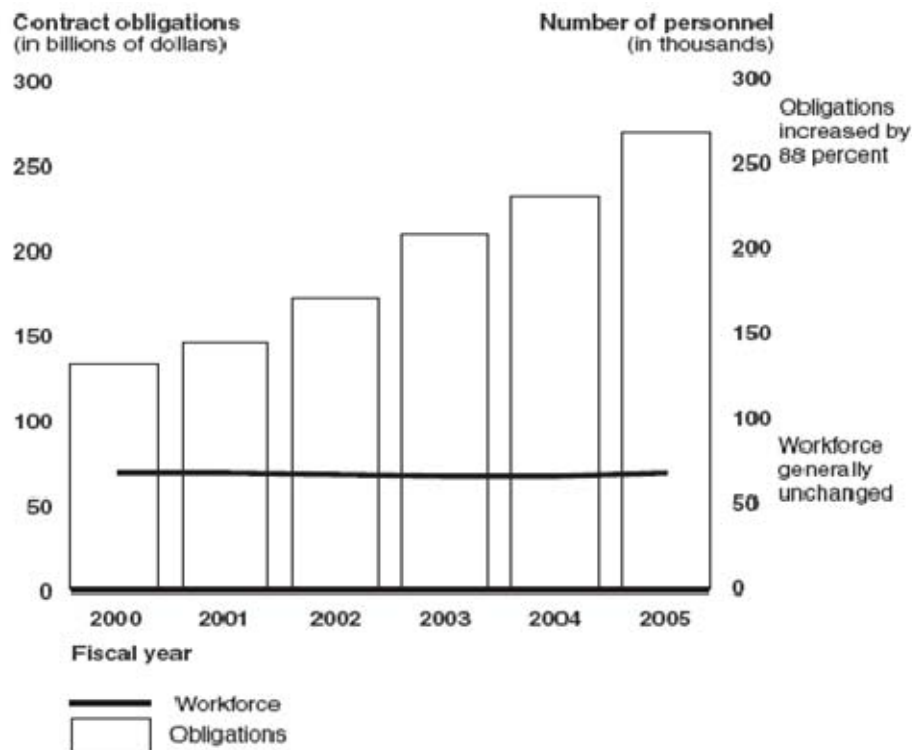


Figure 1. DoD Contract Obligations and Acquisition Workforce Size (TY\$)
(From: GAO, 2006)

C. CONTRACT MANAGEMENT PROCESS WEAKNESSES

The federal acquisition and contracting environment has changed over the last several decades in at least three significant areas. First, the contracting environment has become increasingly complex. Contract requirements are larger, involve more people, cross multiple service boundaries, and must meet continuously compressed schedules, costs, and demands of the warfighter. Second, the approach to performing contract management has changed, primarily due to technological innovation and automation of the process. The Internet has placed demands on the acquisition community to compress the acquisition cycle to provide a faster, better, and cheaper product or service. Third, the government, and particularly the Department of Defense, has implemented multiple efficiency initiatives to achieve lean, cost effective programs and processes. This has reduced the time to contract award and placed additional pressures on acquisition professionals and contracting officers.

The GAO identified contract management process weaknesses across a broad spectrum of contractual business arrangements (GAO, 2007b). For example, the GAO found that the DoD frequently initiated work on Iraq reconstruction efforts before requirements were defined or understood, resulting in increased costs, schedule delays, and reduced scopes of work (GAO, 2007b). Additionally, when requirements were not clear, the DoD often entered into arrangements that allowed contractors to begin work, but imposed additional risks on the DoD. For example, DoD contracting officials were less likely to remove costs questioned by auditors from a contractor's proposal when the contractor had already incurred the costs (GAO, 2007b).

In response to contract management difficulties plaguing federal agencies, Rep. Henry Waxman of California introduced the *Accountability in Contracting Act* (H.R. 1362) in March 2007. His bill called for changes in federal acquisition law requiring agencies to limit the use of abuse-prone contracts, increase transparency and accountability in federal contracting, and protect the integrity of the acquisition workforce. Additionally, the bill called on the Office of Federal Procurement Policy to study the size and skill of the federal acquisition workforce and to extend the Acquisition Training Fund.

A proficient contracting department is essential if an organization is to exercise the required amount of control and active management of the contracting process. Contracting process capability is a key factor for organizational success. This is an area in which frequent breakdowns negatively impact the overall contract management process. According to the GAO, the DoD should strengthen its contracting management structure for services and business processes to promote use of best practices, such as centralizing key functions, conducting analyses of expenditures, using commodity teams, achieving strategic orientation, reducing purchasing costs, and improving performance (GAO, 2006).

D. BENEFITS DERIVED THROUGH ASSESSMENT

Successful organizations must continuously seek process improvement to gain a competitive advantage. They must seek to learn what causes events to happen in a process and use this knowledge to reduce variation, remove activities that contribute no value to the product or service produced, and improve overall organizational value (Bauer, Duffy & Westcott, 2002, p. 67). Standardized process improvement methodologies provide organizations insight into how well they perform critical process functions. Wysocki (2004) developed the Process Improvement Lifecycle Model that provides a guide for organizational process improvement (Figure 2). It requires the organization to evaluate where it is, where it wants to go, how it plans on getting there, and ultimately, how well it did to get there (Wysocki, 2004). The model establishes a baseline for comparison, develops the goal of the specific process improvement, defines a path to the end result, and provides a comparison of results against the goal. The process improvement lifecycle is endless and will continuously repeat itself (Wysocki, 2004) while increasing process capability, efficiency and effectiveness.

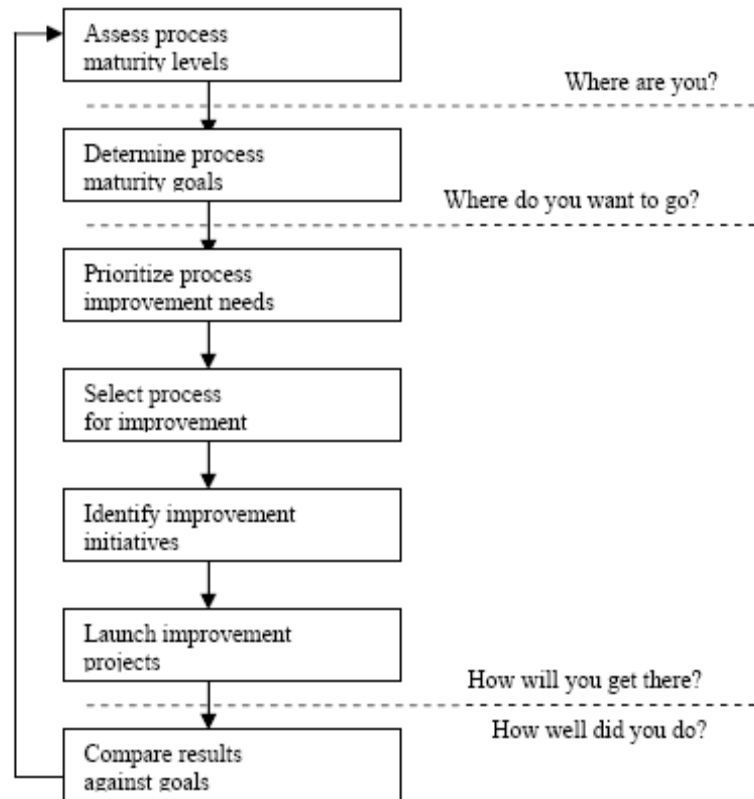


Figure 2. Process Improvement Lifecycle Model (From: Wysocki, 2004)

The GAO advocates the use of best practices as a way to improve the federal acquisition process by adopting more strategic, results-oriented, and ethical business processes and capabilities (GAO, 2006). The federal government has had success using the private sector’s approach to contracting and best practices. Generally, the results of process maturity assessments allow organizations to identify best practices and use them to improve overall process capability.

The Contract Management Maturity Model (CMMM) assessment results indicate the maturity level for each key process area and provide a blueprint for required training and education to improve process capabilities (Garrett & Rendon, 2005). Additionally, the assessment results provide information that can guide the transfer of best practices from highly mature program offices to those with lower maturity levels. The end-goal is to improve the overall contract management processes of the whole organization to achieve efficient and effective contracting results.

The OCAI assessment results provide three measurable qualities of organizational culture: 1) culture type, 2) culture strength, and 3) culture congruence. These three characteristics have been correlated to the successful implementation of process change within organizations (Kotter & Heskett, 1992; Cameron & Quinn, 2006).

E. ORIGINS AND VARIATIONS OF MATURITY MODELS

Process improvement is a well-understood and generally accepted means of achieving quality and productivity gains in industries such as software development, engineering and program management (Ahern, Clouse & Turner, 2001). Capability maturity models offer organizations a place to start the improvement process, help in identifying process weaknesses, and provide the opportunity for process improvement. They are designed to assess an organization's processes and apply a technical approach to process improvement to help mature management processes.

Model-based process improvement involves the use of a model to help guide the improvement of an organization's processes (Ahern et al., 2001). Process improvement is aimed at increasing the process capability, or the ability of a process to produce planned results, of an organization's work processes. As process capability improves, the predictability and consistent measurability of the process improves, resulting in an increase in productivity and quality (Ahern et al., 2001). This process capability improvement is referred to as process "maturity." Models provide a common set of key process requirements and practice areas to guide priorities. They also establish a baseline for process improvement and a measurable position from which to assess progress. The goal is for an organization to achieve mature processes that are agile and consistently produce high-quality products.

Numerous capability maturity models have been developed over the last several decades, including the Systems Engineering Capability Maturity Model (SE-CMM), Project Management Maturity Model (PMMM), Software Engineering Institutes Capability Maturity Model Integration (SEI-CMMI), and Earned Value Management Maturity Model (EVM³). All of these models are the offspring of the original CMM (also known as the Software Capability Maturity Model or SW-CMM) developed in the mid-

80s by the Software Engineering Institute (SEI) at Carnegie Mellon (Ahern et al., 2001). The fully developed CMM model, released in 1993, was designed to assist organizations in improving their software processes. It has been adopted by numerous software development organizations worldwide. CMM was retired and replaced by SEI-CMMI in August 2000 (Ahern et al., 2001).

SEI-CMMI provides guidance for efficient and effective process improvement across multiple process disciplines in an organization (Ahern et al., 2001). It can be applied at varying levels throughout the organization or at the overall enterprise level. As stated by the SEI team, CMMI integrates traditionally separate organizational functions, sets process improvement goals and priorities, provides guidance for quality processes, and provides a point of reference for appraising current processes (SEI, 2007). The CMMI, along with its CMM predecessor, are the epitome of staged models. Both models consist of five hierarchical levels of maturity ranging from the lowest level, “initial,” to the highest level, “optimizing.” Key process areas are measured within each stage to identify the maturity level of each key process. The CMMI has four categories (including process management, project management, engineering, and support) containing a total of 24 process areas (Ahern et al., 2001). Additionally, each process area contains key practice activities that are critical to process success. CMMI enables organizations to link all activities to their business objectives, implement robust and highly mature practices, and address process functions critical to their success (SEI, 2007). The CMMI model has been adopted by numerous civilian organizations and government agencies worldwide (SEI, 2007).

The Systems Engineering Capability Maturity Model (SE-CMM) was also developed by Carnegie Mellon’s SEI team for organizations performing significant systems engineering activities. It describes the essential elements of an organization’s system engineering process that must exist to ensure satisfactory systems engineering outcomes and provides a reference of comparison with actual system engineering practices. The SE-CMM contains six levels of maturity for 18 key process areas beginning with “not performed” and ending with “continuously improving” (Ahern et al., 2001).

There are several variants of program management- and project management-specific maturity models developed independently by groups in the U.S., Canada, and the United Kingdom. The most notable is the Project Management Maturity Model (PMMM) developed by Dr. Harold Kerzner. Kerzner, a professor of Systems Management at Baldwin-Wallace College in Ohio and the president of a project management consulting firm, developed an evaluation tool for helping assess the progress of integrating project management throughout an organization (Kerzner, 2001). The PMMM consists of five maturity levels, ranging from the lowest level called “common language” to the highest level called “continuous improvement” (Kerzner, 2001). This tool, much like the other models, can be customized to suit individual organizations.

The variant of the project management-based maturity model created by PM Solutions uses a more conventional scale to depict program management maturity levels. PM Solutions created a model that is patterned after the SEI CMM and references the Project Manager Institute’s *A Guide to the Project Management Body of Knowledge (PMBOK)*. It has five levels of maturity representing discrete organizational capabilities and examines nine project management knowledge areas identified in the *PMBOK* (Crawford, 2006). The least mature level is “initial process” and continues to the final stage called “optimizing process.” This model also identifies three special interest areas key to the adoption of project management practices (Crawford, 2006). First, the project office directs an organization’s training, PM policy and planning efforts. It is the focal point of consistent processes and is critical to the organization’s focus on a common vision. The second special interest area is management oversight. Management’s interest in a project is critical to performance and ultimate success. Lastly, professional development—or the development of the technical and leadership skills of project managers—is critical if PMs are to maintain proficiency in a changing profession (Crawford, 2006).

The Earned Value Management Maturity Model (EVM³) developed by Ray Stratton (2006) provides the necessary tools to assess the strength of an EVM program and to make it more efficient to achieve program success. It provides the framework to separate questionable earned value implementations from robust and continuously

improving implementations. This model is similar to other staged models, as it provides five levels of maturity beginning with “initial” and ending with “optimizing implementation” (Stratton, 2006).

A common characteristic of all maturity models are their use of staged maturity levels. Each maturity level has a set of process areas that indicate where an organization should focus its efforts to engage in continuous process improvement. Each process area is described in terms of key practice activities that contribute to satisfying the process goal. As illustrated in Figure 3, the maturity levels, their process areas and practice activities represent the recommended path for process improvement and increased organizational capability.



Figure 3. General Structure of Capability Maturity Models
(From: Curtis, Hefley & Miller, 2001)

An organization achieves a maturity level when it has successfully implemented all applicable process areas at and below that level (SEI, 2007). The maturity levels of capability maturity models typically progress as illustrated in Figure 4 and with the following common characteristics:

- Level 1: No consistent or repeatable processes
- Level 2: Some process capabilities but not consistently applied
- Level 3: Defined and integrated processes that are consistently applied
- Level 4: Mature processes applied on all projects with function being recognized as a formal management discipline
- Level 5: Fully mature organization with processes consistently applied throughout the organization as part of the overall management process (Mullaly, 2006).

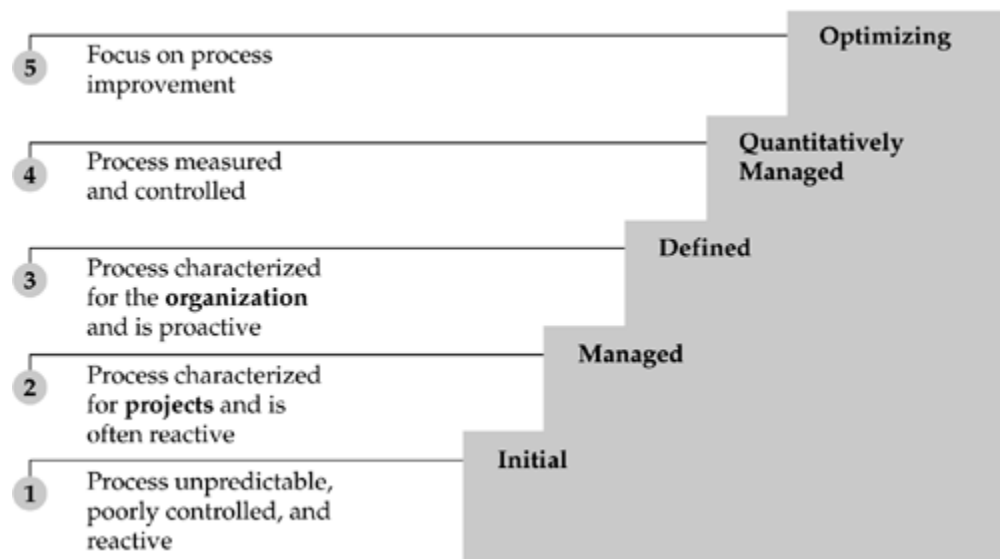


Figure 4. Staged Levels of Process Maturity (From: Ahern et al., 2001)

Another common feature of maturity models is that they all provide a foundation for continual process capability improvement. Assessments using maturity models indicate process strengths and best practices that can be applied to other departments or program offices within an organization (Garrett & Rendon, 2005). Maturity assessment methods establish a baseline of process maturity, identify improvement targets, and continuously assess improvement progress (SEI, 2007). Lastly, all capability maturity models can be adjusted to the needs of the organization. Models may be used to assess different sized departments within an organization and can be applied to a division just as easily as to the entire organization.

F. CONTRACT MANAGEMENT MATURITY MODEL (CMMM) BACKGROUND INFORMATION

The Contract Management Maturity Model (CMMM) developed by Rendon adopts the framework and technique originally established in the SEI CMM and applies it to contract management processes (Rendon, 2003). The purpose of the CMMM is to provide a systematic approach for an organization to assess and improve the capability maturity levels of its contract management processes (Garrett & Rendon, 2005). This research uses the CMMM and Contract Management Maturity Assessment Tool (CMMAT) to evaluate the maturity of contract management processes at Naval Air Systems Command (NAVAIR). The model may be applied to both buyer and seller processes, but due to the mission and function of NAVAIR, this study uses only the CMMAT Buyer's Questionnaire (Appendix A).

The framework of the CMMM is similar to previously discussed capability maturity models. It consists of a staged maturity-level framework with descriptions of continuous process improvement required to move to the next maturity level. A level of maturity is assessed for each of six key process areas involved with contracting for supplies or services. Garrett & Rendon (2005) describe the six key process areas as follows:

- 1. Procurement Planning:** The process of identifying which business 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, and when to procure.
- 2. Solicitation Planning:** The process of preparing the documents needed to support the solicitation. This process involves documenting program requirements and identifying potential sources.
- 3. Solicitation:** The process of obtaining information (bids and proposals) from prospective sellers on how project needs can be met.
- 4. Source Selection:** The process of receiving bids or proposals and applying evaluation criteria to select a provider.

- 5. Contract Administration:** The process of ensuring that each party's performance meets contractual requirements.
- 6. 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.

The maturity levels used to rank the key process areas of the CMMM range from the lowest level called “ad hoc” to the highest level of maturity called “optimized” (Figure 5). The six key process areas are supported by key practice activities within each process. The practice activities represent the best practices and tools that leading organizations use in their contract management process (Garrett & Rendon, 2005). These key practice activities form the basis of each ranked statement in the CMMAT survey. The maturity levels and their process areas represent the recommended path for process improvement. The goal is for an organization to achieve the highest levels of maturity in all six contracting process areas. Incongruence in one process area can affect the process capability of other areas, ultimately leading to overall inefficient and ineffective contracting functions.

Level 1—Ad-Hoc

- The organization acknowledges that contract management processes exist, that these processes are accepted and practiced throughout various industries, and the organization's management understands the benefit and value of using contract management processes.
- Although there are not any organization-wide, established, basic contract management processes, some established contract management processes exist and are used within the organization, but applied only on an ad-hoc and sporadic basis to various contracts.
- Informal documentation of contract management processes may exist within the organization, but are used only on an ad-hoc and sporadic basis on various contracts.
- Organizational managers and contract management personnel are not held accountable for adhering to, or complying with, any contract management process or standards.

Level—2 Basic

- Some basic contract management processes and standards have been established within the organization, but 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.
- The organization does not consider these contract management processes or standards established or institutionalized throughout the entire organization.
- There is no organizational policy requiring the consistent use of these contract management processes and standards other than on the required contracts.

Level—3 Structured

- Contract management processes and standards 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.
- Since these contract management processes are mandated, the organization allows the tailoring of processes and documents, allowing 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).
- Senior 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

- The procurement project's end-user customer is an integral member of the procurement team.
- Basic contract management processes are integrated with other organizational core processes, such as cost control, schedule management, performance management, and systems engineering.
- Management uses efficiency and effectiveness metrics to make procurement-related decisions.
- Management understands its role in the procurement management process and executes the process well.

