Department of the Navy Procurement metrics evaluation

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Procurement Metrics Evaluation

30 June 2005

by

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Prepared for: Naval Postgraduate School, Monterey, California 93943

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MBA PROFESSIONAL REPORT

Department of the Navy Procurement Metrics Evaluation

By: Christopher G. Brianas
June 2005

Advisors: Mary Malina,
Kenneth Euske

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DON PROCUREMENT METRICS EVALUATION

ABSTRACT

The purpose of this MBA Project was to investigate and provide a comprehensive evaluation of the current Department of the Navy Procurement Metrics that are collected. These metrics are collected by the Office of the Deputy Assistant Secretary of the Navy for Acquisition Management. This project was conducted at their request and with their support. The goal of this project was to determine if the current metrics are the appropriate procurement performance measures. Specifically, this MBA Project attempted to answer these three questions: (1) Do the metrics align with strategy? (2) Can they be measured effectively? and (3) Are they linked to value? The framework used to explore these questions is Robert Simon's *Levers of Control* model. These procurement metrics are part of a Diagnostic Control System and are being evaluated as such. Simon's *Nature of Measures* model is also used in the analysis and helps determine metric objectiveness, completeness and responsiveness.

Keywords: Management Control Systems, Diagnostic Control Systems, Procurement Metrics, Performance Measures, Nature of Measures

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Christopher G. Brianas, Lieutenant, United States Navy, received his Masters of Business Administration from the Naval Postgraduate School in June 2005. Prior to attending the Naval Postgraduate School, Lieutenant Brianas was assigned to Patrol Squadron FIVE as a Naval Aviator from January 2002 to June 2003. His collateral duties included squadron PAO and publications and manuals officer. This operational tour ended prematurely with Lieutenant Brianas' diagnosis and treatment of testicular cancer. The subsequent limited duty time allowed him the opportunity to complete his graduate education. Prior to his assignment with Patrol Squadron FIVE, Lieutenant Brianas was assigned to and completed the P-3 Orion Fleet Replacement Squadron program at Patrol Squadron THIRTY from April 2001 to December 2001. He earned his Naval Aviator wings in March 2001 after completing flight school, October 2000 to March 2001. He earned his bachelor's degree in Economics from the United States Naval Academy in May 1999. After being medically disqualified from the Naval Aviation community and subsequently selected into the HR community, Lieutenant Brianas looks forward to whatever new assignment the Human Resources community has waiting for him.

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TABLE OF CONTENTS

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LIST OF FIGURES

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LIST OF TABLES

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ACKNOWLEDGMENTS

I would like to thank Professors Mary Malina and Kenneth Euske. Without their help and guidance the completion of this professional report would not have been possible.

I would also like to thank my family for their unwavering support.

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I. INTRODUCTION

Data collection and availability has opened up many opportunities to use that data in a way that helps us become better managers. There are several issues surrounding the use of data and specifically metrics. For instance, is the data accurate? Is that data in a form that makes it reasonable to expend the energy retrieving it? Is the expended energy (resources) worth the information that is gleaned from the data?

The purpose of this project is to provide an evaluation of the current Department of the Navy Procurement performance measurements (metrics) being collected from the Major Naval Systems Commands (SYSCOMs). Specifically, the metrics are being collected from the Head of Contracting Activities (HCAs) within those SYSCOMs. This evaluation will hopefully contribute to deciding if the current procurement metrics are useful, appropriate, and of value.

A. BACKGROUND

In fiscal year 2002 the SYSCOMs were the subject of a Booz Allen and Hamilton effectiveness and efficiency study. The study resulted in eleven recommendations: nine for internal spend and two for industry spend. Of these eleven recommendations two applied specifically to the procurement community. Within these two recommendations, Booz Allen and Hamilton identified an "enabler" for the procurement community. The enabler was "define and institute contracting performance measures and reporting" (Procurement Metrics Guide [PMG], v14.3, p. 4).

The office of the Assistant Secretary of the Navy for Research, Development and Acquisition, ASN (RDA), then tasked the office of the Deputy Assistant Secretary of the Navy for Acquisition Management, DASN ACQ, to "provide a 'dashboard' or spreadsheet for examining the effectiveness and efficiency of the Department of the Navy's Material establishment" (PMG, v14.3, p. 4). DASN ACQ created a working group consisting of HCAs representatives from ten SYSCOMs to assist in the development of standard procurement performance measures.

The working group decided on five focus areas as part of their Balanced Scorecard[1] approach to developing the procurement performance measures. The five focus areas are Customer, People, Process, Financial, and Value. Each area has a strategic theme, objectives, and associated metrics. The dashboard was designed for use specifically within the Navy's Procurement Community, both Military and Civilian, and to serve as an executive level summary of the Navy's procurement performance.

The metrics put together by the working group measure the procurement activities of HCA's representing the following ten SYSCOMs:

Marine Corps Installations and Logistics (MARCOR I&L)
Marine Corps Systems Command (MARCORSYSCOM)
Military Sealift Command (MSC)
Naval Air Systems Command (NAVAIR)
Naval Facilities Engineering Command (NAVFAC)
Naval Sea Systems Command (NAVSEA)
Naval Supply Systems Command (NAVSUP/FISC's/ICP's)
Office of Naval Research (ONR)
Space and Naval Warfare Systems Command (SPAWAR)
Strategic Systems Project Office (SSP)

B. PROBLEM IDENTIFICATION

The HCA working group developed 21 metrics that they stated, when used, would give an overall picture of the effectiveness and efficiency of the Navy's procurement function. The Office of the DASN ACQ is currently collecting data for the metrics from the SYSCOMs as well as pulling data for the metrics from existing databases. However, the office of the DASN ACQ is not receiving all of the HCA responsible metrics from each of the ten SYSCOMs. Some simply just do not have the information needed to answer DASN's metrics data call or do not have the necessary resources in place to retrieve the data. This creates an issue. The metrics need to be evaluated in order to determine if they are useful, appropriate, and of value.

[1] The Balanced Scorecard is a system developed by Robert S. Kaplan and David P. Norton. The scorecard takes an organization's mission and strategy and translates that into goals and measures, both financial and non-financial. The basic scorecard uses four areas for measurement: financial, customer, internal business, and innovation and learning. The metrics working group adapted the basic scorecard to include five focus areas in order to fit their specific needs.

However, without a relatively complete set of metrics it is difficult to determine whether or not the effort should be made to create and generate a full and accurate metric report from each of the ten SYSCOMs.

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II. LITERATURE REVIEW AND FRAMEWORK USED

A. MANAGEMENT CONTROL SYSTEMS

Communication is a critical element of the operations of organizations. Information of all kinds is communicated through both formal and informal channels. One reason managers of organizations are interested in the information communicated is because it sends signals describing the health of the organization. Communication channels also provide a means for the managers to disseminate information. Senior managers can use those channels for communicating a strategic vision, profit goals or receiving information about organizational developments or performance.

All of this information serves as one of the controls in the organization. Controls can be put in place through many methods, varying from internal control systems focused on inventory tracking to a company's mission statement. In Robert Simon's book, *Levers of Control*, he "focuses primarily on the informational aspects of management control systems—the levers managers use to transmit and process information within organizations" (Simons, 1995, p. 5). He uses the following definition of management control systems: management control systems are the formal, information-based routines and procedures managers use to maintain or alter patterns in organizational activities (Simons, 1995, p. 5).

The information-based management control system involves information transmission not only from the top management level to lower levels, but also information flow in the opposite direction. The information flow from the lower levels to top management allows for the monitoring of implemented strategies and other efforts that were communicated down from top management. Figure 1 illustrates this point.

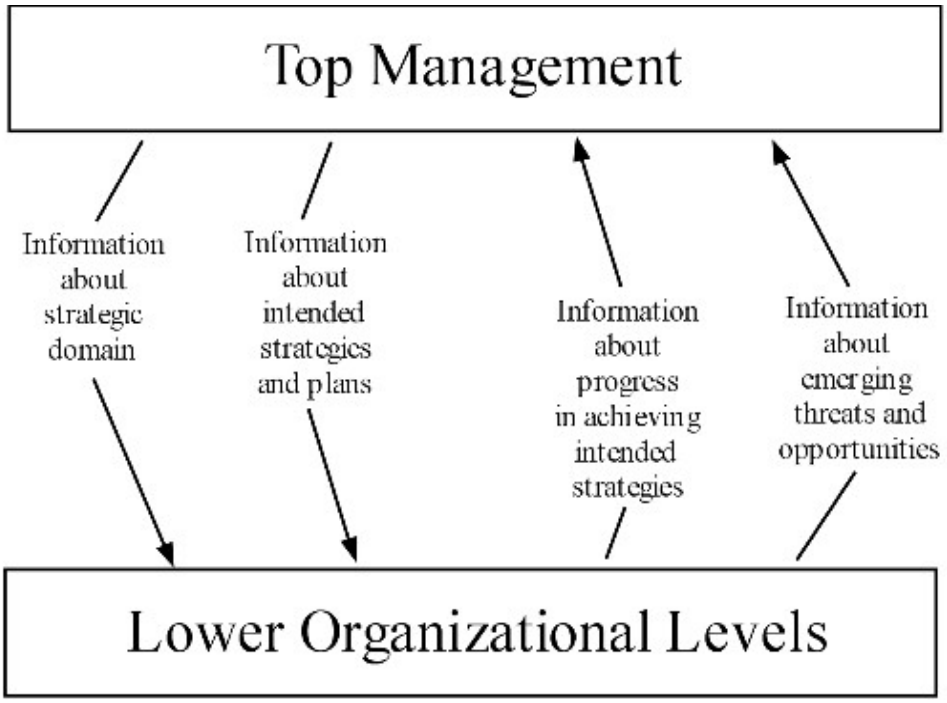

Figure 1. Information Needs of Top Managers (Simons, 1995, p. 6)

As stated above, organizational control can take many forms. A well performing organization will likely have some sort of control throughout all facets of their organization. This may sound oppressive and stifling to the employee's innovation and motivation. However, this does not have to be the case. Control does not necessarily mean micro-managing.

