PROCUREMENT PROCESS MATURITY:
KEY TO PERFORMANCE MEASUREMENT

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ABSTRACT.   Performance measurement has been receiving increased attention in public organizations. As performance measurement systems begin to take on a central focus by public sector organizations, the challenges of measuring and improving critical organizational processes continue to increase in importance.   Furthermore, as the procurement process continues to gain critical importance in public sector organizations, the need to apply specific performance measurement methods to measure and improve the procurement processes is essential for mission success. This article introduces the Contract Management Maturity Model (CMMM) as a method for assessing, measuring, and improving an organization's procurement processes. The results of the case study describe the organizational benefits of using a contract management maturity model as a performance measurement, as well as a process improvement method.

INTRODUCTION

Organizational performance measurement has been receiving increased attention in recent years, in both private and public organizations. The recent financial scandals and resulting legislative statutes, such as the Sarbanes-Oxley Act of 2002, have directed the attention of private sector organizations to their organizational processes and especially the internal control, documentation, and the outputs of those processes (Scott, 2004). Additionally, previous government initiatives such as the Government Performance and

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Results Act of 1993 (GPRA) and the National Performance Review have resulted in federal agencies increasing their attention on performance measurement such as the process measurement and improvement of their most critical processes (Laurent, 1998). Finally, the current literature reflects an increased focus on performance measurement at the state and local government levels as well (Halachmi & Bouckaert, 1996; Kearney & Berman, 1999; Niven, 2003; Poister, 2003). As performance measurement systems begin to take on a central focus by both private and public sector organizations, the challenges of measuring and improving organizational processes continue to be faced by these organizations. Furthermore, as the public procurement process continues to gain critical importance in public sector organizations, especially at the state and local government sectors, the need to apply performance measurement methods to measure and improve the procurement processes is also gaining increased attention.   The purpose of this article is to discuss the application of performance measurement, such as process measurement and improvement methods, to the public procurement process. First, a brief discussion of performance measurement in public sector organizations will be presented. Next, the application of performance measurement methods, specifically process capability maturity models, to the public procurement process will be discussed.   Finally, the results of a case study involving the application of the Contract Management Maturity Model (CMMM) as a method for assessing, measuring, and improving an organization's procurement processes will be summarized.

PERFORMANCE MEASUREMENT IN PUBLIC SECTOR ORGANIZATIONS

Performance measurement in both private and public sector organizations has been the focus of attention in recent years. Since the introduction of continuous process improvement during the total quality management era (Crosby, 1979; Deming, 1986; Juran, 1988), private and public sector organizations have emphasized the measurement of performance as a method for improving quality, processes, and organizational competence. In 1993, then President Clinton's Government Performance and Results Act (GPRA) sparked an initial focus on performance measurement within the federal

government. The GPRA was aimed at effecting a transformation in how the federal government was managed, specifically by implementing an accountability system based on setting goals and objectives and measuring performance toward those goals (Laurent, 1998; Niven, 2003). Prior to the enactment of this legislation, President Clinton initiated a six month review headed by Vice President Al Gore to study how to improve government performance. That six month review, called the National Performance Review, focused on how the government should work, not on what the government should do, thus, emphasizing performance improvement (Gore, 1993).

These legislative initiatives have spurred public sector organizations to take an aggressive stance on performance measurement, which includes measuring various areas such as financial accountability, program products and outputs, adherence to quality standards, key performance indicators, and client satisfaction, just to name a few (Niven, 2003). Although public sector organizations have experienced benefits and realized efficiencies in measuring performance, further improvements are needed to address the issues related to complex, multi-dimensional and long-term goals of public sector organizations (Kearney and Berman, 1999). Goldsmith and Eggers (2004) discuss the rise of complex and multi-dimensional public sector organizations and describe the networked government model as resulting from the confluence of the following trends shaping the public sector—the increased use of private firms and nonprofit organizations to deliver services and fulfill policy goals; the increased trend of multiple government agencies to join together and provide integrated services; the technological advances resulting from the digital revolution; and the increased citizen demand for customized services that are provided by the private sector.

In response to these environmental trends, public sector organizations have turned to more innovative and integrated methods for measuring performance. The use of the Balanced Scorecard management system, an already proven methodology in the private sector, is now successfully being implemented in state and local government agencies. Using the Balanced Scorecard approach, public sector organizations measure performance in four distinct perspectives—customer, internal processes, learning and growth, and financial (Niven, 2003). A significant emphasis in the Balanced

Scorecard approach is placed on the internal processes perspective. In this perspective, the organization selects and measures the most critical internal processes that it must excel at in order to meet and exceed its customers' needs. Due to the changing nature of government agencies and the emergence of the networked government model, public sector organizations are identifying the procurement process as a critical core process that should be the focus of their performance measurement effort. The next section of this article will discuss the application of performance measurement methods, specifically the process capability maturity model, to the public procurement process.