Level—5 Optimized

- Contract management processes are evaluated periodically using efficiency and effectiveness metrics.
- Continuous process improvement efforts are implemented to improve the contract management process.
- Lessons learned and best practice programs are implemented to improve the contract management processes, standards, and documentation.
- Procurement process streamlining initiatives are implemented as part of the process improvement program.

Figure 5. Narrative of CMMM Levels of Maturity (After: Garrett & Rendon, 2005)

The CMMAT consists of separate surveys for both buyers and sellers. Each survey contains 60 standard and specifically developed questions pertaining to each key process area. There are a total of 10 questions per process area, each of which addresses a process's key practice activity. The CMMAT employs a 5-point Likert scale to score the participant's responses. The participant's possible responses and associated scores include: "Don't Know" (0), "Never" (1), "Seldom" (2), "Sometimes" (3), "Usually" (4), and "Always" (5). The responses are summed for each processes area and divided by the total number of survey participants to determine the average score. The average is compared against a conversion table (Table 1) to determine the maturity level the organization or program management office has achieved for each process area.

Table 1. Maturity Score Conversion Table (After: Garrett & Rendon, 2005)

1. Procurement Planning 0—20 Ad hoc 21—30 Basic 31—40 Structured 41—45 Integrated 46—50 Optimized	4. Source Selection 0—20 Ad hoc 21—30 Basic 31—40 Structured 41—45 Integrated 46—50 Optimized
2. Solicitation Planning 0—20 Ad hoc 21—30 Basic 31—40 Structured 41—45 Integrated 46—50 Optimized	5. Contract Administration 0—20 Ad hoc 21—30 Basic 31—40 Structured 41—45 Integrated 46—50 Optimized
3. Solicitation 0—20 Ad hoc 21—30 Basic 31—40 Structured 41—45 Integrated 46—50 Optimized	6. Contract Closeout 0—20 Ad hoc 21—30 Basic 31—40 Structured 41—45 Integrated 46—50 Optimized

If multiple program management offices are evaluated, the process capability of the entire organization or enterprise will be that of the lowest maturity level achieved for each process area. The organization cannot perform beyond the weakest maturity level of one of its program offices.

The CMMAT uses a cross-sectional survey based on a purposive sample (Patton, 2001) to collect data at one point in time (Garrett & Rendon, 2005). The results of the survey are not focused on quantitative statistical interpretation of the data. Instead, qualitative analyses of the participant's answers are conducted to explore and describe the organization's process capability. Thus, a large sample of participants is not required. Garrett and Rendon (2005) recommend that study participants be warranted contracting officers who have achieved at least a *Defense Acquisition Workforce Improvement Act (DAWIA)* Level II Contracting certificate. Both their appointment as warranted contracting officers and *DAWIA* certification confirms that participants have a demonstrated level of education, experience, and competence in contract management. These criteria are critical in a small, purposive survey because they minimize bias and data outliers and optimize the small amount of collected data.

The model has been introduced to a variety of commercial organizations including Boeing, Goodyear, Raytheon, and General Dynamics, but only Goodyear has confirmed its application to commercial contract management processes. Independent studies using the CMMM have been conducted at federal agencies including the Air Force Space and Missile Systems Center (SMC) (Garrett & Rendon, 2005), Naval Facilities Engineering Command (NAVFAC) (Ludwig & Moore, 2006), Air Force Material Command's (AFMC) Air Logistics Center (ALC) at Tinker AFB, OK (Nordin & Burton, 2007), and Air Force Material Command's (AFMC) Ogden Air Logistics Center (OO-ALC) at Hill AFB, UT (Sheehan, Moats & VanAssche, 2007). The model is most aptly suited for organizations with large contracting departments that are broken into multiple contracting divisions or program management offices. Application of the CMMM to multiple program management offices provides a baseline maturity of contract management processes throughout the organization. The results provide managers insight into which contracting process areas require improvement in each

particular program management office. The model also fosters the transfer of best practices from high maturity level programs to programs with lower process maturity (Garrett & Rendon, 2005).

In 2003, the model was applied at the SMC as the initial case study for Rendon's research (Rendon, 2003). The SMC, located in Los Angeles, CA, was chosen as the case study because it is a large contracting command with multiple program management offices, each having independent contracting departments. The contracting process capabilities of seven program offices were assessed to obtain a baseline level of maturity for each program's contract management processes. The programs included Space-based Radar (SBR), Space Tracking and Surveillance Systems (STSS), Space-based Infrared Systems (SBIRS), Evolved Expandable Launch Vehicle (EELV), NAVSTAR Global Positioning System (GPS), Launch Program (LP), and Defense Support Program (DSP). Figure 6 illustrates the results of the SMC assessment.

CONTRACT MANAGEMENT MATURITY MODEL						
MATURITY LEVELS	CONTRACT MANAGEMENT PROCESS AREAS					
	Procurement Planning	Solicitation Planning	Solicitation	Source Selection	Contract Admin.	Contract Closeout
5 OPTIMIZED				GPS	GPS LP	DSP
4 INTEGRATED	SBR DSP EELV GPS	SBR GPS STSS LP STSS DSP EELV DSP	STSS GPS DSP LP	SBR EELV STSS LP SBIRS DSP	EELV STSS DSP SBIRS	
3 STRUCTURED	STSS LP SBIRS	SBIRS	SBI EELV SBIRS		SBR	EELV LP STSS
2 BASIC						SBIRS
1 ADHOC						SBR GPS

Figure 6. CMMM Assessment from SMC Case Study (From: Garrett & Rendon, 2005)

The assessment concluded that the majority of process areas for each program office at the SMC were at the “structured” and “integrated” maturity levels. However, the most notable exception was in Contract Closeout, which had the largest variance among program offices. Three program offices were at or below the “basic” level, while one program had achieved an “optimized” maturity level. The SMC can use the results of the assessment to improve its overall contracting process capability, as the analysis provides a “roadmap” of improvement (Garrett & Rendon, 2005). It will help implement improvements in all key process areas to progress to the next maturity level. For example, the SMC can leverage the best practices of DSP regarding contract closeout and share them with other program offices such as SBR, GPS, and SBIRS, who scored lower in this process area.

G. IMPORTANCE OF ORGANIZATIONAL CULTURE

The cultural dimension is central to all aspects of organizational life (Alvesson, 2002). Recent studies have shown a positive correlation between a strong organizational culture and organizational performance. Yet, even when executives and managers have an awareness of its importance, there is rarely a deep understanding of how culture is shaped and how people's actions are a function of culture (Alvesson, 2002).

A strong organizational culture can be a primary generator of real motivation and commitment. In a strong and cohesive culture, the organization's core values are both intensely held and widely shared (Robbins, 1996, p. 685). This high intensity of common beliefs makes it easier to draw consensus among employees, to build a focus on important goals and objectives, to reduce potential conflicts, to cultivate a learning environment, and to lower staff turnover (Robbins, 1996, p. 686). Employees no longer need to be compelled to work hard but do so willingly. They identify themselves with their organization, just as they do with their families and communities.

The study of organizational culture has intensified over the last several decades. Most of the work has been focused on methods of defining organizational culture and measuring the interaction of cultures and results (Schein, 1999; Calori & Sarnin, 1991; Kotter & Heskett, 1992; Nystrom, 1993; Cameron & Quinn, 2006). Organizational culture is an extremely broad subject with a variety of definitions and theories. Edgar Schein, a renowned and respected expert on the subject, defined organizational culture as "a pattern of basic assumptions—invented, discovered, or developed by a given group as it learns to cope with its problems of external adaptation and internal integration—that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems" (Schein, 2004, p. 17). In short, it is the fundamental set of values, beliefs, and norms that guide the behavior an organization's members (Kotter, 1996).

For Schein, top management members are the most influential members in the creation and transmission of culture (Schein, 1988). Schein's research indicates that culture is initially formed primarily by leaders until it is codified. Once culture is codified, it remains unchanged (Schein, 1999). He also developed a well-established

framework describing the dimensions of organizational culture (Schein, 1999). Schein's research on organizational culture reveals that cultures exist on three levels (in decreasing order of visibility)—basic assumptions, values, and artifacts (Figure 7). These three items form the core of an organization's culture.

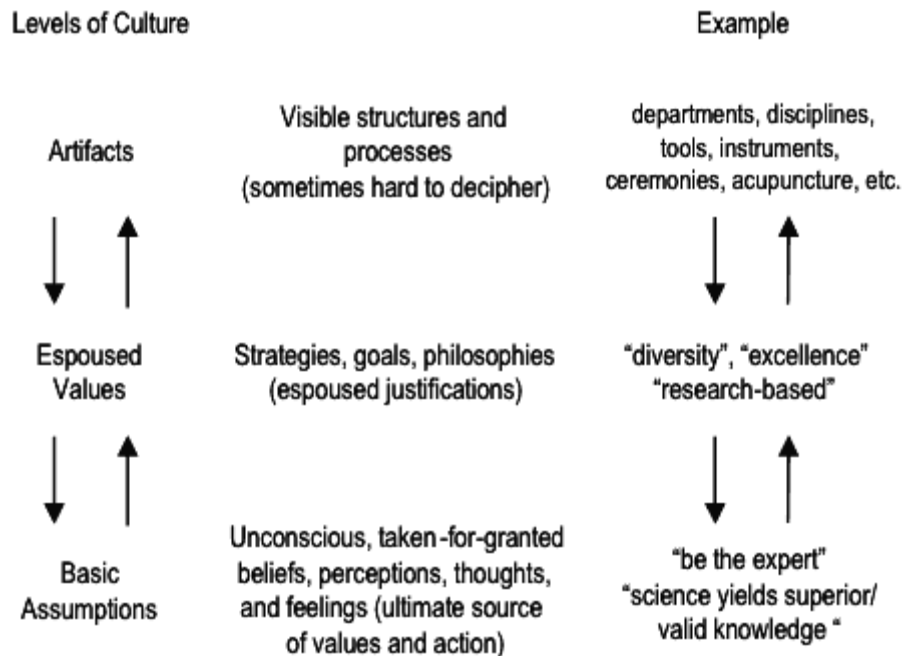


Figure 7. Schein's Three-level Model (From: Schein, 2004)

Basic assumptions are the unconscious assumptions that members of an organization have regarding their culture. There are statements of belief, unconscious perceptions, and thoughts and feelings that are taken for granted as being organizationally acceptable (Schein, 1999). Basic assumptions tend to be "invisible," and hence, extremely difficult to change and relearn (Schein, 1999). The next level is the organization's espoused values and norms. These usually exist in written form. The last level, called "artifacts," consists of what members of an organization see, feel, and hear. These have to do with visible structures, processes, and social organizations that range from office technology to employee dress (Schein, 1999).

The existence of a strong, appropriate organizational culture supports an organization's competitive strategy (Chin-Loy, 2003) by increasing the organization's

ability to perform effectively, to operate in dynamic environments, and to survive constant change. Additionally, the failures of process implementation and change are often blamed on the organization's culture. It is critically important for leaders to understand the interdependency of organizational performance, organizational change and organizational culture (Schein, 1999). There are a variety of other ways to conceptualize organizational culture change. This study uses the Competing Values Framework (CVF) because it is a validated model that is well suited to analyze the culture changes that may result from NAVAIR's implementation of process efficiency programs such as AIRSpeed.²

1. Organizational Change

Organizations face a dynamic environment in today's business world. Changes require swift adaptation to reduce cost, improve product or service quality, increase productivity and efficiency, maintain competitive advantages, and identify new business opportunities (Kotter, 1996). The forces for change can be economic shocks, global competition, social trends, world politics, technological innovation, or the nature of the workforce (Robbins, 1996). Change also faces several barriers, including ingrained habits, economic factors, fear of the unknown, security, and selective information processing (Robbins, 1996).

Kurt Lewin provided an introduction to change theory in the mid-1900s. Lewin developed the force field analysis to examine the driving and resisting forces of organizational change (Figure 8). The underlying principle of this model is that driving factors must outweigh resisting forces in any situation if change is to occur (Chin-Loy, 2004).

² AIRSpeed is a Naval aviation initiative to increase productivity and efficiency through the application of several continuous process improvement (CPI) methodologies. The three primary methodologies are Lean, Six Sigma, and Theory of Constraints. The goal is to harvest efficiencies resulting in faster delivery of products to the fleet at reduced costs.

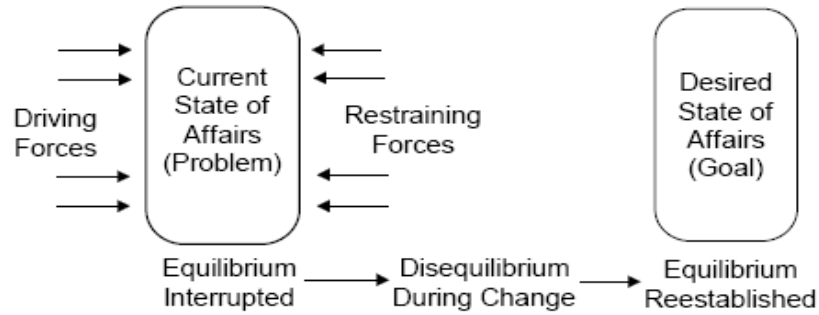


Figure 8. Lewin's Force Field Model (From: Lewin, 1951)

Lewin also developed a three-step model for implementing change. This model describes the cycle of actions an organization must take as it progresses through the change process. The first step requires “unfreezing” the organization’s current static state by identifying the driving and resisting forces and by defining the desired end-state. It thaws forces that maintain the status quo and attempts to instill the belief that change is needed (Chin-Loy, 2004). The second step “moves” the organization through the change process. The organization identifies, plans, and implements appropriate change strategies. In order for movement to occur, the driving forces must outweigh the restraining forces (Lewin, 1951). Finally, the third step “refreezes” the change at a desired and stable point. The change is stabilized so it becomes integrated into the status quo (Chin-Loy, 2004). Lewin’s three-step process is based on the premise that all organizations possess an inherent tendency to adjust themselves back to their original position after change has been implemented (Cameron & Green, 2004). To counteract this tendency, the organization must intentionally move forward and “refreeze” the organization at the intended and desired position.

Kotter’s (1996) eight steps to transforming an organization go beyond Lewin’s model of how change progresses by addressing the principles of making change happen. Kotter’s research examined the characteristics of 100 companies undergoing change and identified eight critical steps of successful change management (1996). Kotter’s eight steps include:

1. Create a sense of urgency.
2. Form a team of key stakeholders who support the initiative.

3. Form a vision.
4. Communicate the vision.
5. Identify barriers and remove obstacles.
6. Plan for and create short-term wins.
7. Consolidate improvements and produce more change.
8. Anchor the changes in organizational culture.

Kotter's model relies heavily on management's involvement, a solid leadership foundation, and organizational communication (Kotter, 1996).

Nadler and Tushman's (1980) congruence model takes a different approach to analyzing the factors affecting the organizational change process. It differs from Lewin's and Kotter's models in that it uses an open systems approach that infers dependence on the environment in which the organization exists (Falleta, 2005). The model's major premise is that for organizations to be effective, their subparts or components must be consistently structured and managed; they must approach a state of congruence (Nadler & Tushman, 1980). Their open systems model (Figure 9) specifies critical inputs, major outputs, and the transformation processes that characterize organizational functioning and emphasizes the interdependence of these organizational components (Nadler & Tushman, 1980). This interdependence is the critical aspect on which organizational change relies. Different elements of the total system must be aligned to achieve effective performance as a whole system (Cameron & Green, 2004).

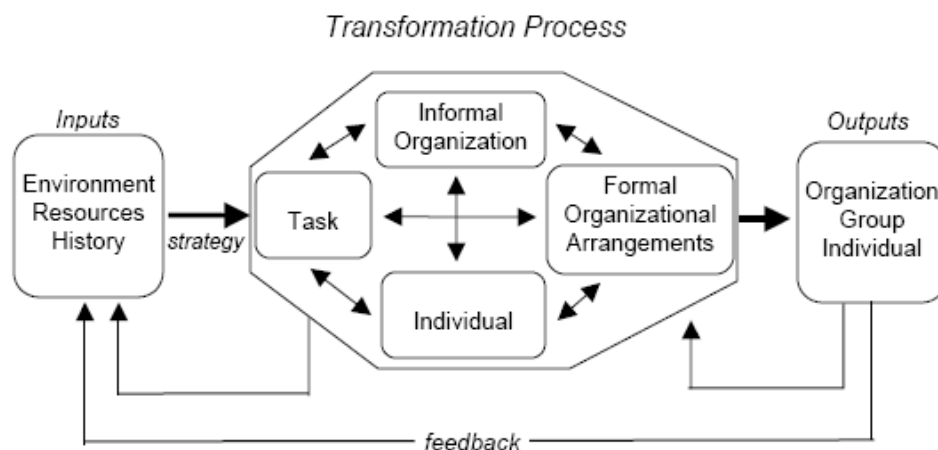


Figure 9. Congruence Model (From: Nadler & Tushman, 1980)

Although Lewin's and Kotter's models are simple and pragmatic, they provide insight into the factors affecting organizational change. Nadler and Tushman's congruence model is a bit more comprehensive; specifying inputs, throughputs, and outputs. Specifically, it identifies the interdependencies of organizational components (tasks, informal organization, individuals, and formal organizational arrangements) and their effect on the transformation process. Each model presents two clear characteristics of organizational culture change: 1) that culture change is an ongoing process and 2) that it is very difficult to identify when a successful culture change is completed. Organizations should only involve themselves in culture change if the current culture does not adequately support the current strategic objectives (Cameron & Green, 2004). People need to be convinced by a compelling vision rather than be compelled in a coercive way (Cameron & Green, 2004). The more people are drawn toward the vision, the better.

2. Culture Change

An organization's culture can affect how it reacts to change. Culture can either encourage quick and decisive change when conditions demand, or it can act as an impediment slowing the organization's change momentum (Clampitt, 2001). The organizational culture change process is difficult to implement and slow to react because culture is rooted in the collective history of an organization and so much of it is below the surface of awareness (SOI, 2005). A strong organizational culture can be detrimental to the change process since it creates resistance to other ways of completing tasks or processes (Clampitt, 2001). Resistance to change at one level of an organization has implications on all other levels. This provides for inefficient processes and potential failure.

A primary focus of Schein's research was to help organizations effectively and efficiently manage culture change to keep up with the dynamic business environment (Schein, 1988). Schein (1999) describes six ways in which culture evolves:

1. A general evolution naturally adapting to environment

2. A specific evolution of teams or subgroups within an organization adapting to their different environments
3. A guided evolution resulting from cultural “insights” on the part of leaders
4. A guided evolution through encouraging teams to learn from each other
5. A planned and managed culture change through steering committees and project-oriented tasks
6. A partial or total cultural destruction through new leadership that eliminated the carriers of the former culture (turnarounds, bankruptcies)

Schein amplifies the fact that cultural change must not be the sole objective. The objective must be and remain the business goal or process (Schein, 1999). Additionally, the former culture should not be viewed as bad but rather a resource from which an organization can draw strength and knowledge. It should act as the baseline with its strengths, not weaknesses, being used to act as the foundation for the new culture (Schein, 1999).

Kotter and Heskett (1992) believe that the adaptability of an organization’s culture is more important than the overall strength or weakness of the culture. They also reinforce Schein’s position that leadership is the single most important factor in determining the success of organizational culture change. The process of culture change is not very different from any other form of organizational change. Leaders must identify core values and beliefs, both conscious and unconscious, acknowledge and discuss differences between these core values and beliefs, decide upon those to which the organization wishes to commit, establish new norms that clearly demonstrate desired values, and continue to repeat these steps (Kotter & Heskett, 1992).