Robert Simons' framework has business strategy as its heart. This is how Simons describes the framework:

> Business Strategy—how a firm competes and positions itself vis-à-vis its competitors—is at the core of the analysis. The second level introduces four key constructs that must be analyzed and understood for the successful implementation of strategy: core values, risks to be avoided, critical performance variables, and strategic uncertainties. Each construct is controlled by a different system, or lever, the use of which has different implications. These levers are: (Simons, 1995, p. 6)

1. **belief systems**, used to inspire and direct the search for new opportunities;
2. **boundary systems**, used to set limits on opportunity-seeking behavior;

3. **diagnostic control systems**, used to motivate, monitor, and reward achievement of specified goals; and
4. **interactive control systems**, used to stimulate organizational learning and the emergence of new ideas and strategies (Simons, 1995, p. 7)

The following figure is the representation of the Levers of Control, with business strategy at the core, surrounded by key constructs to be analyzed and understood, and controlled by the four systems, or levers.

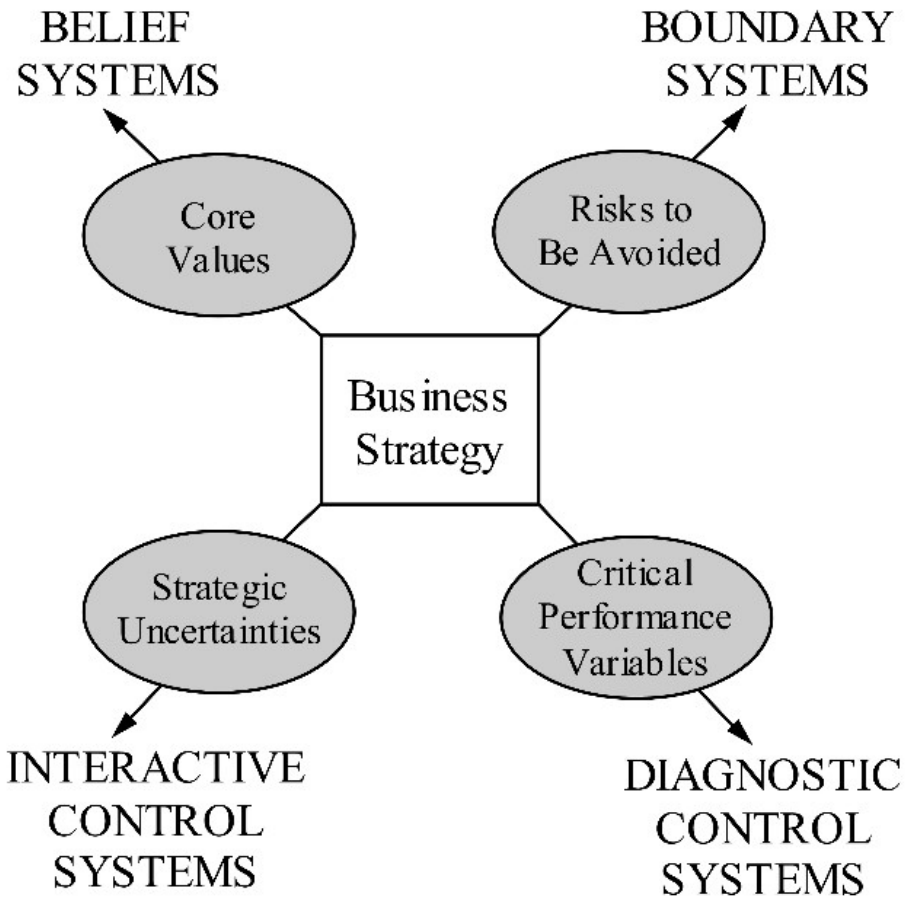

Figure 2. Levers of Control Framework (Simons, 1995, p. 7)

B. BELIEF AND BOUNDARY SYSTEMS

1. Belief Systems

Belief systems, as defined by Simons, "are the explicit set of organizational definitions that senior managers communicate formally and reinforce systematically to

provide basic values, purpose, and direction for the organization" (Simons, 2000, p. 276). The belief system provides the means of control over the organization's foundational principles and ideals.

These principles and ideals are often articulated by an organization's founders and provide the basis for employee action and motivation when rules and regulations alone will not sufficiently address the issue or situation that employees face. They address such things as responsibilities to customers and other employees. This set of principles is typically called a set of core values. Simons defines core values as "the beliefs that define basic principles, purpose, and direction" (Simons, 2000, p. 276). The core values often take the form of a mission statement or credo.

2. Boundary Systems

Belief systems go a long way to inspire and motivate employees to achieve. They give them a sense of purpose to their work. This is beneficial, but there is a limit to what employees can and should do. The employees need to be motivated, innovative and serve the customer, but they should not pursue an avenue which opens up the business to undue risk. An organization needs to understand what risks they want to avoid and apply a set of boundaries to employees to minimize the likelihood of that risk occurring. This lever of control, boundary systems, plays an integral role in business strategy. Without boundaries the belief system is seriously degraded. Enthusiasm can lead to undesired outcomes if left unchecked. The boundary system is like the brakes on enthusiasm and innovation. Simons uses the example of brakes on a car:

> Cars have brakes for two reasons. First, and most obvious, they allow the driver to slow the car down and stop safely. However, cars have brakes for another reason. They give the driver the confidence to go very fast. Imagine a high-performance racing car on a speedway. The driver can operate at top speeds only if he knows that he can rely on excellent brakes to control the car on right turns. Like the fastest cars, managers of high-performance businesses need the best brakes to control strategic risks that are an inevitable consequence of driving their businesses to their maximum potentials (Simons, 2000, p. 275).

A boundary system basically tells employees what not to do. It lets the employees know which actions management deems unacceptable. This may seem like a hindrance on their innovation, but in fact, this is what allows them to be innovative. It allows them to be innovative

in a way which reduces the likelihood that an organization will be exposed to risk. Another approach that a manager could employ would be one telling employees what to do. This method ensures that employees do not perform actions that top management feels are risky. This system also limits what individuals can actually do. Now that the employees are told what to do, they will come to work, follow procedures, and leave. There is minimal opportunity for innovation within this system.

C. INTERACTIVE AND DIAGNOSTIC CONTROL SYSTEMS

The following two systems, which complete the levers of control model, mean quite literally what their titles portray. Managers use these two systems in quite different ways. Interactive control systems require a good deal of interaction between top managers and employees discussing possible emerging opportunities or threats to their business given the changing market environment. The system's intent is to use the information gained from these interactions to modify strategy as the environment changes. Diagnostic control systems are used to diagnose issues or discrepancies which vary from the intended strategy or expected output of the organization. Diagnostic control systems are used to monitor performance of critical performance variables and monitor the implementation of the organization's intended strategy.

1. Interactive Control Systems

Interactive control systems "are the formal information systems that managers use to personally involve themselves in the decision activities of subordinates. Simply stated, [they] are the hot buttons for senior managers. They provide the information that the boss pays a lot of attention to and are used to create an ongoing dialogue with subordinates" (Simons, 2000, p. 216).

Interactive control systems are centered on "strategic uncertainties" or the "emerging threats and opportunities that could invalidate the assumptions upon which the current business strategy is based" (Simons, 2000, p. 215). These uncertainties, by definition, are not known beforehand, they emerge over time. The environment is constantly evolving and changing and then so too does the organization if it is to survive. Therefore, business strategy, the core of the levers of control model, has to be reviewed and examined to determine if the organization's current strategy will put it in a position to be successful. Top managers need to interact with their employees to uncover these strategic uncertainties.

Examples of strategic uncertainties are rapidly changing technologies which could possibly render the organizations' value proposition worthless and governmental relaxing or tightening of regulations. In the first case, this represents a threat to the organization, but strategic uncertainties, as stated above, can be avenues for opportunities for the organization as well. Both could be true for the second situation, changing government regulations. This could help or hurt the organization.

One way to identify these uncertainties is to create an environment of open dialogue throughout the organization which focuses on examining and revising the business strategy given the complex and changing environment. Everyone needs to be on board and focus on the questions that need to be asked, thereby ensuring a successful future. This open-dialogue environment is created through an interactive control system.

The use of interactive control systems involves thorough evaluation of internal reports and efforts and questioning subordinate's assumptions in those reports in an effort to challenge old ways of thinking. This challenge should spark debate and dialogue and ultimately lead to a pooling of information, gained throughout the organization, for top managers to pour over and help guide the identification of strategic uncertainties. This method of interactive information gathering and use of that information is very dissimilar to how a diagnostic control system is used.

2. Diagnostic Control Systems

This research project focuses on the final lever of control, the diagnostic control system. Simons defines a diagnostic control system as the "formal information systems that managers use to monitor organizational outcomes and correct deviations from preset standards of performance" (Simons, 2000, p. 209). The purpose of a diagnostic control system is to enable management by exception. The care and attention used to construct the system and the validity of the system determines whether or not managing by exception can be successful. This system is only as good as the measurements used to build it, as will be seen later.

The basic premise of a diagnostic control system is that of variance analysis. This system compares actual output or results with those that were expected or set as goals. If the results are within the bounds of what was intended to be accomplished then the manager need not search any further because things are on track. If, on the other hand, a result is off target, the manager

will note the variance and subsequently investigate possible reasons why the deviations occurred. The process is referred to as feedback. This is equivalent to a "cybernetic feedback model," shown in Figure 3. In such a model, every measure has a benchmark or standard that represents the expected output. The deviation that is the result of comparing the output to the standard provides feedback to the input or process parts of the model. The purpose of the feedback is to ensure that performance targets are met in the future by adjusting the inputs.