MEASURING PROCUREMENT PROCESS PERFORMANCE

Today's public sector environment has changed dramatically. As described by Goldsmith and Eggers (2004), contemporary public officials must develop new models of governance to reflect the increasingly complex societies. The dynamics of today's government agencies have been significantly affected by the way supplies and services are delivered and fulfill government policy goals---that is, through the use of private firms as opposed to government employees. This "new shape of government" is resulting in public sector organizations having to depend more heavily on external companies to help perform their mission-critical work (Goldsmith & Eggers, 2004). Today's public sector organizations must now manage an increasing number of contractors and suppliers who are performing mission-critical functions for their organizations. Thus, public sector organizational core competencies now include the procurement and contract management processes, and public sector organizations should be focusing their attention on measuring the performance of their critical procurement processes (Burt, Dobler, & Starling, 2003; Burman, 1999; Kelman, 2001; Garrett & Rendon, 2005).

Procurement Process Maturity

Process performance measurement typically focuses on the concept of process capability and maturity. Organizations have used process capability maturity models to assess, measure, and improve their organizational critical core processes, such as software development and project management (Garrett & Rendon, 2005).

Process capability in these models is defined as the inherent ability of a process to produce planned results (Ahern, Clouse, & Turner, 2001). *Maturity* refers to a measure of effectiveness or capability in any specific process (Dinsmore, 1998). Maturity is usually described in terms of *levels* of effectiveness or capability. A *maturity level* refers to a level of organizational capability created by the transformation of one or more domains of an organization's processes. It is an evolutionary plateau on an organization's improvement path from ad hoc practices to a state of continuous improvement (Curtis, Hefley & Miller, 2001). Finally, a *process capability maturity model* refers to a roadmap for implementing the vital practices for one or more domains of organizational processes. It contains the essential elements of effective processes for one or more disciplines. It describes an improvement path from an ad hoc, immature process to a disciplined, mature process with improved quality and effectiveness (Curtis, Hefley & Miller, 2001). Thus, *contract management maturity* can be defined as the measure of effectiveness of an organization's contract management processes. *Contract management*, in this article, is defined as the process of awarding and administering contracts generally referred to as purchasing in private companies and as procurement or acquisition in the government (Sherman, 1987). In discussing process capability and maturity, the term *contract management* will be used in lieu of *procurement* to reflect the applicability of the capability maturity model to both private and public sector organizations.

Measuring contract management performance, just as in any other critical process, should focus on process effectiveness, which can be described in terms of maturity levels reflecting the organization's contract management process capability. The Contract Management Maturity Model (CMMM) describes an evolutionary roadmap which an organization pursues in improving its contract management process capability from an ad hoc (immature) process to a continuously improved, or optimized (mature) process. Mature contract management processes describe organizational capabilities that can consistently produce successful performance results for government procurement managers. The CMMM provides its users with a framework or a guide for improving their respective level of contracting performance (Garrett & Rendon, 2005).

The CMMM provides a visual tool to help public procurement organizations assess the major steps which they must accomplish

when procuring supplies, services, or integrated solutions. The CMMM consists of five levels of maturity applied to six key process areas and related practice activities of the contract management process. The five maturity levels reflected in the model allow an organization to assess its level of capability for each of the six key process areas of the procurement process. The six key process areas and related practice activities allow the organization to focus on specific areas and activities involved in procurement. The remainder of this section will describe these components of the CMMM.

Five Levels of Maturity

The CMMM consists of five levels of maturity ranging from an "ad hoc" level (Level 1), to a "basic," disciplined process capability (Level 2), to a fully "structured," established and institutionalized processes capability (Level 3), to a level characterized by processes "integrated" with other organizational processes resulting in synergistic enterprise-wide benefits (Level 4), and finally, to a level in which "optimized" processes focused on continuous improvement and adoption of lessons learned and best practices (Level 5). The following is a brief description of each maturity level.