The three most common organizational initiatives implemented in the last two decades are quality management initiatives, downsizing initiatives, and re-engineering initiatives (Cameron & Quinn, 2006). Organizations that have implemented quality initiatives to increase efficiency and effectiveness have fallen short of their intended change (Cameron & Quinn, 2006). Cameron and Quinn cite empirical evidence suggesting that quality initiatives implemented independent of culture change are usually unsuccessful. Conversely, when the culture is an “explicit target of change” so the

initiative is “embedded in an overall culture change effort,” organizations are more prone to experience success (Cameron & Quinn, 2006, p. 11). This is due to short-circuiting an organization’s desire to return to its cultural status quo after the organizational improvement has been implemented (Chin-Loy, 2004). If culture is embedded in the procedure or strategy change, the organization is more likely to resist returning to its previous culture.

Cameron and Green (2004, p. 223) have identified several key themes of achieving successful cultural change from their research and experience. Broadly, their themes are similar to tenets proposed by other scholars such as Schein and Kotter, and they include items such as “always link to organizational vision, mission, and objectives,” “create a sense of urgency,” “continually reinforce the need to change,” “build on the old and step into the new,” and “create a community of focused and flexible leaders.” These themes are intended as guidelines to help foster culture change rather than to provide concrete steps for change based on theoretical foundations.

3. Leadership and Culture

Recent studies have shown a correlation between organizational culture and organizational performance. Researchers theorize that organizational performance can be enhanced by assessing and understanding organizational culture and leadership styles. Organization culture has the potential to improve performance of an organization when three elements work together. These elements are: (1) a strong culture, (2) alignment with the strategies of the firm, and (3) adaptiveness (Kotter & Heskett, 1992). Management leadership—especially top management—is probably the most critical element in a major organizational change effort (Clement, 1994, p. 35).

The leadership role cannot be delegated. The leader must be the change agent leading the organizational change. Therefore, a leader objectively determining organizational culture derives several benefits. First, a leader can improve or maintain high organizational productivity by understanding and assuring a strong organizational culture (Cannaday, 1997) through matching leadership styles. Second, a leader who understands the link between leadership and organizational culture will be better prepared to initiate major changes affecting the organization. He/she will be afforded a better

understanding of the cultural environment and foster lasting change rather than short-lived change that ultimately returns to the status quo. Finally, establishing a firm grasp on the organization's culture allows a leader to "roadmap" appropriate steps to successful accomplishment of organizational goals.

H. COMPETING VALUES FRAMEWORK BACKGROUND

The Competing Values Framework (CVF) was originally developed by Quinn and Rohrbaugh (1983) to measure and compare one culture to another as indicators of organizational effectiveness and future success (Cameron & Quinn, 2006). The CVF model, as developed in Cameron and Quinn's book, *Diagnosing and Changing Organizational Culture: Based on the Competing Values Framework*, uses the Organizational Culture Assessment Instrument (OCAI) to diagnose an organization's culture. They modified the OCAI to use only six of the standard 24 key dimensions assessed in the longer version. The six dimensions assessed in this study include: 1) dominant characteristics, 2) organizational leadership, 3) management of employees, 4) organization glue, 5) strategic emphases, and 6) criteria of success. These six dimensions were chosen because they had been found to be equally predictive of an organization's culture as the longer original version (Cameron & Quinn, 2006).

The assessment instrument consists of six key dimensions, each with four alternatives (Appendix B). There are no right or wrong answers (Cameron & Quinn, 2006); every organization's culture is different. The results provide a view of the fundamental assumptions on which a company operates. The participants divide 100 points between each of the four alternatives for each key dimension based upon the alternative's similarity to their organization. The higher the number of points assigned, the more similar the alternative is to the organization. The assessment instrument is divided into two columns entitled "now" and "preferred." The "now" column indicates the current state of the organization, while the "preferred" column is how the participants believe the organization should be in five years to be successful. The participants complete the assessment by first assigning points to all key dimensions in the "now" column. They then return to the beginning of the assessment and assign points to all key

dimensions in the “preferred” column. This produces two independent ratings of an organization’s culture—one identifies how the organization currently exists and one identifies how it should exist in five years (Cameron & Quinn, 2006).

The scoring of the OCAI is accomplished by averaging the sum of all the points allocated to the “A” alternative of each key dimension. This process is repeated for the responses in all four alternatives—respectively labeled “A,” “B,” “C,” and “D.” This is completed for both the “now” column and the “preferred” column. The scores for each alternative relate to a type of organizational culture. The final results are plotted on a radar-type graph for a visual depiction.

The CVF model illustrates the values of organizational cultures along two axes with each axis having polar opposite characteristics (Figure 10). The horizontal axis differentiates organizational effectiveness criteria that emphasize an internal versus an external orientation (Cameron & Quinn, 2006). The vertical axis differentiates the organizational effectiveness criteria that emphasize flexibility versus control. These two axes form four quadrants, each representing a different type of culture: Clan, Adhocracy, Market, and Hierarchy.

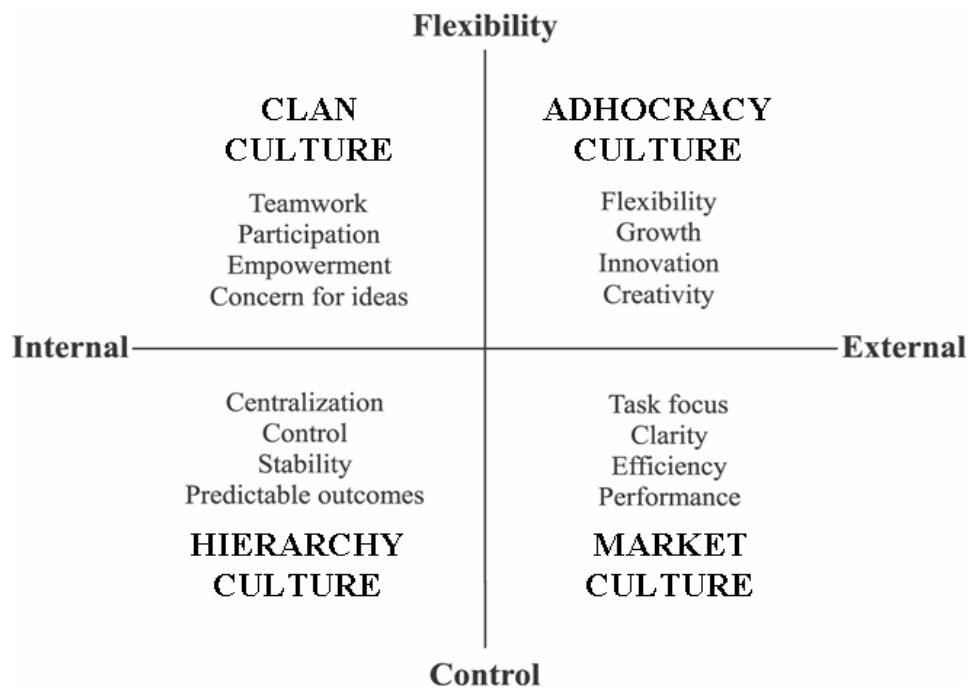


Figure 10. Competing Values Framework (From: Cameron & Quinn, 2006)

As the name of the model implies, each of the four cultures have competing values. The “Clan” culture describes an organization in which shared values and goals, cohesion, participation, and empowerment permeate. Teamwork, employee involvement programs, and organizational commitment are characteristics of this type of culture. Flexibility and internal maintenance are a Clan culture’s focus, with success defined in terms of internal climate and concern for people (Cameron & Quinn, 2006, p. 43).

The “Adhocracy” culture is situated in the external focus and flexibility quadrant. This culture values adaptability, creativity, flexibility, and individuality. According to Cameron and Quinn (2006), power and authority are not centralized in this type of culture, but instead transfers from each individual or each team. Leaders are considered risk-takers and innovators, with success being measured by the ability to innovate and produce new and unique products (Cameron & Quinn, 2006).

The “Market” culture is focused on external positioning and requires stability and control. In this culture competitiveness, goal achievement and productivity are core values. It focuses on transactions with external influences such as customers or contractors to achieve its primary objective of profitability or strength in market niche (Cameron & Quinn, 2006). The Market culture is characterized by a tough and demanding results-driven workplace in which success is measured by market share and penetration (Cameron & Quinn, 2006).

The “Hierarchical” culture quadrant is bounded by the internal focus and control axes. This type of culture values stability, predictability, formality, and efficiency. Formal rules, processes, and procedures hold this type of organization together and govern the work of its members. Success is measured by low cost, smooth operations, and reliability (Cameron & Quinn, 2006).

Cameron & Quinn (2006) state that the OCAI and CVF have been used “thousands” of times to assess organizational culture. A review of research in which the CVF was used to diagnose organizational culture indicates a positive relationship between organizational culture and effective organizational outcomes (Cameron &

Quinn, 2006). Research also indicates that a balance of competing characteristics is necessary for organizations to successfully achieve efficiency and effectiveness (Chin-Loy, 2004).

The CVF provides three different measurements regarding an organization's culture: culture type, culture strength, and culture congruence. Kotter and Heskett's (1992) research comparing high-performing companies with low-performing companies found that culture type, culture strength, and culture congruence are the distinguishing factors between the two. Research by Cameron and Ettington (1988) found that culture type is a stronger determinant of organizational effectiveness than culture strength and congruence. Additional research by Calori and Sarnin (1991) found that culture types characterized by trust, responsibility, quality, and consistency are more likely to produce organizational growth. Prior research sufficiently supports the importance of using the CVF to analyze the influence of an organization's culture on its future growth and success.

The second measurable quality of culture obtained from the CVF is culture strength. Using the OCAI, the higher the number of points awarded to a specific culture type, the stronger and more dominant it is. While not as strong a predictor as culture type, research has linked organizational effectiveness to cultural strength. In a study of 13 health care organizations, Paul Nystrom (1993) concluded that members of organizations with a strong culture are more committed to the organization and perform at higher levels.

The third measurable quality obtained from the results of the CVF is cultural congruence. This metric refers to the extent to which the culture type and strength in one component of an organization is similar to the type and strength in other organizational components (Cameron & Quinn, 2006). Nystrom (1993) found that more congruent cultures indicate consistent organizational strategies, which increase the probability of success.

I. SUMMARY

This chapter provided the benefits of using an assessment to evaluate an organization's process capabilities. It developed the history of and provided background information on various maturity models that preceded the CMMM. It also provided a description of the CMMM and CMMAT. Lastly, it described the importance of organizational culture and how culture relates to leadership and organizational performance. It also described the CVF and OCAI that are the culture assessment tools used to measure the type, strength, and congruence of NAVAIR's organizational culture. Chapter III provides information on the Navy acquisition organization, DoD contracting process, the choice of NAVAIR for the study, and survey participant selection.

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III. NAVAL AIR SYSTEMS COMMAND

A. INTRODUCTION

This chapter provides an overview of Department of Defense (DoD) and Department of the Navy (DON) acquisition organizations and contract management processes. It also provides background information on the Naval Air Systems Command (NAVAIR) organizational structure and contract management philosophies. Lastly, the chapter describes the methodology used to select questionnaire participants at the NAVAIR Contracting Directorate.

B. NAVY ACQUISITION ORGANIZATION

The mission of the U.S. Navy is to “maintain, train and equip combat-ready naval forces capable of winning wars, deterring aggression and maintaining freedom of the seas” (U.S. Navy, 2008). An essential part of this mission relies on the Navy’s ability to efficiently and effectively contract for services and material that directly or indirectly support naval forces. The acquisition of major weapon systems is integral to advancing the United States’ Naval warfighting capabilities. However, this advancement in warfighting capability is quite costly. The DON spends billions of dollars every year on procuring weapons systems. In fiscal year 2007, the Navy spent approximately \$69 billion to acquire needed goods and services (Bozin, 2006).

The Navy acquisition executive is the Assistant Secretary of the Navy for Research, Development and Acquisition (ASN(RDA)). The ASN(RDA) sets acquisition policy for the DON and manages the Navy’s acquisition system. As illustrated in Appendix C, the ASN(RDA) is supported by eleven deputies, six of whom are deputy assistant secretaries covering program areas such as ships, mine/undersea warfare, air, C4I/EW/Space, Theater Air Defense and Expeditionary Forces. The ASN(RDA) deputy assistant secretaries are supported by five functional directors—Acquisition and Business Management, International Programs, Acquisition Career Management, Acquisition Reform and Planning, and Programming and Resources, along with the Office of Naval Research. Twelve Program Executive Offices (PEO) with responsibility for major

defense programs in areas, such as undersea warfare and mine warfare, report directly to the ASN(RDA) and are typically located at the Naval Systems Commands (SYSCOM).

The Navy has eleven major contracting commands that support the ASN(RDA) acquisition organization, five of which are considered major systems commands or SYSCOM. These contracting commands are responsible for acquiring the goods and services required to support the Department of the Navy mission at sea, in the air, or on land. The five major Navy Systems Commands (SYSCOM) include Naval Air Systems Command (NAVAIR), Space and Naval Warfare Systems Command (SPAWAR), Naval Sea Systems Command (NAVSEA), Marine Corps Systems Command (MARCORSYSCOM), and Naval Supply Systems Command (NAVSUP). The SYSCOMs are materiel organizations responsible for the development, delivery, and sustainment of weapons systems and materiel under the purview of their area of cognizance. The missions of the five Navy SYSCOMs are described in Figure 11.

<u>SYSTEMS COMMAND</u>	<u>MISSION</u>	<u>PROGRAMS</u>
Naval Sea Systems Command (NAVSEA)	NAVSEA builds and supports America's Fleet of ships and combat systems. NAVSEA's team of professionals provides virtual support anywhere and anytime to ensure the Fleet remains ready and capable, operating around the globe.	• Ships • Shipboard Weapons Systems • Combat systems
Naval Air Systems Command (NAVAIR)	NAVAIR provides advanced warfare technology to the Navy, Marine Corps, and Allied warfighter through mastery of six broad categories of Naval Aviation technologies: Sensors, Aircraft, Weapons, Training, Launch & Recovery, and Communications.	• Airframes • Aircraft Engines • Aircraft electronic equipment • Air launched weapons • Unmanned air systems • Avionics • Training systems
Space and Naval Warfare Systems Command (SPAWAR)	SPAWAR's mission is to provide the warfighter with knowledge superiority by delivering systems of command, control, communications, computer, intelligence and surveillance. By providing effective information technology and space systems, SPAWAR helps the Navy and Defense Department communicate and share critical information.	• Space technology systems • C4I combat support • Communication systems • Intelligence, surveillance, and reconnaissance • Networks and information assurance
Marine Corps Systems Command (MARCORSYSCOM)	MARCORSYSCOM serves as the Commandant's principal agent for acquisition and sustainment of system and equipment used by the Operating Forces to accomplish their warfighting mission.	• Infantry weapons systems • Communications • Armor and fire support systems • Ground transportation • Combat equipment
Naval Supply Systems Command (NAVSUP)	NAVSUP provides for the material support needs of the Navy for supplies and supporting services by developing and promulgating Navy policies and methods for supplying, safeguarding, distributing and disposing of naval material.	• Spare parts • Industrial Equipment • Medical equipment • Resale items

Figure 11. Naval Systems Command's Missions and Descriptions (After: DON, 2008)

C. DOD CONTRACT MANAGEMENT PROCESS

The Department of Defense is the largest buyer in the world (Humily, Taylor & Roller, 1999). It spent over \$450 billion in fiscal year 2005 buying items that ranged from complex weapon systems, such as the Joint Strike Fighter, to rubber stamps and pencils (Bush, 2006). Defense spending is guided by the Defense Acquisition System (DAS),

whose primary objective is to acquire quality products that satisfy user needs with measurable improvements to mission capability and operational support, in a timely manner, and at a fair and reasonable price (DoD, 2003). The defense acquisition process is driven by user needs, accessible technology, and available funding. It is a large and complex process consisting of milestones, decision points, and phases that must be accomplished before proceeding to the next acquisition phase. Often described as being cumbersome and complex (NPR, 1993), a 2004 GAO assessment of major weapons systems stated that while the defense acquisition system produces superior weaponry, it does so inefficiently and could stand significant improvements with respect to the cost and time to deliver the systems to U.S. Armed Forces (GAO, 2004).

A representation of the acquisition process typically portrays defense acquisition as a 12-phase process (Lehner, 2001). While this simplistic depiction does not truly capture the complexity or bureaucratic nature of the process, the pragmatic model characterizes the lifecycle of an acquisition action beginning with user mission analysis and requirements determination and ending with the disposal of the acquired item at the end of its useful life.

The DoD contracting process is an intricate assemblage of actions. Many factors—including the complexity of requirements determinations, regulations, contract type, cost, and time constraints—dictate the number of steps involved. Similar to the overarching acquisition process that controls it, the objective of the contracting process is to deliver on a timely basis the best value product or service to the customer while maintaining the public's trust by conducting business with integrity and fairness and in compliance with statutory and regulatory requirements (*FAR* Part 1.102). The six steps (or phases) of DoD contract management as described in the CMMM are embedded in the 12 steps of the acquisition process. The typical DoD contracting process consists of the following steps or key process areas: procurement planning, solicitation planning, solicitation, source selection, contract administration, and contract closeout.

Procurement Planning: The objective of the procurement planning phase is to determine whether to procure, how to procure, what to procure, how much to procure, and when to procure (Garrett & Rendon, 2005). *FAR* Part 2.101(b)(2) defines acquisition

or procurement planning as, “the process by which the efforts of all personnel responsible for an acquisition are coordinated and integrated through a comprehensive plan for fulfilling the agency need in a timely manner and at a reasonable cost. It includes developing the overall strategy for managing the acquisition.” Procurement planning is a key phase in the contracting process because decisions are made that lay the foundation for the entire acquisition. It includes activities such as identifying needs and defining requirements, conducting market research, committing sufficient funds to acquire the deliverable, and developing key documents such as the acquisition or procurement plan, work breakdown structure (WBS), and statement of work (SOW). Perhaps, most importantly, it is during this phase that the key players in the procurement, including the Program Officer, Contracting Officer, and team members, begin developing a mutual understanding and cohesive professional partnership that is critical to program success.

Solicitation Planning: Solicitation planning is the process of documenting product requirements, identifying potential sources, and preparing the organization to solicit products from sellers. It involves preparing the documents needed to support the solicitation, documenting program requirements, and identifying potential sources (Garrett & Rendon, 2005). Solicitation planning relies on the output of the procurement planning phase, as the documents generated in the prior phase will be the foundation for the output in this phase. The objective of this phase is to develop and issue a solicitation in the form of a Request for Proposal (RFP), Invitation for Bid (IFB) etc., to which the industry can respond with formal offers (or bids) and develop evaluation criteria that will be used to guide the source selection phase. Activities during this phase include selecting the appropriate contract type, determining the most appropriate procurement method and basis for contract award, and structuring contract terms and conditions (Garrett & Rendon, 2005).

Solicitation: In the solicitation phase, the contracting officer begins to execute the procurement plan by obtaining quotations, bids, offers, or proposals from prospective offerors/bidders. This phase of the contracting process includes such tasks as determining

the extent of competition, publicizing the planned procurement, preparing and issuing the solicitation, answering inquiries from potential offerors/bidders and conducting pre-bid or pre-proposal conferences. The solicitation phase may also involve addressing pre-award protests. It is important that solicitations are fashioned in a manner that plainly communicates both the government's need and the planned basis of award. It is imperative that the government then follow those criteria during the source selection phase.