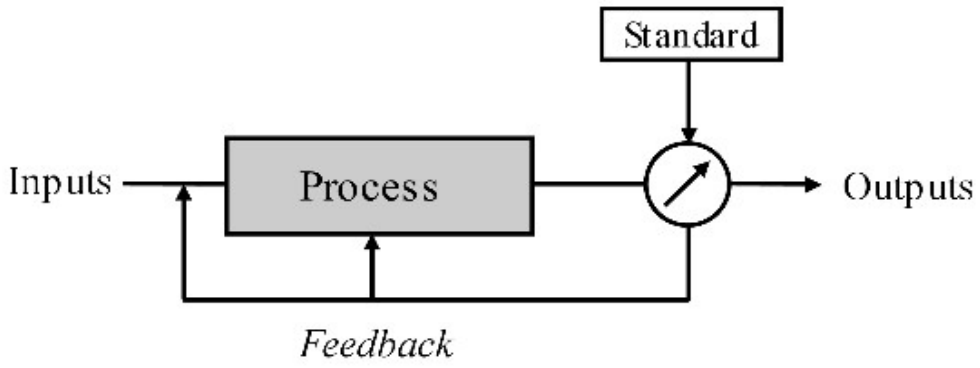

Figure 3. Cybernetic Feedback Model (Simons, 2000, p. 61)

A diagnostic control system is applicable in many situations. These situations include using tools such as balanced scorecards, budgets, profit plans and standard cost-accounting systems in a diagnostic manner. Simons argues that there are two key reasons for a using diagnostic control system: "to implement strategy effectively and conserve scarce management attention" (Simons, 2000, p. 209).

Time is scarce for managers. There are thousands of tasks and limited hours in the day. The goal of a diagnostic control system is to encapsulate relevant variables into a user friendly format that managers can use in a time-efficient manner to give them a snapshot of the health of their organization. Simons uses the example of the speedometer in your car. During a long trip it would be incredibly tiresome to be constantly monitoring the speedometer and making small adjustments to your speed. All of the time and energy would be used doing this task. Instead, the car can be put on cruise control which frees the time to focus on other things. This is in essence what a diagnostic control system will do. The parameters are set and only when the

output falls out of range is there a signal. When that occurs, then focus should be directed to get the output back within bounds.

The particular variables chosen to be measured must be carefully selected. Simons calls these variables, critical performance variables. He defines them as "those factors that must be achieved or implemented successfully for the intended strategy of the business to succeed" (Simons, 2000, p. 209). The diagnostic control system is in place to monitor whether the strategy, through these critical performance variables, is being implemented. This system links the strategy to the measurable performance variables. The diagnostic control system is crucial to communication and effectively implementing strategy in large organizations.

Risks in Diagnostic Control Systems

The hands off nature of a diagnostic control system, after extensive attention and work to ensure a properly constructed and aligned system, is a very desirable attribute. However, this system is not without its risks. Simons identifies three risks associated with using a diagnostic control system; "measuring the wrong variables, building slack into targets, and gaming the system" (Simons, 2000, pp. 212-213).

Measuring the Wrong Variables People pay attention to things upon which they are evaluated. If senior management identifies incorrect or misaligned variables to be measured, then subordinates will be concentrating on achieving goals that do not significantly contribute to the overall intended business strategy. Measuring the wrong variables could hinder or derail strategy implementation.

Building Slack into Targets If employees' performance is evaluated on the achievement of a goal, then their natural tendency will be to increase the likelihood that they achieve that goal. This can be achieved in one of two ways: (1) through hard work or (2) by setting easily attainable goals. Managers need to be cognizant of the latter behavior and ensure that the goals that are set are challenging ones.

Gaming the System In general, employees will work hard towards accomplishing goals upon which they are measured. This hard work can be focused away from achieving the desired goal in the manner envisioned by top management. "This misdirected effort is called gaming" (Simons, 2000, p. 213). Simons (2000) identifies three common gaming activities: smoothing, biasing, and illegal acts. The act of "smoothing" attempts to show better

performance by manipulating the timing and recording of transactions. An example of this might occur if the goals for small business contract awards (in a given fiscal year) are reached. Rather than make the current year look better by recording additional small business contract awards, after the goal is met, the employee may chose to record any additional contract awards towards next year's goals. "Biasing" occurs when managers chose to report goals that have been achieved, but downplay or bury bad news or goals that were not achieved. The attempt is to control and bias the information flow. Finally, pressure to achieve can sometimes prove to be too much. Individuals may commit "illegal acts" in order to meet their goals and earn a bonus. These acts might violate the law or company policy and therefore would be considered illegal.

D. SELECTING PERFORMANCE MEASURES/METRICS

In order to mitigate these risks, it is imperative that the correct performance measures or metrics are chosen. Performance measures may seem to be intuitive and rudimentary in nature, but the opposite is true in many situations. The performance measures selected have profound meaning not only for the managers who will be using them to make decisions, but more importantly, for those who are being measured.

Robert Simons identifies three tests which a performance measure must be subjected to in order to determine if the measure is a suitable one: (1) Does the measure align with strategy? (2) Can it be measured effectively? (3) Is it linked to value? (Simons, 2000, p. 234)

Test one is whether a measure is aligned with strategy. When a metric or measure is created, the managers creating it must know that by doing so they are telling their employees what is important. Why have the measure if it is not meaningful? Thus, a measure must be in congruence with the strategy of the organization. This not only reinforces the organization's strategy with employees, but it inherently supports the achievement of the strategy.

Just as important as its alignment with strategy, a metric must be able to be measured effectively, Test 2. There is little or no value to having a metric that is supposed to be telling managers one thing, but is giving them something different. In reality the metric might either be too difficult or complex to measure or simply the wrong metric. In the later case, the correct metric can replace the incorrect one, but the former case is a more difficult one. It requires a more in-depth analysis of the strategy and a determination if the ability to capture the essence of the measure exists.

In Robert Simons' discussion of Test 2, can it be measured effectively, he mentions three distinct adjectives against which measures can be evaluated. He states, "Ideally, measures should be objective, complete, and responsive." (Simons, 2000, p. 235) These are referred to as the "Nature of Measures."

Managers must have solid information on which to base their decisions. Solid information comes from having a clear formula for the metric and unambiguous inputs to the formula. When the metric is objective it can be independently verified.[2] If the metric is a subjective one, then Simons goes on to say in that situation "trust must be high, because the subordinate must have confidence that the subjective judgment is fair and will be used appropriately." (Simons, 2000, p. 236)

Completeness and responsiveness are not as clearly ascertained. Metrics can have varying degrees of each. A metric is an attempt to explain an aspect of the organization. How well the metric explains that particular aspect of the organization is its degree of completeness. When a metric is complete it captures all of the relevant attributes of success. A responsive metric is one that responds to the actions of managers. The process of feedback and variance analysis used in a diagnostic control system relies partly on an organization's ability to make corrections to inputs to decrease the variance between the output and the performance standard. If the metric is not responsive then managers can not influence the output. This may have negative impacts on morale because it can create a situation where managers are being evaluated on their ability to meet performance targets, but do not have the ability to directly influence the results.

A classic example which illustrates responsiveness and completeness is the "sales calls" example. A manager chooses to evaluate employee sales performance by measuring the number of sales calls made each week. The metric is responsive because the employee has influence on it. While this can be good, it can also create risk. So, if employees know they are being evaluated on the number of sales calls per week then they can easily increase the number of sales calls without regard for making an actual sale at each stop. Because this metric fails to capture the key factor of actual sales it fails the completeness test.

[2] An objective metric is not the only type of measure that is acceptable. Although a subjective metric may not be independently verified to the same extent as an objective one, a subjective metric can be very valuable in some cases.

Typically, lower-level jobs which require more routine work can achieve metrics that are objective, complete and responsive in nature. The higher up in the managerial chain, the more difficult it is to balance all three. The Nature of Measures figure used by Simons (Figure 4) provides a template to follow when evaluating objectivity, completeness, and responsiveness of performance metrics.

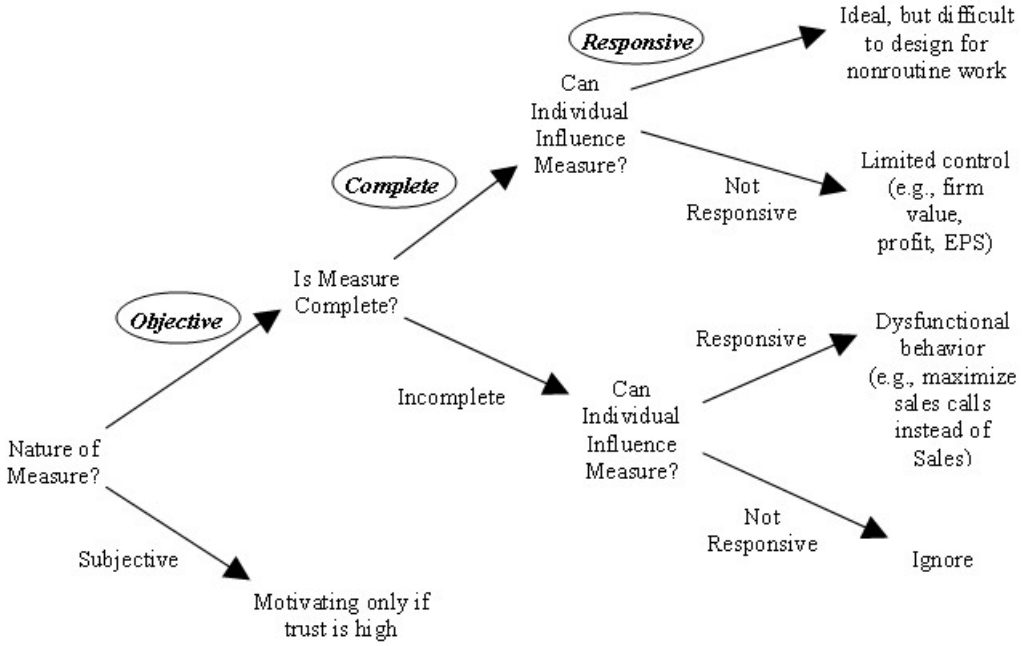

Figure 4. Nature of Measures

Lastly, the metric has to be linked to value. The information contained in the metric should be useful for the managers and should aid in decision making. The information provided by the metrics should enable managers to be more effective and in the end, run a more effective organization. In essence, the metrics should provide valuable information useful in running the business and informative in getting from "A to Z."