Level 1 - Ad Hoc

The organization at this initial level of process maturity acknowledges that contract management processes exist and that these processes are accepted and practiced throughout various industries and within the public and private sectors. In addition, the organization's management understands the benefit and value of using contract management processes. Although there are no organization-wide established basic contract management processes, some established contract management processes do exist and are used within the organization, but these established processes are applied only on an ad hoc and sporadic basis to various contracts. There is no rhyme or reason as to which contracts these processes are applied. Furthermore, there is only informal documentation of contract management processes existing within the organization, but this documentation is used only on an ad hoc and sporadic basis on various contracts. Finally, organizational managers and contract management personnel are not held accountable for adhering to, or

complying with, any basic contract management processes or standards.

Level 2 - Basic

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

Level 3 - Structured

At this level of maturity, 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. Furthermore, since these contract management processes are mandated, the organization allows the tailoring of processes and documents in consideration for the unique aspects of each contract, such as contracting strategy, contract type, terms and conditions, dollar value, and type of requirement (product or service). Finally, senior organizational management is involved in providing guidance, direction, and even approval of key contracting strategy, decisions, related contract terms and conditions, and contract management documents.

Level 4 - Integrated

Organizations at this level of maturity have contract management processes which are fully integrated with other organizational core processes such as financial management, schedule management, performance management, and systems engineering. In addition to

representatives from other organizational functional offices, the contract's end-user customer is also an integral member of the buying or selling contracts team. Finally, the organization's management periodically uses metrics to measure various aspects of the contract management process and to make contracts-related decisions.

Level 5 - Optimized

The fifth and highest level of maturity reflects an organization whose management systematically uses performance metrics to measure the quality and evaluate the efficiency and effectiveness of the contract management processes. At this level, continuous process improvement efforts are also implemented to improve the contract management processes. Furthermore, the organization has established Lessons Learned and Best Practices programs to improve contract management processes, standards, and documentation. Finally, contract management process streamlining initiatives are implemented by the organization as part of its continuous process improvement program.

These five levels of maturity allow an organization to assess its level of capability and effectiveness for its critical contract management process. The CMMM gives the organization a greater degree of visibility and granularity into its contract management process by dissecting the process into six key process areas. The following section provides a brief description of the six contract management key process areas.

Key Process Areas and Key Practice Activities

The CMMM provides the organization with a detailed roadmap for improving the capability of its contract management processes. In order for the organization to have an accurate and detailed assessment of its process capability, the model reflects the six contract management key process areas as well as key practice activities within each process area. These six contract management process areas are adopted from the Project Management Institute's Project Management Body of Knowledge (PMI, 2000). The contract management key process areas and key practice activities are described next.

Contract Management Key Process Areas

1. Procurement Planning: The process of identifying which organizational needs can be best met by procuring products or services outside the organization. This process involves determining whether to procure, how to procure, what to procure, how much to procure, and when to procure.

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 bids or proposals from prospective sellers on how organizational 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.

Key Practice Activities

In measuring an organization's contract management process maturity, the CMMM focuses on the organization's implementation of key practice activities within each key process area.   These key practice activities reflect the tools, techniques, and proven best practices which leading organizations use in their respective contract management processes.   Each key process area consists of various key practice activities which have been identified in the contract management, procurement, and project management bodies of knowledge, as well as leading edge organizations.   An example of a key practice activity within the procurement planning process would be conducting market research to collect and analyze information about how a specific industry or sector procures certain types of products or services to include contract strategy, type of contract used, pricing arrangements, terms and conditions, and so on.   An organization with a low process capability, or maturity level for this

phase of procurement planning, may reflect an ad hoc or unstructured approach for conducting market research. On the other hand, an organization with a high level of maturity in procurement planning would reflect a market research approach that is integrated with other organizational functions and is measured using efficiency and effectiveness metrics as a way of continuously improving this process.

These contract management *key process areas* and *key practice activities* are the major components of the CMMM and are an integral part of the CMMM's assessment tool—the Contract Management Maturity Assessment Tool (CMMAT). The CMMAT is the assessment instrument used for gathering information from the organization as part of the CMMM maturity assessment process. The contract management maturity assessment tool contains specifically developed questions pertaining to each contract management key process area and related key practice activities. The results of the assessment will indicate the organization's maturity level within each of the key process areas in addition to providing an overall maturity level for the entire contract management process. The next part of this article will discuss the results of a case study in which the CMMM was applied to an organization to assess, measure, and improve its contract management processes.