Source Selection: In competitive contracting by negotiations, the source selection process is a thorough method of evaluating competitive proposals against technical, management, financial, schedule, and risk factors. As stated in *FAR* Part 15.302, “the objective of the source selection is to select the proposal that represents the best value”—including a source that best meets program objectives and requirements. Additionally, *FAR* Part 15.603 states that source selection procedures are designed to (1) maximize competition; (2) minimize the complexity of the solicitation, evaluation, and selection process; (3) ensure the impartial and comprehensive evaluation of proposals; and (4) ensure selection of the source whose proposal is most advantageous and realistic and whose performance is expected to best meet stated government requirements. The award decision is based on evaluation factors and significant subfactors that are tailored to the acquisition and represent the key areas of importance to support meaningful comparison and discrimination between and among competing proposals. Several key criteria must be evaluated in every source selection, including price or cost to the government and contractor past performance. The quality of the product or service is addressed through consideration of one or more non-cost evaluation factors—such as compliance with solicitation requirements, technical excellence, management capability, personnel qualifications, and prior experience. The Source Selection Authority (SSA) makes the final decision on source selection based on a comparative assessment of proposals against solicitation requirements and detailed evaluation criteria contained in the Source Selection Plan (SSP). The importance of rigorous source selection planning and subsequent source selection cannot be overstressed. The decisions made during this

contract phase could have a significant impact on the resulting contract's cost, schedule, and performance and, ultimately, program success or failure.

Contract Administration: Contract Administration involves those activities performed after a contract has been awarded to determine how well the government and the contractor met required contract requirements. This part of the procurement process facilitates the monitoring and oversight of a contractor's performance and helps ensure that the government receives all contract deliverables. In contract administration, the focus is on obtaining supplies and services, of requisite quality, on time, and within budget (OFPP, 1994). The specific nature and extent of contract administration varies from contract to contract. It can range from the minimum acceptance of a delivery and payment to the contractor to extensive involvement by program, audit and procurement officials throughout the contract term. Factors influencing the degree of contract administration include the nature of the work, the type of contract, and the experience and commitment of the personnel involved. Contract administration requires clear, unambiguous requirements and specifications, and proactive risk mitigation. A good contract administration plan identifies potential risk areas and applies appropriate resources to monitor a contractor's performance. This phase of the contracting process helps ensure that products and services are delivered on time and in accordance with contract terms and conditions.

Contract Closeout: Contract closeout begins when the contract has been physically completed. FAR Part 4.804-4 states that a contract is considered to be physically complete when: 1) the contractor has completed the required deliveries and the government has inspected and accepted the supplies, 2) the contractor has performed all services, and the government has accepted the services, and 3) all option provisions, if any, have expired. Contract closeout is complete when all administrative actions have been completed, all disputes settled, and final payment has been made. The Administrative Contracting Officer (ACO) leads the closeout process, coordinates the activities of various stakeholders, and is responsible for executing the majority of the

closeout actions required by the *FAR*. It requires close coordination between the contracting office, the finance office, the program office, and the contractor. Depending on the contract type, the closeout process can be simple or complex. The *FAR* also provides a specialized, less-restrictive method of closing out contracts commonly called "Quick Closeout Procedures." These procedures are outlined in *FAR* Part 42.708 and may be used if the contract is physically complete and the amount of unsettled indirect costs to be allocated to the contract is relatively insignificant. Total unsettled indirect costs are considered insignificant if the total to be allocated to any one contract does not exceed \$1,000,000, and "the cumulative unsettled indirect costs to be allocated to one or more contracts in a single fiscal year do not exceed 15 percent of the estimated, total unsettled indirect costs allocable to cost-type contracts for that fiscal year." Quick closeout procedures are especially suitable for low-risk, low-dollar value contracts.

D. NAVAL AIR SYSTEMS COMMAND ORGANIZATION

Naval Air Systems Command (NAVAIR) is the principle component of a larger organization called the Naval Aviation Enterprise (NAE). Created in 2004, the NAE forms a partnership between multiple organizations within the Naval Aviation community to encounter and resolve issues on an enterprise-wide basis rather than as individual commands. The synergistic benefits of the NAE partnership include optimization of resources, cost savings, increased readiness, and improved material management. The NAE is modeled after a corporate structure with a board of directors that guides the aviation enterprise and enables communication across various enterprise elements. NAE's vision is to, "Efficiently deliver the right force, with the right readiness, at the right time...today, and in the future" (NAE, 2008, p. 90). The members of the NAE Board of Directors include Commander, Naval Air Forces (CNAF), Deputy Commandant, U.S. Marine Corps Aviation (USMC AVN), Naval Air Systems Command (NAVAIR), Commander, Naval Air Forces Reserve (CNAFR), Naval Education & Training Command (NETC), Naval Sea Systems Command (NAVSEA), Naval Supply Systems Command (NAVSUP), Naval Inventory Control Point (NAVICP), and Commander, Naval Installations Command (CNIC).

NAVAIR is an integral part of NAE's ability to develop, deliver, and sustain weapon systems and materials required to support the Department of the Navy's mission at sea, in the air, or on land. NAVAIR's mission is to:

Provide unique acquisition, research, development, test and evaluation, and in-service support capabilities for airborne weapons systems that are technologically superior and readily available. Using a full-spectrum approach, the Command delivers optimal capability and reliability for the Soldier and the Marine. (NAVAIR, 2008)

NAVAIR is based at Naval Air Station (NAS) Patuxent River, MD, and employs approximately 31,600 civilian and military at its eight major sites throughout the United States (Peterson, 1999). The command's primary purpose is to "develop, acquire, and support naval aeronautical and related technology systems for the Navy, Marine Corps, and Coast Guard" (Peterson, 1999). NAVAIR manages more than 148 acquisition programs and supports more than 4,000 active aircraft in the Navy and Marine Corps inventory (Peterson, 1999). As a Systems Command, NAVAIR reports directly to ASN(RDA) and the Chief of Naval Operations (CNO). NAVAIR is composed of several elements working as a fully integrated team. These include other SYSCOMs such as the Naval Supply Systems Command (NAVSUP), Space & Naval Warfare Systems Command (SPAWAR), and Naval Inventory Control Point (NAVICP), as well as four Program Executive Offices (PEO). Critical to the NAVAIR mission are the four PEOs who are organized to serve as the centralized manager for their assigned functions and associated major programs. They are responsible for the acquisition and lifecycle management of most of the aircraft and weapons used by the Navy and Marine Corps. While the PEOs are part of the NAVAIR organization, they report directly to the ASN(RDA) for matters of acquisition. The four PEOs aligned with NAVAIR are Tactical Aircraft Programs or PEO(T), Air Anti-Submarine Warfare (ASW), Assault & Special Mission Programs or PEO(A), Strike Weapons & Unmanned Aviation or PEO(W), and Joint Strike Fighter Program or PEO(JSF). The basic functions of each PEO are relatively consistent and include the following: facilitate work of program teams, provide assessments on program cost, schedule and performance to the appropriate Milestone Decision Authority (MDA), provide evaluations, options and recommendations on

program planning and execution to the appropriate MDA and Resource Sponsor, and enable program teams to deliver the best, most affordable products to the fleet with manageable risk in cost, schedule and performance. Appendix D displays the organizational structure of NAVAIR.

NAVAIR is a competency aligned organization (CAO) with seven core competencies: Program Management (AIR 1.0), Contracts (AIR 2.0), Research & Engineering (AIR 4.0), Test & Evaluation (AIR 5.0), Logistics & Industrial Operations (AIR 6.0), Corporate Operations (AIR 7.0), and the Comptroller (AIR 10.0). These competencies provide a pool of resources, including people, processes, and tools, that enables the formation of cross-functional teams called Integrated Product Teams (IPT).

The Contracting Directorate for the NAVAIR organization is NAVAIR 2.0. It is responsible to contract for the supplies, services, and material requirements of Integrated Program Teams (IPT), Program Support Teams (PST), and Enterprise Teams (ET). As shown in Appendix D, NAVAIR 2.0 has six departments—including four that support each of the PEOs, one that provides major support contracts to all programs, and one that develops and maintains contract policy and process management for NAVAIR 2.0. Each division supporting a PEO is organized in Procurement Contracting Officer (PCO) teams that provide key members to the PEOs' various Integrated Product Teams (IPT) with a standard package of contracting support and expertise. Per *NAVAIRINST 5400.1C* (Naval Air Systems Command, 2000), PCO teams provide a standard suite of the following contract management expertise: acquisition planning, business strategy development, solicitation formulation and generation, business clearances, formulation, generation and award of contracts and modifications, cost and price analysis, negotiations, source selection, conducting and participating in Contract Review Boards, contract administration, reporting, close-out, file maintenance, claim adjudication, disposition of defective pricing actions, and participation in litigation activities.

AIR 2.1: AIR 2.1 is the Contracts Policy and Process Management Department whose primary responsibilities are to develop, maintain, support, implement and manage contract policy, processes, and resources. AIR 2.1 ensures compliance with laws and

regulations, responds to inquiries from outside agencies, formulates and prepares contract reports for Assistant Secretary of the Navy, Office of the Secretary of Defense, and Congress, and interprets and implements OSD and Congressional policy. AIR 2.1 also maintains contract files, prepares and distributes contracts, manages the department's human and financial resources, and is responsible for process automation and system administration (Naval Air Systems Command, 2000).

AIR 2.2: AIR 2.2 provides contract management and planning for Naval aviation programs assigned to Program Executive Officer for Tactical Aircraft Programs (PEO(T)), including major weapons systems for tactical aircraft, air assault, special missions, and missiles. This department provides key members for PEO(T) IPTs to plan, negotiate, execute, and administer contracts for assigned programs. It manages and executes the contracting functions for tactical aircraft programs such as E-2/C-2, E-2D, and F/A-18. In fiscal year 2007, AIR 2.2 obligated over \$4.2 billion and completed 1,009 contract actions for programs under its purview (NAVAIR, 2007).

AIR 2.3: AIR 2.3 provides contract management and planning for Naval aviation programs assigned to Program Executive Officer for Air ASW, Assault and Special Mission Programs (PEO(A)), including major weapons systems for Air Anti-submarine Warfare (ASW) and rotary wing programs. AIR 2.3 provides key members for PEO(A) IPTs to plan, negotiate, execute, and administer contracts for assigned programs. It manages and executes the contracting functions for rotary wing programs such as the Presidential Helicopter, P-3C, V-22, H-60, and H-53. In fiscal year 2007, AIR 2.3 obligated over \$6 billion and completed 1,050 contract actions for programs under its control (NAVAIR, 2007).

AIR 2.4: AIR 2.4 provides contract management and planning for Naval aviation programs assigned to Program Executive Officer for Strike Weapons and Unmanned Aviation (PEO(W)) and NAVAIR 1.0. This department provides key members for PEO(W) IPTs to plan, negotiate, execute, and administer contracts for assigned

programs. In fiscal year 2007, AIR 2.4 obligated over \$2.5 billion and completed 1,536 contract actions for programs under its control (NAVAIR, 2007). This department manages and executes the contracting functions for strike weapons programs—including the Advanced Anti-Radiation Guided Missile (AARGM), AGM-154A Joint Standoff Weapon (JSOW), and Tactical Tomahawk (TacTom), as well as unmanned aviation vehicles including Broad Area Maritime Surveillance (BAMS) UAV, Vertical Take-off and Landing Tactical Unmanned Aerial Vehicle (VTUAV), and Navy-Unmanned Combat Air System (N-UCAS).

AIR 2.5: AIR 2.5 is responsible for the management, planning and leadership of Aircraft Support Contracts. AIR 2.5 has contracting teams located at Patuxent River, MD; Lakehurst, NJ; Orlando, FL; China Lake, CA; and Point Mugu, CA. These teams provide contracting expertise in procuring support services, facilities, maintenance, training, and hardware for Navy and Marine Corps aircraft. They also contract for research and engineering, test and evaluation, and logistics support for aircraft weapons systems development and integration (Naval Air Systems Command, 2000). In fiscal year 2007, AIR 2.5 teams obligated over \$5.5 billion and completed over 18,367 contract actions for programs under their control (NAVAIR, 2007).

AIR 2.6: AIR 2.6 provides contract management and planning for naval aviation programs assigned to Program Executive Officer for Joint Strike Fighter (PEO(JSF)). This department provides key members for PEO(JSF) IPTs to plan, negotiate, execute, and administer contracts for assigned programs. AIR 2.6 manages and executes the contracting functions exclusively for the JSF program. In fiscal year 2007, AIR 2.6 obligated over \$5.3 billion and completed 141 contract actions for programs under its control (NAVAIR, 2007).

E. WHY SELECT NAVAL AIR SYSTEMS COMMAND FOR THIS RESEARCH?

NAVAIR 2.0's mission, organizational structure, function, and contracting processes present the perfect architecture for applying the CMMM. NAVAIR is the

Navy's premier aviation contracting agency, providing vital mission support to the Navy and Marine Corps aviation community. It supports a variety of weapon system programs—ranging from tactical and rotary wing aircraft to strike weapons and unmanned aviation vehicles to services for aircraft logistics support and maintenance.

NAVAIR's organizational structure lends well to cross-PEO comparisons of contract management processes. Best practices from PEOs with more mature contract management processes are able to be distributed to those with less mature processes. Since NAVAIR 2.0's key contracting processes are only as strong as its weakest department, sharing best practices creates a synergistic effect that will raise the enterprise-level of process maturity. This type of analysis would not be possible with a contracting organization in which all contract management processes are performed and managed by a single office.

NAVAIR is one of five SYSCOMs and one of eleven major contracting commands within the Navy. The NAVAIR Contracting Directorate is responsible for the contracting actions across the majority of contract management process phases. This fact is critical to this research, as functional responsibility for all process phases is required to properly employ the assessment. An organization that only manages one or two phases of the contract management process will not gain the full utility of the CMMM as a process-assessment tool.

The Contracting Directorate also has a sufficient number of warranted contracting officers with significant contracting experience in each department. This provides an adequate pool of participants for this research. A large sample size was not a critical aspect of this research, but a larger number of participating PCOs contribute to the soundness of the results. When compared to only one or two participants, a sample size of three to five PCOs per PEO will have a smaller sampling variability and standard error, resulting in a more realistic depiction of process maturity. The large numbers of PCOs also provide surety that the research would not have to rely on the responses of non-warranted members of the command. This helps lend legitimacy to participant responses.

NAVAIR 2.0 is a mature organization with a large acquisition workforce and significant contracting throughput. It has a large number of experienced and dedicated civilian PCOs. This is significant because military officers tend to change commands every two or three years, which does not allow them to develop the same level of process understanding as their civilian counterparts. Civilians, on the other hand, are more likely to remain at the organization for a longer period, which allows them to have a more comprehensive understanding of contract management processes resulting in more reliable survey answers. NAVAIR 2.0 has a significant amount of contracting throughput. In 2007, NAVAIR 2.0 had a total of 22,103 awarded contract actions and obligated \$23.4 billion for over 287 programs (NAVAIR, 2007).

Lastly, the CMMM has never been applied to a Navy SYSCOM. The majority of research has been conducted at U.S. Air Force Contracting Commands (Garrett & Rendon, 2005; Nordin & Burton, 2007; Sheehan, Moats & VanAssche, 2007) or introduced to commercial companies such as Goodyear, Raytheon, General Dynamics and Boeing. This particular organization is well suited for process improvement assessments because it exhibits the same workforce problems that persist throughout the DoD. As illustrated in Figure 12, the total number of the acquisition workforce is decreasing, while the number of obligation actions is increasing. From FY01 to FY06, NAVAIR 2.0 saw a 28% increase in obligation actions and a 13% reduction in workforce. Given this trend, a contract management maturity assessment has the potential to highlight areas for process improvement and to facilitate better utilization of scarce resources. As stated by the famous military strategist Sun Tzu (1963), “With many calculations one can win; with few one cannot. How much less chance of victory has one who makes none at all!”

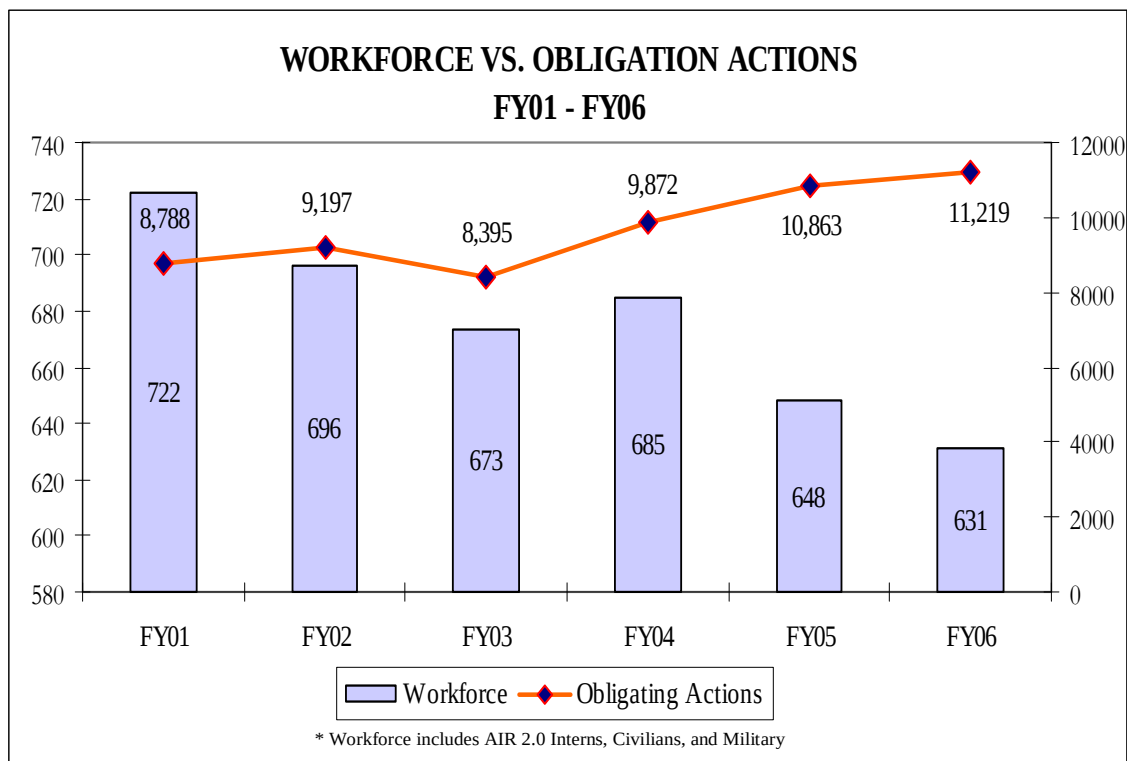


Figure 12. NAVAIR 2.0 Workforce vs. Obligor Actions (After: NAVAIR, 2007)

F. CONTRACT MANAGEMENT MATURITY ASSESSMENT TOOL (CMMAT) PARTICIPANT SELECTION

The CMMAT is specifically designed to focus on an organization’s key contract management process areas and activities to provide a baseline level of process maturity (Garrett & Rendon, 2005). This is accomplished through the use of a process-focused survey given to a select group of participants. The selection of the survey participants is a critical component to the validity of the survey results. The survey is purposive in nature and uses a qualitative rather than quantitative approach to analyze the survey outcome. The results are designed to explore and describe the maturity of an organization’s contract management processes. Since the results of the survey are not subject to statistical analysis, a small sample of specifically designated participants is preferred over a large random sample. However, small sample sizes are more easily influenced by bias and outlier responses. To minimize the effects of potential bias and to collect the highest quality data possible, the participants must meet specific requirements. The

participants must be fully qualified, warranted contracting officers and they must have attained a *Defense Acquisition Workforce Improvement Act (DAWIA)* Level II or III certification in Contracting. These strict requirements act as both a filter for bias responses and a qualifier for professional competence. The desired effect is a higher quality response that is more readily evaluated by qualitative analysis.