In order to maximize the benefits gained from measuring performance, managers must take care in selecting and evaluating specific performance metrics. Specifically, performance

metrics should be aligned with strategy, be objective, complete and responsive, and be linked to value.

III. METHODOLOGY

The author conducted a series of interviews with the Department of the Navy Procurement Metrics points of contact provided by DASN ACQ. DASN ACQ provided points of contact for the ten SYSCOMs reporting on the metrics. Eventually six-face-to-face interviews were performed over the course of three days. The interviews varied from one-on-one, one-on-two, and occasionally involved talking to three or more people. The additional individuals were identified by the points of contacts as having valuable insights about the metrics. In total, the author interviewed thirteen individuals face-to-face. The interviews were conducted at six SYSCOM sites and lasted, on average, an hour and a half. There were no telephone interviews or follow-up interviews.

The interviewees had varied familiarity with the performance metrics and job experience. This ranged from approximately 2-3 weeks as the DoN Procurement Metrics point of contact to being involved in the process throughout the history of the metrics effort. Regardless of this factor, every interviewee offered insight into the metrics. Each interviewee had his or her own specific tone about the metrics; however commonality of issues with the metrics was apparent across all of the interviews.

The general framework used to evaluate the metrics consists of three interview questions: (1) Do the metrics align with strategy? (2) Can the metrics be measured effectively? and (3) Are the metrics linked to value? The interviews provided key information that was useful in answering all three of these questions. The information also provided general views on how the overall metrics process could be improved and specifically how the metrics could become more valuable for the HCAs.

Table 1 is a summary of the DoN Procurement Metrics evaluated in this project. The following section summarizes the interviewees' and author's evaluation of the current performance metrics. The author's evaluation of the metrics represents the synergy of performance measurement theory and information gained during the interviews.

FOCUS AREA	TIER 1 METRIC	TIER 2 METRIC	TIER 3 METRIC	TIER 4 METRIC	DESCRIPTION / FORMULA	FREQUENCY	COLLECTED BY
Customer	Customer Satisfaction Index				Average Index from Customer Satisfaction Survey	Annual	HCA
People	Human Capital Index	Employee Survey			Average Index from Employee Satifaction Survey	Annual	HCA
		Workforce Stability			Percent difference between authorized end-strength and actual employees onboard	Quarterly	HCA
		Qualifications	Continous Learning		Percent employees meet their CL requirements and hold valid certificates	Annual	DASN ACQ
			DAWIA		Percent DAWIA certified to or above level required by their position	Quarterly	DASN ACQ
			Acquisition Professional Community		Percent of incumbents of CAPs who are APC members	Quarterly	DASN ACQ
Process	Process Improvement Index	E2E Metrics			Percent of automated procurement transactions (defined on PEO-ARBS website)	Quarterly	DASN ACQ
		Efficiency Improvement	P-Card Delinquency		60 days delinquent/total transactions	Quarterly	DASN ACQ
			DD1716		Average turnaround time from receipt to disposition of DD1716 (notice of contract deficiencies)	Quarterly	DASN ACQ
			Interest Penalties		Ratio YTD interest penalties/penalties same period previous FY	Quarterly	DASN ACQ
		Cycle Time			Average cycle time as the term is defined in glossary for ACAT I and II Program contracts	Annual	HCA
		Consolidate Services Contract			Services contracts awarded YTD/awarded previous FY	Quarterly	DASN ACQ
Financial	Contribution Index	Procurement Direct/Indirect Ratio			Procurement direct labor dollars/total procurement labor dollars	Annual	HCA
		Industry Spend Analysis	Competition		Percent dollars awarded competitively/total available	Quarterly	DASN ACQ
			Small Business		Percent dollars awarded to small businesses/total dollars awarded and available for small business	Quarterly	DASN ACQ
			Commercial Items	Actions	Percent contracts awarded for commercial items/total contracts awarded	Quarterly	DASN ACQ
				Dollars	Percent dollars awarded for commercial items/ dollars awarded for commercial items in '99	Quarterly	DASN ACQ
			Performance Based Services Contracting	Actions	Percent actions awarded for performance based services/total actions awarded for services	Quarterly	DASN ACQ
				Dollars	Percent dollars awarded for performance based services/total dollars awarded for services	Quarterly	DASN ACQ
Value	Product Unit Costing (PUC)	Large Contracts			Procurement salary dollars/contract action dollars*(customer service survey index)^2, for contracts > $100k	Annual	HCA
		Simplified Acquisition Procedures			Procurement salary dollars/contract action dollars*(customer service survey index)^2, for contracts ≤ $100k	Annual	HCA

Table 1. DoN Procurement Metrics Summary

IV. PROCUREMENT METRICS ANALYSIS

The Procurement Metrics analysis is divided into four sections. The first three sections answer the three questions described as the general framework for evaluating the metrics: 1) Do the metrics align with strategy? 2) Can the metrics be measured effectively? and 3) Are the metrics linked to value? The fourth section of this chapter describes other findings that do not specifically address the three questions.

A. DO THE METRICS ALIGN WITH STRATEGY?

The metrics are categorized into five focus areas; Customer, People, Process, Financial, and Value. Each focus area has an associated strategic theme. The first question evaluates whether the metrics link back to the overall strategy of each focus area. If they are not aligned with strategy then there is a fundamental disconnect.

1. Customer

Metric	Customer Satisfaction Index

The Customer focus area uses only one metric, the *Customer Satisfaction Index*. The strategic theme is to "Deliver unprecedented offensive power, defensive assurance and operational independence to the Joint Force Commanders" (PMG, v14.3, p. 7). Put another way, the strategy is to "give the customers what they want." The index is an average of the scores from customer satisfaction surveys which address four specific customer satisfaction themes identified in the Procurement Metrics Guide. The *Customer Satisfaction Index* metric is aligned with strategy; the SYSCOMs want to know how well they are serving their customers. However, this does not mean that the metric is flawless. The metric is still subject to the tests of whether it is linked to value and can be accurately measured.

2. People

Metrics	Employee Survey
	Workforce Stability
	Continuous Learning
	DAWIA Certification
	Acquisition Professional Community

The People focus area has five associated metrics. The five metrics are the *Employee Survey*, *Workforce Stability*, *Continuous Learning, DAWIA Certification,* and *Acquisition Professional Community*. The strategic theme is to "Maintain world-class workforce" (PMG, v14.3, p. 7). All of these metrics align with strategy. The employee survey is intended to measure the employee's overall satisfaction with the organization which is an important component of maintaining a world-class workforce. A satisfied workforce is likely to be more stable and keeping the workforce stable (providing they are well trained) is certainly a part of maintaining a world-class workforce. The last three metrics are in place to ensure that employees have the knowledge and necessary skills to be effective in their positions, making *Workforce Stability* that much more meaningful. *Continuous Learning* and the *Defense Acquisition Workforce Improvement Act* (DAWIA) metrics measure the percentage of employees who have their required certification. Continuous Learning certification requires job relevant "learning" to be achieved each year. The level of DAWIA certification needed depends on the position that the employee holds. In order to be certified, employees need to be certified to their level position or higher. The *Acquisition Professional Community* metric, collected quarterly, identifies the percentage of incumbents in Critical Acquisition Positions who are members of the Acquisition Professional Community (APC) compared to the total number of incumbents in Critical Acquisition Positions. The PMG states, "Selection to the APC is based on meeting specific training, education, experience and grade requirements." These requirements are controlled by the Director of Acquisition Career Management (DACM).

3. Process

Metrics	E2E Metric
	P-Card Delinquency
	DD1716
	Interest Penalties
	Cycle Time
	Consolidate Service Contract

The third focus area is Process. There are six associated metrics in this focus area. The strategic theme for Process is to "Continuously improve efficiency" (PMG, v14.3, p. 7). The metrics associated with the Process focus area are *E2E Metrics, P-Card Delinquency, DD1716, Interest Penalties, Cycle Time,* and *Consolidate Service Contract.*

Business transactions are moving in the direction of paperless transactions. The Navy has set up a website (www.peoarbs.navy.mil) which it refers to as the Paperless Acquisition Office of the Navy. The goal of the website is "to simplify and modernize the Navy acquisition process in the area of contract writing, administration, finance and auditing." The E2E Metric measures the percentage of total procurement transactions that are automated, or the ratio of automated procurement transactions over total number of procurement transactions. Automation in this case improves efficiency because it reduces time spent filling out and sending paper procurement transactions. This metric links to the strategy of the Process focus area.

The DoD Purchase Card Program Management Office sent out a memorandum on 17 SEP 1999 regarding the issue of Purchase Card Delinquency policies and the need to keep delinquent payments (over 60 days) to a minimum. The *P-Card Delinquency* metric is the percentage of dollars of delinquent P-card payments compared to the total purchase card dollars. The metric is linked with the overall strategy for the Process focus area because decreasing delinquent P-Card payments results in an increased efficiency of payments. This metric is consistent with DoD policy as well.

The *DD1716* Metric measures the average turnaround time of the DD1716 form, which is a contract deficiency report. The quick resolution of the deficiency can limit the amount of interest charged. The sooner the turnaround time on these forms the less money that has to be paid out and more efficient the process which directly links to the strategy.