CASE STUDY RESULTS

In the spring of 2003, the Contract Management Maturity Model was applied to the contracting processes of a major Department of Defense (DoD) procurement organization responsible for awarding and administering multi-billion dollar contracts for DoD and space-related systems. The Directorate of Contracting of the Air Force Space and Missile Systems Center (SMC) is responsible for the contract management of approximately $55 billion in Department of Defense space programs (Space and Missile Systems Center, 2003). Using a cross-sectional survey based on a purposive sample, the contract management maturity assessment tool (CMMAT) was administered to senior level contracting officers representing the various space program contracting offices of SMC. The CMMAT is a sixty-question survey tool using a Likert scale response protocol. The survey questions are specifically related to each of the six contract management key process areas and practice activities. The results of

the contract management assessment tool were then analyzed to determine the maturity level for each of the organization's six procurement processes. Table 1 illustrates the aggregate results of the contract management maturity assessment.

TABLE 1
Contract Management Maturity Model

Maturity Levels	Contract Management Key Process Areas					
	Procurement Planning	Solicitation Planning	Solicitation	Source Selection	Contract Adminis-tration	Contract Closeout
5 Optimized						
4 Integrated				*		
3 Structured	*	*	*		*	
2 Basic						
1 Ad Hoc						*

The maturity assessment results provide a wealth of insight to the organization in terms of which contract management key process areas need to be improved and which contract management key practice activities need to be implemented or enhanced. Furthermore, the assessment results will provide the organization with a roadmap of needed training and education for improving its contract management process capability. For example, an organization with low maturity level (Ad hoc or Basic) in the Contract Closeout key process area will know that it needs to provide policies and additional training in the contract closeout key practice activities. Specifically, to achieve a higher maturity level, the organization will need to establish basic contract closeout processes. Formal documentation will need to be developed for these established contract closeout processes. The organization will also need to institutionalize these contract closeout processes throughout the entire organization. Finally, there will need to be an organizational

policy requiring the consistent use of these contract closeout processes (Garrett & Rendon, 2005).

Additionally, the organization will need to provide training and guidance in conducting contract closeout key practice activities such as verifying and documenting contract completion, making final contract payments, processing contract closeout checklist procedures, and documenting lessons learned and best practices (Garrett & Rendon, 2005). This is the true value and benefit of the contract management process capability maturity model—the continuous improvement of the organization's contract management processes.

The CMMAT provides maturity assessments at the program office level (for organizations with multiple program/product management offices) as well as at the enterprise level. Thus, the assessment results will provide various perspectives on the organization's contract management maturity level. The results may indicate that the organization has varying levels of process capability maturity for each contract management key process area. Among program offices, some process areas may be rated at the "Ad Hoc" level, while the same process areas in another program office are rated at the "Optimized" level. In addition, from an enterprise-wide focus, some process areas may be rated at the "Ad Hoc" maturity level, with deficiencies in established processes, standards, documentation, and management accountability. Yet, other process areas may be rated at the "Integrated" maturity level reflecting process integration with other organizational core processes and the use of efficiency metrics to make management-level procurement-related decisions. Given the results of the maturity assessment on its contract management processes, the SMC directorate of contracting can focus its contract management process efforts on improving its contract close-out processes, as well as enhancing its procurement planning, solicitation planning, solicitation, and contract administration processes and practices.

In addition to the Air Force Space and Missile Systems Center, the Contract Management Maturity Model (CMMM) has also been applied to other Department of Defense procurement organizations including logistics centers, installation-level procurement organizations, and the contract management processes for the United Nations

Peacekeeping Operations and Services. In each of these cases, the CMMM provided valuable benefits to the organization by not only assessing its procurement process maturity, but also by providing an organizational road-map for continuously improving its procurement processes.

SUMMARY

This article discussed the application of performance measurement, specifically process measurement and improvement methods, to the public procurement process. It introduced a discussion of performance measurement in public sector organizations and then presented a discussion on the application of performance measurement methods, namely process capability maturity models, to the public procurement process. The article concluded with the results of a case study involving the application of the Contract Management Maturity Model (CMMM) as a method for assessing, measuring, and improving an organization's procurement processes. In this case study, the results of the CMMM assessment provided valuable information on the maturity levels of specific procurement processes and also provided a roadmap to the organization for improving its procurement process capability. The CMMM is one method that public organizations can use to measure procurement process performance. The CMMM, combined with other procurement performance metrics, provides an effective and efficient strategy for measuring and improving procurement process performance. As organizations in the public sector increasingly depend on contractors to perform complex, specialized segments of their government missions, the importance of procurement management as a critical government process will also continue to grow. This increasing dependence on external sources requires effective and capable government procurement and contract management processes, as well as the need for a systematic approach to assessing, measuring, and improving contract management effectiveness and competence.

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