Warranted contracting officers are the U.S. Government's authorized agents for soliciting offers, negotiating, awarding, modifying, and terminating contracts. They are specially designated individuals with the authority to enter into contracts on behalf of the government, represent the government in contractual matters, and obligate government funds. The authority of these contracting officers is limited by their warrant and the requirements of law, executive orders, and regulations. Statutory qualification requirements to serve in a position as a warranted contracting officer is set by *FAR* Part 1.603-2,³ *DFARS* 201.603,⁴ and local regulation or policy. According to *NAVAIR Instruction 4205.2H*, prospective contracting officers must meet certain education, training, and experience requirements before being issued a warrant. They must also "demonstrate, through past performance, a high degree of business acumen, sound judgment and solid character" (Naval Air Systems Command, 2005). Specifically, in order to serve as a contracting officer with authority to award or administer contracts above the simplified acquisition threshold, a person must:

3 *FAR* Part 1.603-2 states that "in selecting contracting officers, the appointing official shall consider the complexity and dollar value of the acquisitions to be assigned and the candidate's experience, training, education, business acumen, judgment, character, and reputation. Examples of selection criteria include:

- (a) Experience in government contracting and administration, commercial purchasing, or related fields;
- (b) Education or special training in business administration, law, accounting, engineering, or related fields;
- (c) Knowledge of acquisition policies and procedures, including this and other applicable regulations;
- (d) Specialized knowledge in the particular assigned field of contracting; and
- (e) Satisfactory completion of acquisition training courses."

4 *NAVAIRINST 4205.2H, Delegation of Contracting Officer Authority*, is modeled after *DFARS* Part 201.603-2, which provides the criteria an individual must meet before being granted the authority to award or administer contracts above the simplified acquisition threshold. The four criteria identified in *NAVAIRINST 4205.2H* are the same as those stipulated in the *DFARS* and identified in this research.

1. Have completed all Defense Acquisition University (DAU) contracting courses required for a contracting officer at the grade level in which the person is serving. Certification levels and required courses vary based on civilian or military grade.
2. Have at least two years experience in a contracting position.
3. Have received a baccalaureate degree from an accredited educational institution and completed at least 24 semester credit hours, or equivalent, of study from an accredited institution of higher education in any of the following disciplines: accounting, business finance, law, contracts, purchasing, economics, industrial management, marketing, quantitative methods, and organization and management.
4. Meet such additional requirements, based on the dollar value and complexity of the contracts awarded or administered in the position, as may be established by the Secretary of Defense. (NAVAIR, 2005)

The second criterion for participant selection is the attainment of a *DAWIA* Level II or III certification in Contracting. The requirements for *DAWIA* certification are similar to those of NAVAIR's requirement to become a warranted contracting officer. The individual must have a baccalaureate degree or at least 24 semester hours in a business administration field such as accounting, economics, business finance, etc., or at least 10 years of acquisition experience and two years of contracting experience. *DAWIA* certification also requires the completion of several DAU contracting training courses and at least two years of contracting experience for Level II certification and four years of experience for Level III certification.⁵ The combination of these two requirements make warranted contracting officers optimal participants in this study. The warrant and *DAWIA* certification requirement requires candidates to maintain a level of proficiency and competency that ensures the survey-taker has significant knowledge of all contracting processes at NAVAIR (Garrett & Rendon, 2005).

⁵ The specific *DAWIA* Contracting education, training, and experience requirements for each certification level are outlined in the Defense Acquisition University (DAU) catalog, which is available online at <http://www.dau.mil/catalog/>.

The participants represent contracting officers from all departments in the NAVAIR Contracting Directorate. As discussed, each department in NAVAIR 2.0 is assigned to a Program Executive Office (PEO) and provides support for naval aviation programs assigned to that PEO. The exception is AIR 2.5, which provides aircraft service support contracts to all PEOs. The survey participants represent the following departments and PEOs: AIR 2.2/PEO(T), AIR 2.3/PEO(A), AIR 2.4/PEO(W), AIR 2.5, and AIR 2.6/PEO(JSF).

G. ORGANIZATIONAL CULTURE ASSESSMENT INSTRUMENT (OCAI) PARTICIPANT SELECTION

Unlike the strict selection criteria for the CMMAT participants, the framework of the OCAI does not require participants to meet any specific prerequisites. The participants selected for the OCAI were members of middle and upper management, including Department Heads, Deputy Department Heads, Division Officers and Procurement Contracting Officers. They included mid-grade military officers and civilian members of the contracting workforce in leadership positions. This group of participants was selected because its members are the conduit linking upper management and lower-grade contract specialists. It is also here that culture change, if required, must first occur. Upper management must receive middle-level management buy-in before significant change is to take place. The participants represented civilian and military leaders from all PEOs and departments in the NAVAIR Contracting Directorate organization: AIR 2.2/PEO(T), AIR 2.3/PEO(A), AIR 2.4/PEO(W), AIR 2.5, and AIR 2.6/PEO(JSF).

H. SUMMARY

This chapter provided an overview of the contract management process used by most DoD contracting agencies. It also discussed why NAVAIR was chosen for the study and provided background information on the organizational structure of NAVAIR and the functions of each department within NAVAIR's Contracting Directorate, NAVAIR 2.0. Lastly, this chapter discussed how the participants for the study were selected and the rationale behind the strict selection criteria.

The next chapter presents findings and results from data collected via the Contract Management Maturity Assessment Tool and the Organizational Culture Assessment Instrument. It also discusses recommendations for process improvement and methods for matching leadership skills with organizational culture.

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IV. FINDINGS, RESULTS AND RECOMMENDATIONS

A. INTRODUCTION

This chapter discusses the results of the study in the context of the primary research question: How mature are NAVAIR's contract management processes? This chapter presents an analysis of the CMMAT and OCAI results, provides a description of findings, and discusses recommendations for improvement. The results of the CMMAT for each of NAVAIR's five contracting departments are presented individually, followed by an Enterprise assessment of NAVAIR 2.0 as a whole. The recommendations for contract management process improvement are discussed in the context of the six key process areas of contract management.

The results of the OCAI for each of the five contracting departments are presented individually, followed by an enterprise-wide assessment of organizational culture. Additionally, the results are compared to the "average" culture of more than 3,000 companies assessed by Cameron and Quinn (2006).

B. ADMINISTRATION OF THE CMMAT ASSESSMENT

The CMMAT was administered onsite at NAS Patuxent River, MD, for AIR 2.2, AIR 2.3, AIR 2.4, and AIR 2.5. The CMMAT was made available through an online survey website for AIR 2.6 due to its offsite location in Crystal City, VA. Completed surveys were accepted from all respondents between the periods of March 3, 2008, to April 7, 2008. A total of 21 CMMAT surveys were completed and returned, but three surveys were removed from the assessment. Two of the unused surveys were completed by non-warranted contracting officers. These were removed to maintain the integrity of participant selection and the reliability of the results. As stated in Chapter III, only warranted contracting officers with a *DAWIA* Level II or III certification were used in this research. These two requirements, appointment as a Contracting Officer and achievement of *DAWIA* Level II or III certification, act as qualifiers and confirm the participants' professionalism, experience, and knowledge on the subject of contract management processes. The other CMMAT survey that was removed did not complete the

demographics profile portion. The researcher was not able to determine if the respondent was a warranted contracting officer with a *DAWIA* Level II or III certificate.

Of the 18 completed surveys, the average minimum years of contracting experience for all participants was 12.45 years. NAVAIR 2.0 has 25 Department Heads, Deputy Department Heads and Division Officers giving a response rate of 72%. All participants were warranted contracting officers and held at least a *DAWIA* Level II certification in Contracting. The range of responses for each department varied from two to five.

C. RESULTS OF THE CMMAT ASSESSMENT

This section provides an analysis of the results of the CMMAT assessment for each of NAVAIR 2.0's departments. It also provides an analysis of the contract management process maturity of the NAVAIR contracting enterprise by comparing all departments to determine the lowest-assessed maturity level for each key process area. The listing of the departmental CMMAT scores is provided in Table 7, and the maturity level of each contract management key process area for each department and the Enterprise is illustrated in Appendix E. This graphical illustration of the CMMAT results provides the senior management of NAVAIR 2.0 a "quick-look" assessment of the contract management process capability for each department (Garrett & Rendon, 2005).

1. AIR 2.2/PEO(T)

AIR 2.2 provided three completed CMMAT surveys (Table 2). The participating AIR 2.2 contracting officers averaged a minimum of 12 years experience, with the least experienced participant having a minimum of six years contracting experience.

Of the 180 questions answered by AIR 2.2 participants, eight responses were in the "don't know" category, zero were in the "never" category, one was in the "seldom" category, and 60 were in the "sometimes" category. The remaining 111 responses were in the "usually" or "always" categories. The key process areas of procurement planning, solicitation planning, solicitation, contract administration, and contract closeout were rated as "structured," while source selection was rated as "integrated." AIR 2.2 was the

highest-rated department in the contract closeout key process area. In fact, it was the only department to achieve a rating above “basic” in this process area.

For AIR 2.2 (based on the CMMAT survey responses) in the key process areas Procurement Planning, Solicitation Planning, Solicitation, Contract Administration, and Contract Closeout, contract management processes are fully established, institutionalized, and mandated throughout the department. Since the contract management processes are mandated, AIR 2.2 permits the tailoring of processes and documents, allowing consideration for the unique aspects of each contract, such as contracting strategy, contract type, terms and conditions, dollar value, and type of requirement. Formal documentation has been developed for these contract management processes and standards, and some processes may even be automated. Finally, AIR 2.2 survey responses indicate that senior management is involved in providing guidance, direction, and even approval of key contracting strategy, decisions, related contract terms and conditions, and contract management documents (Garrett & Rendon, 2005).

The key process area of Source Selection was rated as “integrated,” indicating that the procurement project’s end-user customer is an integral member of the procurement team. Basic Source Selection processes are integrated with other departmental core processes such as cost control, schedule management, performance management, and systems engineering. AIR 2.2 management uses efficiency and effectiveness metrics to make procurement-related decisions and understands its role in the procurement management process (Garrett & Rendon, 2005).

Table 2. AIR 2.2 CMMAT Participant Scores

Participant	Procurement Planning	Solicitation Planning	Solicitation	Source Selection	Contract Admin	Contract Closeout
CM201	36	43	43	49	45	43
CM203	33	33	32	38	39	30
CM204	36	33	34	39	34	19
Mean	35	36	36	42	39	31
Maturity	Structured	Structured	Structured	Integrated	Structured	Structured

2. AIR 2.3/PEO(A)

AIR 2.3 provided five completed CMMAT surveys (Table 3). The participating AIR 2.3 contracting officers averaged a minimum of 12.75 years experience, with the least experienced participant having a minimum of six years contracting experience.

Of the 300 questions answered by AIR 2.3 participants, 10 responses were in the “don’t know” category, zero were in the “never” category, and 15 were in the “seldom” category. The remaining 275 responses are in the “sometimes” category or higher. This represents 92% of the total responses and is the highest ratio of responses in the top three categories of any department. For this department, based on the survey responses, the contract closeout process area received a “basic” maturity rating, the solicitation and contract administration process areas received a “structured” maturity rating, and procurement planning, solicitation planning, and source selection received an “integrated” rating. AIR 2.3 is the only department to receive three ratings above the “structured” maturity level.

For AIR 2.3’s Contract Closeout process, the CMMAT survey responses indicated that some basic Contract Closeout processes and standards have been established but are only required on complex, critical, or highly visible contracts, such as contracts meeting certain dollar thresholds or contracts with certain customers. Some formal documentation has been developed for these established Contract Closeout processes and standards, but the department does not consider these processes or standards established or institutionalized throughout the entire organization. Finally, there is no organizational policy requiring the consistent use of Contract Closeout processes and standards other than on the required contracts (Garrett & Rendon, 2005).

The key process areas Solicitation and Contract Administration were rated as “structured”—indicating these contract management processes are fully established, institutionalized, and mandated throughout the department. Since the contract management processes are mandated, AIR 2.3 allows the tailoring of processes and documents, allowing consideration for the unique aspects of each contract—such as contracting strategy, contract type, terms and conditions, dollar value, and type of requirement. Formal documentation has been developed for these contract management

processes and standards, and some processes may even be automated. Lastly, AIR 2.3 survey responses indicated that senior management is involved in providing guidance, direction, and even approval of key contracting strategy, decisions, related contract terms and conditions, and contract management documents (Garrett & Rendon, 2005).

The key process areas Procurement Planning, Solicitation Planning, and Source Selection were rated as “integrated,” indicating that the procurement project’s end-user customer is an integral member of the procurement team. Basic contract management processes are integrated with other departmental core processes such as cost control, schedule management, performance management, and systems engineering. AIR 2.3’s management uses efficiency and effectiveness metrics to make procurement-related decisions and understands its role in the procurement management process (Garrett & Rendon, 2005).

Table 3. AIR 2.3 CMMAT Participant Scores

Participant	Procurement Planning	Solicitation Planning	Solicitation	Source Selection	Contract Admin	Contract Closeout
CM301	42	42	42	46	41	33
CM302	38	39	38	42	41	8
CM303	36	37	34	37	31	23
CM304	46	43	42	43	41	39
CM305	46	42	42	45	43	39
Mean	42	41	40	43	39	28
Maturity	Integrated	Integrated	Structured	Integrated	Structured	Basic

3. AIR 2.4/PEO(W)

AIR 2.4 provided four completed CMMAT surveys (Table 4). The participating AIR 2.4 contracting officers averaged a minimum of 14 years experience, with the least experienced participant having between 11 to 15 years of contracting experience.

Of the 240 survey questions answered by AIR 2.4 participants, nine were in the “don’t know” category, three were in the “never” category, 41 were in the “seldom” category, 82 were in the “sometimes” category, and 99 were in the “usually” category. Only six responses were in the “always” category, which is the lowest number of all departments. For AIR 2.4, based on the survey responses, contract closeout was the

lowest-rated key process area with a “basic” maturity level. All other key processes areas, including procurement planning, solicitation planning, solicitation, source selection, and contract administration, were rated as “structured.”

Based on the survey answers, AIR 2.4’s Contract Closeout process maturity level was rated as “basic,” indicating that some basic Contract Closeout processes and standards have been established but are only required on complex, critical, or highly visible contracts—such as contracts meeting certain dollar thresholds or contracts with certain customers. Some formal documentation has been developed for the Contract Closeout processes and standards, but the department does not consider these processes or standards established or institutionalized throughout the entire organization. Finally, there is no organizational policy requiring the consistent use of Contract Closeout processes and standards other than on the required contracts (Garrett & Rendon, 2005).

Contract management processes for the key process areas Procurement Planning, Solicitation Planning, Solicitation, Source Selection, and Contract Administration are fully established, institutionalized, and mandated throughout the department. Since the contract management processes are mandated, AIR 2.4 allows the tailoring of processes and documents, allowing consideration for the unique aspects of each contract, such as contracting strategy, contract type, terms and conditions, dollar value, and type of requirement. Formal documentation has been developed for these contract management processes and standards, and some processes may even be automated. Lastly, AIR 2.4 survey responses indicate that senior management is involved in providing guidance, direction, and even approval of key contracting strategy, decisions, related contract terms and conditions, and contract management documents (Garrett & Rendon, 2005).

Table 4. AIR 2.4 CMMAT Participant Scores

Participant	Procurement Planning	Solicitation Planning	Solicitation	Source Selection	Contract Admin	Contract Closeout
CM401	26	30	30	31	30	22
CM402	28	35	35	34	28	32
CM404	34	25	33	33	36	22
CM405	35	39	35	39	36	29
Mean	31	32	33	34	33	26
Maturity	Structured	Structured	Structured	Structured	Structured	Basic

4. AIR 2.5/Aircraft Support Contracts

AIR 2.5 provided four completed CMMAT surveys (Table 5). The participating AIR 2.5 contracting officers averaged a minimum of eight years experience, with the least experienced participant having between two to five years of contracting experience. Demographically, AIR 2.5 respondents are the most junior contracting officers.

In the AIR 2.5 Aircraft Support Contracts department, of the 240 questions answered, 10 were in the “don’t know” category, zero were in the “never” category, and 19 were in the “seldom” category. The remaining 211 questions, representing over 87% of the questions answered, were in the “sometimes,” “usually,” or “always” categories. Based on the AIR 2.5 survey responses, the lowest key process area, contract closeout, was rated as “basic,” while the highest rated key process area, source selection, was rated as “integrated.” The remaining key process areas—including procurement planning, solicitation planning, solicitation, and contract administration—were rated as “structured.”

Based on AIR 2.5’s survey responses, the Contract Closeout process maturity level was rated as “basic,” indicating that some basic Contract Closeout processes and standards have been established but are only required on complex, critical, or highly visible contracts, such as contracts meeting certain dollar thresholds or contracts with certain customers. Some formal documentation has been developed for the Contract Closeout processes and standards, but the department does not consider these processes or standards established or institutionalized throughout the entire organization. Finally, there is no organizational policy requiring the consistent use of Contract Closeout processes and standards other than on the required contracts (Garrett & Rendon, 2005). AIR 2.5’s Contract Closeout process was perilously close to being rated as “ad hoc.” This would indicate that the organization acknowledges that Contract Closeout processes exist, are practiced throughout various industries, and have benefits and values. However, the department may not have established any basic Contract Closeout processes; or, while some established Contract Closeout processes exist and are used within the organization, they are applied on an ad-hoc and sporadic basis to various contracts. Informal documentation of the Contract Closeout process may exist, but are used only on an ad-

hoc and sporadic basis on various contracts. Finally, management and contract management personnel are not held accountable for adhering to, or complying with, any Contract Closeout process or standard (Garrett & Rendon, 2005).

The contract management key process areas Procurement Planning, Solicitation Planning, Solicitation, and Contract Administration were rated as “structured,” indicating that contract management processes are fully established, institutionalized, and mandated throughout the department. Since the contract management processes are mandated, AIR 2.5 allows the tailoring of processes and documents, allowing consideration for the unique aspects of each contract—such as contracting strategy, contract type, terms and conditions, dollar value, and type of requirement. Formal documentation has been developed for these contract management processes and standards, and some processes may even be automated. Lastly, AIR 2.5 survey responses indicate that senior management is involved in providing guidance, direction, and even approval of key contracting strategy, decisions, related contract terms and conditions, and contract management documents (Garret & Rendon, 2005).

The key process area Source Selection was rated as “integrated,” indicating that the procurement project’s end-user customer is an integral member of the procurement team. Basic contract management processes are integrated with other departmental core processes such as cost control, schedule management, performance management, and systems engineering. AIR 2.5’s management uses efficiency and effectiveness metrics to make procurement-related decisions and understands its role in the procurement management process (Garret & Rendon, 2005).

Table 5. AIR 2.5 CMMAT Participant Scores

Participant	Procurement Planning	Solicitation Planning	Solicitation	Source Selection	Contract Admin	Contract Closeout
CM501	33	35	40	40	34	22
CM502	39	36	35	39	35	0
CM503	43	46	47	48	31	29
CM504	38	36	36	35	34	32
Total	38	38	40	41	34	21
Maturity	Structured	Structured	Structured	Integrated	Structured	Basic

5. AIR 2.6/PEO(JSF)

AIR 2.6 provided two completed CMMAT surveys (Table 6). Both participants had at least 15 years of contracting experience, making AIR 2.6 the most experienced department.

Of the 120 survey questions answered by the AIR 2.6 participants, three were in the “don’t know” category, one was in the “never” category, 14 were in the “seldom” category, and 30 were in the “sometimes” category. The remaining 72 answers were in the “usually” or “always” categories. Based on the AIR 2.6 survey responses, contract closeout, rated as “basic,” was the lowest-assessed key process area. Procurement planning, solicitation planning, solicitation, source selection, and contract administration were rated as “structured.”

For AIR 2.6, based on the survey responses, the Contract Closeout process was rated as “basic,” indicating that some basic Contract Closeout processes and standards have been established but are only required on complex, critical, or highly visible contracts, such as contracts meeting certain dollar thresholds or contracts with certain customers. Some formal documentation has been developed for these established Contract Closeout processes and standards, but the department does not consider these processes or standards established or institutionalized throughout the entire organization. Finally, there is no organizational policy requiring the consistent use of Contract Closeout processes and standards other than on the required contracts (Garrett & Rendon, 2005).