Interest penalties cost the Navy and the DoD as a whole millions of dollar every year. Paying interest is essentially wasted money that results from inefficient practices and/or contract mistakes. Not only does the *Interest Penalty* metric provide the opportunity to monitor dollar savings, but it is also a means to monitor if the process is becoming more efficient. Increasing dollar savings and efficiency work hand in hand towards the ultimate objective: an efficient environment which becomes an effective cost savings tool. This metric is collected quarterly and compares the current year's interest penalties paid to date to the same period of the former fiscal year. The output is a ratio which hopefully falls below 100 percent. This metric, as well as *Consolidate Service Contract* and the *Industry Spend Analysis—Commercial Items* (actions & dollars) metrics compare current year to last year, so the base needs to be adjusted every year.

Cycle time is very important in the procurement world and there are many factors that influence it (e.g., technological maturity of the proposed system). Reducing cycle time can save money. More importantly, a reduction in cycle time gets the products or services to the war fighter sooner. A reduction in cycle time can give the United States military a distinct advantage over other militaries. The *Cycle Time* metric is defined as "total time in days between the acquisition start date and end date (only applicable to ACAT I and II acquisitions)" (PMG, v14.3, p. 17). Definitions of the start and end date are available in the Procurement Metrics Guide. The *Cycle Time* metric is linked to the Process focus area strategy.

The *Consolidate Service Contract* metric is the last one under the Process focus area. This metric is collected quarterly and is measured in a manner that is similar to the *Interest Penalty* metric. It is a ratio of the number of services contracts awarded year-to-date as compared to the same time the previous year. The goal for the ratio is for it to be less than 100 percent, indicating that some of the services contracts have been consolidated or eliminated. This metric is aligned with the overall strategy of the Process focus area because fewer contracts will have to be maintained and administered and this increases the potential for more efficient operations.

4. Financial

Metrics	Procurement Direct/Indirect Ratio
	Industry Spend Analysis—Competition
	Industry Spend Analysis—Small Business
	Industry Spend Analysis—Commercial Items—Actions
	Industry Spend Analysis—Commercial Items—Dollars
	Industry Spend Analysis—Performance Based Services—Actions
	Industry Spend Analysis—Performance Based Services—Dollars

The Financial strategic theme is to "Maximize return on taxpayer investment" (PMG, v14.3, p. 7). The financial focus area has seven associated metrics. The metrics are (1) *Procurement Direct/Indirect Ratio*, (2) *Industry Spend Analysis—Competition*, (3) *Industry Spend Analysis—Small Business*, (4) *Industry Spend Analysis—Commercial Items-Actions*, (5) *Industry Spend Analysis—Commercial Items-Dollars*, (6) *Industry Spend Analysis—Performance Based Services Acquisition Contracting-Actions*, and (7) *Industry Spend Analysis—Performance Based Services Acquisition Contracting-Dollars).*

The *Procurement Direct/Indirect Ratio* metric is an attempt at measuring the "bang for the buck" of each SYSCOM when it comes to how much support is needed to perform the procurement function. The metric is a ratio of the total number of direct labor employees as compared to the total number of employees in the procurement organization. Direct labor employees are defined as "employees whose primary responsibilities are directly involved with efforts required to perform the procurement function" (PMG, v14.3, p. 17). The idea is to provide the necessary support to efficiently and effectively accomplish all of the necessary contracting activities while keeping the number of supporting positions under control. The strategy of maximizing the return on taxpayer investment follows logically, but issues with this metric are discussed in later sections.

The *Industry Spend Analysis—Competition* metric has a direct link to the strategy of the Financial focus area, maximize return on taxpayer investment. This metric is the ratio of total procurement dollars awarded competitively as compared to the total procurement dollars available for competition. The benefits of competition; cost reduction, improved quality, and innovation, are widely known. There are instances of course when competition is not the most advisable way to proceed (e.g., when only one source is able to provide the product or service, when time is a critical factor, or when a dependable long-term relationship is necessary).

The *Industry Spend Analysis—Small Business* metric links to the strategy of the Federal Acquisition Regulations regarding small business opportunities for government contracts. This metric does not clearly link to the financial focus area strategy of maximizing taxpayer investment. However, it does reflect social responsibility and the entrepreneurial spirit captured in the Small Business Act. The spirit of the Small Business Act is to encourage small business participation in government contracts and specifically, "small business concerns shall be afforded an equitable opportunity to compete for all contracts that they can perform to the extent consistent with the Government's interest" (Federal Acquisition Regulation [FAR], 19.202-1).

The Federal Acquisition Regulation also states:

> "It is the policy of the Government to provide maximum practicable opportunities in its acquisitions to small business, veteran-owned small business, service-disabled veteran-owned small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns. The Small Business Administration (SBA) counsels and assists small business concerns and assists contracting personnel to ensure that a fair proportion of contracts for supplies and services is placed with small business" (FAR, 19.201).

The *Industry Spend Analysis—Commercial Items* metrics (Actions & Dollars) both are linked to the Financial focus area strategy as well as that of the Federal Acquisition Regulations. Some of the benefits of using Commercial and Non-Developmental items (CANDI) is the speed at which these items can be procured, cost savings, and proven technology which mitigates risk. Using CANDI for technologically driven products maximizes taxpayer investment because often times commercial demand for these items may quicken the evolution and fielding beyond the pace at which government research and development could produce the same items. The *Actions* metric is the "ratio of the number of contracts awarded year to date for commercial items as compared to the total number of contracts awarded" (PMG v14.3, p. 13). The *Dollars* metric is the "ratio of HCA total product dollars awarded year to date for commercial items as compared to the total product dollars awarded in 1999, during the comparable period, for commercial items" (PMG, v14.3, p. 13).

The Federal Acquisition Regulation states:

> "Agencies shall—(a) Conduct market research to determine whether commercial items or nondevelopmental items are available that could meet the agency's

> requirements; (b) Acquire commercial items or nondevelopmental items when they are available to meet the needs of the agency; and (c) Require prime contractors and subcontractors at all tiers to incorporate, to the maximum extent practicable, commercial items or nondevelopmental items as components of items supplied to the agency" (FAR, 12.101).

The *Industry Spend Analysis—Performance Based Services Acquisition (PBSA) Contracting* metrics (Actions and Dollars) are aligned with focus area strategy as well as DoD policy. The motivation for these metrics is that people working within contracting do not need to get bogged down in the details of writing specific processes of how a service should be performed. The contractor is supposed to be the expert, so give the contractor specifics on what the end result of the service should be, but not the minutia of how to do it. The effects of PBSA should be cost savings and a more effective and efficient use of limited DoD resources because the focus shifts to execution.

> "PBSA involves acquisition strategies, methods, and techniques that describe and communicate measurable outcomes rather than direct performance processes. It is structured around defining a service requirement in terms of performance objectives and providing contractors the latitude to determine how to meet those objectives. Simply put, it is a method for acquiring *what is required* and placing the responsibility for *how it is accomplished* on the contractor" (Guidebook for PBSA in the Department of Defense, p. 6).

The PBSA *Actions* metric is defined as the ratio of HCA total PBSA awarded actions as compared to total awarded actions for services. The PBSA *Dollars* metric is defined as the ratio of HCA total dollars awarded for PBSA contracts as compared to HCA total dollars awarded for all services contracts.

5. Value

Metrics	Performance Unit Costing—Large Contracts
	Performance Unit Costing—Simplified Acquisition Procedures

The fifth and final focus area is Value. The strategic theme of the Value focus area is the same as the Financial focus area: Maximize return on taxpayer investment. The objective for this focus area is to "Balance quality, cost and productivity" (PMG, v14.3, p. 8). There are two metrics in this focus area and both support the strategic theme. The metrics are *Performance Unit Costing (PUC)—Large Contracts* and *PUC—Simplified Acquisition Procedures*. Both

metrics use the same formula: HCA total procurement salary dollars (C), divided by the product of contract action dollars (O) and the square of the customer satisfaction index (I^2). The resultant formula is: [$C/(O*I^2)$]. The two metrics have different definitions for "O," the contract action dollars, because of the threshold between Large Contracts and Simplified Acquisition Procedures. The Simplified Acquisition Threshold is defined by the FAR as follows:

> "Simplified acquisition threshold means $100,000, except for acquisitions of supplies or services that, as determined by the head of the agency, are to be used to support a contingency operation or to facilitate defense against or recovery from nuclear, biological, chemical, or radiological attack" (FAR, 2.101).

The *PUC-Large Contracts* metric is measured by taking "HCA total procurement salary dollars (C) divided by contract action dollars (O) for contracts valued at greater than $100k multiplied by the square of the customer satisfaction index (I): [$C/(O*I^2)$]" (PMG v14.3, 14). The *PUC-Simplified Acquisition Procedures* metric is calculated the same way, just using the "$100k and less" threshold to determine the "O" variable. The motivation for these metrics is to mesh the "bang for the buck" (cost and productivity) with the perceived quality by the customers. The output is a number (e.g. .004959716), which by itself, is of no use. It can be of some use if several other factors are taken into account such as the validity of the Customer Satisfaction Index, the ability to accurately collect total procurement salary dollars and having several data points (a trend) to analyze.

B. CAN THE METRICS BE MEASURED EFFECTIVELY?

All of the DoN metrics appear to be aligned with the strategies of the focus areas. One of the strategies is to give the war fighters what they need when they need it and a survey could possibly capture all that is needed to ascertain that, but it could also fall short. In this section, the metrics will be evaluated on their objectivity and completeness as described in the literature review. A measure is objective when it can be independently verified and is complete when it captures all aspects of construct. Determining the responsiveness of the metrics is beyond what can be accomplished in this study. Capturing the responsiveness dimension will require a more in depth understanding of the HCA organization structure as well the intricacies and responsibilities of the different positions within that organization. To reiterate from the literature

review, a responsive measure reflects actions that a manager can directly influence. Most of these metrics encompass actions resulting from the work of an entire enterprise and therefore it is difficult to ascertain at what level they are responsive or not responsive.