Procurement planning, solicitation planning, solicitation, source selection, and contract administration were rated as “structured.” This maturity level is representative of contract management processes that are fully established, institutionalized, and mandated throughout the department. Since the contract management processes are mandated, AIR 2.6 allows the tailoring of processes and documents, allowing consideration for the unique aspects of each contract, such as contracting strategy, contract type, terms and conditions, dollar value, and type of requirement. Formal documentation has been developed for these contract management processes and standards, and some processes may even be automated. Lastly, AIR 2.6’s survey responses indicate that senior

management is involved in providing guidance, direction, and even approval of key contracting strategy, decisions, related contract terms and conditions, and contract management documents (Garrett & Rendon, 2005).

Table 6. AIR 2.6 CMMAT Participant Scores

Participant	Procurement Planning	Solicitation Planning	Solicitation	Source Selection	Contract Admin	Contract Closeout
CM601	39	39	40	41	39	27
CM603	32	33	32	32	37	29
Mean	36	36	36	37	38	28
Maturity	Structured	Structured	Structured	Structured	Structured	Basic

6. NAVAIR 2.0/Contracting Enterprise

The Enterprise level, consisting of all departments, provides a top-level assessment of the NAVAIR contracting directorate. The Enterprise maturity level is established by evaluating the lowest-rated maturity level for each of the six key contract management process areas. The reason for using the lowest-rated maturity level is that an organization is only as strong as its weakest link (Garrett & Rendon, 2005). If an Enterprise is to improve overall process capability, it cannot leave weaker departments behind. Instead, it must baseline its improvement efforts on the capabilities of weaker departments.

Based on the survey responses for the overall Enterprise, the maturity level of the key process areas Procurement Planning, Solicitation Planning, Solicitation, Source Selection, and Contract Administration were determined to be “structured,” while the key process area of Contract Closeout was assessed to be at the “basic” maturity level (Table 7).

At the Enterprise level, contract management processes for the key process areas Procurement Planning, Solicitation Planning, Solicitation, Source Selection, and Contract Administration are fully established, institutionalized, and mandated throughout the department. Since the contract management processes are mandated, the Enterprise allows the tailoring of processes and documents, allowing consideration for the unique aspects of each contract, such as contracting strategy, contract type, terms and conditions,

dollar value, and type of requirement. Formal documentation has been developed for these contract management processes and standards, and some processes may even be automated. Lastly, the entire Enterprise survey responses indicate that senior management is involved in providing guidance, direction, and even approval of key contracting strategy, decisions, related contract terms and conditions, and contract management documents (Garrett & Rendon, 2005).

The Enterprise-wide assessment rated the Contract Closeout key process area as having a “basic” level of maturity. This maturity rating indicates that some basic Contract Closeout processes and standards have been established but are only required on complex, critical, or highly visible contracts, such as contracts meeting certain dollar thresholds or contracts with certain customers. Some formal documentation has been developed for the Contract Closeout processes and standards, but the organization does not consider these processes or standards established or institutionalized throughout the entire organization. Finally, there is no organizational policy requiring the consistent use of Contract Closeout processes and standards other than on the required contracts (Garrett & Rendon, 2005).

Table 7. NAVAIR Contracting Directorate CMMAT Maturity Levels

Participant	Procurement Planning	Solicitation Planning	Solicitation	Source Selection	Contract Admin	Contract Closeout
AIR 2.2	Structured	Structured	Structured	Integrated	Structured	Structured
AIR 2.3	Integrated	Integrated	Structured	Integrated	Structured	Basic
AIR 2.4	Structured	Structured	Structured	Structured	Structured	Basic
AIR 2.5	Structured	Structured	Structured	Integrated	Structured	Basic
AIR 2.6	Structured	Structured	Structured	Structured	Structured	Basic
Enterprise	Structured	Structured	Structured	Structured	Structured	Basic

D. GUIDE FOR PROCESS CAPABILITY IMPROVEMENT

This section focuses on the individual key contract management process areas for the Enterprise and discusses recommendations for improvement to the next level of maturity. It also identifies key process functions with within each phase with knowledge-

deficient areas that the Enterprise should include in its training plan. Finally, this section discusses additional recommendations for process improvement.

1. Procurement Planning

Based on the results of the assessment, the Enterprise maturity level of Procurement Planning was determined to be “structured.” To progress to the next level of maturity, “integrated,” the Enterprise should ensure that the procurement project’s end-user customer is an integral member of the procurement team. Basic contract management processes should be integrated with other departmental core processes such as cost control, schedule management, performance management, and systems engineering. Management will need to use efficiency and effectiveness metrics to make procurement-related decisions. Finally, management will need to understand its role in the procurement planning process and execute the process well (Garrett & Rendon, 2005).

To accomplish this, the Enterprise should utilize the best practices of more mature departments and implement their use throughout the organization. A database of best practices and lessons learned should be instituted to help the Enterprise achieve the ultimate Procurement Planning maturity level of “optimized.” Additionally, the Enterprise should incorporate several Procurement Planning-specific topics into its training program. The training should focus on subjects such as determining funds availability, preliminary cost and schedule estimates, assessing and managing risk, conducting assessments of market conditions, selecting the appropriate contract type, developing contract incentives, and developing standard and unique contract terms and conditions (Garrett & Rendon, 2005).

2. Solicitation Planning

Based on the results of the assessment, the Enterprise maturity level of Solicitation Planning was determined to be “structured.” To progress to the next level of maturity, “integrated,” the Enterprise should ensure that the procurement project’s end-user customer is an integral member of the procurement team. Basic contract

management processes should be integrated with other departmental core processes such as cost control, schedule management, performance management, and systems engineering. Management will need to use efficiency and effectiveness metrics to make procurement-related decisions. Finally, management will need to understand its role in the procurement planning process and execute the process well (Garrett & Rendon, 2005).

To accomplish this, the Enterprise should utilize the best practices of more mature departments and implement their use throughout the organization. A database of best practices and lessons learned should be instituted to help the Enterprise achieve the ultimate Solicitation Planning maturity level of “optimized.” The Enterprise should also incorporate several Solicitation Planning-specific topics into its training program. The training should focus on subjects such as developing solicitations, assessing solicitation documents, and developing appropriate criteria for proposal evaluation (Garrett & Rendon, 2005).

3. Solicitation

Based on the results of the assessment, the Enterprise maturity level of Solicitation was determined to be “structured.” To progress to the next level of maturity, “integrated,” the Enterprise should ensure that the procurement project’s end-user customer is an integral member of the procurement team. Basic contract management processes should be integrated with other departmental core processes such as cost control, schedule management, performance management, and systems engineering. Management will need to use efficiency and effectiveness metrics to make procurement-related decisions. Finally, management will need to understand its role in the procurement planning process and execute the process well (Garrett & Rendon, 2005).

To accomplish this, the Enterprise should utilize the best practices of more mature departments and implement their use throughout the organization. A database of best practices and lessons learned should be instituted to help the Enterprise achieve the ultimate Solicitation maturity level of “optimized.” Additionally, the Enterprise should incorporate several Solicitation-specific topics into its training program. The training

should focus on subjects such as developing an integrated approach to establishing qualified bidders lists, conducting market research, advertising procurement opportunities, and conducting pre-proposal conferences (Garrett & Rendon, 2005).

4. Source Selection

Based on the results of the assessment, the Enterprise maturity level of Source Selection was determined to be “structured.” To progress to the next level of maturity, “integrated,” the Enterprise should ensure that the procurement project’s end-user customer is an integral member of the procurement team. Basic contract management processes should be integrated with other departmental core processes such as cost control, schedule management, performance management, and systems engineering. Management will need to use efficiency and effectiveness metrics to make procurement-related decisions. Finally, management will need to understand its role in the procurement planning process and execute the process well (Garrett & Rendon, 2005).

To accomplish this, the Enterprise should utilize the best practices of more mature departments and implement their use throughout the organization. A database of best practices and lessons learned should be instituted to help the Enterprise achieve the ultimate Source Selection maturity level of “optimized.” The Enterprise should also incorporate several Source Selection-specific topics into its training program. The training should focus on subjects such as proposal evaluation and evaluation criteria, evaluation standards, estimating techniques and weighting systems, and negotiation techniques, planning, and actions (Garrett & Rendon, 2005).

5. Contract Administration

Based on the results of the assessment, the Enterprise maturity level of Contract Administration was determined to be “structured.” To progress to the next level of maturity, “integrated,” the Enterprise should ensure that the procurement project’s end-user customer is an integral member of the procurement team. Basic contract management processes should be integrated with other departmental core processes such as cost control, schedule management, performance management, and systems

engineering. Management will need to use efficiency and effectiveness metrics to make procurement-related decisions. Finally, management will need to understand its role in the procurement planning process and execute the process well (Garrett & Rendon, 2005).

To accomplish this, the Enterprise should utilize the best practices of more mature departments and implement their use throughout the organization. A database of best practices and lessons learned should be instituted to help the Enterprise achieve the ultimate Contract Administration maturity level of “optimized.” The Enterprise should also incorporate several Contract Administration-specific topics into its training program. The training should focus on subjects such as conducting integrated assessments of contractor performance such as assessments of cost, schedule and performance. Training should also focus on an integrated team approach to management contracts. This would include managing post-award contract activities—such as modifying contracts, processing contractor invoices and payments, managing contractor incentives, resolving disputes, and managing subcontractor performance (Garrett & Rendon, 2005).

6. Contract Closeout

Based on the results of the assessment, the Enterprise maturity level of Contract Closeout was determined to be “basic.” To progress to the next level of maturity, “structured,” the Enterprise should ensure that contract management processes are fully established, institutionalized, and mandated throughout the organization. The organization should allow the tailoring of processes and documents, allowing consideration for the unique aspects of each contract, such as contracting strategy, contract type, terms and conditions, dollar value, and type of requirement. Formal documentation should be developed for these contract management processes and standards, and some processes should be automated. Finally, senior management should be involved in providing guidance, direction, and even approval of key contracting strategy, decisions, related contract terms and conditions, and contract management documents (Garrett & Rendon, 2005).

To accomplish this, the Enterprise should utilize the best practices of more mature departments and implement their use throughout the organization. A database of best practices and lessons learned should be instituted to help the Enterprise achieve the ultimate Contract Closeout maturity level of “optimized.” Additionally, the Enterprise should incorporate several Contract Closeout-specific topics into its training program. The training should focus on subjects such as contract termination, closeout planning and considerations, and closeout standards and documentation (Garrett & Rendon, 2005).

7. Additional Recommendations for Process Improvement

The primary purpose of the CMMM and this research is to facilitate continuous process improvement for the organization’s contract management processes (Garrett & Rendon, 2005). The NAVAIR Contracting Directorate must seek continuous process improvement, provide a vision for process maturation, and implement process-improvement opportunities. This can be accomplished through a contract management process-improvement workgroup. The goal of this organic workgroup is to integrate contract management process improvement efforts with other NAVAIR-wide continuous process-improvement initiatives such as AIRSpeed. This would alleviate redundancy while leveraging synergistic benefits of dual improvement efforts. The organic workgroup could also seek new ideas for process improvement from members of the NAVAIR 2.0 organization and could provide focused training in knowledge deficient areas.

The Enterprise should also compare the results of this research and process maturity with other Naval Systems Commands, such as NAVSEA or SPAWAR. Since the goal of their efforts is to benefit the warfighter, the SYSCOMs should share contract management best practices and lessons learned. NAVAIR should evaluate and implement best practices and conduct a CMMM self-reassessment after implementation efforts have taken place and new practices have matured.

The Enterprise should provide continuous training on the functional components of each phase of the contracting process to every member of the organization. Several participants provided a majority response of “don’t know” in some key process areas—

indicating they were knowledge-deficient in these contracting process areas. The organization should strive to ensure that every member of the contracting workforce is proficient in each phase of the contract management process. This creates consistency, which is critically important in the current DoD acquisition workforce resource-deficient environment.

Each department could create an “as is” process map to determine key points meaningful to each PEO or program to measure contract process results. In doing so, they must optimize their processes to ensure they are performing the correct procurement processes. NAVAIR 2.0 could also conduct another CMMM assessment in several years. This could be done with an internal self-assessment tiger team or by a graduate student at the Naval Postgraduate School. Additionally, NAVAIR 2.0 could have an outside agency or civilian firm specializing in contract management evaluate the effectiveness and efficiency of contract management processes and key process and practice areas. These assessments should be conducted and reviewed regularly.

Finally, the Contract Closeout process, the least mature phase of the enterprise and the majority of individual departments, requires focused improvement. This key process area also saw the highest return of “don’t know” responses, indicating it requires additional attention. Best practices for improving this phase includes training on closeout requirements and documentation, a dedicated contract closeout team responsible for ensuring contract completion, final payment, and administrative closeout, and management involvement in the process.

E. OCAI ASSESSMENT RESULTS

This section presents the results of the organizational culture assessment in the context of the CVF. The OCAI was administered both onsite at NAS Patuxent River, MD, and online for all NAVAIR 2.0 departments, including AIR 2.2, AIR, 2.3, AIR 2.4, AIR 2.5, and AIR 2.6. Completed surveys were accepted from all respondents between the periods of March 3, 2008, to April 7, 2008. Data were collected in hardcopy form and through an electronic version sent via email to participants. Of the 24 OCAI surveys received, only 22 were usable. The other two responses were removed from the

assessment because they were incomplete. NAVAIR 2.0 has 25 Department Heads, Deputy Department Heads and Division Officers—giving an 88% response rate.

The target respondents were upper- and mid-level managers and supervisors at the NAVAIR Contracting Directorate. The assessment was given to Deputy Department Heads and Division Officers and included both military and civilian personnel. The range of responses per department varied from two to seven. Demographics such as age, gender, race, or education level were not collected from participants. The purpose of this research is to provide an overall assessment of organizational culture type, strength and congruence. The demographic discriminators were deemed non-critical to the nature and purpose of this research.

A summary of the OCAI findings for each contracting department and the Enterprise as a whole are described below and depicted graphically in Appendix F.

1. AIR 2.2

AIR 2.2 returned four surveys (n=4) whose results reveal a strong dominant Hierarchy-type culture. The aggregate scores for each “current” culture type are: Clan (21), Adhocracy (16), Market (24), and Hierarchy (39). The aggregate scores for each “preferred” culture type are: Clan (25), Adhocracy (14), Market (29), and Hierarchy (32). This was the only department that preferred a more Market-type culture than their current level of Market culture. As illustrated by the OCAI scores in Table 8, a Hierarchy-type culture was also favored as the preferred dominant culture type, though; the responses show some desired reduction in the preferred Hierarchy culture and increases in both Clan- and Market-type cultures. Adhocracy was the least significant culture type for both the current and preferred type.

Table 8. AIR 2.2 Mean OCAI Scores

Participant	<u>Clan</u>		<u>Adhocracy</u>		<u>Market</u>		<u>Hierarchy</u>	
	Current	Preferred	Current	Preferred	Current	Preferred	Current	Preferred
A201	19	18	24	21	36	37	21	25
A202	26	28	12	5	33	32	29	35
A203	28	38	22	23	17	31	33	8
A204	11	17	8	8	10	16	72	60
Mean	21	25	16	14	24	29	39	32

2. AIR 2.3

The seven surveys (n=7) received from AIR 2.3 reveal a current perception of a strong Market-dominant culture (Table 9). The aggregate scores for each “current” culture type are: Clan (17), Adhocracy (15), Market (39), and Hierarchy (29). The aggregate scores for each “preferred” culture type are: Clan (23), Adhocracy (20), Market (30), and Hierarchy (27). A Market-type culture was rated as both the current and preferred culture, but was only slightly preferred over a Hierarchy culture. The scores for Clan and Adhocracy-type cultures increased as “preferred” culture types, while Market-type culture decreased significantly. Adhocracy was both the least significant current culture type and the least preferred.

Table 9. AIR 2.3 Mean OCAI Scores

Participant	<u>Clan</u>		<u>Adhocracy</u>		<u>Market</u>		<u>Hierarchy</u>	
	Current	Preferred	Current	Preferred	Current	Preferred	Current	Preferred
A301	26	29	25	30	23	18	26	23
A302	15	28	19	24	43	24	23	24
A303	18	18	13	23	50	43	19	16
A304	20	31	12	11	41	33	28	26
A305	23	29	14	13	28	26	35	33
A306	4	4	13	15	47	38	37	44
A307	13	25	8	24	39	27	41	24
Mean	17	23	15	20	39	30	30	27

3. AIR 2.4

The five surveys (n=5) received from AIR 2.4 reveal a strong Hierarchy-dominant culture (Table 10). The aggregate scores for each “current” culture type are: Clan (15), Adhocracy (15), Market (28), and Hierarchy (42). Of the five departments measured, this was the highest hierarchy rating and the lowest Clan and Adhocracy rating. The aggregate scores for each “preferred” culture type are: Clan (25), Adhocracy (20), Market (21), and Hierarchy (34). This department favors Hierarchy as the preferred culture type and gave it the highest preferred rating of any other department. However, a significant decrease in the “preferred” Hierarchy culture score was balanced by a 10-point increase in the Clan score.

Table 10. AIR 2.4 Mean OCAI Scores

Participant	<u>Clan</u>		<u>Adhocracy</u>		<u>Market</u>		<u>Hierarchy</u>	
	Current	Preferred	Current	Preferred	Current	Preferred	Current	Preferred
A401	10	28	12	23	43	26	35	23
A402	19	27	23	26	32	26	26	22
A403	14	16	11	11	18	20	58	53
A404	14	34	16	30	33	18	37	18
A405	18	18	12	13	16	15	55	54
Mean	15	25	15	20	28	21	42	34

4. AIR 2.5

AIR 2.5 returned four OCAI surveys (n=4). The results reveal a mixed culture with relatively equal scores among all culture types, but with a slightly higher current rating for Clan-type culture. The aggregate scores for each “current” culture type are: Clan (29), Adhocracy (21), Market (25), and Hierarchy (25). Of the departments measured, AIR 2.5 had the highest current rating for Clan and the lowest rating for Hierarchy. This trend continued for the “preferred” culture, as they also had the highest preferred Clan rating and lowest preferred Hierarchy rating of any department. The aggregate scores for each “preferred” culture type are: Clan (35), Adhocracy (25), Market (21), and Hierarchy (19). AIR 2.5 was the only department to indicate that they both currently have and prefer a Clan-type culture (Table 11).

Table 11. AIR 2.5 Mean OCAI Scores

Participant	<u>Clan</u>		<u>Adhocracy</u>		<u>Market</u>		<u>Hierarchy</u>	
	Current	Preferred	Current	Preferred	Current	Preferred	Current	Preferred
A501	24	29	14	27	25	19	37	25
A502	18	21	25	32	29	30	28	18
A503	59	65	20	18	13	9	8	8
A504	15	24	26	24	31	27	28	25
Mean	29	35	21	25	25	21	25	19

5. AIR 2.6

The two surveys (n=2) received from AIR 2.6 reveal a current Market-dominant culture. The aggregate scores for each “current” culture type are: Clan (16), Adhocracy (24), Market (33), and Hierarchy (27). AIR 2.6 had the highest Adhocracy ratings for

both current and preferred culture. The aggregate scores for each “preferred” culture type are: Clan (25), Adhocracy (28), Market (27), and Hierarchy (20). They were the only department whose preferred culture type was different from the current culture. The favored culture went from Market to a slight preference for an Adhocracy type culture. The responses also indicated a preference for a less Hierarchy-type culture in exchange for a Clan-type culture (Table 12).

Table 12. AIR 2.6 Mean OCAI Scores

Participant	<u>Clan</u>		<u>Adhocracy</u>		<u>Market</u>		<u>Hierarchy</u>	
	Current	Preferred	Current	Preferred	Current	Preferred	Current	Preferred
A601	10	25	20	26	33	27	38	23
A602	23	25	28	31	33	28	16	17
Mean	16	25	24	28	33	27	27	20

6. NAVAIR 2.0/Contracting Enterprise

Twenty-two usable surveys (n=22) were received from all departments in the Contracting Directorate. The aggregate scores⁶ for each “current” culture type are: Clan (18), Adhocracy (17), Market (31), and Hierarchy (34). The aggregate scores for each “preferred” culture type are: Clan (25), Adhocracy (21), Market (26), and Hierarchy (28). A summation of all the culture surveys reveals a current Hierarchy-dominant culture. The preferred culture is mixed with a slight preference for a Hierarchy-type culture.