1. Customer

Metric	Customer Satisfaction Index

Can Customer Satisfaction be measured effectively? It depends on several things. For instance: Who is filling out the survey? Is it the same person as last year? How does this person typically fill out a survey: accurately, harshly, or lenient? Is this the same survey that was given out last year? If not, how similar is it to last years, does it cover the same general customer satisfaction themes? Does a survey even go out every year or was last year's survey responses used for this year's metric? What was your response rate? All of these questions offer a look into whether or not the *Customer Satisfaction Index* metric can be an effective measure as well as a tool to analyze trends from the metric.

All of the aforementioned questions about the surveys identify possible risks in using the surveys in trend analysis. Is a survey better than none? Absolutely. Any one of the factors identified in the questions by itself is not likely to affect drastically the validity of the Customer Satisfaction Index, but put together, they can throw off the baseline and trend analysis.

The questions mainly address the issue of objectiveness. Surveys are inherently subjective, but if they are performed in good faith, address the four customer satisfaction themes, are reported on accurately, and have a high response rates, then they should be an effective measure of customer satisfaction.

Is the *Customer Satisfaction Index* complete; does it capture all the relevant attributes of achievement? If the survey covers fully the four customer satisfaction themes required, as well as goes to and is received back from a large number of customers (high response rate), as described above, then the survey should capture all the attributes of Customer Satisfaction. The interviewees stated that customer response rate was not a problem. However, there is currently no required response rate delineated in the PMG setting the bar for acceptable survey results.

2. People

Metrics	Employee Survey
	Workforce Stability
	Continuous Learning
	DAWIA Certification
	Acquisition Professional Community

All of the questions that can be asked about the Customer Satisfaction Survey can be asked about the Employee Survey and they lead in the same direction. The characteristics of an objective and complete employee survey can be gleaned from the above discussion of the customer satisfaction survey. That is, surveys are inherently subjective, but that characteristic can be minimized through the appropriate methods; for instance, requiring a high response rate and accurate reporting. No specific percentage for response rate was discussed in the interviews, but one interviewee stated, "Need to put in place a certain percentage that has to respond for it to be valid. The survey is anonymous, so it is hard to control." Also, the survey is complete as long as it measures all necessary attributes of employee satisfaction. One interviewee mentioned that their employee survey is sent to the entire SYSCOM, not just the HCA, so it is not just measuring the HCA's employee satisfaction.

Workforce Stability is an objective measure unless estimates are used; however, this metric is not complete as it currently stands. The metric does not capture significant elements of workforce stability; rather it captures just a limited scope. It should be possible to effectively measure *Workforce Stability*, but that is not what is being measured by using this metric. This metric measures the percent difference between the authorized end-strength and the actual number of employees onboard as of the end date of the quarter. This measures how "full" the organization is, not how stable the workforce is. Even with several data points of this metric creating a trend, it still is not very useful unless you are assessing how full an organization is over time. The measure tangentially relates to stability. If during a period of time the percent difference stayed relatively stable, it could be that there was stability in the workforce. It could also mean that each time you measured stability using this formula, the number of employees and end-strength remained about the same, but that there was a 100 percent turnover of the workforce. This is not a stable workforce, it has high turnover which is almost certainly detrimental to the organization's effectiveness.

The next three metrics under the People Focus Area, *Qualifications: (1) Continuous Learning, (2) DAWIA certification,* and *(3) Acquisition Professional Community* can be measured effectively. The data for these metrics are pulled by DASN ACQ from the Data Acquisition and Control Manager Mission Information System database (DACM MIS database). As long as the information is correctly inputted in the database the resulting metric should be accurate and therefore make the metric an objective one. These metrics also present a full picture of the level of qualifications that the procurement workforce making the measures relatively complete.

3. Process

Metrics	E2E Metric
	P-Card Delinquency
	DD1716
	Interest Penalties
	Cycle Time
	Consolidate Service Contract

The *E2E* metric can be effectively measured. This metric is objective because information for the metric is taken from the same database for each SYSCOM and therefore, can be independently verified. As is the case with most of the metrics that are being collected from databases, the accuracy of the information entered into the database is paramount to getting an accurate reflection of the SYSCOM. The *P-Card Delinquency* metric is affected by the same circumstances as the *E2E* metric. It is effectively measured through the Navy's e-Business Office and is objective. The *Consolidate Service Contract* metric is collected by DASN ACQ from the Procurement Management Reporting System (PMRS). All three metrics; *E2E, P-Card Delinquency,* and *Consolidate Service Contract,* are narrowly focused and inclusive, making the measurement of the metric complete.

The Efficiency Improvement metric of *DD1716* is collected by DASN ACQ from the Navy-Air Force Interface (NAFI) website. This metric is relatively objective because the data is pulled from the NAFI website, but there is a tinge of subjectivity surrounding what the author views as the potential for gaming the system, which is discussed in a later section. This metric, if the receiving date entered into the NAFI website is agreed upon, is complete in its measure of the efficiency of DD1716 resolution.

The issues of objectivity and completeness for the *Cycle Time* metric are similar to the *DD1716* metric. This metric is reported by the HCAs instead of being collected from a database, increasing its subjectivity. Since there are several determinates when deciding the actual start and end date of the metric, the chances of gaming increase. It is a relatively complete measure of the start to the end of acquisition time.

4. Financial

Metrics	Procurement Direct/Indirect Ratio
	Industry Spend Analysis—Competition
	Industry Spend Analysis—Small Business
	Industry Spend Analysis—Commercial Items—Actions
	Industry Spend Analysis—Commercial Items—Dollars
	Industry Spend Analysis—Performance Based Services—Actions
	Industry Spend Analysis—Performance Based Services—Dollars

The *Procurement Direct/Indirect Ratio* metric is a measure that has potential. As stated above in the "Aligning with Strategy" section, this metric is designed to measure how much support is needed to carry out the procurement function for each SYSCOM. The metric is likely to differ between the SYSCOMs. That is appropriate. One SYSCOM could mainly be making small purchases and the other purchasing Aircraft Carriers. The two SYSCOMs in this example would have different ratios given a need for different levels of various activities and processes. Even if the ratios differ across SYSCOMs, a trend analysis within the SYSCOMs is beneficial.

Given how this metric is collected, it is not totally objective. There needs to be very specific instruction on which positions should be reflected in this metric. Precision and accuracy in collecting the data for this metric will ensure it is objective. One interviewee stated, "Direct/Indirect [is] a little bit subjective. The information is not easy to get." Another interviewee stated, "Does anyone track procurement salary? Information is there, but not broken down into sections like procurement and further into direct and nondirect." Reflecting the need for clarification on definitions in regards to this metric, one interviewee stated, "There is confusing language in the definition of terms, people need to clearly understand what is being asked for." This metric gives a relatively complete picture of how much indirect support is needed by SYSCOM in order to perform their level of procurement.

The *Industry Spend Analysis—Competition* metric can be effectively measured. All of the information needed to calculate the metric is in the Procurement Management Reporting

System (PMRS) and is pulled by DASN ACQ which makes it an objective measure. The same also holds true for the following five *Industry Spend Analysis* metrics: (1) *Small Business*, (2) *Commercial Items—Actions*, (3) *Commercial Items—Dollars*, (4) *Performance Based Services Acquisition Contracting—Actions* and (5) *Performance Based Services Acquisition Contracting—Dollars*. These metrics are all collected from PMRS by DASN ACQ. All of these metrics are complete; they capture all the relevant information that is needed to get a useful view of how the Navy's procurement function is performing in each of these areas.

5. Value

Metrics	Performance Unit Costing—Large Contracts
	Performance Unit Costing—Simplified Acquisition Procedures

The *Performance Unit Costing (PUC)* metrics, *Large Contracts* and *Simplified Acquisition Procedures*, can be measured, but the degree of the measure's precision is in question. First, the *Customer Satisfaction Index* is used in the formula. This is not a completely objective variable, so it adds some subjectivity into these metrics. This index is squared in the formula to increase its affect on the output of the equation.

Second, because the data available for procurement salary dollars to the SYSCOMs differs, the use of reasonable estimation is an option given by the PMG. This makes the likelihood of independent verification questionable. One interviewee stated, "Procurement salaries can be subjective, [you] need an unbiased source that they can pull from."

The contract action dollars, variable "O," is defined as "The total net value of obligations under contract actions" (PMG, v14.3, p. 16). This is a relatively objective measure with no estimation needed.

The *PUC* metrics are intended to be a complete measure of value and specifically balance quality, cost and productivity. The metrics, although somewhat abstract and not very meaningful without trend analysis, do blend all three of these elements together using the formula. The HCA representatives generally understood the concept and why the formula was created the way it was, but were concerned with the meaning of the output.

C. ARE THE METRICS LINKED TO VALUE?

All of the HCAs interviewed thought that feedback from DASN ACQ was significantly lacking on (1) the DoN Procurement Metrics in general and (2) specific feedback on the metrics DASN ACQ collects on each of the SYSCOMs. In the HCAs view, if they are not collecting the data for a metric, then it does not even exist because they have not seen any feedback on the fourteen metrics that DASN ACQ collects. Therefore those fourteen metrics are of little value to the HCAs, regardless if they have value for DASN ACQ.

Being the POCs for the DoN Procurement Metrics and collecting the metrics is a collateral duty for all of the POCs. They receive no additional resources to aid in the data calls. The collection of these metrics is a time-consuming process. Collecting the data for the metrics expends valuable resources and it is not clear to the HCAs if the "cost" is worth the benefit or value the metrics provide to the SYSCOMs and DASN ACQ.

An issue brought up in one of the interviews was whether or not DASN ACQ had any idea of how much it cost to develop, monitor and collect the data on the metrics. So, what is the benefit [value] of the metrics and is this value gained from the metrics worth the resources expended in managing, monitoring, and collecting them? The answer to this question was not completely discernible from any of the interviews conducted with the HCA representatives because for the most part they were asking of what value are the metrics to DASN ACQ.