Individual departments and the Enterprise culture are compared to the average organizational profile as determined by Cameron and Quinn (2006). Cameron and Quinn’s average profile represents the survey data of more than 80,000 managers representing over 3,000 organizations. Cameron and Quinn’s average organization scores do not represent the ideal score, as organizational effectiveness was not a criterion for inclusion. They contain data from highly successful organizations as well as data from failed organizations. Additionally, the organizations in the “average” profile represent a variety of industries such as services, retail, public administration, manufacturing, and construction, to name a few. The average scores are included as the “C&Q Average” in

⁶ The aggregate scores of the Enterprise were calculated using the weighted averages of the five NAVAIR 2.0 departments.

Tables 13 and 14 as a basis of comparison, not a goal for emulation. The mean OCAI scores for each department are provided in rank order in Table 15 to more readily illustrate preference changes between “current” and “preferred” cultures.

Table 13. “Current” Mean OCAI Scores by Culture Type

Organization	N	<u>Clan</u>	<u>Adhocracy</u>	<u>Market</u>	<u>Hierarchy</u>
		Mean	Mean	Mean	Mean
AIR 2.2	4	21	16	24	39
AIR 2.3	7	17	15	39	30
AIR 2.4	5	15	15	28	42
AIR 2.5	2	29	21	25	25
AIR 2.6	4	16	24	33	27
Enterprise*	22	18	17	31	34
C&Q Average		21	15	32	24

* The Enterprise scores are weighted averages of all departments

Table 14. “Preferred” Mean OCAI Scores by Culture Type

Organization	N	<u>Clan</u>	<u>Adhocracy</u>	<u>Market</u>	<u>Hierarchy</u>
		Mean	Mean	Mean	Mean
AIR 2.2	4	25	14	29	32
AIR 2.3	7	23	20	30	27
AIR 2.4	5	25	20	21	34
AIR 2.5	2	35	25	21	19
AIR 2.6	4	25	28	27	20
Enterprise*	22	25	21	26	28
C&Q Average		21	15	32	24

* The Enterprise scores are weighted averages of all departments

Table 15. Rank Order of Mean OCAI Scores by Culture Type

Organization	N	<u>Clan</u>		<u>Adhocracy</u>		<u>Market</u>		<u>Hierarchy</u>	
		Current	Preferred	Current	Preferred	Current	Preferred	Current	Preferred
AIR 2.2	4	3	3	4	4	2	2	1	1
AIR 2.3	7	3	3	4	4	1	1	2	2
AIR 2.4	5	3	2	4	4	2	3	1	1
AIR 2.5	2	1	1	4	2	3	3	2	4
AIR 2.6	4	4	3	3	1	1	2	2	4
Enterprise	22	3	1	4	4	2	3	1	2

F. DISCUSSION OF OCAI RESULTS

There is no one type of culture that predicts successful organizational performance or exemplifies the model of a successful company. However, several studies have shown that organizational factors, such as organizational culture, are strong determinants of performance (Calori & Sarnin, 1991). Conversely, other studies have shown that strong cultures have lead to the demise of some organizations or even whole industries (Schein, 2004). Denison and Spreitzer (1991) discuss the implications of strong cultures on organizational performance. They state that overemphasizing one culture type within an organization may cause it to become dysfunctional, and the strengths of that culture become the weaknesses.

The goal of this study was not to formulate a grand strategy for cultural change, as implementing culture change is no easy undertaking. Embarking on such a path requires a much larger scope than was available to this researcher and much more in-depth analysis than was possible in this study. Instead, the purpose was to build self-awareness among the leaders at NAVAIR of the dominant culture that exists within their organization. This was accomplished through the use of a culture assessment in order to determine the differences in the perception of the current and preferred organizational culture at both the individual department and Enterprise level.

NAVAIR 2.0 typifies an organization that may benefit from a cultural self-assessment leading to a strategic plan to change the dominant culture. The primary reason is due to the continuous process improvement efforts that have been initiated within the organization. As stated by Cameron & Quinn (2006), modifying organizational culture is vital to the successful implementation of major improvement strategies (p. 16). Improvement efforts are dependent on culture change because when values, orientations, definitions, and goals remain the same, even when procedures and strategies are altered, organizations quickly return to the previous culture. Thus, without culture change, there is little hope for enduring improvement in organizational performance.

The matching of leadership style with the organization's dominant culture type is critical to the success of both the organization and the leader. Cameron & Quinn (2006) found that when an organization is dominated by a culture type, the most effective

leaders are those who demonstrate a matching leadership style. Additionally, the highest performing leaders are also those who have developed the skills to operate effectively in any of the four quadrants or culture types (Denison, Hooijberg & Quinn, 1995). Consequently, this study has created an awareness of the dominant culture type within each of the five NAVAIR Contracting Directorate's departments. Using Figure 13 and the results in Appendix F, the leaders of each department can alter or adjust their leadership style to coincide with the perceived current culture type. Furthermore, measuring the preferred culture helps leaders adjust their leadership style to conform to a new culture type, if change is warranted. For example, AIR 2.2 and Air 2.4 indicated a strong Hierarchy-dominant culture. Effective leaders in this culture type should seek to align their leadership skills with the organization by becoming proficient at coordinating, monitoring, organizing, and controlling efficiency. On the other hand, the study results revealed that AIR 2.3 and Air 2.6 had a predominantly Market-type culture. Effective "market type" leaders are those who tend to be hard-driving, competitive individuals who are good at motivating others and producing results. Finally, AIR 2.5 is the only department whose current and preferred culture is a Clan-type culture. While there is no one culture that will predict organizational success, Cameron & Quinn (2006), in their observation of more than 1,000 organizations, found that top managers tend to have higher Clan scores. Clan leaders are viewed as team builders, facilitators, and mentors who focus on development and participation as the means to produce effectiveness.

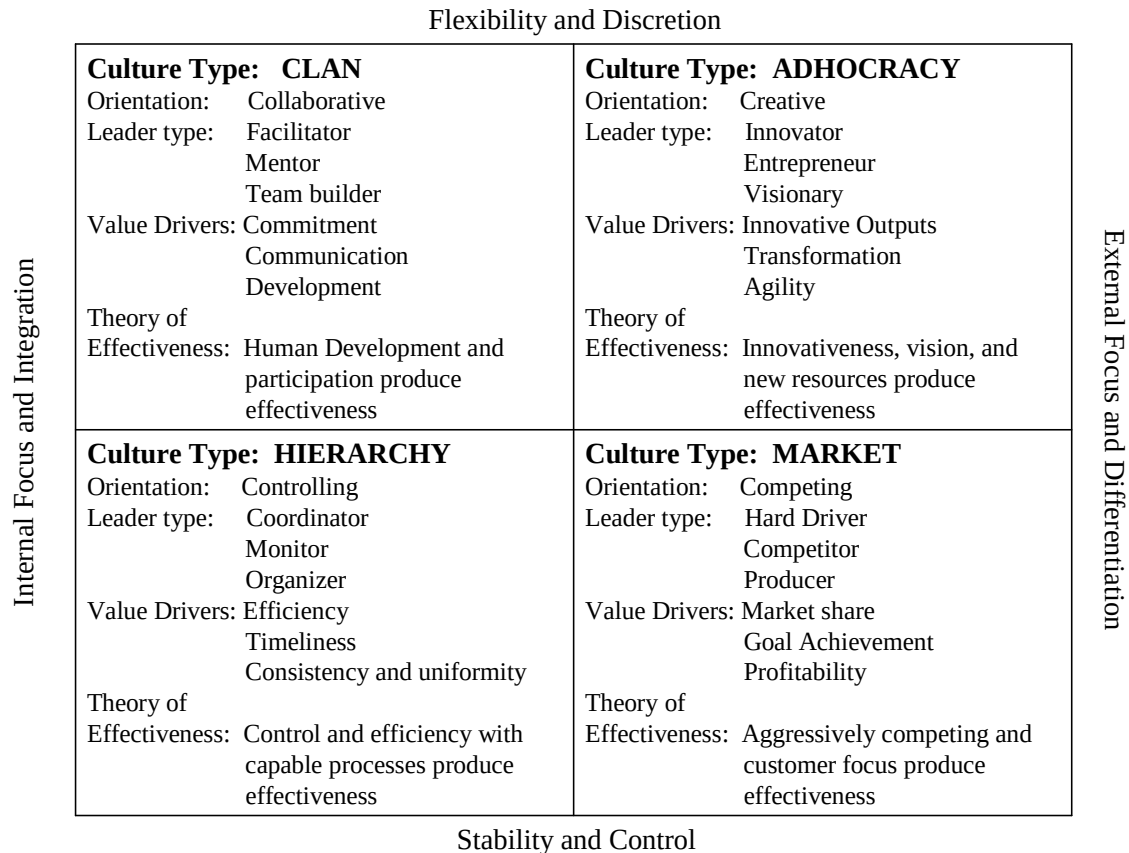


Figure 13. Competing Values of Leadership, Effectiveness, and Organizational Theory
(After: Cameron & Quinn, 2006)

G. SUMMARY

This chapter discussed the administration of the CMMAT and OCAI surveys and provided a detailed description of the results. The CMMAT participant scores and results were reviewed in relation to each department and in aggregate for the Enterprise assessment. Additionally, a guide for contract management process improvement was provided for each of the five key process areas. The OCAI participant scores and results were also reviewed in relation to each department and in aggregate. The discussion of the OCAI results included a synopsis of how the organization's leaders can better align their leadership style to organizational culture for optimum results. Chapter V will summarize the research conducted in this study, answer the primary and secondary research questions, provide a statement of conclusion, and discuss recommended areas for further research.

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V. SUMMARY, CONCLUSIONS AND FURTHER RESEARCH

A. INTRODUCTION

This chapter provides a summary of the research, including a review of the CMMM and OCAI assessment results, statements of conclusion to the primary and subsidiary questions posed in Chapter I, and a discussion of areas for further research.

This study provides an external look at the Naval Air Systems Command Contracting Directorate contract management processes and organizational culture. It presented a review of the background of maturity models and organizational culture theory, discussed the framework of the Contract Management Maturity Model and Organizational Culture Assessment Instrument, evaluated the results of the assessments applied at the Naval Air Systems Command Contracting Directorate, and provided a guide to process improvement.

The goal of this analysis was to contribute to a better understanding of contract management processes at NAVAIR 2.0 and provide a greater awareness of organizational culture in order to assist the leadership to better align and develop leadership skills commensurate with the culture type revealed through this assessment.

B. SUMMARY

This study assessed the maturity of the contracting processes and the organizational culture at the Naval Air Systems Command. The contracting processes were assessed using the Contract Management Maturity Model. The study surveyed 18 senior members of the Contracting Directorate to measure process capabilities in each of six key process areas. The study also surveyed 22 members of the Contracting Directorate using the OCAI to measure organizational culture type and strength.

The conclusions of this research are presented in the context of the research questions posed in Chapter I. This study assessed the following primary research question:

What level of maturity are the contracting processes at the NAVAIR Contracting Directorate?

The maturity levels of contracting processes at the departmental level and Enterprise level are presented in Appendix E. The Enterprise key process areas of Procurement Planning, Solicitation Planning, Solicitation, Source Selection, and Contract Administration were assessed at the “structured” maturity level. At this level of maturity, contract management processes and standards are fully established, institutionalized, and mandated throughout the entire organization, but they are not necessarily integrated with other organizational core processes. The key process area of Contract Closeout was assessed to be at the “basic” maturity level. At this level of maturity, some basic contract management processes and standards have been established within the organization, but these processes are required only on selected complex, critical, or high-visibility contracts. The organization does not consider these contract management processes or standards established or institutionalized throughout the entire organization.

The following supplementary research questions were answered:

How can the results of the study be used for process improvement at NAVAIR’s Contracting Directorate?

As illustrated in Appendix E, the levels of maturity are not consistent across each department. The organization can leverage the best practices of those departments with higher assessed maturity levels and pass them on to the departments with lower assessed maturity levels. For example, AIR 2.2’s Contract Closeout processes were assessed to be “structured.” This was the highest maturity level in this key process area. Their best practices can be passed to the other four departments to help them improve and progress to the next maturity level.

Since every member of the organization should have a basic understanding of each phase of the contracting process, the organization can use the results of the assessment to revamp its training program. It can review weak key process areas and

provide continuous training in these areas. Training should focus on the key activities within each key process area and best practices gained from both within and outside the organization.

What are the dominant culture types and strengths of NAVAIR's Contracting Directorate?

The results of the OCAI are illustrated in Appendix F. AIR 2.2 and 2.4 indicate that they have a Hierarchy-type culture. The results indicate that AIR 2.3 and 2.6 have a Market-type culture. AIR 2.5 was the only department assessed to have a Clan-type culture. The Contracting Directorate, as a whole, is assessed as having a balanced culture with a slight Hierarchy-type dominance. An assessment of the “preferred” culture type revealed that the Contracting Directorate prefers a mixed and balanced culture with a slight inclination for a Hierarchy-type culture.

Can the leaders at NAVAIR's Contracting Directorate improve or maintain organizational performance by understanding its dominant culture type?

The leaders at the NAVAIR Contracting Directorate should seek to understand their organizational culture for several reasons. First, a greater understanding of organizational culture allows them to align their leadership styles to the culture type for increased organizational performance. Second, a leader must lead organizational change for it to achieve lasting affects. A leader who understands the link between leadership and organizational culture will be better prepared to initiate major changes affecting the organizational. An understanding of this link will, in turn, afford a better understanding of the cultural environment and foster lasting change—rather than short-lived change that ultimately returns to the previous culture. Finally, by establishing a firm grasp on the organization's culture, a leader can more adeptly “roadmap” appropriate steps to successful accomplishment of organizational goals.

C. CONCLUSION

The preceding chapters and this chapter have explained the purpose of the study, developed the research questions, established the framework for conducting the study, discussed why the study is important, described the methodology for both assessments, explained the contracting process and why the NAVAIR was chosen, reported and interpreted results, drawn conclusions from the results, and, finally, discussed how this study might inform and assist future research.

The results show that most of NAVAIR's contracting departments are operating at the "integrated" or "structured" maturity level in all key process areas except Contract Closeout; in this area, they function predominantly at the "basic" level. There are no right or wrong culture types, and the cultural assessment did not indicate any significant cultural abnormalities. The leaders can use the culture assessment to refine their leadership skills for optimal organization performance.

D. AREAS FOR FURTHER RESEARCH

Several recommendations for additional research emerge from the present study. It is recommended that the NAVAIR Contracting Directorate conduct a follow-on assessment in several years to determine trends and whether process maturation is occurring. This can be accomplished organically, through an outside consulting firm, or by another student at NPS.

This study did not investigate the criteria of contracting process success. Further studies should investigate the interrelationship between contracting process maturity, organizational success, and organizational culture.

Finally, additional research should be conducted at other Naval Systems Commands to enable best practice sharing among all SYSCOMs. This would align with GAO recommendations to use best practices and enable synergistic benefits during these resource-deficient times.

APPENDIX A

CONTRACT MANAGEMENT MATURITY ASSESSMENT TOOL

The Contract Management Maturity Assessment Tool consists of 10 statements for each of six contracting processes. Please read each statement carefully. For each statement, circle the number in the rating column that is most descriptive of your organization. If you are not sure, circle “DK” or “Don’t Know.”

The ratings are:

- 1 = Never
- 2 = Seldom
- 3 = Sometimes
- 4 = Usually
- 5 = Always
- DK = Don’t Know

Which Department/Program Executive Office (PEO) are you currently working with?

PEO(A) PEO(T) PEO(W) PEO(JSF) AIR 2.5

How many years of contracting experience do you have?

- < 2 years
- 2—5 years
- 6—10 years
- 11—15 years
- > 15 years

Are you a warranted contracting officer?

- Yes
- No

Do you have a DAWIA Level II or III certificate in contracting?

- Yes
- No

CMMAT SURVEY SAMPLE QUESTIONS ⁷

1.0 Procurement Planning	Never	Seldom	Sometimes	Usually	Always	Don't Know
The result of the acquisition planning process is a documented acquisition management plan that effectively provides a roadmap for the upcoming procurement.	1	2	3	4	5	DK
The acquisition planning process is fully integrated with other organizational processes, such as cost management, engineering, and program management.	1	2	3	4	5	DK
The acquisition planning process includes an integrated assessment of contract type selection, risk management, and contract terms and conditions.	1	2	3	4	5	DK

2.0 Solicitation Planning	Never	Seldom	Sometimes	Usually	Always	Don't Know
The solicitation planning process uses standard procurement documents, such as formal requests for proposal, model contracts, and pre-approved terms and conditions, and some portions may be automated or paperless.	1	2	3	4	5	DK
The team responsible for preparing the various solicitation documents includes representatives from other functional areas of the program, as well as the end user.	1	2	3	4	5	DK
The solicitation documents include appropriate evaluation criteria consistent with the acquisition strategy of the project.	1	2	3	4	5	DK

3.0 Solicitation	Never	Seldom	Sometimes	Usually	Always	Don't Know
The results of the solicitation process are accurate and complete bids or proposals from prospective offerors who have a clear common understanding of the technical and contractual requirements of the procurement.	1	2	3	4	5	DK
The solicitation process includes using an established qualified bidders list, conducting market research, advertising, and holding bidders' conferences.	1	2	3	4	5	DK
The solicitation process includes soliciting inputs from industry to be used in developing solicitations for certain types of procurements.	1	2	3	4	5	DK

⁷ The questions in Appendix A are only a small sampling of the bank of survey questions available in the CMMAT and used in this research.

4.0 Source Selection	Never	Seldom	Sometimes	Usually	Always	Don't Know
The organization uses evaluation criteria, evaluation standards, and a weighting system to evaluate proposals.	1	2	3	4	5	DK
The organization uses the appropriate selection criteria, such as lowest cost/technically acceptable or best value, to meet the objectives of the acquisition strategy.	1	2	3	4	5	DK
During the proposal evaluation process, the organization considers the offerors' past performance, as well as technical, managerial, and financial capability.	1	2	3	4	5	DK

5.0 Contract Administration	Never	Seldom	Sometimes	Usually	Always	Don't Know
The organization has an established process for assigning contracts to individuals or teams for managing the post-award contract activities.	1	2	3	4	5	DK
The organization conducts pre-performance conferences with new contractors to discuss such issues as communication, contract change control, and performance monitoring procedures.	1	2	3	4	5	DK
The organization has an established process for managing contract changes, contractor invoices and payments, and contract incentive and award fees.	1	2	3	4	5	DK

6.0 Contract Closeout	Never	Seldom	Sometimes	Usually	Always	Don't Know
The organization has an established process for closing out contracts, ensuring completion of work, complete documentation, and resolution of financial and contract performance issues.	1	2	3	4	5	DK
The contract closeout process requires verifying final delivery and payment, as well as obtaining the seller's release of claims.	1	2	3	4	5	DK
The organization adopts lessons learned and best practices as methods for continuously improving the contract closeout process.	1	2	3	4	5	DK

From: Garrett & Rendon, 2005

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APPENDIX B

ORGANIZATIONAL CULTURE ASSESSMENT INSTRUMENT

The Organizational Culture Assessment Instrument consists of six sets of statements. Please read each statement carefully. For each statement, assign a number from 0 to 100 for how descriptive the statement is of your organization currently in the "now" column. Give a higher number of points to the statements that are most descriptive of your organization. Once you reach the total row, please be sure that your points total 100 for each set of statements.

Once you have completed the ratings in the "now" column, please go back and reread the statements and think about how you anticipate your organization to change in the next five years in order to be highly successful. Please fill out these ratings in the "preferred" column. Please double check to see that your points total 100 for each set of statements.

The table below provides an example for an organization that currently focuses on A, but is anticipating placing a higher emphasis on B in the future.

<u>Item</u>	<u>Now</u>	<u>Preferred</u>
A	65%	50%
B	15%	35%
C	15%	10%
D	5%	5%
TOTAL	100%	100%

1. Dominant Characteristics	Now	Preferred
A The organization is a very personal place. It is like an extended family. People seem to share a lot of themselves.		
B The organization is a very dynamic and entrepreneurial place. People are willing to stick their necks out and take risks.		
C The organization is very results-oriented. A major concern is with getting the job done. People are very competitive and achievement-oriented.		
D The organization is a very controlled and structured place. Formal procedures generally govern what people do.		
<i>TOTAL</i>	<i>100</i>	<i>100</i>

2. Organizational Leadership	Now	Preferred
A The leadership in the organization is generally considered to exemplify mentoring, facilitating, or nurturing.		
B The leadership in the organization is generally considered to exemplify entrepreneurship, innovation, or risk taking.		
C The leadership in the organization is generally considered to exemplify a no-nonsense, aggressive, results-oriented focus.		
D The leadership in the organization is generally considered to exemplify coordinating, organizing, or smooth-running efficiency.		
<i>TOTAL</i>	<i>100</i>	<i>100</i>

3. Management of Employees	Now	Preferred
A The management style in the organization is characterized by teamwork, consensus, and participation.		
B The management style in the organization is characterized by individual risk taking, innovation, freedom, and uniqueness.		
C The management style in the organization is characterized by hard-driving competitiveness, high demands, and achievement.		
D The management style in the organization is characterized by security of employment, conformity, predictability, and stability in relationships.		
<i>TOTAL</i>	<i>100</i>	<i>100</i>

4. Organization Glue		Now	Preferred
A	The glue that holds the organization together is loyalty and mutual trust. Commitment to this organization runs high.		
B	The glue that holds the organization together is commitment to innovation and development. There is an emphasis on being on the cutting edge.		
C	The glue that holds the organization together is the emphasis on achievement and goal accomplishment.		
D	The glue that holds the organization together is formal rules and policies. Maintaining a smooth-running organization is important.		
TOTAL		100	100

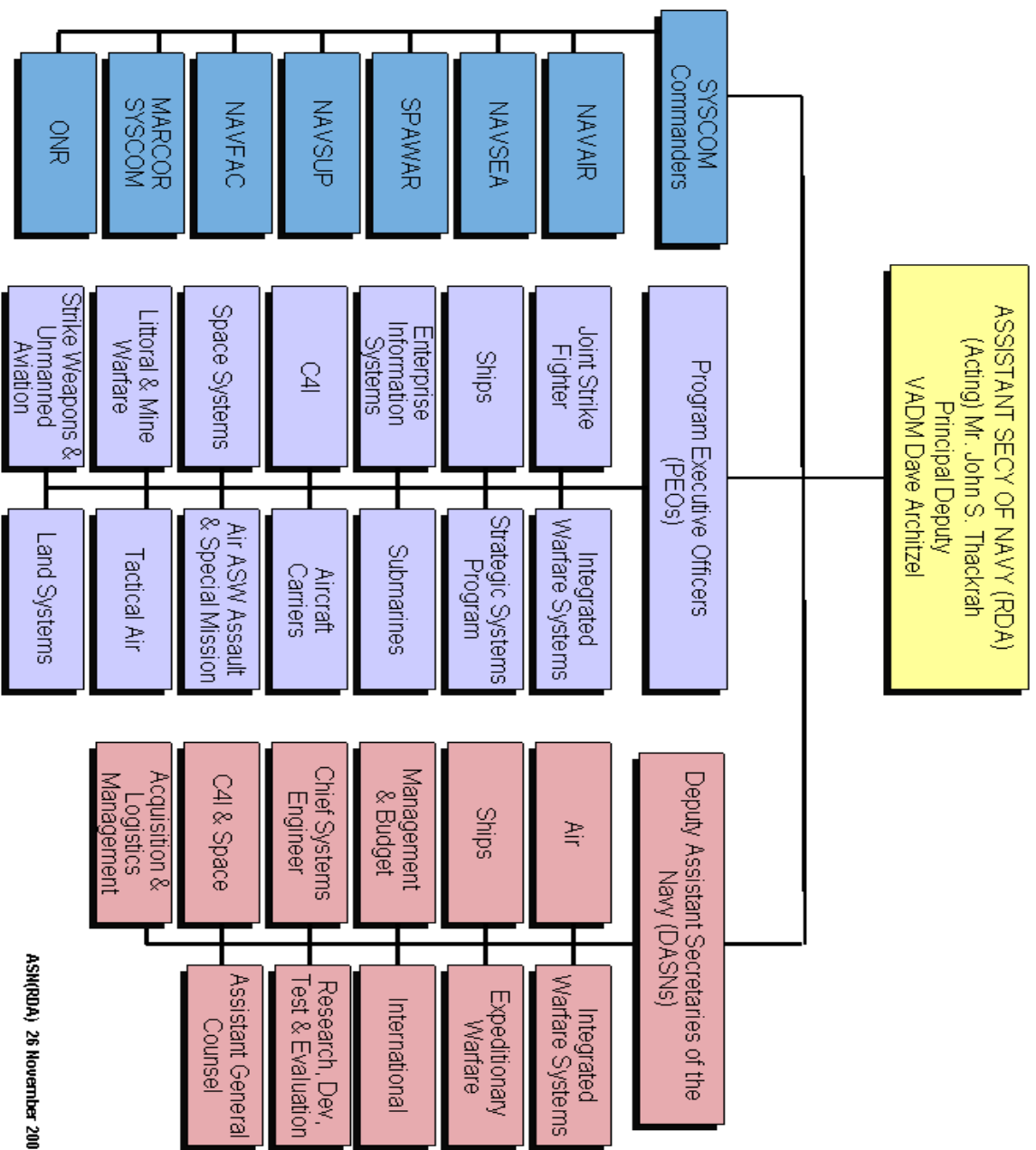
5. Strategic Emphases		Now	Preferred
A	The organization emphasizes human development. High trust, openness, and participation persist.		
B	The organization emphasizes acquiring new resources and creating new challenges. Trying new things and prospecting for opportunities are valued.		
C	The organization emphasizes competitive actions and achievement. Hitting stretch targets and winning in the marketplace are dominant.		
D	The organization emphasizes permanence and stability. Efficiency, control, and smooth operations are important.		
TOTAL		100	100

6. Criteria of Success		Now	Preferred
A	The organization defines success on the basis of the development of human resources, teamwork, employee commitment, and concern for people.		
B	The organization defines success on the basis of having the most unique or newest products. It is a product leader and innovator.		
C	The organization defines success on the basis of winning in the marketplace and outpacing the competition. Competitive market leadership is key.		
D	The organization defines success on the basis of efficiency. Dependable delivery, smooth scheduling, and low-cost production are critical.		
TOTAL		100	100

From: Cameron & Quinn, 2006

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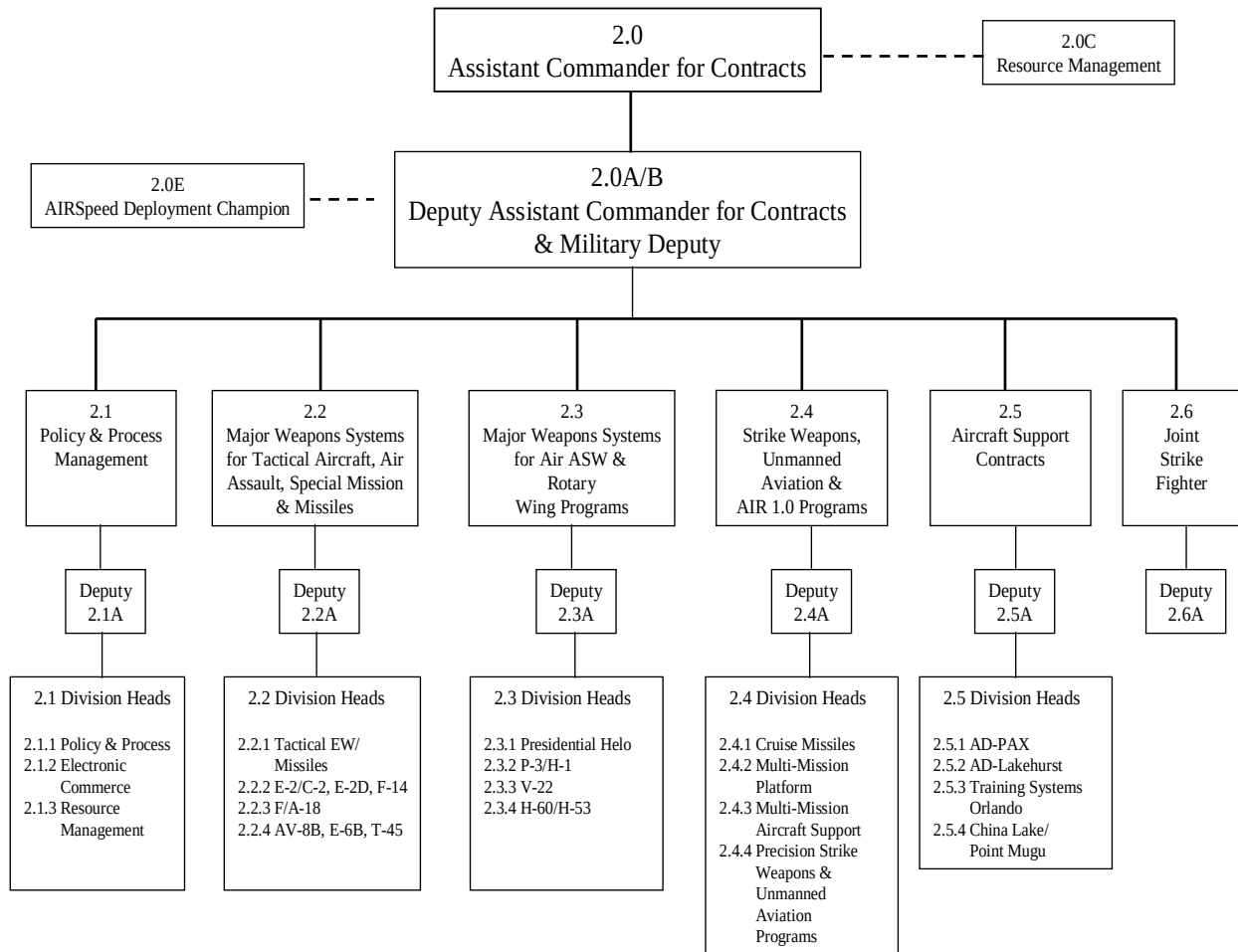
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APPENDIX D

AIR 2.0 ORGANIZATION



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APPENDIX E

NAVAIR Contracting Directorate Maturity Levels

CONTRACT MANAGEMENT MATURITY MODEL						
MATURITY LEVELS	CONTRACT MANAGEMENT KEY PROCESS AREAS					
	PROCUREMENT PLANNING	SOLICITATION PLANNING	SOLICITATION	SOURCE SELECTION	CONTRACT ADMIN	CONTRACT CLOSEOUT
5 OPTIMIZED						
4 INTEGRATED	2.3	2.3		2.2 2.3 2.5		
3 STRUCTURED	2.2 2.4 2.5 2.6 E	2.2 2.4 2.5 2.6 E	2.2 2.3 2.4 2.5 2.6 E	2.4 2.6 E	2.2 2.3 2.4 2.5 2.6 E	2.2 2.3 2.4 2.5 2.6 E
2 BASIC						2.3 2.4 2.5 2.6 E
1 AD HOC						

KEY:



: AIR 2.2 / PEO(T)



: AIR 2.3 / PEO(A)



: AIR 2.4 / PEO(W)



: AIR 2.5 / AIRCRAFT SUPPORT CONTRACTS



: AIR 2.6 / PEO(JSF)

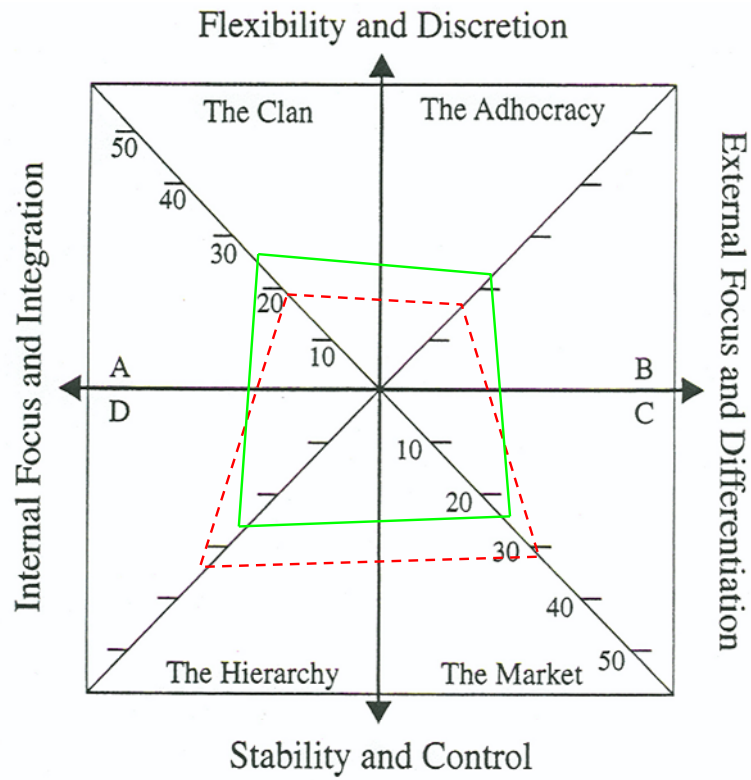


: NAVAIR 2.0 / ENTERPRISE

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APPENDIX F

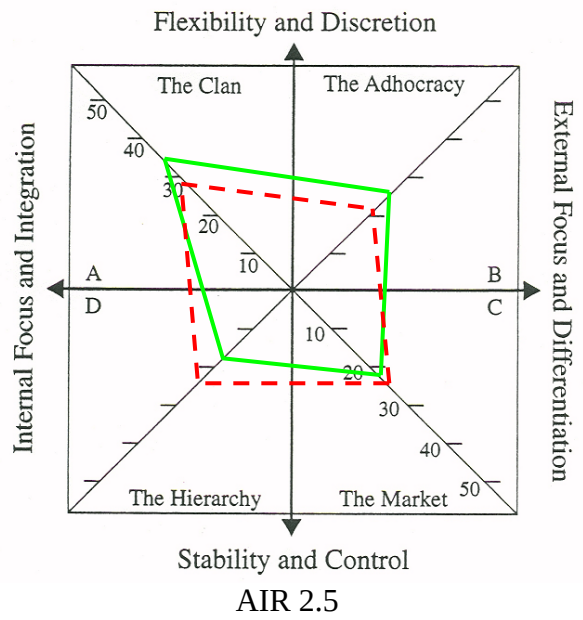
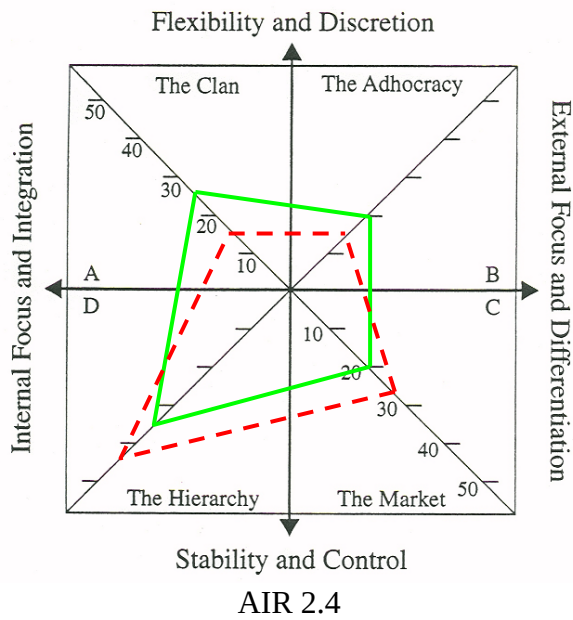
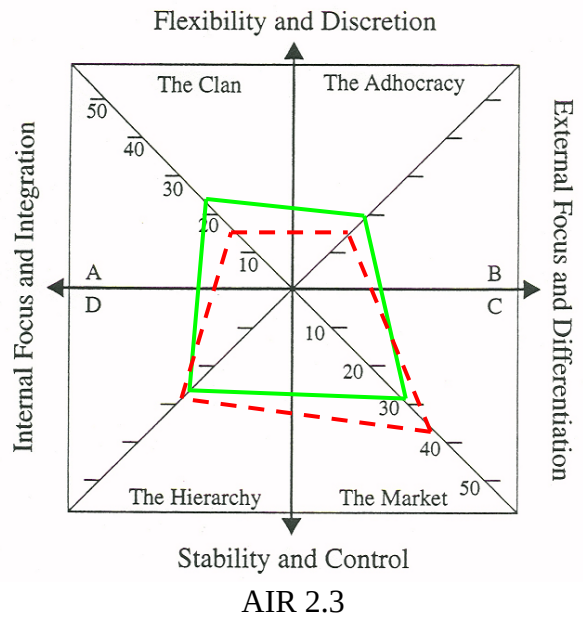
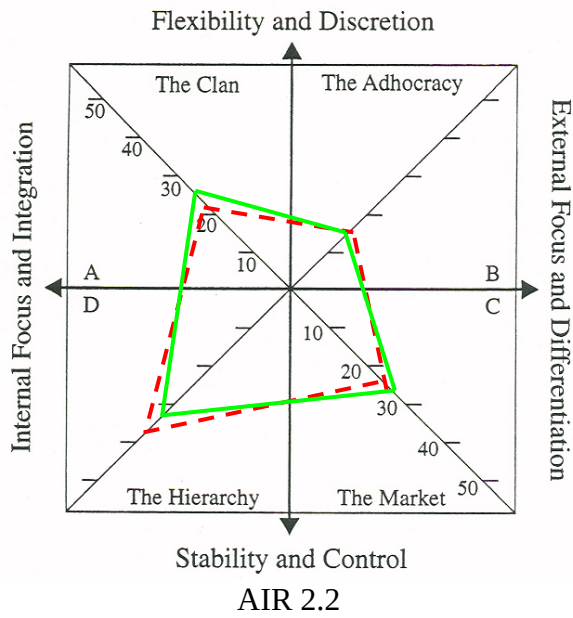
OCAI RESULTS FOR NAVAIR CONTRACTING DIRECTORATE

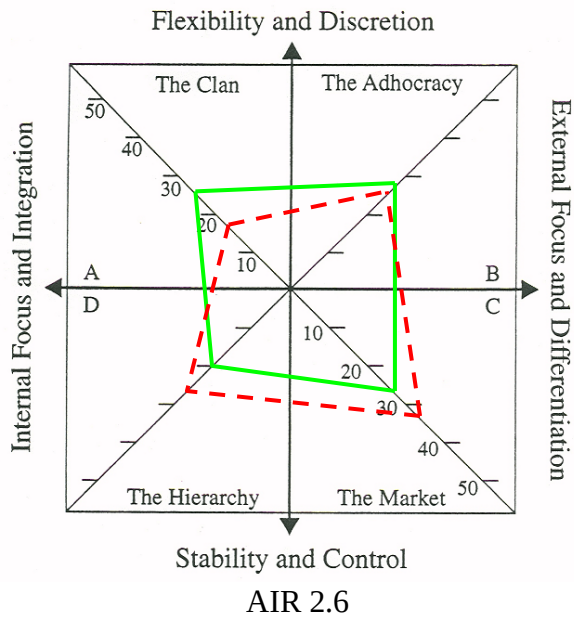


--- Current NAVAIR 2.0 culture

— Preferred NAVAIR 2.0 culture

OCAI RESULTS FOR INDIVIDUAL DEPARTMENTS





- - - Current NAVAIR 2.0 culture
- Preferred NAVAIR 2.0 culture

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