The majority of the metrics are collected on an annual basis. Of the seven metrics that the HCAs report on, only one is reported quarterly, *Workforce Stability*. Reporting on the specific metrics annually makes sense because of the nature of procurements due to yearly appropriations from Congress and the fiscal year cycle. However, there are two mind-sets at odds with each other. The first is that sometimes employees are not in their positions long enough for annual metrics to be of any value in a managerial sense because managers might only see one or two sets of annual data. Seeing limited data does not provide managers with much value and does not give them the ability to make decisions and manage based on the variances observed. The counter to this argument is that if there was past data, then that could be looked at in conjunction with current data. The second mind-set is, as stated above, collecting the data is

not a minor task and answering data calls more than once a year for specific metrics would be extremely time-consuming if not impossible without additional resources in place.

The *PUC* metrics (*Large Contracts & Simplified Acquisition Procedures*) were discussed more frequently during the interview process than other metrics. The general concept of the metric was understood, but the HCA representatives did not see much value in the output. An interviewee stated, "Concept of PUC is nice, but real world application is questionable. Goes back to how it is used. [A result of] .003 down, why did that happen?" The HCAs need more feedback on the two *PUC* metrics and what the results mean. The use of the *Customer Satisfaction Index* was a point of contention with one SYSCOM. There were two parts to this point. One, this metric is already used independently of the *PUC* metrics. Second, the weighting of the *Customer Satisfaction Index* is increased by squaring it which increases the "role" of this subjective and incomplete metric.

Another issue regarding these two metrics (*PUC-Large Contracts & PUC-Simplified Acquisition Procedures*) involved the use of contract action dollars in the formula. Two of the HCA representatives from the SYSCOMs would prefer to use "contract actions" instead of "contract action dollars" as one of the variables in the metric. One other SYSCOM was strongly against "contract actions" replacing "contract action dollars." This SYSCOM felt this change would not create a more accurate reflection of their performance in this area, stating, "Clearly do not use actions." Another SYSCOM felt that there was not a clear answer, stating, "When you use dollars you could be seen as more efficient without being. [There is] not much control over number of actions because a lot of control is set by Congress' appropriations."

Indication of the metric's link to value was the SYSCOMs view that the Navy Procurement metrics are not the specific ones that each individual SYSCOM would have come up with to tell the story of the health of their specific organization, but that was not the purpose of these metrics. One SYSCOM stated, "We wouldn't have come up with all of these metrics if you asked, 'how [our SYSCOM] is doing?'"

D. ADDITIONAL ANALYSIS

It became clear to the author through the evaluation of the metrics that there were two different types of analysis, design and use. The evaluation of the metrics' alignment with

strategy, effective measurement (objectivity and completeness), and link to value, all fall under the "design" of this management control system. The analysis of design captures the fundamental structure of the system and answers the questions: Is it valid? Is the design sufficient enough for the system to work? This section discusses findings related to the "use" of the metrics. This includes, but is not limited to, issues with communication and information gathering.

1. Customer

Metric	Customer Satisfaction Index

Since the individual SYSCOMs are responsible for the customer survey that eventually is used as input into the *Customer Satisfaction Index,* it is important that they understand all of the factors that affect the survey's validity. Not all of these factors can be controlled. There are two issues which are more relevant to as well as easier controlled by the SYSCOMs. The issues are: 1) ensuring that the survey goes out to the customers every year and 2) ensuring that the DASN ACQ general customer satisfaction themes are covered. These two issues, out of all the ones mentioned, are the most important in receiving relevant data for the metric.

2. People

Metrics	Employee Survey
	Workforce Stability
	Continuous Learning
	DAWIA Certification
	Acquisition Professional Community

What was striking about the *Employee Survey* is what was learned through the interviews with the SYSCOM points of contact for the DoN Procurement Metrics. The response rate for the *Employee Survey* is less than the targeted. One SYSCOM gave an estimated response rate of about 9 percent and another of about 2.5 percent. It is striking to find that out of four-hundred surveys sent out, ten were completed. It does not matter how well the survey is written, employee satisfaction cannot be effectively measured with such low response rates.

An issue with the *Workforce Stability* metric, as well as with others, is the availability of the information. It would seem simple enough to find out how many employees are onboard and how many are authorized, but this is not the case for every SYSCOM. A few of the SYSCOMs indicated that this seemingly undemanding task is extremely time consuming for them. This

goes back to the issue of expending effort and resources to what cost and what benefit. This also affects the objectiveness of this metric. Is the data accurate? One interviewee indicated this about the military portion of the *Workforce Stability* metric: "[We] just do not have the military data, we could estimate it, but then it becomes subjective."

3. Process

Metrics	E2E Metric
	P-Card Delinquency
	DD1716
	Interest Penalties
	Cycle Time
	Consolidate Service Contract

When measuring the number of days turnaround time (*DD1716* metric) from receipt to disposition there may be some room for gaming the system with respect to when exactly the Contract Deficiency Report was received and acted upon. The different players in the process may have different views on when that occurred and the individuals who control the input into the NAFI website will win that argument and could possibly be inputting data that is not 100 percent accurate.

The same sort of "gaming" problem exists with the *Cycle Time* metric. It again, is a "days" measure and it relies on four definitions of when the days should start to be counted and two definitions of when the days should stop being counted. The *Cycle Time* start date is defined as when the earliest of the four events listed in the Metrics Guide occurs (date of Procurement Planning Conference (PPC), date of planning meeting equivalent to a PPC, date specialist begins work on procurement, or Procurement Request (PR)/Procurement Initiation Document (PID) receipt date) and the end date is listed as either the contract award date or for work in process, the current date if more than 365 days have elapsed since the start date. This may seem relatively straightforward, but there appear to be ways to manipulate the *Cycle Time* metric. For instance, the actual start date can be manipulated by the individual recording it to start later in order to appear to have a shorter cycle time.

4. Financial

Metrics	Procurement Direct/Indirect Ratio
	Industry Spend Analysis—Competition
	Industry Spend Analysis—Small Business
	Industry Spend Analysis—Commercial Items—Actions
	Industry Spend Analysis—Commercial Items—Dollars
	Industry Spend Analysis—Performance Based Services—Actions
	Industry Spend Analysis—Performance Based Services—Dollars

What is difficult with regards to the *Procurement Direct/Indirect Ratio* metric, as well as others, is that the Information Technology and Human Resources system that is in place was not designed to generate these metrics. In one of the interviews it was indicated that the metrics working group which created these metrics worked with IT and HR contacts to come up with "friendly" metrics that would be easier to produce. However, several of the interviewees indicated that getting the necessary data was difficult at best and that the information is not broken down into the categories that are required by the metrics. For example, the salary data required for the *Procurement Direct/Indirect Ratio* is not available already categorized as direct or as procurement dollars. Time is limited and the interviewees indicated the extremely cumbersome nature of producing the required metrics. The difficulty in collecting this metric may vary among the SYSCOMs depending on what resources they have available and how their data is kept.

The ability to obtain the HCA total procurement salary dollars, for the *Procurement Direct/Indirect Ratio* metric, was described as a complex process. In the glossary section of the PMG, it states that "data available to activities vary greatly, no specific way of calculating procurement salary dollars is mandated. These approaches should provide a reasonable estimate of actual labor costs, but may be based on models and/or average rates, etc" (PMG, v14.3, p. 20). This means that each HCA could calculate procurement salary dollars in a different manner. If the HCAs are internally consistent in the manner they collect the salary data and their method of estimation then trends can be analyzed. They can be analyzed because the consistency of the collection method makes the data points comparable. This will help take the subjectivity out of the total procurement salary dollars variable.

Table 2 is a summary of the findings regarding the three questions described as the general framework for evaluating the metrics. There are varying levels of objectivity and

completeness as previously discussed for each individual metric. For purposes of providing a summary table, "yes" or "no" was used to describe whether or not the metric was deemed objective or complete. The issue of the metric's link to value was covered only for the seven metrics the HCAs collect. As stated above the interviewees are of the opinion that the fourteen metrics collected by DASN ACQ are currently of little value to the HCAs. The remaining seven metrics provide some value, but it is difficult to glean the extent of this value because none of the interviewees indicated specifically how and when they are able to use them.

FOCUS AREA	TIER 1 METRIC	TIER 2 METRIC	TIER 3 METRIC	TIER 4 METRIC	LINKED TO STRATEGY	OBJECTIVE	COMPLETE	RESPONSIVE	LINKED TO VALUE
Customer	Customer Satisfaction Index				YES	NO	NO		YES
People	Human Capital Index	Employee Survey			YES	NO	NO		NO
		Workforce Stability			YES	YES	NO		SOMEWHAT
		Qualifications	Continous Learning		YES	YES	YES		
			DAWIA		YES	YES	YES		
			Acquisition Professional Community		YES	YES	YES		
Process	Process Improvement Index	E2E Metrics			YES	YES	YES		
		Efficiency Improvement	P-Card Delinquency		YES	YES	YES		
			DD1716		YES	NO	YES		
			Interest Penalties		YES	YES	YES		
		Cycle Time			YES	NO	YES		SOMEWHAT
		Consolidate Services Contract			YES	YES	YES		
Financial	Contribution Index	Procurement			YES	NO	YES		SOMEWHAT
		Industry Spend Analysis	Competition		YES	YES	YES		
			Small Business		YES	YES	YES		
			Commercial Items	Actions	YES	YES	YES		
				Dollars	YES	YES	YES		
			Performance Based Services Contracting	Actions	YES	YES	YES		
				Dollars	YES	YES	YES		
Value	Product Unit Costing (PUC)	Large Contracts			YES	NO	YES		NO
		Simplified Acquisition Procedures			YES	NO	YES		NO

Table 2. DoN Procurement Metrics Evaluation Summary

Overall, the author's conclusion is that the metrics are not providing the type of value that performance metrics should for managers in an organization. Based on the interviews, it does not appear that the metrics are being used to make any decisions about the organizations and how they operate. This is due to the fact that fourteen of the twenty-one metrics are not seen, so they are in essence off the table, and the other seven have varying levels of value to the HCAs, if any at all. The seven metrics that the HCAs report on (Table 3) are of limited value for two primary

reasons. First, it was indicated in the interviews that estimations of variables may be used in order to report the metric. This not only creates subjective measurements but also causes inconsistency over time decreasing the validity of analyzing trends. Second, while annual metrics are a plus because they lessen the amount of resources the HCAs have to expend, they are not of much value when decision makers rotate to a new position and maybe only see one or two sets of completed metrics.

Focus Area	**Metric**
Customer	Customer Satisfaction Index
People	Employee Survey
	Workforce Stability
Process	Cycle Time
Financial	Procurement Direct/Indirect Ratio
Value	PUC—Large Contracts
	PUC—Simplified Acquisition Procedures

Table 3. HCA Collected Metrics

Analysis Not Specific To One Focus Area

Since the HCAs collect and report on seven of the DoN Procurement Metrics, this focuses the SYSCOMs on seven of the twenty-one metrics. This being said, it is important to note that not having to collect the data for the other fourteen metrics is a very good thing in the HCAs view. They would just like feedback on them. "All the time [we have] given information, we have never received feedback," was a comment during one of the interviews. When another HCA representative was asked if the metrics help them in any way, the response was, "They could, but [we receive] no feedback." Some even thought it valuable to see the outputs of the other SYSCOMs, realizing that it is difficult to compare due to the differing nature of the procurements. Nonetheless, a few of the interviewees were still curious. One interviewee expressed the concern that, "comparing is dangerous."

Feedback was mentioned as part of the Cybernetic Feedback Model discussed in Chapter 2. The feedback specific to the individual metrics deals with the variance from the standard created or the original baseline. Besides the Cybernetic Feedback Model type of feedback, which offers insight into deviations from the standard, the HCAs desire, as noted above, more

general feedback on the status of the metrics program. The interviewees asked if the procurement metrics are going to be cheer leaded (have a champion) and supported by DASN ACQ. If DASN ACQ does support the metrics then the interviewees are also asking what resources will be available to the HCAs in order to better comply with and complete the data calls in a timely and accurate manner? One quote from the interviews addresses this point: "If you are going to do it [use the metrics], do it consistently and bring it to attention, that will bring more meaning to it." The idea of consistency is reflected in another interview, "stay consistent …there seems to never be consistency."

Overall the feeling was that the metrics, while not the ones each specific SYSCOM would have picked to explain their individual success, could have some value if they got the appropriate feedback from DASN ACQ. One of the interviewees expressed the idea that DASN ACQ should provide feedback in the following manner, "We're seeing a downward trend [in a specific area/metric], and you may want to look at this, this, and this."

Right now there is not the sense that DASN ACQ is there to help the SYSCOMs. The SYSCOMs need to see a culture of "we're trying to help you" from DASN ACQ to the SYSCOMs. Along the same lines one interviewee stated, "[We] need it as a system to help the SYSCOMs, not the SYSCOMs fearing they would get in trouble. Show how they are benefiting the SYSCOMs."

The HCA representatives stated that the fourteen metrics collected by DASN ACQ are of little or no use to the HCAs because they aren't getting any feedback on them. DASN ACQ has indicated that part of this reason is because the set of metrics is not a finished product and DASN ACQ feels reluctant to put out all of the results of their data pulls when they are not fully convinced that the metrics are the correct ones.

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V. CONCLUSION

A. SUMMARY

The Department of the Navy Procurement Metrics show a clear link to the intended strategy of the five Focus Areas. Each metric links back to their respective focus area and is aligned with Department of the Navy as well as Department of Defense strategies and goals. As stated in the literature review, when a metric is created, the managers creating it must know that by doing so they are telling their employees what is important. The simple fact that something is being measured speaks volumes as to its importance.

The motivation behind each one of the metrics is important. Each metric is a piece in the puzzle that when put together should have the ability to provide an accurate picture of the health of the Navy's procurement function. The metrics dashboard has the potential to be a great management by exception tool. However, this tool is only effective when those using it have confidence that the metrics in place are the correct ones linking to each Focus Area, have been collected and reported on accurately, are responsive to manager actions and decisions, provide the necessary information for managers to make those decisions, and have appropriate targets set for each metric. The proper use of the metrics dashboard by top management is not to analyze every area, but to just make note of areas that are not "green" and ensure that people execute a plan of corrective action if they have control to do so.

Each of the metrics has had a preliminary analysis done on it that has indicated that all of them align with the intended strategy. The analysis continued with an evaluation of their objectivity and completeness. The level of objectivity and completeness varied. More analysis has to be done from a procurement expert's viewpoint to see what can be done to minimize the subjectivity that was found to exist in some of the metrics, specifically the customer and employee surveys, *DD1716*, *Cycle Time*, and the two *PUC* metrics. Most of the metrics were found to be complete; they fully explained what it is they set out to measure, but some are not (i.e., *Customer Satisfaction Index* and *Employee Survey*). One of those which is not complete is *Workforce Stability*. It is clear that this metric needs some rework as mentioned in section B of Chapter 4. The two survey metrics were evaluated as incomplete mainly because of the

subjectivity issues listed in Chapter 4 and also because of the response rate. An employee survey that has a 2.5 percent response rate is highly unlikely to give a complete picture of employee satisfaction. As stated before, responsiveness was not evaluated by the author.

The value of the metrics to procurement managers was also analyzed. Most of the conclusions drawn about the value of the metrics came from the interviews conducted with the HCA representatives from six of the ten major SYSCOMs. It is unclear as to whether other personnel within the HCAs use the current metrics in a way that has value to them or have ideas for certain metrics they would like to use. Currently, according to the interviewees, fourteen of the twenty-one metrics provide little value to the HCAs because in their view there is no feedback on the metrics that are produced by DASN ACQ. The remaining seven metrics do not provide information that is of great value to the HCAs either. This is likely to remain the case until a trend can be analyzed.

The idea of additional metrics is not one that the HCA representatives embraced. This goes back to the issues of value provided and cost to provide that value. One quote from an interview relays this point fairly succinctly, "Any additional metrics need to be evaluated on how much work that it is going to require and of what value it is. Even collection of how many people you have compared to end strength [is cumbersome]." For a few of the HCA representatives, the opposite idea, getting rid of the metrics, was something they wouldn't lose any sleep over.

B. RECOMMENDATIONS

If the DoN Procurement Metrics are to be used and be successful, they need a champion. Partial buy in will only prolong the period of indecision on the metrics, engender confusion as to the status and the purpose of the metrics, and potentially waste valuable time and resources that could otherwise be used more effectively.

The Procurement Metrics themselves are generally good measures of the Navy's Procurement Function. The purpose of these metrics is to roll up data from all of the major SYSCOMs into a usable diagnostic tool. There is no perfect set of metrics that every SYSCOM would have agreed on as telling a complete and accurate picture of their procurement activities. A recommendation in this area would be to contact the appropriate person at each HCA to find

out which of the metrics they (the HCA) deem valuable for her or his SYSCOM. It could be as simple as a table to be completed like the one below. The table does not list all metrics or SYSCOMs. It just provides an example of format. The actual table would list all twenty-one metrics and each of the ten SYSCOMs, who would mark the valuable metrics:

	SYSCOM 1	**SYSCOM 2**	**SYSCOM 3**	**SYSCOM 4**	**SYSCOM 5**
P-card Delinquency	X	X	X	X	
E2E		X		X	
Cycle Time			X		X

Feedback has to be initiated by DASN ACQ with respect to the metrics. This paper may offer DASN ACQ some insight into the metrics themselves, the issues that the HCAs have with specific metrics, as well as the metrics initiative in general. Right now the feedback loop is not connected, it is open. The HCAs need a sense of the status of the metrics and feedback on not only the fourteen metrics that are being collected by DASN ACQ, but all the metrics.

If DASN ACQ decides to continue with the DoN Procurement Metrics initiative, then the HCAs desire the necessary resources to do an effective job at collecting and reporting the metrics. Again, the level of effort currently expended and resources already available to the HCAs most likely differ from SYSCOM to SYSCOM. Two interviewees from separate SYSCOMs specifically mentioned that larger SYSCOMs have contractors to help with surveys while they did not.

A new working group needs to be established. This working group should not only be comprised of the HCA representatives for the metrics, but also some of the managers in the HCAs who would specifically be using and benefiting from the metrics. A metric by metric evaluation can be done in much the same way as this paper evaluated the metrics. This evaluation would be done by operators and managers who have been in the procurement field and who know the ins and outs of the processes. This means that they could take what has been started here and fine tune it because of their experience and expertise in the procurement field.

Several issues should be addressed when this working group meets:

1. Reduce the subjectivity of the indicated metrics (*Customer Satisfaction Index* and *Employee Survey*) to an acceptable point.

2. Address the completeness of the metrics with specific emphasis on *Workforce Stability*.

3. Ascertain the actual metric responsiveness to manager and employee decisions.

4. Discuss the nature of the feedback that will be supplied to the HCAs.

5. Determine what additional resources are available to the HCAs from DASN ACQ in order to provide the most accurate and useful information.

6. Discuss the definitions of the variables used in the metrics, specifically those collected by the HCAs, in order to reduce any guesswork.

7. Discuss how the actual data needed is stored and what has to be done to categorize and retrieve that data to put it in a usable form for input into the metric formulas.

Addressing these points by DASN ACQ and the HCAs is likely to provide very meaningful information on the next step for the metrics initiative.

The results of this paper and especially the outcome of this new working group should be pivotal in deciding the future of the DoN Procurement Metrics. An improved understanding of the metrics as well as an improved set of metrics can only be achieved if this issue is approached openly with candid discussion of the issues with no fear of repercussions. DASN ACQ needs to reassure the HCAs that they are there to help. Buy in at the top should have a positive trickle down effect. That coupled with a renewed sense of purpose and understanding of the metrics has the potential to transition these metrics into the Diagnostic Control System it intended to be.

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